CORRECTIONAL
MANAGED CARE

FORMULARY

19th Edition

2013

This publication was approved by the Correctional Managed Care Pharmacy & Therapeutics Committee that includes representatives from the Texas Department of Criminal Justice Health Services Division, the University of Texas Medical Branch Correctional Managed Care, and the Texas Tech University Health Sciences Center Office of Correctional Managed Health Care.

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<tr>
<th>PHARMACISTS</th>
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<td>McGhee, Trisha</td>
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<td>Patel, Raj</td>
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<td>Perez, Susan</td>
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<td>Sapp, Joe</td>
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<td>Van Alstyne, John</td>
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<td>Waldron, Mark</td>
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| | 800-222-1222 | |
UNIT RESTRICTION LIST FOR FLOOR STOCK PURPOSES

Dialysis Units: GC, E2, JM, HP
Female Units: BB, GC, GR, GV, HB, HT, J4, JD, LC, LJ, LM, LT, MV, SV, WM
Hospice: JA, MI, GC-RMF
Psychiatric Inpatient Units: BC-PAMIO, J4, JM, SV
Regional Medical Facilities: BC, E2-RMF, GC-RMF, HP, JA, JM, RB
Infirmaries: AH, B1, B2, CY, J3, MI, ML, P1, P2, R3, ST, TL, TO, WI
Phototherapy Center: E2-RMF
Intake Facilities: AJ, BB, DU, GR, GV, KY, J1, MA, ND, NE, NF, NH, LJ, NJ, SAFP facilities, State Jails
Transient Facilities: BC, DU, E2, GR, J4, JM, MV, NF, NJ, RB, SV
Wound Care Units: BC, E2-RMF, GC-RMF, J3, JM, RB
SAFP Facilities: BB, E2, GV, J1, JT, LT, SO, SY
Hospital Galveston: No P-list restrictions. All medications administered from stock.

SAFP = Substance Abuse Felony Punishment
CONVERSIONS AND CALCULATIONS

<table>
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<tr>
<th>WEIGHT MEASURE</th>
<th>LIQUID MEASURE</th>
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<tr>
<td>1 kg (kilogram) = 1000 gm (grams)</td>
<td><strong>METRIC=APOTHECARY</strong> 1 mL (milliliter) = 1 cc</td>
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<tr>
<td>1 gm = 1000 mg (milligrams)</td>
<td>30 mL = 1 oz</td>
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<tr>
<td>1 mg = 1000 mcg or µg (micrograms)</td>
<td>15 mL = 1/2 oz</td>
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<tr>
<td><strong>METRIC=APOTHECARY</strong> 60 mg or 65 mg = 1 gr (grain)</td>
<td>15 mL = 1 tablespoon (tbsp.)</td>
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<td>125 mg = 2 gr</td>
<td>5 mL = 1 teaspoon (tsp.)</td>
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<td>200 mg = 3 gr</td>
<td>2.5 mL = 1/2 tsp.</td>
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<td>300 mg or 325 mg = 5 gr</td>
<td>960 mL = 1 quart</td>
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<td>600 mg or 650 mg = 10 gr</td>
<td>1 L (liter) = 1000 mL (milliliters)</td>
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<td>0.4 mg or 400 mcg = 1/150 gr</td>
<td>0.6 mg 600 mcg = 1/100 gr</td>
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<td>0.6 mg 600 mcg = 1/100 gr</td>
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<td>15 gm = ½ oz</td>
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<td>30 gm = 1 oz</td>
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<tr>
<td>60 gm = 2 oz</td>
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<tr>
<td>240 gm = 8 oz = 1/2 lb</td>
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<td>480 gm = 16 oz = 1 lb</td>
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<td>1 kg = 2.2 lb (pounds)</td>
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To convert from grams to milligrams multiply by 1000, milligrams to grams ÷ by 1000
To convert from kilograms to pounds multiply by 2.2, pound to kilograms ÷ by 2.2
To convert from grains to milligrams multiply by 60, milligrams to grains ÷ by 60

Formula for Calculating the Volume of a Solution Needed to Give a Certain Dose:
Solution Available: A mg / B mL, Dosage Necessary is C mg /? mL
Formula: C x B then divide by A
Example: Solution available is 100 mg / 5 mL. Dose ordered is 60 mg. What volume (mL) should be administered?  60 X 5 = 300 divided by 100 = 3 mL

Formula for Calculating Drip Rate of IV Fluids:
\[
\text{total volume} = \frac{mL}{hr} \quad \text{Example: } \frac{1000 mL}{8 hr} = 125 mL/hr
\]

Formula for Calculating Drops (gtts) Per Minute (min): \( \frac{mL/hr \times gtt/mL}{60 \text{ min}} = \frac{gtts}{min} \)
Example: \( \frac{125 mL/hr \times 10 \text{ gtts/mL}}{60 \text{ min}} = 1250 \times \frac{10}{60} = 20.8 \text{ or } 21 \) gtts/min

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ORIENTATION GUIDE FOR HEALTH CARE PROVIDERS
OF THE CORRECTIONAL MANAGED HEALTH CARE PROGRAM

OVERVIEW
The rising cost of health care in the Texas prisons prompted the 73rd Texas Legislature to enact Senate Bill 378 that established the Texas Correctional Managed Health Care program (CMHC). The Texas CMHC program represents a legislatively established partnership between the Texas Department of Criminal Justice (TDCJ), the Texas Tech University Health Sciences Center (TTUHSC) and the University of Texas Medical Branch at Galveston (UTMB). TTUHSC manages the care of the western 20% of the state and UTMB the remaining 80%. The partnership is governed by the Correctional Managed Health Care Committee (CMHCC) and is responsible for providing comprehensive health care services to all adult offenders incarcerated in Texas state prisons and state jails.

The mission of the CMHC program is to develop a statewide managed health care network to address three key goals:

- providing TDCJ offenders with timely access to care consistent with correctional standards;
- maintaining a quality of care that meets accepted standards of care; and,
- managing the costs of delivering comprehensive health care services to a growing and aging offender population.

These goals can only be realized by promoting communication between the unit level primary care providers, specialty physicians, and tertiary, referral hospitals.

UNIT LEVEL HEALTH CARE
Each prison in the state has a local, primary health care program. It consists of a team of physicians, physician assistants, advanced practice nurses, dentists, nurses and assistants. These primary care providers (PCP) are responsible for providing care at the unit level. Health care services including medical, dental and mental health are available at each unit.

All offenders have access to health care services. Each facility within TDCJ has written procedures which describe the process for offenders to gain access to the care needed to meet their medical, dental and mental health needs.

Under the correctional health care program, offenders are provided with those health care services determined to be medically necessary. Consideration of medical necessity involves determinations that the service(s) to be provided are:

- appropriate and necessary for the symptoms, diagnosis or treatment of the medical condition;
- provided for the diagnosis or direct care and treatment of the medical condition;
- within standards of good medical practice within the organized medical community;
- not primarily for convenience; and,
- the most appropriate provision or level of service which can be safely provided.
UTILIZATION REVIEW
Referrals made by PCP for certain types of care (e.g., specialty clinics, procedures, surgery) require prior authorization through the utilization review process. Utilization management and review is a physician-driven system for making individual evaluations as to medical necessity. The review process entails consulting national accepted standards of care and comparing the individual circumstances of each case. Determinations made through the utilization management and review process may be appealed by the referring provider for additional review and decision in accordance with established procedures.

If the referral is appropriate, an appointment is scheduled and the Unit is informed. If a referral is redirected or deferred, an explanation and a recommended treatment alternative are given. Specialty telephone consultation may also be coordinated by the UR Nurses. For immediate or emergent admission, the unit physician should call the UR Nurse at 1-800-605-8165 (FAX 409-762-2765) for expedited approval.

SECURITY
The goals of the unit level health facility and TDCJ are (1) to provide excellent, cost effective, and timely access to care and (2) to maintain complete security (65th Texas Legislature).

CMC FORMULARY & DISEASE MANAGEMENT GUIDELINES
A standard statewide formulary is maintained by the Pharmacy and Therapeutics Committee and updated as needed and at least annually. This committee meets regularly to review the use of drugs within the health care system, evaluate agents on the Formulary and consider changes to the available medications. All medications prescribed for offenders must be listed in the Formulary, unless specific medical necessity exists for authorizing a non-formulary medication. In such circumstances, a request for non-formulary approval will be processed and evaluated. Non-formulary determinations may be appealed by the referring provider for additional review and decision in accordance with established procedures.

In addition to the Formulary, the Pharmacy and Therapeutics Committee develops and maintains disease management guidelines that outline recommended treatment approaches for management of a variety of illnesses and chronic diseases. These guidelines are reviewed regularly and updated as necessary. Disease management guidelines focus on disease-based drug therapy and outline a recommended therapeutic approach to specific diseases. They are typically developed for high risk, high volume, or problem prone diseases encountered in the patient population. The goal is to improve patient outcomes and provide consistent, cost-effective care, which is based on national guidelines, current medical literature, and has been tailored to meet the specific needs of the patient population served.

Disease management guidelines are not meant to replace sound clinical judgment nor are they intended to strictly apply to all patients.

DISCHARGE PLANNING & CONTINUITY OF CARE
All patients will be switched to a CMC Formulary medication (if appropriate) at the time of discharge from subspecialty clinics and hospitals. A copy of the CMC Formulary is located at the TDCJ Hospital.

Non-formulary approval at the unit level is obtained by completing an electronic non-formulary request form and forwarding it to the assigned clinical pharmacist for a consultation. If the unit
provider disagrees with the clinical pharmacist's recommendation, approval may be requested from the Regional Medical Director. Non-formulary procedures for UTMB clinic/discharge patients can be found under subsection NON-FORMULARY APPROVAL PROCESS FOR DISCHARGE /CLINIC PATIENTS.

OVERVIEW OF HOSPITAL GALVESTON PROCESS

Offenders transferring from Hospital Galveston (HG) to Texas Department of Criminal Justice (TDCJ) units will have all active medication orders entered into the Pearl EMR/PRS system by the Hospital Galveston Pharmacist (Pharmacy Policy 10-50). Orders must be entered and will be filled for critical medications prior to the patient’s departure. This will be done for all patients being discharged from the inpatient setting.

Medications will not be routinely entered into the Pearl EMR/PRS system for outpatients. However, the HG practitioner may fax orders to the HG Pharmacy for any medication that is considered critical and that must be started immediately prior to the patient’s return to his or her unit of assignment. Orders must be written on the TDCJ Discharge Prescription Fax Form and must specify drug, strength, route, frequency, KOP status and duration.

The Hospital Galveston pharmacy will dispense a 10-day supply of critical medications with no refills. Formulary medications will be supplied from facility unit stock. The HG pharmacists should use their professional judgment when determining if a medication is critical and should be sent with the patient.

The CMC Pharmacy and Therapeutics Committee will maintain the list of medications that have been deemed as critical. The list of critical medications is not inclusive. Critical medications are defined as:

- Anti-infectives – formulary and non-formulary agents
- Clopidogrel
- Immunosuppressants – formulary and non-formulary agents
- Ophthalmic preparations – formulary and non-formulary agents
- Otic preparations – formulary and non-formulary agents
- Respiratory oral inhalers – formulary and non-formulary agents
- Sublingual nitroglycerin
- Non-formulary medications

All UTMB-CMC unit staff must be aware that the Pearl EMR or PRS must be checked when a patient is received from Hospital Galveston to check for critical discharge medication orders. Patients transported to the unit from HG should have a 10-day supply of critical medications sent with them upon discharge for continuity of patient care.

HG PHYSICIANS-ORDERING OF MEDICATION

All discharge medication orders must be included in the discharge plan. Medication orders will be reviewed in EPIC for correct drug, strength, route, regimen, duration and type and frequency of any special monitoring. It is an option to email the clinical pharmacist for HG at utmbcmc.pharmacyHG@utmb.edu for an advanced approval for non-formulary medications that
DISPENSING OF MEDICATION FROM HOSPITAL GALVESTON

The Hospital Galveston pharmacist will enter orders for ALL medications ordered in EPIC or written on the TDCJ discharge prescription fax form (TDCJ-HG clinic/outpatient medication orders) to assure continuity of care and dispense a 10-day supply of critical medications only. The unit provider will be responsible for continuing the orders beyond the 10 days.

- Hospital Galveston pharmacists will screen all medication orders for appropriateness.
- Any orders active on the Pearl EMR/PRS system prior to entering discharge medications MUST BE VERIFIED with the discharging provider if there is not an indication to “discontinue previous meds” in the patient’s discharge orders.
- The Therapeutic Interchange Policy may be used by the HG pharmacy to substitute a formulary medication for a non-formulary medication that has been deemed interchangeable by the CMC P&T committee. Practitioners may override a therapeutic interchange by noting on the medication drug order “do not interchange.”
- Orders will be entered for 10 days with no refill if needed for 10 days.
- The HG Pharmacy will type the number of days actually ordered by the HG physician in the special instructions field (e.g., take 1 tablet twice daily for 6 months HG Dr. Smith).
- All critical medications will be written as KOP except controlled substances, injectables, medications that require refrigeration, TPN and tiotropium since it has a needle piercing mechanism.
- The computer system will automatically append “HG” followed by the prescriber’s name in the special instructions field of the order (e.g., take 1 tablet twice daily for 30 days HG Dr. Smith).
- The HG Pharmacy will provide a 10-day supply of critical medications. One package/container will be sent for items that come in a package such as eye drops and inhalers.
- The HG Pharmacy will not dispense a medication that is not deemed critical.
- The HG Pharmacy will not dispense controlled substances.
- The HG Pharmacy will not dispense TPN. See policy 10-45 for details on TPN ordering process.
- Medications will be blister packed if possible and labeled with the patient label generated by the computer system.
- The HG Pharmacy will place filled orders in bags for distribution to patients.

NON-FORMULARY APPROVAL PROCESS FOR DISCHARGE/CLINIC PATIENTS

It is an option to email the clinical pharmacist for HG at utmbcmc.pharmacyHG@utmb.edu for an advanced approval for non-formulary medications that will need to be continued at the unit level.

NON-FORMULARY APPROVAL PROCESS/UNIT LEVEL

The unit practitioner is responsible for evaluating the patient and determining if the medication needs to be continued beyond 10 days. If the HG physician obtained advanced approval for a non-formulary medication, a copy of the approval will be sent to the TDCJ facility. If an approval was not obtained, the TDCJ facility will submit a non-formulary request using the usual procedure.
MEDICATION NOT RECEIVED FROM HOSPITAL GALVESTON
If the patient arrives at the unit without non-formulary medications, unit personnel should re-enter the non-formulary medication for 10 days with no refills into the system & TYPE “HG-SEND” in the SPECIAL INSTRUCTIONS field. This will trigger the CMC pharmacist to allow an automatic 10-day approval of the non-formulary medication and the order will be sent. This will also give providers additional time to assess the patient and request non-formulary approval for the continuation of therapy if needed.

If a patient arrives at the unit without critical formulary medications, floor stock may be used or the order may be re-entered into PRS if not available in stock to be dispensed from the CMC Pharmacy.

In an urgent situation when the medication is not immediately available and there is no acceptable formulary substitute, the provider should follow the medication procurement after hours process (Pharmacy Policy 10-40).

PAROLE AND DISCHARGE PATIENTS
If a patient is to directly discharge from HG, the HG pharmacist will dispense the appropriate medications per Pharmacy Policy 25-10.

SUMMARY
This guide outlines the mission of the CMHC program and provides an overview of unit level care, utilization review and the Formulary. Compliance with the CMC Formulary is necessary to provide cost-effective care. Non-formulary medications will be approved as needed and the CMC Formulary will be continually updated by the Pharmacy and Therapeutics Committee with the goal of providing appropriate medical care.
MEDICATION PROCUREMENT AFTER HOURS
(§10.40)

PURPOSE: To define guidelines for units to contact an on-call pharmacist to obtain medications or drug information during hours that the UTMB CMC Pharmacy is closed.

POLICY: Units must obtain authorization to purchase medications from an outside pharmacy from a Pharmacy Supervisor during business hours or the On-call Pharmacist after hours. Facilities may also contact the on-call pharmacist after hours to obtain drug information.

PROCEDURE:
I. Contacting the Pharmacy
   A. Units should call the Pharmacy and ask to speak to a Pharmacy Supervisor during business hours. Normal business hours are 6:00am to 6:00pm Monday through Friday.
   B. Units should call the On-Call Pharmacist when the Pharmacy is closed by calling 936-436-2093.

II. Procuring Medication From an Outside Pharmacy
   A. Unit personnel should contact the prescriber or the facility’s on-call provider to see if another medication may be substituted.
   B. If substitution is not possible, call the nearest unit or facility and borrow the medication.
   C. If steps one and two above fail, contact a Pharmacy representative as outlined above in section I.
      1. Authorization from a Pharmacy Supervisor or the On-call Pharmacist is required to purchase medication from an outside pharmacy.
      2. Unit personnel must provide the Pharmacy Supervisor or On-call Pharmacist with the information listed below:
         a. Facility name
         b. Facility contact person
         c. Patient name and number
         d. Medication requested including strength, dosage form, quantity, and directions for use.
         e. Indication (diagnosis) for medication
         f. Rationale for urgent need
         g. Texas Tech Unit - Source of purchase (i.e., outside pharmacy) including company name, contact person and telephone number
3. The pharmacist will review the request and provide an alternative recommendation if applicable. If a formulary alternative is not available and the need is urgent as determined by a practitioner, the Pharmacist will authorize a purchase from an outside pharmacy.

a. Contract Pharmacy Available - UTMB Sector

i. On-call Pharmacist
   - The On-call Pharmacist will contact the approved outside pharmacy and verify that the medication is in stock.
   - If the medication is available in stock, the On-call Pharmacist will provide the pharmacy with the billing information.
   - The On-call Pharmacist will notify the unit that the medication is available and the location of the pharmacy.
   - The On-call Pharmacist will approve a 5-day supply or up to a 7-day supply of medication for holiday weekends.

ii. Unit Personnel
   - Unit personnel will call in or take a written prescription to the pharmacy and pick up the medication.
   - Unit personnel will fax a copy of the receipt to the Pharmacy on the next business day. The fax should be sent attention "Pharmacy Accounting Department" at 936-437-5311.

b. Contract Pharmacy Not Available – UTMB & Texas Tech Sectors

i. Unit personnel will call in or take a written prescription to the pharmacy and pick up the medication. No more than a 5 day supply or up to a 7 day supply of medication for holiday weekends should be obtained.

ii. Unit personnel will have to secure payment for the medication(s).

iii. Unit personnel will fax a copy of the receipt to the Pharmacy on the next business day. The fax should be sent attention: "Pharmacy Accounting Department" at 936-437-5311.

iv. The Pharmacy will submit the receipt and request reimbursement.

D. The Pharmacy Supervisor or On-call Pharmacist authorizing the purchase will provide the UTMB CMC Pharmacy with the purchasing information and reason for approval by completing Attachment A and submitting the form on the next business day. If a Texas Tech Sector facility, the Pharmacy Supervisor or On-Call Pharmacist will also notify the Chief of Managed Health Care Pharmacy Services.

E. In most instances, the UTMB CMC Pharmacy will not be able to supply medication on the same day or after hours, since there is usually no way to ship the medication to the facility.
PHARMACY AND THERAPEUTICS COMMITTEE
(Abridged §05.05)

PURPOSE: The Pharmacy and Therapeutics Committee will develop and monitor the statewide formulary, drug use policies, treatment guidelines, and drug control measures used by facilities to ensure that safe, efficacious and cost effective therapies are used.

POLICY: The Pharmacy and Therapeutics (P&T) Committee will meet regularly to develop and maintain the statewide drug formulary, drug use policies, and disease management guidelines. The Committee will establish policy regarding the evaluation, selection, procurement, distribution, control, use, and other matters related to medications within the health care system. The Committee further serves to support educational efforts directed toward the health care staff on matters related to drugs and drug use. All new and/or revised policies and procedures that have been approved by the P&T Committee and the University Medical Directors will require final approval by the TDCJ Director of Health Services.

PROCEDURE:
I. The P&T Committee is a joint workgroup. Membership is multi-disciplinary and includes the following:
   A. TDCJ Director of Health Services Division or designee
   B. TDCJ Director of Office of Public Health or designee
   C. University Medical Directors or designees
   D. Texas Tech Regional Medical Directors or designees
   E. UTMB Inpatient and Outpatient Senior Medical Directors or designees
   F. UTMB Regional Medical Directors or designees (up to 2 designees)
   G. University Directors of Pharmacy or designees
   H. University Assistant Directors of Pharmacy or designees
   I. Appointed Members - The TDCJ Director of Health Services and each University Medical Director may appoint additional representatives to the Committee:
      1. Psychiatry
      2. Dental
      3. Nursing
   J. Other Appointments
      1. The Committee may add ex-officio, non-voting, representatives as deemed appropriate.
      2. The Committee may appoint working subcommittees to review and provide recommendations regarding a specific topic such as policies, medication delivery process or disease management guidelines.
      3. Appointments must be reviewed when the current chairperson’s term expires at a minimum.
K. Committee Officers
1. Chairperson
   a. The Chair shall be appointed by the TDCJ Director of Health Services from the P&T Committee membership for a period not to exceed 2 years.
   b. Individuals may serve no more than two (2) consecutive terms as chairperson.
   c. The Chairperson shall serve as the Committee nonpartisan facilitator and will vote only when it is necessary to break a tie.
2. Secretary - The Secretary shall be the Director of Pharmacy (or designee).

II. Meeting
   A. The Committee shall meet bimonthly on the second Thursday of each month from 9:30 AM until 12:00 PM.
   B. Subcommittees will meet prior to the Committee-at-Large from 8:30 AM until 9:30 AM.
   C. Individual meetings may be held at other times agreed to by the Committee.

III. Meeting Informational Materials
   A. Agenda - The agenda will be defined by the Chairperson and Secretary. Agenda items may also be added by Committee vote.
   B. Meeting Information
      1. The Secretary will be responsible for coordinating the preparation of information for Committee deliberations to include minutes, monthly reports, medication use evaluations, policies, and other reports.
      2. Meeting materials will be provided to members at least 3 days prior to each meeting to allow ample time for review.
      3. Deliberations, discussions, and actions of the Committee will be disseminated in the form of minutes to members.
      4. Committee decisions will be communicated to health care staff in the Pill Pass Newsletter, by email, and will be published on the Pharmacy's homepage.
      5. Meeting materials and minutes should not be distributed and should be kept confidential in accordance with Vernon's Annotated Civil Statutes, Health & Safety Code, Chapters 161.032 and 161.033.

IV. Voting
   A. A quorum must be reached to vote on actions before the Committee. A quorum is defined as seven voting members or their designees by proxy. Voting members will notify the Chair and Secretary if a proxy is used.
   B. Only members may vote on actions in front of the Committee. Ex-officio members and guests may not vote.
C. Members must disclose all conflicts of interest prior to voting on an action before the Committee.

1. Receipt of research funding, consulting fees or other funds from a manufacturer or vendor of a product under review for formulary inclusion or exclusion
2. Income, honorarium for speaking, or gift from a manufacturer or vendor of a product under review for formulary inclusion or exclusion
3. Financial interests (stocks, shares, investments, etc.) in a company or manufacturer of a product under review for formulary inclusion or exclusion

V. Function and Scope

A. To serve in the evaluative, educational, policy development, maintenance, and review capacity in all matters pertaining to the use of drugs (including but not limited to, investigational drugs, treatment protocols, disease management guidelines, patient education materials, health care management, and the use of nonformulary medication).

B. To develop and maintain the drug formulary.

C. To develop and maintain the disease management guidelines.

D. To establish and maintain drug use policies, procedures, and programs that help ensure medications are safe, efficacious and cost-effective.

E. To ensure policies support and meet accreditation standards.

F. To establish or plan suitable educational programs for the organization’s professional staff on matters related to drugs or drug use.

G. To implement performance improvement activities related to prescribing, distribution, administration, and use of medications such as medication error reporting, adverse effect monitoring, and review of drug utilization and prescribing patterns.

H. To establish a listing of medications that may be kept in stock.

I. To initiate and direct medication use evaluation studies, review the results of such activities, and make appropriate recommendations to optimize drug use.

J. To advise the pharmacy department in the implementation of effective drug distribution and control procedures.

K. To disseminate information on its actions and approved recommendations to all organizational health care staff.

L. To develop and/or review all patient education materials related to medication use.

VI. Formulary Maintenance

A. The selection of items to be included in the Formulary shall be based on the following:

1. Objective evaluation of a medication’s relative therapeutic merits based on the medical literature, safety, and cost.
2. Duplication of the same basic drug type, drug entity, or drug products will be avoided
3. Generic equivalents will be utilized whenever possible.

B. A tier-system will be used and includes the following categories:
1. Formulary Agents – Medications listed in the CMC Formulary that may be prescribed for any patient at any facility.

2. Restricted Agents – Medications that may be prescribed at specific facilities only. Restrictions will be noted under individual medications in the CMC Formulary. All other uses require non-formulary approval.

3. Clinic Use Only Agents – Medications that may only be administered to patients one dose at a time while they are in clinic. They may not be prescribed to patients as individual orders to be dispensed by the Pharmacy.

4. Prior Authorization Agents – Medications that may be prescribed if specific clinical criteria are met. The prior authorization criteria must be met and included in the special instructions field of the medication order. All other uses require non-formulary approval.

5. Non-formulary Agents – Medications not included in the CMC Formulary. Approval must be obtained from a clinical pharmacist prior to their use (Pharmacy P&P 05-10).

VII. Policy Development

A. The Correctional Managed Care Pharmacy Policy and Procedure Manual will be reviewed on an annual basis. A proportionate amount of policies will be reviewed at each meeting.

B. Policies and procedures may be reviewed and/or revised more frequently as deemed necessary by the Pharmacy and Therapeutics Committee.

C. All new and/or revised policies and procedures that have been approved by the Pharmacy and Therapeutics Committee and the University Medical Directors (Attachment A) will require final approval by the TDCJ Director of Health Services (Attachment B).
POLICIES REGARDING REPRESENTATIVES OF PHARMACEUTICAL SUPPLIES AND RELATED COMPANIES

(§70.05)

PURPOSE: To define guidelines for pharmaceutical manufacturer and related supply representatives within Correctional Managed Care (CMC) facilities.

POLICY

Healthcare staff and practitioners shall interact with vendors in a manner that meets ethical standards, protects patient confidentiality, does not interfere with the process of patient care, and encourages the appropriate, efficient and cost effective use of equipment, supplies, and pharmaceuticals within CMC facilities.

Industry Vendors who conduct business with CMC must do so in accordance with policy and procedure. Healthcare personnel must monitor industry vendors to ensure that they comply with these guidelines. Healthcare personnel must immediately report noncompliant vendors.

All personnel of the company which employs an industry vendor who violates any of the aforementioned policies may be denied access to CMC for a period of time determined by the CMC Pharmacy and Therapeutics Committee.

DEFINITION:

Industry Vendor - Means any sales representative or account executive and includes, but is not limited to, any sales representative, pharmaceutical representative, or equipment or device manufacturer representative.

PROCEDURES:

I. Healthcare staff and practitioners shall interact with vendors in a manner that meets ethical standards, protects patient confidentiality, does not interfere with the process of patient care, and encourages the appropriate, efficient and cost effective use of equipment, supplies, and pharmaceuticals within CMC facilities.

A. Only medications or devices approved by the Pharmacy and Therapeutics Committee may be used within facilities.

B. Product samples may not be left by vendor representatives on facilities or at the Pharmacy (P&P 70-10).

C. Industry vendors are not permitted to bring drug samples, large bulky items, boxes, detailing materials, food or other related items on to facilities.

II. Industry Vendors who conduct business with CMC must do so in accordance with policy and procedure. Healthcare personnel must monitor industry vendors to ensure that they comply with these guidelines. Healthcare personnel must immediately report noncompliant vendors.

III. All personnel of the company which employs an industry vendor who violates any of the aforementioned policies may be denied access to CMC for a period of time determined by the CMC Pharmacy and Therapeutics Committee.

IV. Industry vendor contact- All contact with CMC practitioners by pharmaceutical representatives must be in compliance with PhRMA (Pharmaceutical Research and Manufacturers of America) Code and OIG (Office of Inspector General Compliance
V. Industry vendor appointments
A. Industry vendors must have an appointment prior to arrival at facilities, the Pharmacy or the Medical Warehouse.
B. Industry vendors must sign in and obtain a visitor badge.
C. Visits are for the scheduled appointment only and do not provide authorization to visit other areas or meet with other staff.

VI. Industry vendor access
A. Industry vendors may not have access to Protected Health Information (PHI) unless a business associate contract specifically delineates such access or patient authorization has been obtained.
B. TDCJ reserves the right to limit the number of industry vendors that any single company has visiting a facility.
C. Industry vendors are not permitted inside facilities without permission from the TDCJ or University Medical Directors or their designee (see VII for designees). Industry vendors shall be accompanied by authorized personnel at all times.
D. Industry vendors are prohibited from entering patient care areas for promotional purposes.
E. Industry vendors shall not attend programs or meetings in which specific patients are discussed or when quality assurance or risk management issues are presented.
F. Security
   1. Industry vendors must observe all security precautions on a facility being visited.
   2. Security precautions may vary depending on the facility.
   3. Representatives must have a driver’s license with picture identification to enter a facility.

VII. Educational Activities
A. Exhibits by pharmaceutical representative in association with continuing medical education (CME) programs must meet Standards to Ensure the Separation of Promotion from Education within the CME Activities of ACCME (Accreditation Council for Continuing Medical Education) standards.
B. Industry vendors who desire to provide educational material to facility-based healthcare personnel must contact the Regional or Senior Medical Director (UTMB sector), Director of Mental Health Services or the Dental Director. The Regional or Senior Medical Director, Director of Mental Health Services, or Dental Director will review all material for the accuracy and appropriateness of its content and will then make decisions about the proper forum for making the information available.
C. Industry vendors who desire to provide educational meetings with facility-based healthcare personnel must contact the Regional or Senior Medical Director (UTMB sector) Director of Mental Health Services or Dental Director. The Regional or Senior Medical Director, Director of Mental Health Services or Dental Director will review the meeting agenda and all material for the accuracy and appropriateness of its contents and will then make decisions about the proper forum for making the information available.
D. All decisions concerning educational needs, objectives, content, methods, evaluation and speaker are made free of a commercial interest.
E. The lecturer must explicitly disclose all of his or her related financial relationships to the audience at the beginning of the educational activity. If an individual has no relevant financial relationship, the learners should be informed that no relevant financial relationship exists.

F. Attendees in the audience are not compensated or otherwise materially rewarded for attendance (e.g., through payment of travel expenses, lodging, honoraria, or personal expenses).

G. No gifts of any type are distributed to attendees or participants before, during, or after the meeting or lecture.

H. The content or format of an educational activity or its related materials must promote improvements of quality in health care and not a specific proprietary business purpose of a commercial interest.

VIII. Formulary Inquires

A. Industry vendors should contact the Director of Pharmacy regarding actions of the Pharmacy and Therapeutics Committee including information on the formulary status of new medications.

B. Industry vendors may not contact members of the Pharmacy and Therapeutics Committee regarding actions of the Committee, to influence the decision making process, or to influence the approval process of medications.

C. Industry vendors may not request an addition to the formulary or a formulary review.

IX. Gifts and Travel

A. UTMB CMC personnel may not accept any form of personal gift from industry or its representatives.

B. See applicable employer policy.
PURPOSE: To define guidelines for the crushing of medications for administration to patients.

POLICY: A practitioner's order is required to crush an individual patient’s medication(s).

PROCEDURE:

I. Only medical personnel may initiate an order to crush medication.
   A. A RN, in case of an emergency, may make a decision to allow a single dose of medication to be crushed. Proper documentation in the chart is required when the crushed medication is administered.
   B. A practitioner may order a medication to be crushed for a patient with proper justification documented in the patient’s medical record.

II. Some medications cannot or should not be crushed (Attachments A and B).
   A. Medications not suitable for crushing include:
      1. Medications surrounded by a protective coating (e.g., enteric-coated).
      2. Medications formulated to provide delayed or continuous release of active ingredients. Many dosage forms can be identified by abbreviations such as TR (timed release), SA (sustained action), SR (sustained release), ER (extended release), CR (controlled release), LA (long acting), and XL or XR (extended release).
      3. Medications designed to be absorbed in the mouth or to have a local healing effect (e.g., lozenges, nitroglycerin).
      4. Medications that have an unpleasant taste (e.g., ibuprofen).
      5. Medications that may produce mucosal or gastrointestinal tract irritation.
   B. A physician or dentist may override all precautions and order all or any medication to be crushed for administration with the exception of items included in Attachment A (This is not an all-inclusive list).
   C. The Facility Medical Director may append Policy #35-05 and proclaim that specific medications should be crushed for all patients at the facility except those medications listed in Attachment A (This is not an all-inclusive list). Written documentation must be maintained and renewed at least annually.

III. When medications are crushed for administration, care should be taken in selecting the substance to which the medication is added in order to prevent possible chemical alteration of the prescribed medication.

IV. Crushed medication should be administered as soon as possible once it has been crushed and added to another substance.
<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DOSAGE</th>
<th>COMMENTS/REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamine/Dextroamphetamine (Adderall XR®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Aspirin (Ecotrin®, Enseals®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Aspirin/Dipryramide (Aggrenox®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Bisacodyl (Dulcolax®, Correctol®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Bupropion (Wellbutrin® SR &amp; XL, Budeprion® SR, Buproban®, Zyban®)</td>
<td>Tablet</td>
<td>Extended Release, Anesthetizes Mucosa</td>
</tr>
<tr>
<td>Carbamazepine (Tegretol® XR, Carbarel®, Equetro®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Ciprofloxacin (Cipro XR®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Clotrimazole (Mycelex® Troches)</td>
<td>Troches</td>
<td>Slow Release</td>
</tr>
<tr>
<td>Darifenacin (Enablex®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Dextroamphetamine (Dexedrine Spansule®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Didanosine EC (Videx® EC)</td>
<td>Capsule</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Diliazem (Dilacor® XR, Cardizem CD®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Divalproex Sodium (Depakote®, Depakote ER®, Depakote Sprinkle®)</td>
<td>Capsule</td>
<td>Enteric Coated, Extended Release</td>
</tr>
<tr>
<td>Duloxetine (Cymbalta®)</td>
<td>Capsule</td>
<td>Enteric Coated Pellet</td>
</tr>
<tr>
<td>Erythromycin (E-Mycin®, Ery-Tab®, E.E.S.®, Eryc®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Esomeprazole (Nexium®)</td>
<td>Capsule</td>
<td>Delayed Release</td>
</tr>
<tr>
<td>Felodipine (Plendil®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Ferrous Sulfate (Feosol®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Finasteride (Proscar®, Propecia®)</td>
<td>Tablet</td>
<td>Film Coated</td>
</tr>
<tr>
<td>Fluoxetine (Prozac® Weekly)</td>
<td>Capsule</td>
<td>Delayed Release</td>
</tr>
<tr>
<td>Glipizide (Glucotrol® XL)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Guainifenesin (Mucinex®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Hyoscyamine (Levsin®, Levbid®)</td>
<td>Capsule</td>
<td>Slow Release</td>
</tr>
<tr>
<td>Isosorbide Mononitrate (Indur®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Lansoprazole (Prevacid®)</td>
<td>Capsule</td>
<td>Delayed Release</td>
</tr>
<tr>
<td>Lithium Carbonate (Eskalith CR®, Lithobid®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Lopinavir/ritonavir 200mg/50mg (Kaletra®)</td>
<td>Tablet</td>
<td>Film Coated</td>
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<tr>
<td>Mesalamine (Asacol®, Lialda®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Methylphenidate (Ritalin® SR &amp; LA, Concerta®, Metadate® CD &amp;ER, Methylin® ER)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Metoprolol Succinate (Toprol XL®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Morphine Sulfate (MS Contin®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Mycophenolate (CellCept®, Myfortic®)</td>
<td>Capsule</td>
<td>Mucous Membrane Irritant, Teratogenic, Tablet is film coated</td>
</tr>
<tr>
<td>PRODUCT</td>
<td>DOSAGE</td>
<td>COMMENTS/REASON</td>
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</tr>
<tr>
<td>Niacin (Niaspan®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Nifedipine (Adalat CC®, Procardia XL®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Nitroglycerin (Nitrostat® SL, Nitroglycerin®)</td>
<td>Tablet</td>
<td>Sublingual</td>
</tr>
<tr>
<td>Nifedipine (Adalat CC®, Procardia XL®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Paliperidone (Invega®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Pancrelipase (Creon®)</td>
<td>Capsule₁</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Pantoprazole (Protonix®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
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<tr>
<td>Pentoxifylline (Trental®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Phenytia (Dilanat Kapseals®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Potassium Chloride/Gluconate (Klor-Con®, Glu-K®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Pramipexole (Dopene®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Quinidine Gluconate/Sulfate (Quinidx Extentab®, Quinaglute Dura-Tab®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Rabegrazole (Aciphex®)</td>
<td>Tablet</td>
<td>Delayed Release</td>
</tr>
<tr>
<td>Sevelamer (Renagel®)</td>
<td>Tablet</td>
<td>Tablets expand when exposed to liquid</td>
</tr>
<tr>
<td>Sulfasalazine (Azulfidine® EN-tabs®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Tamsulosin (Flomax®)</td>
<td>Capsule</td>
<td>Slow Release</td>
</tr>
<tr>
<td>Theophylline (Theo-24®, Uniphyl®, Theochron®)</td>
<td>Tablet,</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Valproic Acid (Depakene®)</td>
<td>Capsule</td>
<td>Slow Release, Mucous Membrane Irritant</td>
</tr>
<tr>
<td>Ventoloxine (Effexor XR®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Verapamil (Calan® SR, Isoptin® SR, Verelan® PM, Covera® HS )</td>
<td>Tablet,</td>
<td>Extended Release</td>
</tr>
</tbody>
</table>

The recommendations are specific to the drug product listed by proprietary name. Other immediate release forms of the drugs listed may be available and can be crushed, opened or chewed.  (1) Capsule may be opened and the contents taken without crushing or chewing.  Soft food such as applesauce or pudding may facilitate administration.  (2) Antacids or milk may prematurely dissolve the coating of the tablets.  (3) Tablet is made to disintegrate under the tongue.  (4) Contents of capsule may be removed for administration; incomplete recovery of content may result in decreased dosage being administered.  (5) Administration of liquid from within capsule may result in partial sublingual absorption.  (6) Troches are made to slowly dissolve in the mouth.  (7) Tablet may be split, but do not chew or crush.  (8) If unable to swallow, tablet may be dispersed in a glass of water, stir well and drink immediately.  Glass should be rinsed with water several times and each rinse completely swallowed to ensure entire dose is taken.
<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DOSAGE</th>
<th>COMMENTS/REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alendronate (Fosamax®)</td>
<td>Tablet</td>
<td>Mucous Membrane Irritant</td>
</tr>
<tr>
<td>Atomoxetine (Strattera®)</td>
<td>Capsule</td>
<td>Ocular Irritant</td>
</tr>
<tr>
<td>Calcitriol (Rocaltril®)</td>
<td>Capsule¹</td>
<td>Liquid Filled</td>
</tr>
<tr>
<td>Ciprofloxacin (Cipro®)</td>
<td>Tablet</td>
<td>Bad Taste</td>
</tr>
<tr>
<td>Docusate Calcium/Sodium (Surfak®, Colace®)</td>
<td>Capsule¹</td>
<td>Liquid Filled</td>
</tr>
<tr>
<td>Etravirine (Intellecense®)</td>
<td>Tablet¹</td>
<td>Do not crush</td>
</tr>
<tr>
<td>Ibuprofen (various)</td>
<td>Tablet</td>
<td>Bad Taste</td>
</tr>
<tr>
<td>Indinavir (Crixivan®)</td>
<td>Capsule¹</td>
<td>Bad Taste</td>
</tr>
<tr>
<td>Isotretinoin (Accutane®, Amnesteem®, Claravis®)</td>
<td>Capsule¹</td>
<td>Mucous Membrane Irritant, Liquid Filled</td>
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<tr>
<td>Levetiracetam (Keppra®)</td>
<td>Tablet</td>
<td>Bitter Taste</td>
</tr>
<tr>
<td>Nifedipine (Procardia®)</td>
<td>Capsule¹</td>
<td>Liquid Filled</td>
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<tr>
<td>Piroxicam (Feldene®)</td>
<td>Capsule</td>
<td>Mucous Membrane Irritant</td>
</tr>
<tr>
<td>Ritonavir (Norvir®)</td>
<td>Capsule</td>
<td>Liquid Filled</td>
</tr>
<tr>
<td>Tipranavir (Aptivus®)</td>
<td>Capsule</td>
<td>Liquid Filled, Taste</td>
</tr>
<tr>
<td>Topiramate (Topamax®)</td>
<td>Tablet</td>
<td>Bad Taste</td>
</tr>
</tbody>
</table>

These dosage forms may be crushed or opened at the physician’s discretion. (1) Capsule may be opened and the contents taken without crushing or chewing. Soft food such as applesauce or pudding may facilitate administration. (2) Antacids or milk may prematurely dissolve the coating of the tablets. (3) Tablet is made to disintegrate under the tongue. (4) Contents of capsule may be removed for administration; incomplete recovery of content may result in decreased dosage being administered. (5) Administration of liquid from within capsule may result in partial sublingual absorption. (6) Troches are made to slowly dissolve in the mouth. (7) Tablet may be split, but do not chew or crush. (8) If unable to swallow, tablet may be dispersed in a glass of water, stir well and drink immediately. Glass should be rinsed with water several times and each rinse completely swallowed to ensure entire dose is taken.
Non-Formulary Approval Process

1. Obtain non-formulary approval form assigned clinical pharmacist. For the UTMB sector, all requests for psychotropic medications should be sent to Dr. Angela Kosnak.

2. Contact Clinical Pharmacist via TDCJ mainframe email:
   - From main computer screen type EMS, then enter.
   - Type “4.4”, then enter.
   - A list of E-Forms appears. Tab down and select the E-Form “HE, NF, REC: Nonformulary order”.
   - Fill in all requested information.
   - Press F3 to type EMAIL to appropriate clinical pharmacist.
   - Press F3 to route EMAIL to appropriate destination.
   - Press enter to return to command line. Then type “S” to send.

3. Retrieve email notification of non-formulary approval or defer:
   - From main computer screen type EMS
   - Type “2” for quick read at the enter command line
   - Press enter key to scroll through messages
   - Type “p” to print at the enter command prompt
   - Retain a copy of the email for your records

Approval Obtained?

Prescribing clinician agrees with pharmacist?

Yes

Enter order for non-formulary medication into the computer (email message ID should be included in the special instructions field of the order)

Retrieve email and select a copy for your records

Approvals should be scanned into the patient's medical record

Clinician writes order for Formulary medication or determines that the patient does not need medication at this time

yes

Forward copy of email to District Medical Director (TT-Regional) or Director of Mental Health (Mental Health Services, CMC Pharmacy)

CMS Pharmacy e-mail EPOTP04

No

Yes

Refer to P&P 05-10 for complete details
MEDICATION STATUS

Listings of brand name products are for reference only. The least expensive generic equivalent will be utilized whenever possible. Use outside specific restrictions or prior authorization criteria requires non-formulary approval. Medications are classified into different statuses for use and management purposes. The different medication statuses are listed below.

1. **Formulary Agents** – Medications listed in the CMC Formulary that may be prescribed for any patient at any facility.
2. **Restricted Agents** – Medications that may be prescribed at specific facilities only (e.g., dialysis unit). Restrictions are noted under individual medications in the alphabetical listing by generic name in the CMC Formulary. All other uses require non-formulary approval. Restricted agents are designated in the EMR and PRS with an exclamation point (!) after the medication name.
3. **Clinic Use Only Agents** – Medications that may only be administered to patients one dose at a time while they are in clinic. They may not be prescribed to patients as individual orders to be dispensed by the Pharmacy or issued KOP by facility staff.
4. **Prior Authorization Agents** – Medications that may be prescribed if specific clinical criteria are met (see table on next page or alphabetical listing by generic name for drug-specific criteria). The prior authorization criteria must be met and included in the special instructions field of the medication order. All other uses require non-formulary approval. Prior authorization agents are designated in the EMR and PRS with an asterisk (*) after the medication name.
5. **Non-formulary Agents** – Medications not included in the CMC Formulary. Approval must be obtained from a clinical pharmacist prior to their use (see P&P 05-10 for complete details). Non-formulary agents are designated in the EMR and PRS with a pound sign (#) after the medication name.

KOP ELIGIBILITY

The KOP (Keep-On-Person) eligibility of medications is determined by the Pharmacy and Therapeutics Committee (P&P 50-05). Medications that meet any of the criteria listed below are generally excluded from the KOP program.

1. Potential for abuse or misuse (e.g., controlled substances)
2. Injectable medications (e.g., insulin)
3. Risk in overdose (e.g., tricyclic antidepressants)
4. Close monitoring is required (e.g., TB medications, warfarin)
5. Caustic or harmful agents (e.g., podofilox)
6. Cost
7. Orders for half (½) tablets not split by the Pharmacy
8. Medications that require refrigeration
9. Clinic use only items (e.g., alcohol, local anesthetics, nebulizer solutions)
10. Psychotropic medications (including antidepressants, antipsychotics and Lithium)
11. Medications that may be used as weapons (e.g., cans of enteral nutrition, medications in glass containers).
12. Medications ordered DOT

Medications that are not allowed KOP because of cost only will be allowed KOP at designated 8-hour units (Refer to Attachment A of P&P 50-05 for a list of 8-hour units).
## USE CRITERIA FOR PRIOR AUTHORIZATION AND RESTRICTED AGENTS

<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
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<tr>
<td>Adenosine (Adenocard®) injection</td>
<td>EMS or RMF</td>
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<tr>
<td>Absorbase (Eucerin®)</td>
<td>RMF or Dialysis</td>
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<tr>
<td>Albumin, Human (Plasbumin-25®)</td>
<td>RMF for paracentesis</td>
</tr>
<tr>
<td>Alteplase (Cathflo Activase®)</td>
<td>Dialysis for catheter restoration</td>
</tr>
<tr>
<td>Amiodarone (Cordarone®) injection</td>
<td>RMF</td>
</tr>
<tr>
<td>Aripiprazole (Abilify®)</td>
<td>TJJD only. Prior authorization criteria must be met and include:</td>
</tr>
<tr>
<td></td>
<td>• Intolerance to 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• Treatment failure on 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• Contraindication to 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• BMI ≥ 90th percentile</td>
</tr>
<tr>
<td>Atomoxetine (Strattera®)</td>
<td>TJJD only. Prior authorization criteria must be met and include: ADHD plus</td>
</tr>
<tr>
<td></td>
<td>• Treatment failure on adequate dose and trial of both formulary stimulants</td>
</tr>
<tr>
<td></td>
<td>• Intolerance to both formulary stimulants</td>
</tr>
<tr>
<td></td>
<td>• Contraindication to both formulary stimulants</td>
</tr>
<tr>
<td></td>
<td>• Significant history of substance abuse</td>
</tr>
<tr>
<td></td>
<td>• Co-morbid anxiety disorder</td>
</tr>
<tr>
<td>Azithromycin (Zithromax®)</td>
<td>HIV+ dosed 1200 milligrams q week for MAC primary prophylaxis when CD4 &lt; 50</td>
</tr>
<tr>
<td></td>
<td>Pregnant patients</td>
</tr>
<tr>
<td></td>
<td>• Treatment of GC &amp; chlamydia dosed 2400 milligrams x 1 dose</td>
</tr>
<tr>
<td></td>
<td>• Treatment of chlamydia dosed 1200 milligrams x 1 dose</td>
</tr>
<tr>
<td>Baclofen (Lioresal®)</td>
<td>Spinal cord injury</td>
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<tr>
<td></td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td></td>
<td>Muscular dystrophy</td>
</tr>
<tr>
<td></td>
<td>Spastic hemiplegia</td>
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<tr>
<td></td>
<td>Amyotrophic lateral sclerosis</td>
</tr>
<tr>
<td></td>
<td>Cerebral palsy</td>
</tr>
<tr>
<td>Birth control (Low-Ogestrel®, Norinyl®, Zovia®)</td>
<td>Females</td>
</tr>
<tr>
<td>Prior Authorization Agent / Restricted Agent</td>
<td>Criteria (Should be typed in Special Instructions)</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Body Lotion (Lubrisoft®)</td>
<td>• Eczema</td>
</tr>
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<td></td>
<td>• Dermatitis</td>
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<td></td>
<td>• Psoriasis</td>
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<td>• Chronic stasis dermatitis</td>
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<td></td>
<td>• Ichthyosis</td>
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<tr>
<td></td>
<td>• Hyperkeratosis</td>
</tr>
<tr>
<td></td>
<td>• Dialysis</td>
</tr>
<tr>
<td></td>
<td>• Burn Scars</td>
</tr>
<tr>
<td>Calcium carbonate, chewable (Tums®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Ceftriaxone (Rocephin®)</td>
<td>RMF or TJJD patient</td>
</tr>
<tr>
<td>Ceftriaxone (Rocephin®)</td>
<td>• 250mg - 125mg IM x 1 dose for GC (gonorrhoea)</td>
</tr>
<tr>
<td></td>
<td>• 1 gram – RMF or Infirmary unit, TJJD</td>
</tr>
<tr>
<td>Clorazepoxide (Librium®)</td>
<td>Restricted to detoxification</td>
</tr>
<tr>
<td>Clonidine (Catapres®)</td>
<td>• Hypertensive emergency</td>
</tr>
<tr>
<td></td>
<td>• Management of opioid withdrawal</td>
</tr>
<tr>
<td></td>
<td>• Intake to taper</td>
</tr>
<tr>
<td>Clopidogrel (Plavix®)</td>
<td>• Intolerant or allergic to aspirin and needs cardioprotection or prevention</td>
</tr>
<tr>
<td></td>
<td>• Failed aspirin therapy (Event while on aspirin such as MI, stroke, TIA)</td>
</tr>
<tr>
<td></td>
<td>• Acute coronary syndromes (e.g., MI, unstable angina, or PCI with or without stent placement) and treatment is in combination with aspirin</td>
</tr>
<tr>
<td></td>
<td>• Brachytherapy</td>
</tr>
<tr>
<td></td>
<td>• Intermittent claudication and failed trial or remained symptomatic while on aspirin plus dipyridamole</td>
</tr>
<tr>
<td></td>
<td>• Dialysis vascular graft.</td>
</tr>
<tr>
<td>Collagenase (Santyl®)</td>
<td>• Wound care facility</td>
</tr>
<tr>
<td>Dextrose 10% Water 1000ml (D10W)</td>
<td>• Restricted to Estelle, Michael and Young facilities for use until TPN is available.</td>
</tr>
<tr>
<td>Diazepam (Valium®)</td>
<td>• Spinal Cord Injury</td>
</tr>
<tr>
<td></td>
<td>• Multiple Sclerosis</td>
</tr>
<tr>
<td></td>
<td>• Muscular Dystrophy</td>
</tr>
<tr>
<td></td>
<td>• Spastic Hemiplegia</td>
</tr>
<tr>
<td></td>
<td>• Amyotrophic Lateral Sclerosis</td>
</tr>
<tr>
<td></td>
<td>• Cerebral Palsy</td>
</tr>
<tr>
<td>Doxercalciferol (Hectoral®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Prior Authorization Agent / Restricted Agent</td>
<td>Criteria (Should be typed in Special Instructions)</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
</tbody>
</table>
| Entecavir (Baraclude®)                      | • Prior authorization required by HCV group from pharmacy at utmbcmc.pharmacyID@utmb.edu for UTMB units  
• Approval required by Utilization Management at (806)356-5350 for TTUHSC units |
| Enteral feeding (Osmolite®)                  | RMF and Dialysis                                  |
| Epoetin Alpha (Epogen®)                     | Dialysis                                          |
| Estrogens (Premarin®, Cenestin®)            | Females                                           |
| Fluconazole (Diflucan®)                     | • 150mg – single dose for vaginal candidiasis  
• 100mg & 200mg – HIV-positive patients, for treatment or prevention of opportunistic infections |
| Flumazenil (Romazicon®)                     | Emergency use only                                |
| Glucose Tolerance test (Glucola®)           | Diagnostic use in females                         |
| Heparin                                      | • 1,000 U/ML – 30ML & 5,000 U/ML – 10ML: Dialysis |
| Hepatitis A vaccine (Havrix®)               | • HIV-positive patients who are not immune (B-14.11)  
• Chronic hepatitis C patients who are not immune (B-14.11)  
• Chronic hepatitis B patients who are not immune (B-14.11) |
| Hepatitis B vaccine (Engerix B®)            | Patient is not immune (P&P B-14.07) plus one of the following  
• Chronic hepatitis C  
• HIV  
• Dialysis (Dialysis patients should be given 2 doses (40mcg) per administration)  
• Post-exposure prophylaxis  
• Job assignment that includes the handling of medical waste  
• ≤ 18 year old without documentation of series completion |
<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza vaccine (Fluvax®)</td>
<td>Infection Control P&amp;P B-14.51</td>
</tr>
<tr>
<td></td>
<td>• ≥ 50 years old</td>
</tr>
<tr>
<td></td>
<td>• Certain chronic diseases (heart disease, asthma, COPD, diabetes, renal disease, hepatic disease, neurologic disease, and hematologic disease)</td>
</tr>
<tr>
<td></td>
<td>• Immunocompromising diseases (HIV, most cancers, ESRD, sickle cell, medications)</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy during the influenza season</td>
</tr>
<tr>
<td></td>
<td>• &lt; 18 years old and on chronic aspirin therapy</td>
</tr>
<tr>
<td></td>
<td>• American Indian or Alaska Native</td>
</tr>
<tr>
<td></td>
<td>• Morbidly obese BMI ≥ 40</td>
</tr>
<tr>
<td>Iron sucrose (Venofer®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Labetalol injection</td>
<td>EMS use only for treatment of HTN emergencies per protocol</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>• 2% jelly – EMS and emergency use only</td>
</tr>
<tr>
<td></td>
<td>• 5% ointment – OB/GYN services at GC or GV</td>
</tr>
<tr>
<td>Lorazepam (Ativan®) injection</td>
<td>• Treatment of acute seizures uncontrolled by other measures.</td>
</tr>
<tr>
<td></td>
<td>• Short-term treatment of agitation at inpatient psychiatric facilities.</td>
</tr>
<tr>
<td>MMR vaccine (M-M-R®-II)</td>
<td>• ≤ 18 years old without documentation of series completion</td>
</tr>
<tr>
<td></td>
<td>• Immigrants that have not completed the series</td>
</tr>
<tr>
<td></td>
<td>• Born after 1956 &amp; did not attend public school</td>
</tr>
<tr>
<td>Medroxyprogesterone (Provera®, Depo-Provera®)</td>
<td>Females</td>
</tr>
<tr>
<td>Meningococcal Vaccine (Menomune®)</td>
<td>Anatomic or functional asplenic patients who have no history of prior immunization</td>
</tr>
<tr>
<td>Meropenem (Merrem®)</td>
<td>RMF</td>
</tr>
<tr>
<td>Miconazole vaginal suppositories (Monistat®)</td>
<td>Females</td>
</tr>
<tr>
<td>Morphine sulfate (MS Contin®)</td>
<td>Elixir and extended release tablets – RMF or Hospice (may not exceed 21 day supply) Injection – one time orders for pain associated with acute trauma or severe medical condition</td>
</tr>
<tr>
<td>Multivitamin</td>
<td>HIV-positive + CD4 count &lt; 100 + not on enteral feeding</td>
</tr>
<tr>
<td>Nephro-Vite</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Prior Authorization Agent / Restricted Agent</td>
<td>Criteria (Should be typed in Special Instructions)</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Paricalcitol (Zemplar®)</td>
<td>Dialysis</td>
</tr>
</tbody>
</table>
| Peginterferon alfa-2A (Pegasys®)            | Prior authorization required by HCV group from pharmacy at umbcmc.pharmacyID@utmb.edu for UTMB units  
|                                              | Approval required by Utilization Management at (806)356-5350 for TTUHSC units  |
| Penicillin G Benzathine (Bicillin LA®)       | Syphilis                                         |
| Petrolatum (Vaseline®)                       | Phototherapy at E2                               |
| Phenytoin (Dilantin®)                        | • Oral suspension restricted to RMFs  
|                                              | • Injection restricted to Emergency Medical Services (EMS).  |
| Pneumococcal vaccine (Pneumovax-23®)        | • Age ≥ 65 years  
|                                              | • Certain chronic disease patients (e.g., heart disease, COPD, diabetes)  
|                                              | • Patients with disease associated with increased risk (splenic dysfunction, anatomic asplenia, Hodgkin’s Disease, multiple myeloma, cirrhosis, alcoholism, renal failure, CSF leaks) or immunosuppression (HIV, most cancers, sickle cell disorder)  |
| Polio vaccine (Ipol®)                       | Patients under 18 years old  
| Potassium Chloride injection                 | Infirmary or RMF  |
| Prenatal vitamins                            | Pregnancy                                         |
| Ribavirin (Ribasphere®)                      | Prior authorization required by HCV group from pharmacy at umbcmc.pharmacyID@utmb.edu for UTMB units  
|                                              | Approval required by Utilization Management at (806)356-5350 for TTUHSC units  |
| Sevelamer (Renagel®)                         | Chronic kidney disease  
|                                              | Dialysis                                          |
| Stavudine (Zerit®) 20mg                      | HIV-positive + dialysis patient                   |
| Surgical lubricant (Surgilube®) 4.24 oz tube | RMF                                               |
| Tetanus-Diphtheria (Tenivac)                 | ≤ 18 years old without documentation of completion  
|                                              | No history of prior immunization within the last 10 years  
<p>|                                              | Prophylaxis for wound management                 |
| Tetanus-Diphtheria-Acellular Pertussis Tdap (Boostrix®) | Post-partum and accepted into BAMBI (Baby and Mother Infant Bonding Initiative) |</p>
<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiotropium 18mcg (Spiriva®)</td>
<td>• Inadequate response to ipratropium 2 puffs QID</td>
</tr>
<tr>
<td></td>
<td>• Severe COPD</td>
</tr>
<tr>
<td></td>
<td>• Very severe COPD</td>
</tr>
<tr>
<td>Varicella Vaccine (Varivax®)</td>
<td>• ≤ 18 years old without documentation of previous disease or immunization</td>
</tr>
<tr>
<td></td>
<td>• Post-exposure prophylaxis with approval from Office of Preventive Medicine</td>
</tr>
<tr>
<td>Vasopressin (Pitressin®) injection RMF</td>
<td></td>
</tr>
<tr>
<td>Ziprasidone (Geodon®) TJJD only. Prior authorization criteria must be met and include:</td>
<td>• Intolerance to 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• Treatment failure on 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• Contraindication to 2nd generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>• BMI ≥ 90th percentile</td>
</tr>
</tbody>
</table>
There are two admixture systems available for use. Advantages of the admixture systems include reduced risk for contamination, elimination of needles in the preparation of IV admixtures, reduced chance for errors, and greater convenience. Disadvantages include increased storage space requirements, decreased dosing flexibility, and not all antibiotics may be used with the systems.

The Mini-Bag Plus Admixture System is designed to be used with powdered medications that are contained in standard 20mm vials and need reconstitution prior to admixture with an IV solution. The Vial-Mate Adaptor is designed to connect a powdered drug contained in a standard 20mm vial to a 250mL IV solution bag. The Vial-Mate Adaptor should be reserved for use with medications that cannot be used with the Mini-Bag Plus Admixture System (i.e., the drug needs to be prepared in a 250mL bag).

### System Antibiotics That May Be Used With System

<table>
<thead>
<tr>
<th>System</th>
<th>Antibiotics That May Be Used With System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini-Bag Plus Admixture System</td>
<td>Ampicillin (NS only) Cefazolin Ceftazidime Ceftizoxime Meropenem Nafcillin Penicillin G Potassium</td>
</tr>
<tr>
<td>Mini-Bag Plus 0.9% NaCl 100mL bag</td>
<td></td>
</tr>
<tr>
<td>Mini-Bag Plus D5W 100mL bag</td>
<td></td>
</tr>
<tr>
<td>Mini-Bag Vial-Mate Adaptor</td>
<td>Doxycycline Vancomycin</td>
</tr>
</tbody>
</table>

NS=normal saline

Antibiotics that cannot be used with the admixture systems include clindamycin, gentamicin, sulfamethoxazole/trimethoprim, and tobramycin.

In addition, clindamycin 900mg in 50 mL D5 is available in a premixed bag.
Index of Disease Management Guidelines

The disease management guidelines (DMGs) were developed by the CMC Pharmacy and Therapeutics Committee through review of the medical literature, review of national treatment guidelines, and evaluation of population-specific treatment data. The goal was to develop tools that would assist practitioners in making treatment decisions regarding commonly encountered disease states found within the health care system that would result in improved outcomes and consistent and cost-effective care. Complimentary written patient education leaflets in English and Spanish are also available for providers and nursing staff. The DMGs should not replace sound clinical judgment nor are they intended to strictly apply to all patients. The DMGs are reviewed and/or revised every three years or when new national treatment guidelines, landmark clinical studies, and/or new drug entities become available, whichever is sooner.

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<td>Coronary Artery Disease (CAD), Checklist for Secondary Prevention</td>
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<td>Converting Diabetic from Oral Therapy to Insulin</td>
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<td>Drug Overdose</td>
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<td>Non-formulary Conversion Chart</td>
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<td>Pain, Low Back</td>
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<td>Pain, Mild to Moderate</td>
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<td>188-193</td>
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<td>Razor Blade Ingestion</td>
<td>194-195</td>
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<td>Renal Impairment Dose Adjustment</td>
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<tr>
<td>Rhinitis, Acute</td>
<td>196</td>
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<td>Seizures, Acute</td>
<td>197-198</td>
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<tr>
<td>Seizure, Chronic</td>
<td>199-207</td>
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<td>Sinusitis</td>
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<td>Skin and Soft Tissue Infection</td>
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<td>Tinea Pedis</td>
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<td>Wound Care</td>
<td>225-237</td>
</tr>
<tr>
<td><strong>Disease Management Guidelines for Youth</strong></td>
<td></td>
</tr>
<tr>
<td>The youth psychiatric disease management guidelines</td>
<td></td>
</tr>
<tr>
<td>were prepared by the Youth Services Pharmacy</td>
<td></td>
</tr>
<tr>
<td>and Therapeutics Committee.</td>
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<td>-------------------------------------------------------</td>
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<td>Disease Management Guideline</td>
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<td>Acne</td>
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<td>Anxiety and Panic Disorder</td>
<td>243-248</td>
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<td>Asthma, Adults and Adolescents (see adult listing)</td>
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<td>Attention Deficit Hyperactivity Disorder</td>
<td>249-254</td>
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<td>Bipolar Disorder</td>
<td>255-263</td>
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<td>Depressive Disorders</td>
<td>264-269</td>
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<tr>
<td>Diabetes Mellitus</td>
<td>270-280</td>
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<tr>
<td>Explosive/Reactive, Aggression</td>
<td>281-290</td>
</tr>
<tr>
<td>Hypertension</td>
<td>291-300</td>
</tr>
<tr>
<td>Insomnia</td>
<td>301-306</td>
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<tr>
<td>Psychosis</td>
<td>307-314</td>
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<tr>
<td>PTSD</td>
<td>315-318</td>
</tr>
<tr>
<td>Seizures, Acute</td>
<td>319</td>
</tr>
<tr>
<td>Seizures, Chronic</td>
<td>320-325</td>
</tr>
</tbody>
</table>
Anemia in Pre-Dialysis Chronic Renal Failure
Erythropoietin Dosing and Monitoring

### Starting Dose
- Consider starting erythropoietin therapy with 5,000 to 10,000 units subcutaneously once weekly after careful consideration of the risks versus benefit of treatment.
- Note: It may take 2 to 6 weeks to see a significant change in Hgb after dose adjustments. Dose increases should not be made more frequently than once a month.

### Pretherapy Evaluation
- Anemia with Hgb < 10 g/dL
- Consider initiating erythropoietin stimulating agent (ESA) treatment only when the hemoglobin level is less than 10 g/dL and the following considerations apply:
  - The rate of hemoglobin decline indicates the likelihood of requiring a red blood cell transfusion; and
  - Reducing the risk of alloimmunization and/or other red blood cell transfusion-related risks is a goal.
- Transferrin saturation ≥ 20%
- Transferrin saturation < 20% or ferritin <100 ng/mL.
- Serum ferritin ≥ 100 ng/mL.
- Supplement iron if transferrin saturation < 20% or ferritin <100 ng/mL.
- Note: Nearly all patients will eventually require iron supplementation.
- Evaluate BP for adequate control.

### Maintenance Dose
- Titrate dose as needed to maintain Hgb sufficient to:
  - Not exceed 11 g/dL; or
  - Not increase Hgb > 1 g/dL during ANY 4 week period.
  - If the hemoglobin level exceeds 10 g/dL, reduce or interrupt the dose of ESA and use the lowest dose of ESA sufficient to reduce the need for red blood cell transfusions.
- Dosage adjustments should generally not exceed 25%.
- When initiating or adjusting therapy, monitor hemoglobin levels at least every two weeks until stable, then monitor at least monthly.
- For patients who do not respond adequately over a 12-week escalation period, increasing the ESA dose further is unlikely to improve response and may increase risks. Refer to Table 1.
- Maintenance doses should be individualized to maintain lowest ESA dose possible to reduce the need for transfusion.
- Follow monitoring parameters in Table 2 on page 2.
1. Iron deficiency — supplement if transferrin saturation (Tsat) < 20%
2. Underlying infectious, inflammatory, or malignant processes
3. Overt blood loss
4. Underlying hematologic diseases (e.g., thalassemia, refractory anemia or other myelodysplastic disorders)
5. Vitamin deficiencies (folic acid, vitamin B12)
6. Hemolysis
7. Aluminum intoxication
8. Osteitis fibrosa cystica
9. Pure Red Cell Aplasia (PRCA) or anti-erythropoietin antibody-associated anemia (test for presence of antibodies to erythropoietin)

Table 1: Possible Causes for Lack of Response or Loss of Response

Table 2: Monitoring Parameters

<table>
<thead>
<tr>
<th>Baseline Parameters</th>
<th>Follow-Up Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hgb, Hct, and platelets</td>
<td></td>
</tr>
<tr>
<td>CMP (including BUN, uric acid, Cr, Phos and K)</td>
<td></td>
</tr>
<tr>
<td>Transferrin saturation and serum ferritin</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td></td>
</tr>
<tr>
<td>High every 4 weeks with maintenance therapy</td>
<td></td>
</tr>
<tr>
<td>High 4 weeks after ANY dose adjustment</td>
<td></td>
</tr>
<tr>
<td>High and platelets regularly</td>
<td></td>
</tr>
<tr>
<td>Transferrin saturation and serum ferritin every 1-3 months. Supplement iron if transferrin saturation &lt; 20%, or ferritin &lt;100 ng/mL</td>
<td></td>
</tr>
<tr>
<td>Blood pressure monthly (MUST remain adequately controlled to continue therapy)</td>
<td></td>
</tr>
<tr>
<td>CMP regularly (including BUN, uric acid, Cr, Phos, and K)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Contraindications
1. Uncontrolled hypertension
2. Known hypersensitivity to mammalian cell-derived products
3. Known hypersensitivity to albumin (Hemox)

Table 4: Warnings

The ESA labels now warn:
In controlled trials with CKD patients, patients experienced greater risks for death, serious adverse cardiovascular reactions, and stroke when administered ESAs to target a hemoglobin level of greater than 11 g/dL. No trial has identified a hemoglobin target level, ESA dose, or dosing strategy that does not increase these risks.

The ESA labels now recommend:
For patients with CKD, consider starting ESA treatment when the hemoglobin level is less than 10 g/dL. This advice does not define how far below 10 g/dL is appropriate for an individual to initiate. This advice also does not recommend that the goal is to achieve a hemoglobin of 10 g/dL or a hemoglobin above 10 g/dL. Individualize dosing and use the lowest dose of ESA sufficient to reduce the need for red blood cell transfusions. Adjust dosing as appropriate.
ANGINA, ACUTE

Patient Presents to Medical Department with Chest Pain

Clinical Assessment

- Chest Pain is Substernal
- Chest Pain Radiates
- Patient Is Experiencing Nausea, Shortness of Breath, Diaphoresis, or Palpitations
- Patient Has Cardiac Risk Factors
- Consider other life threatening causes of chest pain, like aneurysm, pneumothorax, or pulmonary embolism.

While Obtaining EKG:

1. Nitroglycerin SL up to 3 doses as tolerated by blood pressure if necessary
2. Chew Aspirin 325 mg
3. Administer Oxygen

EKG Q-T Changes?

- ST elevation or depression
- Significant Q-waves
- Inverted T-wave
- Changes from previous EKG’s
- NTG SL X 3 Ineffective?
- Positive Troponin Level/ other Cardiac Enzyme Levels?

Prepare By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved February 2001; Reviewed 11/02, 1/07; Revised 4/03, 3/08, 5/11, 7/11

1. If CAD equivalent OR 2 or more cardiac risk factors* present, repeat EKG in 2 hours, maintain is observation for 6 hours, and repeat troponin level.
2. If less than 2 cardiac risk factors and atypical presentation of chest pain that is not suspected to be cardiac in origin, then assert and treat etiology.
3. Transfer to nearest Emergency Room
4. Call 911 and follow unit protocol
5. Start Normal Saline Intravenous Infusion
6. Consider Morphine Sulfate Intravenous if pain is not relieved after 3 doses of sublingual nitroglycerin.

*Calculate Cardiac Risk Factors

Positive Cardiac Risk Factors:
- Family History: premature CHD
- Age ≥ 45 Men, > 55 Females
- Hypertension: Blood Pressure ≥ 140/90
- Diabetes
- Smoking: within the last 2 years
- HDL < 40 mg/dl.

Negative Cardiac Risk Factors:
- HDL ≥ 60 mg/dl (combine 1 risk factor).

Changes in parameters?”

- Yes
- No

Discharge from Medical Department.

Follow up next morning with provider with instructions to return pen for chest pain.
Angina, Chronic Stable

1. **Meets criteria for Chronic Stable Angina?**
   - **No** → See Angina, Acute Pathway
   - **Yes** → Sublingual NTG effective?
     - **No** → See Angina, Acute Pathway
     - **Yes** → History of Vasospastic Angina?
       - **No** → Serious contraindication to Beta-Blocker?
         - **No** → Start Beta-Blocker (BB) and ASA 81-325 mg qd. Titrate BB to maximum tolerated dose. Still experiencing intermittent chest pain relieved with SL NTG?
           - **Yes** → Refer to Checklist for Secondary Prevention of Coronary Artery Disease (DMG) to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.
           - **No** → Continue therapy. Follow up in 30 days, then 90 days if chest pain is stable.
         - **Yes** → Start Calcium Channel Antagonist (CCA) and ASA 81-325 mg qd. Titrate CCA to maximum tolerated dose. If patient continues to be symptomatic, add Long Acting Nitrate therapy. Go to Box 15.
       - **Yes** → Serious contraindication to Calcium Channel Antagonist?
         - **Yes** → Consider Cardiology Consult
         - **No** → Start or Add Calcium Channel Antagonist (CCA) and ASA 81-325 mg qd. Titrate CCA to maximum tolerated dose. Still experiencing intermittent chest pain relieved with SL NTG?
           - **Yes** → Refer to Checklist for Secondary Prevention of Coronary Artery Disease (DMG) to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.
           - **No** → Continue therapy. Follow up in 30 days, then 90 days if chest pain is stable.
       - **No** → Still experiencing intermittent chest pain relieved with SL NTG?
         - **Yes** → Refer to Checklist for Secondary Prevention of Coronary Artery Disease (DMG) to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.
         - **No** → Effective?
           - **Yes** → Effective?
           - **No** → Consider Cardiology Consult

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. Approved February 2001; Reviewed 11/02, 1/08, Revised 4/03, 9/09, 7/11.
Healthcare Provider Education

Definition of chronic stable angina
A clinical syndrome characterized by discomfort in the chest, jaw, shoulder, back, or arms, typically elicited by exertion or emotional stress and relieved by rest or nitroglycerin.

Goals of Treatment
• Relief of symptoms
• Prevention or slowing of disease progression
• Prevention of future cardiac events, i.e. myocardial infarction, unstable angina, need for revascularization
• Improvement in survival

Mainstay of therapy in symptomatic treatment
• Short acting nitroglycerin – 1st line therapy
  • Beta-blockers (BB) - 2nd line therapy
    - Atenolol 50-100mg/day
    - Metoprolol 100-400mg/day in 2-3 divided doses
  • Verapamil and diltiazem should not be used in combination with beta-blockers (see drug interaction alert).
    - Verapamil 5-10mg/day
    - Diltiazem XR 100-500mg/day
  • Long acting nitroglycerin - 4th line agent if BB’s and/or CCA’s are not tolerated, contraindicated, or if symptoms are not alleviated with BB’s and/or CCA’s.
    - Isosorbide Mononitrate XR 10-240mg/day

Note: Three anti-anginal drugs (excluding short acting NTG) may actually provide less symptomatic protection than two drugs. Thus, the dose of one drug should be optimized before adding another one, and it is advisable to switch drug combinations before attempting a three drug regimen.

Contraindications
• Beta-blockers
  • Sinus bradycardia (HR <50 bpm)
  • Second or third degree heart block
  • Hypersensitivity to BB’s
• Calcium channel antagonists
  • Sick sinus syndrome
  • Second or third degree heart block
  • Hypersensitivity to CCA’s
  • Hypotension (systolic <90mmHg)
  • Hypersensitivity to CCA’s
    - Diltiazem acute MI or pulmonary congestion
    - Verapamil: severe left ventricular dysfunction, cardiogenic shock, atrial flutter or fibrillation
    - Amlodipine: use with caution in patients with heart failure
• Aspirin
  • Hypersensitivity to NSAIDs
  • Syndrome of asthma, rhinitis, and nasal polyps
  • Inherited or acquired bleeding disorders

Counseling on the use of nitrates
• Patient should be counseled to come down to medical if chest pain or discomfort is unimproved or worsening five minutes after one nitroglycerin dose has been inhaled.
• If the sublingual nitroglycerin (NTG) is potent, a slight tingling sensation should be felt under the tongue. Tablets that crumble easily should not be used. The sublingual nitrate should be moist for adequate dissolution and absorption of the tablet. A drink of water in patients with dry sublingual mucosa prior to ingestion of the tablet may be necessary.
• NTG tablets are both heat and light sensitive. They should therefore be stored in a tightly capped dark bottle. The prescription should be renewed every three to six months.
• NTG can be used for prophylaxis of predictable episodes of angina in response to exertion.
• Isosorbide mononitrate XR should be dosed once a day in the morning, which will allow for a nitrate withdrawal period and prevent tolerance from occurring. Extended release tablets should not be crushed or chewed.
Mainstay of therapy to improve prognosis in patients with stable angina (please refer to the Checklist for Secondary Prevention of Coronary Artery Disease Disease Management Guidelines):

- Aspirin 81-325mg for all patients
- Beta-blockers for all patients
- Statins for all patients to achieve target LDL <100mg/dl, <70mg/dl for high-risk patients
- Angiotensin-Converting Enzyme (ACE) Inhibitor (see below)

Role of ACEI per 2007 Chronic Stable Angina ACC/AHA guidelines:

- ACE inhibitors are recommended for patients with severe stable angina and a history of myocardial infarction, left ventricular ejection fraction (LVEF) < 40 percent, hypertension, diabetes, or chronic kidney disease
- ACE inhibitors may be considered for lower risk patients with mildly reduced or normal LVEF in whom risk factors are well controlled and revascularization has been performed.
Treat any underlying disorder

Perform BPRS
Meets DSM-IV Criteria for Anxiety Disorder?

Presence of panic attacks?

Yes

No

No

Yes

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Yes

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No
I. Medications - When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

### Table 1: Monitoring Parameters

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>May Consider First If</th>
<th>Initial Dose (Dose Range) mg/day</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRI</td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 60)</td>
<td>≥ Pregnancy Test - as clinically indicated ≥ Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 60)</td>
<td>≥ Pregnancy Test - as clinically indicated ≥ Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>Significant anxiety</td>
<td>50 (10 - 200)</td>
<td>≥ Pregnancy Test - as clinically indicated ≥ Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>TCA</td>
<td>Nortriptyline</td>
<td>Pamelor®</td>
<td>Melancholic features</td>
<td>25 – 50 (75 – 150)</td>
<td>≥ Pregnancy Test - as clinically indicated ≥ Emergence of suicidal ideation or behavior ≥ Liver function tests, blood pressure, and heart rate at baseline ≥ EKGs considered at baseline and periodically when there is a personal or family history of cardiovascular disease ≥ Nortriptyline dose &gt; 100 mg/day ≥ EKG considered at baseline and periodically when there is a personal or family history of cardiovascular disease ≥ If Nortriptyline dose &gt; 100 mg/day, EKG at baseline and as clinically indicated and blood level within 2 weeks and then as clinically indicated</td>
</tr>
<tr>
<td>Other*</td>
<td>Trazodone</td>
<td>Desyrel®</td>
<td>Atypical features or dysthymia</td>
<td>100 – 150 (300 – 600)</td>
<td>≥ Pregnancy Test - as clinically indicated ≥ Emergence of suicidal ideation or behavior ≥ Priapism</td>
</tr>
</tbody>
</table>

### Table 2: Monitoring Nortriptyline Drug Levels

<table>
<thead>
<tr>
<th>Therapeutic Drug Level</th>
<th>Therapeutic Drug Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance drug level</td>
<td>≤ 100 mg/dose</td>
</tr>
<tr>
<td>Consider starting if</td>
<td>≥ 100 mg/dose</td>
</tr>
<tr>
<td>- Daily dose near upper limit of range (≥ 100mg/day)</td>
<td></td>
</tr>
<tr>
<td>- Potential for drug interaction (e.g., fluoxetine, valproic acid, venlafaxine, use with other antipsychotics)</td>
<td></td>
</tr>
<tr>
<td>- Concern regarding adherence</td>
<td></td>
</tr>
</tbody>
</table>

#### Toxicity Likely
- ≥ 200 mg/dose

#### Signs of Toxicity
- Agitation, cardiac arrhythmias, hypertension, hypotension, seizures, cardiac arrhythmias, CNS depression, heart block, leading to death

#### Management of Toxicity
- Hold medication until patient has had a medical evaluation with vital signs and EKGs
- Transitional patient to acute care setting if clinically necessary

#### Timing of Drug Levels
- Do not draw concentration before day 4-7 after last dose
- Draw 12-24 hours after last dose for patients taking once daily or 4-6 hours after last dose if on divided dose regimen

---

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II. Suicidality Associated with Antidepressants

Antidepressants may increase the risk of suicidal thinking and behavior (suicidality) in children, adolescents, and older adults (under 25 or older than 65 years) with major depressive disorder (MDD) and other psychiatric disorders. Anyone considering the use of any antidepressant in a child or adolescent must balance this risk with the clinical need. Patients who are started on therapy should be observed closely for clinical worsening, suicidality, or unusual changes in behavior.

Medication Selection

Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

Table 3: Formulary Agents

<table>
<thead>
<tr>
<th>Formulary Therapeutic Class</th>
<th>Medication Name</th>
<th>Brand Name</th>
<th>Dosage Form</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>Tablet, Capsule</td>
<td>20mg, 40mg, 60mg</td>
</tr>
<tr>
<td></td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>Capsule, Tablet</td>
<td>20mg, 40mg</td>
</tr>
<tr>
<td></td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>Tablet, Capsule, Liquid, Syrup</td>
<td>50mg, 100mg</td>
</tr>
<tr>
<td>Tricyclic Antidepressant* (TCA)</td>
<td>Nortriptyline</td>
<td>Pamelor®</td>
<td>Capsule</td>
<td>25mg, 50mg, 75mg</td>
</tr>
<tr>
<td>Other*</td>
<td>Trazodone</td>
<td>Desyrel®</td>
<td>Tablet</td>
<td>50mg, 100mg</td>
</tr>
</tbody>
</table>

*Not recommended as first line or second line therapy for treatment of anxiety or panic disorders in adults
BRIEF PSYCHIATRIC RATING SCALE (BPRS)

Instructions for the Clinician

Background:
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:
Each item is rated on a seven-point scale (1—not present to 7—extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. SOMATIC CONCERN</td>
<td>Preoccupation with physical health, fear of physical illness, hypochondriasis</td>
</tr>
<tr>
<td></td>
<td>2. ANXIETY</td>
<td>Worry, fear, over-concern for present or future, uneasiness</td>
</tr>
<tr>
<td></td>
<td>3. EMOTIONAL WITHDRAWAL</td>
<td>Lack of spontaneous interaction, isolation difficulty in relating to others</td>
</tr>
<tr>
<td></td>
<td>4. CONCEPTUAL DISORGANIZATION</td>
<td>Thought processes confused, disconnected, disorganized, disrupted</td>
</tr>
<tr>
<td></td>
<td>5. IMPULSIVENESS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. MOTOR HYPERACTIVITY</td>
<td>Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if cause is akathisia</td>
</tr>
<tr>
<td></td>
<td>7. MANNERISMS AND POSTURING</td>
<td>Peculiar, bizarre, unnatural motor behavior (not including tic).</td>
</tr>
<tr>
<td></td>
<td>8. GRANDIOSITY</td>
<td>Exaggerated self-opinion, arrogance, conviction of unusual power or abilities</td>
</tr>
<tr>
<td></td>
<td>9. DEPRESSIVE MOOD</td>
<td>Sorrow, sadness, despondency, pessimism</td>
</tr>
<tr>
<td></td>
<td>10. HOSTILITY</td>
<td>Animosity, contempt, belligerence, disdain for others</td>
</tr>
<tr>
<td></td>
<td>11. SUSPICIOUSNESS</td>
<td>Mistrust, belief others harbor malicious or discriminatory intent</td>
</tr>
<tr>
<td></td>
<td>12. HALLUCINATORY BEHAVIOR</td>
<td>Perceptions without normal external stimulus correspondence</td>
</tr>
<tr>
<td></td>
<td>13. MOTOR RETARDATION</td>
<td>Slowed, uncoordinated movements or speech, reduced body tone</td>
</tr>
<tr>
<td></td>
<td>14. UNCOOPERATIVENESS</td>
<td>Resistance, guardedness, rejection of authority</td>
</tr>
<tr>
<td></td>
<td>15. UNUSUAL THOUGHT CONTENT</td>
<td>Unusual, odd, strange, bizarre thought content</td>
</tr>
<tr>
<td></td>
<td>16. BLUNTED AFFECT</td>
<td>Reduced emotional tone, reduction in normal intensity of feelings, flappiness</td>
</tr>
<tr>
<td></td>
<td>17. EXCITEMENT</td>
<td>Heightened emotional tone, agitation, increased reactivity</td>
</tr>
<tr>
<td></td>
<td>18. DISORIENTATION</td>
<td>Confusion or lack of proper association for person, place or time</td>
</tr>
<tr>
<td></td>
<td>19. ELEVATED MOOD</td>
<td>A pervasive, sustained, exaggerated feeling of well-being, cheerfulness, or elation implying a pathological mood. Opinion is one of proportion to the circumstances.</td>
</tr>
<tr>
<td></td>
<td>20. SUICIDALITY</td>
<td>Expressed desire, intent, or actions to harm or kill self</td>
</tr>
<tr>
<td></td>
<td>21. BIZARRE BEHAVIOR</td>
<td>Reports of behaviors which are odd, unusual, or psychologically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.</td>
</tr>
<tr>
<td></td>
<td>22. SELF-NEGLECT</td>
<td>Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.</td>
</tr>
<tr>
<td></td>
<td>23. DISTRACTIBILITY</td>
<td>Degree to which observed sequences of speech and action are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
Asthma – Acute: Unit Level Management

Patient presents with complaints of dyspnea, wheezing, chest tightness, cough or any combination thereof.

Initial Assessment
1) Determine degree of symptoms, length of this exacerbation, and drugs currently used.
2) Examine patient for degree of distress. Listen to chest for breath sounds and note symmetry and depth of respiration. Use of accessory muscles or suprasternal retractions suggests severe exacerbation.
3) Measure pulse and respiratory rate.
4) Measure peak expiratory flow (PEF) and compares with personal best.
5) Consider potential triggers for symptoms (e.g. acute viral infection, sinusitis, pneumonia, exposure to toxic environment, stress).
6) If equipment is available and PEF is <50% of personal best, obtain oxygen saturation.

Initial Treatment:
Inhaled albuterol metered dose inhaler (MDI) 2-4 puffs up to three treatments at 20 minute intervals.

Repeat Assessment in 20 Minutes:
Evaluation of symptoms, chest auscultation, vital signs, PEF, and oxygen saturation (if PEF is < 50% of personal best).

Good Response (Mild Episode)
1) No wheezing or dyspnea
2) PEF >80% of personal best

Management
1) Continue albuterol MDI 2-4 puffs Q4H for 1-2 days, then PRN
2) If on inhaled steroids, double dose for 7-10 days
3) Treat any underlying condition
4) Discharge from clinic observation with follow-up in 3-7 days or PRN
5) Consider restaging at follow-up visit

Incomplete Response (Moderate Episode)
1) Persistent wheezing or dyspnea
2) PEF 50-80% of personal best

Management
1) Continue albuterol MDI 2-4 puffs every 2-4 hours
2) Oxygen to achieve ≥90% saturation
3) Prednisone 60mg po

Poor Response (Severe Episode)
1) Marked wheezing or dyspnea
2) PEF <50% of personal best
3) Oxygen saturation <90%

Management
1) Inhaled albuterol and ipratropium by nebulization
2) Oxygen to achieve ≥90% saturation
3) Prednisone 100mg po

Repeat Assessment in 1-3 Hours:
Evaluation of symptoms, chest examination, vital signs, PEF, and oxygen saturation (if PEF is <50% of personal best).

Good Response
1) PEF >80% of personal best
2) No distress with normal examination

Management
1) Prednisone 60mg po BID x 2 days
2) Albuterol MDI 2-4 puffs Q4H x 2 days, then PRN
3) Follow-up in 1-2 days and stage

Incomplete Response
1) PEF 50-80% of personal best
2) MDI to moderate symptoms

Management
1) Individualize decision to discharge or transfer to higher level of care.

Poor Response
1) PEF <50% of personal best
2) Severe symptoms
3) Oxygen saturation <90%

Management
1) Consider transfer to higher level of care.

Contact Utilization Review or follow unit procedures.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved January 1999. Revised 4/02, 4/03, 3/05, 9/09, 01/11. Revised 10/03.

The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.
**Asthma (Adults and Children ≥ 12 years)**

**Moderate Persistent**
- FEV₁ > 60% - < 80%
- FEV₁/FVC: reduced by 5%
- Symptoms daily daytime and > 1 night/wk

**Mild Persistent**
- FEV₁ ≥ 80%
- FEV₁/FVC: normal
- Symptoms > 2 days/wk but < 1/day & > 2 nights/month

**Severe Persistent**
- FEV₁ < 60%
- FEV₁/FVC: reduced by 5%
- Symptoms continual & frequently at night

---

**STEP 2**

- Short-acting β₂ Agonist Inhaler
  - Albuterol HFA 2 puffs tid-qid
  - PRN (1 inhaler should last 60-90 days)

- Low dose Corticosteroid Inhaler
  - Beclomethasone 1 puff BID
  - (1 inhaler should last 50 days)

---

**STEP 3**

- Short-acting β₂ Agonist Inhaler
  - Albuterol HFA 2 puffs tid-qid
  - PRN (1 inhaler should last 60-90 days)

- Medium dose Corticosteroid Inhaler
  - Beclomethasone 2 puffs BID
  - (1 inhaler should last 25 days)

---

**STEP 4**

- Short-acting β₂ Agonist Inhaler
  - Albuterol HFA 2 puffs tid-qid
  - PRN (1 inhaler should last 60-90 days)

- Obtain nonformulary approval for potent steroid and long-acting beta agonist

---

1. A thorough screening history by provider is essential to confirm diagnosis during initial visit.
2. Symptoms witnessed/addressed by healthcare giver.
3. Complete Peak Flow (suggest spirometry when available).
4. Document peak flow at each asthma related encounter and update personal best as indicated.
5. Classify asthma to determine treatment plan; May consider Respiratory Care referral.
6. Provide patient education including proper use of inhaler if patient has a history of intubation, consider transfer to a 24-hour unit.

**STEP 1**

- Short-acting β₂ Agonist Inhaler
  - Albuterol HFA 2 puffs tid-qid
  - PRN (1 inhaler should last 60-90 days)

---

**Controlled?**

- Yes
  - Daytime Symptoms: < 2 days/week
  - Limitations of activities: None
  - Nocturnal symptoms/awakening: None
  - Lung Function Test: NORMAL
  - Exacerbations: None

- Partial
  - Daytime Symptoms: > 2 days/week
  - Limitations of activities: Any decrease
  - Nocturnal symptoms/awakening: Any
  - Need for rescue inhaler: > 2 days/week
  - Lung Function Test (PEF or FEV₁): < 80% predicted or personal best
  - Exacerbations: > 1/year

- Uncontrolled
  - Daytime Symptoms: Three or more features of partly controlled asthma present in any week
  - Exacerbations: One in any week

---

**CONTINUATION PAGE**

- The pathways do not replace sound clinical judgment and are intended to apply to all patients.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. January 1999. Reviewed 4/02, 4/03, 3/05. Revised 10/03, 7/09, 1/10. Revised to include children 11/06.
Table 1: Stepwise Approach for Managing Asthma & Recommended Options

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Treatment</td>
<td>Short acting beta 2 agonist</td>
<td>Low dose inhaled corticosteroid</td>
<td>Medium dose inhaled corticosteroid</td>
<td>Medium or High dose inhaled corticosteroid plus long acting beta 2 agonist plus Oral steroids</td>
</tr>
<tr>
<td>Formulary Agents</td>
<td>Albuterol HFA 50 mcg</td>
<td>Beclomethasone low dose: 1 puff bid x 30 days</td>
<td>Beclomethasone medium dose: 2 puffs bid x 25 days or 3 puffs bid x 16 days</td>
<td>Beclomethasone: Medium dose: 2 puffs bid x 25 days or 3 puffs bid x 16 days</td>
</tr>
<tr>
<td>Nonformulary Combination Products</td>
<td>Combination: Advair Diskus 250/50 mg (fluticasone/salmeterol)</td>
<td>Combination: Advair Diskus 250/50 mg (fluticasone/salmeterol)</td>
<td>Combination: Advair Diskus 250/50 mg (fluticasone/salmeterol)</td>
<td>Combination: Advair Diskus 250/50 mg (fluticasone/salmeterol)</td>
</tr>
</tbody>
</table>

Each step:
- Assess control.
- Prescribe short-acting quick relief medication (e.g., short acting beta 2 agonist = SABA) for all patients.
- Provide patient education, assess adherence to treatment & environmental control.
- Consider stepping down therapy if asthma is well controlled for at least 3 months.
- Consider stepping up therapy if asthma is not well controlled.
I. Diagnosis is based on the following:
   
   A. History
      1. A thorough history is essential to confirm prior diagnosis
      2. Family history of asthma, allergy, sinusitis, rhinitis, eczema or nasal polyps
      3. Recurrent symptoms such as wheeze, cough, chest tightness, shortness of breath
      4. Pattern of symptoms
         a. Perennial, seasonal or both
         b. Continuous, episodic or both
      5. Symptoms occur or worsen in the presence of
         a. Exercise
         b. Allergen (e.g., mold, pollen, dust mites, animal fur)
         c. Irritant (e.g., smoke, chemicals)
         d. Viral infection
         e. Changes in weather
         f. Stress
         g. Menstrual cycles
         h. Strong emotional expression (e.g., laughing or crying hard)
         i. Drugs (e.g., NSAID, aspirin, beta-blockers)
      6. Symptoms occur or worsen at night and awaken the patient
      7. History of exacerbations
         a. Usual prodromal signs and symptoms
         b. Rapidity of onset, duration & frequency
         c. Severity (e.g., need for hospitalization) and life-threatening exacerbations (e.g., intubation)
         d. Number and severity of exacerbations in last year
   
   B. Physical exam
      1. Hyper-expansion of the chest
      2. Wheezing during normal breathing or prolonged forced exhalation.
         Absence of symptoms during the exam does not exclude the diagnosis.
      3. Signs of allergic skin problems such as atopic dermatitis or eczema
   
   C. Reversible airflow obstruction using spirometry
   
   D. Exclusion of other diagnoses

II. Classification
   
   A. There are 4 asthma classifications. Patients should be classified at the highest level based on the most severe symptoms and/or lung functions. Respiratory Care may be consulted to assist with asthma classification and patient education.
   
   B. Classification is used to determine appropriate initial therapy and the assessment of asthma control is used to adjust therapy as needed.
   
   C. FEV₁ is % predicted
   
   D. PEF is percent difference between lowest and highest peak flow on same day
III. Treatment Principles

A. Gain control of asthma as soon as possible and step down to the lowest possible dose to maintain control.

B. All patients need to be prescribed a short-acting inhaled beta2-agonist to use as needed. However, use should be minimized. Asthma is not adequately controlled if the patient is using more than 1 canister a month and therapy with long-term control medications may need to be started or intensified after verifying appropriate inhaler technique.

C. Evaluate causes of poor control before increasing medication doses.
   1. Poor patient inhaler technique
   2. Poor medication compliance
   3. Adverse effects to medications
   4. Exposure to environmental triggers
   5. Other diagnosis such as upper respiratory infection

D. Goals of therapy
   1. Prevent symptoms and exacerbatations
   2. Maintain normal activity level
   3. Maintain lung function
   4. Minimize medication adverse effects
   5. Minimize use of short-acting beta2-agonists

IV. Treatment

A. Non-pharmacologic
   1. Avoid environmental triggers such as allergens or irritants
   2. Patients should be given self-monitoring instructions and given instructions on how to manage worsening symptoms and when to notify the medical department of worsening symptoms.

B. Pharmacologic (tables 2-4)
   1. Annual influenza vaccination for the following patients
      a. Mild persistent to severe persistent asthma (i.e., requires chronic medication)
      b. History of hospitalization or emergency treatment for asthma
   2. Quick relief medications
      a. Used to provide prompt relief of symptoms
      b. Example: short-acting beta2-agonist such as albuterol
      c. Prescribed as needed
      d. If more than 1 canister used a month by the patient, a long-term control medication may need to be added or intensified after verifying appropriate inhaler technique.
   3. Long-term control medications
      a. Used to maintain control of symptoms
      b. Examples: inhaled corticosteroid, long-acting inhaled beta2-agonist, leukotriene modifiers, methylxanthines, oral corticosteroids
      c. Inhaled corticosteroids are preferred for adults, adolescents, and children
      d. Prescribed on a scheduled basis and are not effective on “prn” basis
      e. Doses should be reduced after several months of control. The dose of inhaled steroids may be reduced by 25% every 2 to 3 months until the lowest effective dose is reached.

V. Monitoring

A. Patients with a diagnosis of asthma should be seen based on acuity and clinical judgment but may not exceed 12 months.

B. Peak flow reading should be obtained at every chronic care visit.

C. Classification of asthma severity should be performed at each chronic care visit.

D. Monitor use of short-acting beta2-agonist at each chronic care visit as a measure of disease control. Asthma is not adequately controlled if the patient is using more than 1 canister a month or uses more than 2 days a week for symptom control. Therapy with long-term control medications may need to be started or intensified after verifying appropriate inhaler technique per the stepwise approach to therapy (Table 1).

E. Assess severity and frequency of symptoms at each chronic care visit.

F. Patient education and inhaler technique instruction should be provided at each chronic care visit.

G. Consider spirometry every 1-2 years.
Table 2: Commonly Prescribed Quick Relief Medications

<table>
<thead>
<tr>
<th>Drug Type of Medication</th>
<th>Adult Dose</th>
<th>Child ≤ 12 Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol (Proventil HFA®)</td>
<td>2 puffs tid-qid prn</td>
<td>2 puffs tid-qid prn</td>
</tr>
<tr>
<td>Prednisone (Deltasone®)</td>
<td>Quick relief – used for establishing control when initiating therapy or period of gradual deterioration</td>
<td>Oral corticosteroid</td>
</tr>
<tr>
<td></td>
<td>40-60mg/day x 3-10 days</td>
<td>1-2mg/kilogram/day maximum 60mg/day x 3-10 days</td>
</tr>
</tbody>
</table>

Table 3: Commonly Prescribed Long-Term Control

<table>
<thead>
<tr>
<th>Drug Type of Medication</th>
<th>Adult Dose</th>
<th>Child ≤ 12 Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluticasone HFA (Flovent®)</td>
<td>Low dose – 2 puffs (44mcg) bid</td>
<td>Low dose – 2 puffs (44mcg) bid</td>
</tr>
<tr>
<td></td>
<td>Medium dose – 2 puffs (110mcg) bid</td>
<td>Medium dose – 2 puffs (110mcg) bid</td>
</tr>
<tr>
<td></td>
<td>High dose – 2 puffs (220mcg) bid</td>
<td>High dose – 2 puffs (220mcg) bid</td>
</tr>
<tr>
<td>Fluticasone/Salmeterol (Advair Diskus®)</td>
<td>Long-term control: Combo inhaled corticosteroid &amp; long-acting beta-agonist</td>
<td>1 puff bid</td>
</tr>
<tr>
<td></td>
<td>1 puff bid</td>
<td>1 puff bid</td>
</tr>
<tr>
<td>Prednisone (Deltasone®)</td>
<td>Long-term control: Oral corticosteroid</td>
<td>5-60mg daily or qod</td>
</tr>
<tr>
<td>Salmeterol (Serevent®) Diskus (nonformulary)</td>
<td>Long-term control: Long-acting beta-agonist</td>
<td>1 puff bid</td>
</tr>
<tr>
<td>Theophylline (Theo-Dur®) (nonformulary)</td>
<td>Long-term control: Methylxanthine</td>
<td>10mg/kg/day up to 300mg max; usual max 800mg/day</td>
</tr>
<tr>
<td>Beclomethasone (Qvar®) (nonformulary)</td>
<td>Long-term control: Inhaled corticosteroid</td>
<td>Low dose – 1 puff bid</td>
</tr>
<tr>
<td></td>
<td>Medium dose – 2 puffs bid or 3 puffs bid</td>
<td>Medium dose – 2 puffs (40mcg or 80mcg) bid</td>
</tr>
<tr>
<td></td>
<td>High dose – 4 puffs bid</td>
<td>High dose – 3 (80mcg) puffs bid</td>
</tr>
</tbody>
</table>
Patient Education

I. Avoidance of environmental factors that trigger or worsen asthma such as allergens and irritants.

II. Self-management plan that includes instructions on how to manage worsening symptoms and when to notify the medical department of worsening symptoms.

III. Pathophysiology of disease
   A. What is asthma
   B. Consequence of poor control
   C. What happens during an asthma attack

IV. How to take medications correctly
   A. Role of medications with emphasis on difference between rescue medications (i.e., quick relief medications) and long-term control medications
   B. Instruction on proper inhaler technique (Figure 1)

V. Importance of medication adherence for disease state control
Priming HFA inhaler:
1. Shake the inhaler well
2. Prime the inhaler before using for the first time by releasing 4 test sprays into the air away from face
3. Repeat the above priming procedure before using only if the inhaler has not been used for more than 2 weeks.

Cleaning HFA inhaler:
1. Remove medication canister. Never get the canister wet.
2. Clean the plastic mouthpiece by running warm water through the top to the bottom for 30 seconds at least once a week.
3. Shake to remove excess water, then air dry thoroughly (such as overnight).

Instructions for taking a dose from your HFA inhaler:

Read the steps below before using your inhaler. If you have any questions, ask your provider.
1. Take the cap off the mouthpiece of the inhaler (plastic actuator) and shake the inhaler well before each spray.
2. Hold the inhaler upright with the mouthpiece down (see Figure 2). Breathe out through your mouth and push as much air from your lungs as you can. Put the mouthpiece in your mouth and close your lips around it.
3. Push the top of the canister all the way down while you breathe in deeply and slowly through your mouth (see Figure 3). Right after the spray comes out, take your finger off the canister. After you have breathed in all the way, take the inhaler out of your mouth and close your mouth.
4. Hold your breath as long as you can, up to 10 seconds, to allow the drug to reach deeply into your lungs. Then breathe normally.
5. If your provider has prescribed more sprays, wait 1 minute between sprays. Shake the inhaler again and repeat steps 2 through 4.
6. Put the cap back on the mouthpiece after every time you use the inhaler, and make sure it snaps firmly into place.

Important points:
1. Do not use the inhaler after the expiration date, which is on the outside packaging.
2. This technique does not work with dry powder capsule inhalers. It is important to close the mouth tightly around the mouthpiece of the inhaler and to inhale rapidly when using a dry powder inhaler.
BENZODIAZEPINE DISCONTINUATION

1. Intake screening identifies patient on benzodiazepine

2. Provider assessment of BZD dependence, comorbid conditions, and risk for complicated withdrawal (see Table 1)

3. One or more risk factors identified from Table 1 require gradual discontinuation to avoid benzodiazepine withdrawal symptoms (see Table 2)

4. Discontinue benzodiazepine and monitor for signs/symptoms of withdrawal (see Table 2). If signs/symptoms of withdrawal occur, proceed to box #5.

5. While on intake unit, pending risk stratification, determine and prescribe equivalent dose of chlordiazepoxide (see Table 3). Administer via DOT only. Monitor for excess sedation or withdrawal symptoms (see Table 2).

6. Risk Stratification: Assess presence of significant risk factors from Table 1.

7. If less than three risk factors identified:
   - Moderate Supervision/Monitoring Required
     - Begin detox program with 24/7 licensed nursing for BZW data collection. Dosing & data collection Q 12 hours.

8. If three or more risk factors identified:
   - Intense Supervision/Monitoring Required
     - Begin detox program with 24/7 licensed nursing for BZW data collection. Dosing & data collection 3-4 X daily.

9. Discontinue benzodiazepine and monitor for signs/symptoms of withdrawal (see Table 2).
   - Remain on full equivalent dose for 5 days, then taper dose by 25% every 5 days until discontinued.
   - Monitor via BZW data collection form with frequency based on risk stratification.
   - Consider collaboration with MHS for conversion and taper schedule.

10. Signs/symptoms of benzodiazepine withdrawal/Seizures? (see Table 2)
    - Yes: 1. Consider modification of dose to alleviate symptoms. 2. Consider transfer to an acute inpatient hospital facility.
    - No: Continue taper.

Prepared By: The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved January 2000. Revised 8/03, 1/10, 5/12
Revised 10/07, 3/08, 1/10

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Table 2 – Signs and Symptoms of Benzodiazepine Withdrawal

<table>
<thead>
<tr>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Nausea</td>
</tr>
<tr>
<td>Agitation</td>
</tr>
<tr>
<td>Vomiting</td>
</tr>
<tr>
<td>Sedation</td>
</tr>
<tr>
<td>Delirium</td>
</tr>
<tr>
<td>Tachycardia</td>
</tr>
<tr>
<td>Hallucinations</td>
</tr>
</tbody>
</table>

The likelihood and severity of withdrawal symptoms is a function of drug, dose, and duration of exposure.

- Comorbid medical conditions exacerbated by adrenergic state (i.e. COPD, DM, HTN, CAD, and history of CVA)
- History of seizure disorder
- Comorbid psychiatric illness
- History of complicated benzodiazepine or alcohol withdrawal
- Concurrent dependence to barbiturates, opioids, or alcohol
- Long duration of daily benzodiazepine use (> 3 months)
- Higher dose/frequency (> 1.25×'s FDA approved daily maximum)
- Use of benzodiazepine with short half-life

Table 3 – Benzodiazepine Equivalents (Estimates) & Withdrawal Data

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>FDA Adult Max Daily Dose</th>
<th>Eliminations Half-Life (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam</td>
<td>Xanax</td>
<td>0.5</td>
<td>4mg/day</td>
</tr>
<tr>
<td>Chlordiazepoxide</td>
<td>Librium</td>
<td>10</td>
<td>100mg/day</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Klonopin</td>
<td>0.25</td>
<td>2mg/day</td>
</tr>
<tr>
<td>Clorazepate</td>
<td>Tranxene</td>
<td>7.5</td>
<td>40mg/day</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Valium</td>
<td>5</td>
<td>40mg/day</td>
</tr>
<tr>
<td>Etizolam</td>
<td>Prolixin</td>
<td>0.3</td>
<td>2mg/day</td>
</tr>
<tr>
<td>Flurazepam</td>
<td>Dalmane</td>
<td>5</td>
<td>60mg/day</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>Ativan</td>
<td>1</td>
<td>10mg/day</td>
</tr>
<tr>
<td>Oxazepam</td>
<td>Serax</td>
<td>15</td>
<td>120mg/day</td>
</tr>
<tr>
<td>Quazepam</td>
<td>Doral</td>
<td>5</td>
<td>15mg/day</td>
</tr>
<tr>
<td>Temazepam</td>
<td>Restoril</td>
<td>50</td>
<td>30mg/day</td>
</tr>
<tr>
<td>Triazolam</td>
<td>Halcion</td>
<td>0.25</td>
<td>0.25mg/day</td>
</tr>
</tbody>
</table>

*Short-acting agents with 24H or less half-life

Table 4. Example Taper Schedule: Patient arrives on alprazolam 4 mg/day and switched to chlordiazepoxide 80 mg/day

<table>
<thead>
<tr>
<th>Approximate Chlordiazepoxide Dose Reductions*</th>
<th>Dose with Formulary Capsules</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 mg/day</td>
<td>Two 25 mg and three 10 mg x 5 days</td>
</tr>
<tr>
<td>60 mg/day</td>
<td>Two 25 mg and one 10 mg x 5 days</td>
</tr>
<tr>
<td>45 mg/day</td>
<td>One 25 mg and two 10 mg x 5 days</td>
</tr>
<tr>
<td>35 mg/day</td>
<td>One 25 mg and one 10 mg x 5 days</td>
</tr>
<tr>
<td>25 mg/day</td>
<td>One 25 mg and five 5 mg days</td>
</tr>
<tr>
<td>20 mg/day</td>
<td>Two 10 mg x 5 days</td>
</tr>
<tr>
<td>10 mg/day</td>
<td>One 10 mg x 5 days</td>
</tr>
<tr>
<td>5 mg/day</td>
<td>One 10 mg every other day for up to 10 days to discontinue</td>
</tr>
</tbody>
</table>

*Dosage reductions are approximate to 25%.
<table>
<thead>
<tr>
<th>Benzodiazepine Withdrawal (BW) Assessment Form Page 1</th>
<th>Name: ______________________</th>
<th>TDCJ # __________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Time:</td>
<td>Initials of Staff Assessing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspiration (monitor in AC setting)</td>
<td>0: no sweating</td>
<td>1: palms moist</td>
</tr>
<tr>
<td></td>
<td>2: palms/forehead moist</td>
<td>3: sweat beads on face</td>
</tr>
<tr>
<td></td>
<td>4: drenching sweats</td>
<td></td>
</tr>
<tr>
<td>Tremor</td>
<td>0: none</td>
<td>1: none visible tremor</td>
</tr>
<tr>
<td></td>
<td>2: mild visible tremor</td>
<td>3: moderate-arms out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4: severe-arms at side</td>
</tr>
<tr>
<td>Restlessness/agitation</td>
<td>0: none</td>
<td>1: uneasy</td>
</tr>
<tr>
<td></td>
<td>2: restless</td>
<td>3: excited-purposeless activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4: pacing-unable to sit</td>
</tr>
<tr>
<td>Level of Consciousness</td>
<td>0: unimported</td>
<td>1: alert-obeys</td>
</tr>
<tr>
<td></td>
<td>2: responds to speech</td>
<td>3: stuporizes-responds to pain</td>
</tr>
<tr>
<td></td>
<td>4: sem-comatose</td>
<td>5: comatose</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Nausea or Vomiting</th>
<th>0: none</th>
<th>1: mild</th>
<th>2: moderate</th>
<th>3: severe</th>
<th>4: very severe</th>
</tr>
</thead>
</table>

Baseline (Admission)

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Pulse</td>
<td></td>
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<tr>
<td>Temperature</td>
<td></td>
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<td></td>
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<tr>
<td>Respiration</td>
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</tr>
</tbody>
</table>

Pearls:
- Monitor BZW Observation parameters based on setting guidelines
- Baseline (on admission) vital sign observation; those assessed prior to initiating detox regimen
- Hyperthermia: any temperature exceeding 99.5 degrees F or 37.5 degrees C
- Tachycardia: heart rate > 90 BPM or an increase of ≥20 BPM from baseline heart rate on admission
- Blood pressure lability: change in systolic or diastolic of 20mm Hg from baseline on admission
- Severe n/v, blood pressure-pulse lability, hyperthermia, restlessness, tremor, perspiration, or agitation will require provider oversight and may indicate need for dose/titration adjustment.
Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/99, revised 5/02, 2/03, 4/03, 9/05, 5/09, 7/09, 5/12.
I. Lithium
   A. Cardiac – obtain ECG at baseline if patient is > 40 or has pre-existing heart disease
   B. Metabolic
      1. Obtain electrolytes, BUN, SCr, and TSH at baseline.
      2. Repeat every 6 – 12 months.
   C. Trough Serum Drug Levels
      1. Obtain 2-4 weeks after lithium initiation.
      2. Monitor every 2 – 6 months once patient and levels are stabilized.
      3. Monitor weekly if patient begins to destabilize.
      4. Levels should be drawn 5-10 days (or more often if clinically indicated) after a dosage change, with
      the addition or deletion of drugs that increase/decrease lithium renal clearance (e.g., ACE inhibitors,
      calcium-channel blockers, diuretics, NSAIDs, SSRIs, theophylline), or if there is a change in renal function.
      5. Therapeutic Range: 0.6-1.2 mmol/L for maintenance, 0.8 – 1.2 mmol/L for acute stabilization. Determine by serum
      trough level in the morning, 10 – 12 hours after last dose.

II. Divalproex
   A. Hematologic
      1. CBC with differential – obtain at baseline, then monthly for first 2 months, then every 6 months thereafter.
      2. Platelets – obtain at baseline, then every 6 - 12 months thereafter.
   B. Hepatic – obtain LFTs at baseline, then monthly for first 2 months, then yearly thereafter.
   C. Serum Drug Level
      1. Obtain 1-3 weeks following initiation, change in dose, addition of other CNS agents to the patient’s regimen, or
      observed signs/symptoms of toxicity. Then obtain every 6 – 12 months thereafter.
      2. Therapeutic Range: 50 – 125 mcg/mL, dose not to exceed 60 mg/kg/day.

III. Lamotrigine
   A. Dosing
      1. Monotherapy (No concurrent enzyme-inducing or enzyme-inhibiting medications)
         a. 25 mg/day for 2 weeks, then 50 mg/day for 2 weeks, then 100 mg/day for 1 week; thereafter, daily dose may be
         increased to 200 mg/day.
         2. Adjunctive therapy in patient receiving enzyme-inducing medications (eg, carbamazepine, phenytoin, ritonavir,
         imipramine/trimavir)  
            a. 50 mg/day for 2 weeks, then 100 mg/day (in divided doses) for 2 weeks, followed by 200 mg/day (in
            divided doses) for 1 week, followed by 300 mg/day (in divided doses) for 1 week. May increase to 400
            mg/day (in divided doses) during week 7 and thereafter.
            b. NOTE: if enzyme-inducing medication is discontinued, the daily dose of lamotrigine will need to be
            decreased in 100 mg increments at weekly intervals until daily dosage of 200 mg is attained.
         3. Adjunctive therapy in patients receiving enzyme-inhibiting medications (eg, valproate, sertraline)  
            a. 25 mg every other day for 2 weeks, followed by 25 mg/day for 2 weeks, followed by 50 mg/day for 1
            week, followed by 100 mg/day.
            b. NOTE: if enzyme-inhibiting medication is discontinued, increase daily lamotrigine dose in 50 mg
            increments at weekly intervals until daily dosage of 200 mg is attained.
      B. Physical Findings
         1. Rash
            a. Lamotrigine therapy should be discontinued at the first sign of a rash. If the cause of the rash has been
            clearly identified as not drug-related then lamotrigine does not need to be discontinued.
            b. Dosing schedule should be strictly followed to decrease risk of rash.
            c. Majority of rash cases occur within the first 8 weeks of therapy.
         2. Hypersensitivity Reaction
            a. Fever and lymphadenopathy without rash. Hypersensitivity may progress to multiorgan failure/dysfunction.
            b. Lamotrigine should be discontinued if other causes for hypersensitivity are ruled out.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Daily Dose Range</th>
<th>Contraindications</th>
<th>Toxicity Starting At Trough Serum Levels:</th>
<th>Signs/symptoms of toxicity (dose-related)</th>
<th>Signs/symptoms of toxicity (NOT dose-related)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>600 – 1200 mg daily in 1 to 3 divided doses.</td>
<td>Hypersensitivity to lithium</td>
<td>1 - 1.2 mmol/L; Patients who are sensitive to lithium may manifest toxicity at serum levels ≤ 1 mmol/L. Note: A rise in white blood cell count is to be expected.</td>
<td>Lithium toxicity can be FATAL</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe cardiovascular or renal disease</td>
<td>Acute:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe dehydration</td>
<td>Acute to Severe:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sodium depletion</td>
<td>Severe Intoxication:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pregnancy Category D</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Divalproex</td>
<td>20mg/kg/day, given in divided doses</td>
<td>Hypersensitivity to VPA</td>
<td>&gt; 100-125 mcg/mL</td>
<td>Acute:</td>
<td>Pancreatitis - DO NOT RECHALLENGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepatic dysfunction</td>
<td></td>
<td></td>
<td>Hyperammonemic encephalopathy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-year-predisorder</td>
<td></td>
<td></td>
<td>Hepatotoxicity, severe or fatal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pregnancy Category D</td>
<td></td>
<td></td>
<td>Stevens-Johnson Syndrome</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

**BIPOLAR DISORDER: DEPRESSION**

**Table 1: Mood Stabilizers**
Medication: Daily Dose Range | Contraindications | Toxicity Starting At Trough Serum Levels Of | Signs/symptoms of toxicity (dose-related) | Signs/symptoms of toxicity (NOT dose-related)
---|---|---|---|---
Lamotrigine: 25 – 400 mg/day (dosing depends on concomitant medication due to significant drug interactions) | • Hypersensitivity to Lamotrigine | • Pregnancy Category C | • Rash/maculopapular and erythematous | • Fever
• Toxic’s Syndrome in children | • Stevens-Johnson Syndrome | • Toxic Epidermal Necrolysis | • Multigorgan dysfunction
• Blood dyscrasias | • Fever | • Lymphadenopathy | • Hemolytic anemia

Table 2: SSRI Antidepressants

<table>
<thead>
<tr>
<th>Medication</th>
<th>Initial Dose (Dose Range) mg/day</th>
<th>Significant Drug Interactions</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citalopram (Celexa®) 20mg, 40mg tablet</td>
<td>20 (20 – 40)</td>
<td>• QTc prolonging agents</td>
<td>• Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serotonergic agents</td>
<td>• EKG for citalopram if risk factors for QTc prolongation are present</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agents that may increase citalopram levels: antidepressants, carbamazepine</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Antiphospholipid antibodies</td>
<td></td>
</tr>
<tr>
<td>Fluoxetine (Prozac®) 20mg capsule</td>
<td>20 (20 – 40)</td>
<td>• Serotonergic agents</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agents that may increase fluoxetine levels: carbamazepine, haloperidol, propranolol</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Thioridazine levels increased by fluoxetine</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Antiphospholipid antibodies</td>
<td></td>
</tr>
<tr>
<td>Sertraline (Zoloft®) 50mg, 100mg tablet</td>
<td>50 (50 – 200)</td>
<td>• Serotonergic agents</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agents that may increase sertraline levels: haloperidol, propranolol</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Antiphospholipid antibodies</td>
<td></td>
</tr>
</tbody>
</table>
Background:

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed an antipsychotic.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
Brief Psychiatric Rating Scale (BPRS)

Enter the score for the term that best describes the patient’s condition.

0 = Not assessed, 1 = Not present, 2 = Very mild, 3 = Mild, 4 = Moderate, 5 = Moderately severe, 6 = Severe, 7 = Extremely severe

Score

1. SOMATIC CONCERN - Preoccupation with physical health, fear of physical illness, hypochondriasis.
2. ANXIETY - Worry, fear, over-concern for present or future, uneasiness.
3. EMOTIONAL WITHDRAWAL - Lack of spontaneous interaction, isolation deficiency in relating to others.
4. CONCEPTUAL DISORGANIZATION - Thought processes confused, disconnected, disorganized, disrupted.
5. IMPULSIVENESS
6. MOTOR HYPERACTIVITY - Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.
7. MANNERISMS AND POSTURING - Peculiar, bizarre, unnatural motor behavior (not including tic).
8. GRANDIOSITY - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
9. DEPRESSIVE MOOD - Sorrow, sadness, despondency, pessimism.
10. HOSTILITY - Animosity, contempt, belligerence, disdain for others.
11. SUSPICIOUSNESS - Mistrust, belief others harbor malicious or discriminatory intent.
12. HALLUCINATORY BEHAVIOR - Perceptions without normal external stimulus correspondence.
13. MOTOR RETARDATION - Slowed, weakened movements or speech, reduced body tone.
14. UNCOOPERATIVENESS - Resistance, guardedness, rejection of authority.
15. UNUSUAL THOUGHT CONTENT - Unusual, odd, strange, bizarre thought content.
16. BLUNTED AFFECT - Reduced emotional tone, reduction in formal intensity of feelings, flatness.
17. EXCITEMENT - Heightened emotional tone, agitation, increased reactivity.
18. DISTRACTIBILITY - Confusion or lack of proper association for person, place or time.
19. ELEVATED MOOD - A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.
20. SUICIDALITY - Expressed desire, intent, or actions to harm or kill self.
21. BIZARRE BEHAVIOR - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.
22. SELF-NEGLECT - Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.
23. DISTRACTIBILITY - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distraction is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual’s attention may be drawn to noise in adjoining room, books on a shelf, interviewer’s clothing, etc.
BIPOLAR DISORDER: MANIA

1. Rule out medical causes for presentation.

2. Manic criteria for Manic or Hypomanic Episode as defined in DSM-IV?
   - No
   - Yes

3. Re-evaluate diagnosis and treat underlying causes.

4. Is patient currently on an antidepressant?
   - No
   - Yes

5. Consider antidepressant discontinuation or tapering dose.
   - Maximize mood stabilizer.
     - Adjust dose per serum level:
       - Lithium 0.6 – 1.2 mmol/L,
       - Divalproex 50 – 125 mcg/mL, continue for 4 – 6 weeks
     - Maximize dose of antipsychotic, continue for 4 – 6 weeks
   - Yes

6. Is patient currently on a mood stabilizer or antipsychotic?
   - No
   - Yes

7. Initiate treatment with mood stabilizer or antipsychotic:
   - Continue current therapy
   - Maximize mood stabilizer.
     - Adjust dose per serum level:
       - Lithium 0.6 – 1.2 mmol/L,
       - Divalproex 50 – 125 mcg/mL, continue for 4 – 6 weeks
     - Maximize dose of antipsychotic, continue for 4 – 6 weeks
   - Partial

8. Assess compliance

9. Discontinue current therapy and switch to the alternative mood stabilizer or antipsychotic for 4 – 6 weeks at therapeutic doses.

10. Continue current therapy

11. Consider combination therapy:
    - Lithium plus Divalproex
    - Lithium or Divalproex plus Risperidone

12. Adequate response per clinical status and BPRS?
   - No
   - Yes

13. Continue current therapy

14. Adequate response per clinical status and BPRS?
   - No
   - Yes

15. Assess compliance

16. Adequate response per clinical status and BPRS?
   - No
   - Yes

17. Continue current therapy

18. Adequate response per clinical status and BPRS?
   - No
   - Yes

*Antipsychotic agents may be preferred in patients with significant psychotic features. If psychotic symptoms persist, re-assess diagnosis of bipolar disorder.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/99; revised 3/02, 5/02, 3/12; reviewed 4/03, 9/05.
I. Lithium
A. Cardiac – obtain ECG at baseline if patient is > 40 or has pre-existing heart disease
B. Metabolic
1. Obtain electrolytes, BUN, SCr, TSH, and T4 at baseline.
2. Repeat every 6 – 12 months.
C. Trough Serum Drug Levels
1. Obtain 5 – 10 days after lithium initiation.
2. Monitor every 2 – 8 months once patient and levels are stabilized.
3. Monitor weekly if patient begins to destabilize.
4. Levels should be drawn 5-10 days (or more often if clinically indicated) after a dosage change, with
   the addition or deletion of drugs that increase/decrease lithium renal clearance (e.g., ACE inhibitors, calcium-
   channel blockers, diuretics, NSAIDs, SSRIs, theophylline), or if there is a change in renal function.
5. Therapeutic Range: 0.6 – 1.2 mmol/L for maintenance, 0.8 – 1.2 mmol/L for acute stabilization. Determine by
   serum trough level in the morning, 10 – 12 hours after last dose.

II. Divalproex
A. Hematologic
1. CBC with differential – obtain at baseline, then monthly for first 2 months, then every 6 months thereafter.
2. Platelets – obtain at baseline, then every 6 – 12 months thereafter.
B. Chemistry – obtain LFTs at baseline, then monthly for first 2 months, then yearly thereafter. If LFTs are elevated on
   repeat testing, consider obtaining ammonia level and monitor for cognitive dysfunction.
C. Serum Drug Level
1. Obtain 1-3 weeks following initiation, change in dose, addition of other CNS agents to the patient’s regimen, or
   observed signs/symptoms of toxicity. Then obtain every 6 – 12 months thereafter.
2. Therapeutic Range: 50 – 125 mcg/mL, dose not to exceed 60 mg/kg/day.
3. Standard draw time is 12 hours after the last dose

III. Carbamazepine
A. Cardiac – obtain ECG at baseline if patient is > 40 or has pre-existing heart disease
B. Hematologic
1. CBC with differential – obtain baseline, then monthly for first 2 months, then every 6 months thereafter
2. Platelets – obtain baseline, then every 6 months thereafter
C. Hepatic – obtain LFTs at baseline then yearly thereafter
D. Metabolic – obtain serum sodium at baseline, 3 months, then annually.
E. Serum Drug Level
1. Initial level should be drawn within first 7 – 10 days of therapy.
2. Obtain every 4 weeks while tapering to therapeutic levels, then every 6 months.
3. Therapeutic Range: 4-12 mcg/mL
4. Onset of auto-induction occurs in about 3 days from first dose, with maximum effect at about 30 days.
5. Draw serum trough levels just prior to the next dose.
**Drug: Lithium**

<table>
<thead>
<tr>
<th>Drug: Daily Dose Range</th>
<th>Contraindications</th>
<th>Toxicity Seen Starting At Trough Serum Levels of:</th>
<th>Signs/symptoms of toxicity (dose-related)</th>
<th>Signs/symptoms of toxicity (NOT dose-related)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lihtium: Initially 900 – 1200 mg daily in 1 to 3 divided doses. Dose to stay between 0.6 mEq/L and 1.2 mEq/L. It is advised to not order doses &gt; 1200 mg daily</td>
<td>Hypersensitivity to lithium • Severe cardiovascular or renal disease • Severe debilitation • Dehydration • Sodium depletion • Pregnancy Category D</td>
<td>&gt; 1 – 1.2 mmol/L. Patients who are sensitive to lithium may manifest toxicity at serum levels &lt; 1 mmol/L. Note: A rise in white blood cell count is to be expected.</td>
<td>Lithium toxicity can be FATAL</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Acute:**
- Apathy
- Coarsening hand tremor that spreads to other parts of body while patient sitting still
- Confusion
- Drowsiness
- Dysarthria
- GI symptoms (diarrhea, N & V, etc.)
- Giddiness

**Acute To Severe:**
- Blurred vision
- Deep tendon reflexes increased
- Muscle rigidity / fasciculations
- Mild ataxia
- Profound lethargy
- Tinnitus
- Vertical nystagmus
- Vomiting

**Severe Intoxication:**
- Arrhythmias
- Impaired consciousness
- Increase in fasciculations and ataxia
- CV collapse with oliguria and anuria
- Coarse / irregular limb tremors
- Coarse muscle contractions
- Choreathetoid movements
-Cogwheel rigidity
- Coma
- Generalized tonic-clonic seizures

**BIPOLAR DISORDER: MANIA**
## Bipolar Disorder: Mania

<table>
<thead>
<tr>
<th>Drug: Daily Dose Range</th>
<th>Contraindications</th>
<th>Toxicity Seen Starting At Trough Serum Levels of:</th>
<th>Signs/symptoms of toxicity (dose-related)</th>
<th>Signs/symptoms of toxicity (NOT dose-related)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divalproex: 20mg/kg/day, given in divided doses</td>
<td>Hypersensitivity to VPA</td>
<td>&gt; 100 mcg/mL</td>
<td>Nausea</td>
<td>Pancreatitis - DO NOT RECHALLENGE</td>
</tr>
<tr>
<td></td>
<td>Hepatic dysfunction</td>
<td></td>
<td>Headache</td>
<td>Hyperammonemic encephalopathy</td>
</tr>
<tr>
<td></td>
<td>Urea cycle disorder</td>
<td></td>
<td>Fatigue</td>
<td>Hepatotoxicity, severe or fatal</td>
</tr>
<tr>
<td></td>
<td>Pregnancy Category D</td>
<td></td>
<td>Drowsiness</td>
<td>Stevens-Johnson Syndrome</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Changes in mental status</td>
<td>Toxic Epidermal Necrolysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thrombocytopenia</td>
<td>Polycystic ovarian syndrome (PCOS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prothrombin time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prolongation of bleeding time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hepatotoxicity</td>
<td></td>
</tr>
<tr>
<td>It is not recommended to exceed 60mg/kg/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbamazepine: 600 – 1600 mg, given in divided doses</td>
<td>Hypersensitivity to carbamazepine or TCAs</td>
<td>&gt; 9 mcg/mL</td>
<td>Abnormal reflex response</td>
<td>Areflexia</td>
</tr>
<tr>
<td></td>
<td>Bone marrow depression</td>
<td></td>
<td>Acetonuria</td>
<td>Blood cell dyscrasias</td>
</tr>
<tr>
<td></td>
<td>In combination with or within 14 days of MAOIs</td>
<td></td>
<td>Agitation / restlessness</td>
<td>Chest pain</td>
</tr>
<tr>
<td></td>
<td>Pregnancy Category D</td>
<td></td>
<td>Altered vision / diplopia / nystagmus</td>
<td>CIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cardiac dysrhythmias</td>
<td>Nausea / vomiting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coma</td>
<td>Photosensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cyanosis</td>
<td>SIADH (Syndrome of Inappropriate ADH Secretion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Disorientation</td>
<td>Stevens-Johnson Syndrome</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extreme lethargy or stupor</td>
<td>Toxic epidermal necrolysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Flushing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Glossoptosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Involuntary muscle movements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nausea / vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nystagmus</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Opisthotonos</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tremor</td>
<td>Urinary retention</td>
</tr>
</tbody>
</table>
Antipsychotic Monitoring Parameters

Table 1: Metabolic and Endocrine Monitoring Guidelines

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>Q 6 Months</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight-Height-BMI</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure, Pulse</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Metabolic Panel</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>EKG1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.

1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease or the patient is > 40 years old.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia

Additional Monitoring Parameters for Specific Agents

• Ziprasidone (Geodon®) - EKG at baseline then annually or as clinically indicated
• Quetiapine (Seroquel®) - Ophthalmic exam checking for cataracts every 6 months

Table 2: Outcome and Adverse Effect Monitoring

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS (Abnormal Involuntary Movement Scale)</td>
<td>X</td>
<td>Baseline and at least every 6 months</td>
</tr>
<tr>
<td>•Acute EPS - Akathisia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>•Tardive Dyskinesia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Status Exam</td>
<td>X</td>
<td>Baseline and at least every 6 months</td>
</tr>
<tr>
<td>BPRS (Brief Psychiatric Rating Scale)</td>
<td>X</td>
<td>• Baseline and at least every 6 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medication is started, changed or discontinued</td>
</tr>
<tr>
<td>Agent</td>
<td>Formulary Status</td>
<td>Potency</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Aripiprazole (Abilify)</td>
<td>NF</td>
<td>++++/++++</td>
</tr>
<tr>
<td>Olanzapine (Zyprexa)</td>
<td>NF</td>
<td>++++/++</td>
</tr>
<tr>
<td>Quetiapine (Seroquel)</td>
<td>NF</td>
<td>+/+</td>
</tr>
<tr>
<td>Risperidone (Risperdal)</td>
<td>F</td>
<td>+++++/++++</td>
</tr>
<tr>
<td>Ziprasidone (Geodon)</td>
<td>NF</td>
<td>+++++/++++</td>
</tr>
<tr>
<td>Asenapine (Saphris)</td>
<td>NF</td>
<td>?</td>
</tr>
</tbody>
</table>

1: dose-dependent
2: partial D2 agonist

Table 3: Antipsychotic Dosages and Adverse Effects
ABNORMAL INVOLUNTARY MOVEMENT SCALE

Complete examination procedure outlined in the instructions before making rating. Rate highest severity observed. Movements occurring upon activation rate one less than those occurring spontaneously.

0 = None  1 = Minimal  2 = Mild  3 = Moderate  4 = Severe

<table>
<thead>
<tr>
<th>Date of Evaluation</th>
</tr>
</thead>
</table>
| 1 | Muscles of facial expression  
  e.g. movements of forehead, eyebrows, preorbital area, clench, include frowning, blushing, smiling, grimacing |
| 2 | Lips and perioral area  
  e.g. puckering, pouting, smacking |
| 3 | Jaw  
  e.g. biting, clenching, chewing, mouth opening, lateral movement |
| 4 | Tongue  
  Rate only increase in movement both in and out of mouth, not inability to sustain movement |
| 5 | Upper (arms, wrists, hands, fingers)  
  Include chronic movements (i.e. rapid objectively purposeless, irregular, spontaneous); athetoid movements (i.e. slow, irregular, complex, serpentine). DO NOT include tremor (i.e. repetitive, regular, rhythmic) |
| 6 | Lower (legs, knees, ankles, toes)  
  e.g. lateral knee movement, foot tapping, heel dropping, foot squirming, inversion, and eversion of foot |
| 7 | Neck shoulders, hips  
  e.g., rocking, twisting, squirming, pelvic gyrations |
| 8 | Severity of abnormal movements |
| 9 | Incapacitation due to abnormal movements |
| 10 | Patient's awareness of abnormal movements  
  Rate only patient's report:  
  No awareness=0  Aware, no distress=1  Aware, mild distress=2  Aware, moderate distress=3  Aware, severe distress=4 |
| 11 | Current problems with teeth &/or dentures?  
  No=0  Yes=1 |
| 12 | Does patient usually wear dentures?  
  No=0  Yes=1 |
| 13 | COMMENTS: |
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology, and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual’s behavior over the previous 2-3 days should also be considered and can be reported by the patient’s caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed an antipsychotic.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:
Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
<table>
<thead>
<tr>
<th>Score</th>
<th>Term and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SOMATIC CONCERN - Preoccupation with physical health, fear of physical illness, hypochondriasis.</td>
</tr>
<tr>
<td>2.</td>
<td>ANXIETY - Worry, fear, over-concern for present or future, uneasiness</td>
</tr>
<tr>
<td>3.</td>
<td>EMOTIONAL WITHDRAWAL - Lack of spontaneous interaction, isolation deficiency in relating to others.</td>
</tr>
<tr>
<td>4.</td>
<td>CONCEPTUAL DISORGANIZATION - Thought processes confused, disconnected, disorganized, disrupted.</td>
</tr>
<tr>
<td>5.</td>
<td>IMPULSIVENESS</td>
</tr>
<tr>
<td>6.</td>
<td>MOTOR HYPERACTIVITY - Increase in energy level, evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.</td>
</tr>
<tr>
<td>7.</td>
<td>MANNERISMS AND POSTURING - Peculiar, bizarre, unnatural motor behavior (not including tic).</td>
</tr>
<tr>
<td>8.</td>
<td>GRANDIOSITY - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.</td>
</tr>
<tr>
<td>9.</td>
<td>DEPRESSIVE MOOD - Sorrow, sadness, despondency, pessimism.</td>
</tr>
<tr>
<td>10.</td>
<td>HOSTILITY - Animosity, contempt, belligerence, disdain for others.</td>
</tr>
<tr>
<td>11.</td>
<td>SUSPICIOUSNESS - Misuse belief others harbor malicious or discriminatory intent.</td>
</tr>
<tr>
<td>12.</td>
<td>HALLUCINATORY BEHAVIOR - Perceptions without normal external stimulus correspondence.</td>
</tr>
<tr>
<td>13.</td>
<td>MOTOR RETARDATION - Slowed, weakened movements or speech, reduced body tone.</td>
</tr>
<tr>
<td>14.</td>
<td>UNCOOPERATIVENESS - Resistance, guilelessness, rejection of authority.</td>
</tr>
<tr>
<td>15.</td>
<td>UNUSUAL THOUGHT CONTENT - Unusual, odd, strange, bizarre thought content.</td>
</tr>
<tr>
<td>16.</td>
<td>BLUNTED AFFECT - Reduced emotional tone, reduction in formal intensity of feelings, flatness.</td>
</tr>
<tr>
<td>17.</td>
<td>EXCITEMENT - Heightened emotional tone, agitation, increased reactivity.</td>
</tr>
<tr>
<td>18.</td>
<td>DISORIENTATION - Confusion or lack of proper association for person, place or time.</td>
</tr>
<tr>
<td>19.</td>
<td>ELEVATED MOOD - A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.</td>
</tr>
<tr>
<td>20.</td>
<td>SUICIDALITY - Expressed desire, intent, or actions to harm or kill self.</td>
</tr>
<tr>
<td>21.</td>
<td>BIZARRE BEHAVIOR - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.</td>
</tr>
<tr>
<td>22.</td>
<td>SELF-NEGLECT - Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.</td>
</tr>
<tr>
<td>23.</td>
<td>DISTRACTIBILITY - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in the interview room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
CATHETER RESTORATION FOR HEMODIALYSIS PATIENTS

This protocol pertains to registered nurses who have received training and been validated in the procedure.

**PREPARATION OF CATHFLO (ALTEPLASE, TPA) SOLUTION**

**ACTION**

1. Wash hands thoroughly. Put on PPE. Hand washing protects the patient and health care staff from cross contamination. PPE is worn for health care staff protection.

2. Aseptically withdraw 2.2 mL of Sterile Water for injection, USP. Do not use Bacteriostatic Water for injection.

3. Inject the 2.2 mL of Sterile Water for injection into the Cathflo vial. The diluent stream should be directed into the powder. Slight foaming may occur.

4. Let the vial stand undisturbed until foaming dissipates. Allows large bubbles to dissipate prior to administration.

5. Mix by gently swirling the vial until the contents are completely dissolved. Complete dissolution should occur within 3 minutes. DO NOT SHAKE.

6. Inspect the reconstituted solution prior to administration for foreign matter or discoloration. If any seen, discard the vial. DO NOT USE.

7. No other medications should be added to the solution containing Cathflo.

**NOTES**

- The protocol does not replace sound clinical judgement nor is it intended to strictly apply to all patients.

**Assessment of occlusion:**

1. Rule out mechanical obstruction
2. Attempt to aspirate blood
3. Attempt to flush the catheter with 5-10 mL of normal saline (0.9% Sodium Chloride)

**Flowchart:**

- **Is catheter occluded?**
  - Yes → Notify provider and obtain order for Cathflo.
  - No → Explain procedure to patient

**Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. January 2005. Reviewed 1/08, 01/11.**
The protocol does not replace sound clinical judgment nor is it intended to strictly apply to all patients.

**INSTILLATION OF CATHFLO® (ALTEPLASE, TPA) SOLUTION**

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspect the reconstituted solution prior to administration for foreign matter or discoloration.</td>
<td>If any seen, discard the vial. <strong>DO NOT USE.</strong></td>
</tr>
<tr>
<td>2. Aseptically withdraw the reconstituted solution from the vial.</td>
<td>Dose to be determined by the provider. The usual dose is 2mg (2mL) for patients ≥ 30 kg.</td>
</tr>
<tr>
<td>3. Wash hands thoroughly. Put on PPE.</td>
<td>Hand washing protects the patient and health care staff from cross contamination. PPE is worn for healthcare staff protection.</td>
</tr>
<tr>
<td>4. Slowly instill the appropriate dose of Cathflo into the occluded catheter.</td>
<td>Excessive pressure should be avoided when instilled into the catheter, because excessive force could cause rupture of the catheter or expulsion of the clot into circulation.</td>
</tr>
</tbody>
</table>
| 5. Assess catheter function by attempting to aspirate blood after 60 minutes of catheter dwell time.  
*If the catheter is functional, go to step 8*  
*If the catheter is not functional, go to step 6* | Vigorous suction should not be applied during attempts to assess catheter function, because of the risk of damage or collapse. |
| 6. Wait an additional 60 minutes for a total of 120 minutes dwell time. Assess catheter function by attempting to aspirate blood.  
*If the catheter is functional, go to step 8*  
*If the catheter is not functional, go to step 7* | An order must be obtained from the provider to administer a second dose. |
| 7. A second dose of Cathflo® may be given upon the receipt of a provider order for a second dose if catheter function is not restored. Repeat the procedure beginning with Step 1 under PREPARATION OF CATHFLO® (ALTEPLASE, TPA) SOLUTION as box 6 on page 1. | |
| 8. If successful, remove 4 to 5 mL of blood with a syringe to remove Cathflo® and residual clot. Then gently flush the catheter with 10 to 12 mL of normal saline (0.9% Sodium Chloride). | |
| 10. Document administration in the patient medical record. | Documentation should include drug, dose, route, time administered, patient response, & signature and title of person administering the drug. |

**Resume catheter use**

Yes 11  
No 10  
Provider should be notified and a decision made regarding catheter viability. Referral of patient to a higher level of care should be considered.

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. January 2005. Reviewed 1/08, 01/11.
Health Care Personnel Education

A. Types of catheter occlusions
1. Intraluminal occlusion – Occlusion occurs within the catheter lumen
2. Fibrin sheath occlusion – Occlusion occurs as a layer around the outside of the catheter
3. Fibrin tail occlusion – Occlusion occurs over the tip of the catheter
4. Mural occlusion – Occlusion occurs as an extension from the wall of the blood vessel to the catheter

B. Contributing factors – The changes listed below lead to vasoconstriction, platelet aggregation, and activation of the clotting cascade resulting in thrombus formation.
1. Changes in blood flow – venous stasis
2. Changes in coagulability
3. Changes in vessel wall – trauma to the vessel

C. Signs & symptoms of thrombotic occlusion
1. May develop without symptoms
2. Shaggy flow may be seen as thrombus develops
3. Pump alarms may sound frequently as thrombus progresses
4. It may be possible to infuse fluid in some instances, but fluid withdrawal is impaired

D. Rationale for fibrinolytic therapy - Low dose fibrinolysis with alteplase can lyse clot and re-establish flow in occluded catheter resulting in catheter salvage. Catheter salvage is preferred over replacement for the following reasons:
1. Limit interruption of hemodialysis
2. Reduce risk of trauma and complication to patient
3. Preserve site for future access
4. Reduce cost (e.g., avoid transportation cost & hospitalization)

E. Treatment Goals
1. Re-establish flow in catheter
2. Resume hemodialysis
3. Avoid catheter replacement

F. Treatment – CathFlo® (Alteplase, TPA)
1. Availability – 2mg single dose vial
2. Storage - Refrigerate vial (2-8 C, 36-46 F) and protect from light
3. Stability of reconstituted solution – Reconstituted solution must be used within 8 hours if stored at 2-30 C or 36-86 F. Any unused solution should be discarded.
4. Usual Dose is 2mg (2mL) for patients ≥ 30 kg. A second dose may be given after 120 minutes if catheter function is not restored.
5. Adverse Effects
   a. Infection (e.g., sepsis)
   b. Bleeding (e.g., from site, gastrointestinal)
   c. Venous thrombosis
   d. Allergic reactions have not been reported. If occurs, notify provider and manage appropriately.
ACUTE EXACERBATION COPD

1. Patient presents with signs & symptoms of acute COPD exacerbation

2. Assess severity of signs & symptoms
   - Obtain oxygen saturation
   - Administer oxygen therapy

3. Symptoms of COPD exacerbation
   - Increased breathlessness
   - Increased cough
   - Increased sputum production
   - Change of color and/or tenacity of sputum
   - Weakness
   - Chest tightness

4. Are critical symptoms present? (box #6)

5. Consider transfer off the unit to a higher level of care if the patient has severe dyspnea and did not respond adequately to initial therapy

6. Acute Critical Symptoms
   - Onset of new physical signs (e.g., cyanosis, peripheral edema)
   - Arrhythmia present
   - Patient is confused, lethargic, or comatose
   - Persistent or worsening hypoxemia despite supplemental oxygen

7. Nebulized albuterol with or without ipratropium as needed. May repeat every 20 minutes x 2.

8. Prednisone 30-40mg

9. Consider transfer off the unit to a higher level of care if the patient has severe dyspnea and did not respond adequately to initial therapy

10. Signs of bacterial infection present? (At least 2 of the following symptoms: increased dyspnea, sputum volume, and sputum purulence, or low grade fever)

11. Continue treatment and monitor the patient closely
   - Nebulized albuterol with or without ipratropium as needed up to 3 days
   - Prednisone 30-40mg/day for 10-14 days
   - Antibiotic
     - Bactrim DS 1 tab bid x 10 days
     - Doxycycline 100mg bid x 10 days

12. Does the patient have risk factors for more severe infection? (frequent exacerbations 4 in last year, antibiotic use within last 3 months, severe or very severe COPD)

13. Continue treatment and monitor the patient closely
   - Nebulized albuterol with or without ipratropium as needed up to 3 days
   - Prednisone 30-40mg/day for 10-14 days
   - Antibiotic
     - Augmentin 500mg tid x 10 days
     - Levofoxacin 500mg qd x 10 days

14. Continue treatment and monitor the patient closely
   - Nebulized albuterol with or without ipratropium as needed up to 3 days
   - Prednisone 30-40mg/day for 10-14 days
   - Antibiotic
     - Bactrim DS 1 tab bid x 10 days

15. Does the patient respond? (return to clinic for evaluation at least twice daily for 3 days then for evaluation as needed for 10-14 days)

16. No
   - Consider obtaining non-formulary approval for antibiotic
     - Levofoxacin 500mg qd x 10 days

17. To page 2 box 9 18

18. Patient presents with signs & symptoms of acute COPD exacerbation

19. Assess severity of signs & symptoms
   - Obtain oxygen saturation
   - Administer oxygen therapy

20. Are critical symptoms present? (box #6)

21. Consider transfer off the unit to a higher level of care if the patient has severe dyspnea and did not respond adequately to initial therapy

22. Nebulized albuterol with or without ipratropium as needed. May repeat every 20 minutes x 2.

23. Prednisone 30-40mg

24. Patients responding?

25. Yes
   - Continue treatment and monitor the patient closely
     - Nebulized albuterol with or without ipratropium as needed up to 3 days
     - Prednisone 30-40mg/day for 10-14 days
     - Antibiotic
       - Bactrim DS 1 tab bid x 10 days
     - Doxycycline 100mg bid x 10 days

26. No
   - Patients improved after 3 days?
   - Follow up as needed and refer patient to respiratory therapy within 30 days if not already following the patient.
Consider transfer off the unit to a higher level of care.

Patient improved after 3 days?

Yes

No

Follow up as needed and refer patient to respiratory therapy within 30 days if not already following the patient.

No

Yes

The pathways do not replace sound clinical judgment and are intended to strictly apply to all patients.
CHRONIC COPD

1. Spirometry should be obtained to diagnose airflow obstruction with respiratory symptoms
2. Obtain complete medical history
3. Classify severity of disease to determine treatment plan

Mild
- FEV1/FVC <70%
- FEV1 >80% of predicted value
- Usually, but not always a chronic, productive cough

Moderate
- FEV1/FVC <70%
- FEV1 <70% of predicted value
- Chronic, productive cough
- Shortness of breath, especially with exercise
- Occasional COPD flare-ups

Severe
- FEV1/FVC <70%
- FEV1 <50% of predicted value
- Chronic, productive cough
- Shortness of breath
- Fatigue and reduced ability to exercise
- Repeated and sometimes severe COPD flares-ups

Very Severe
- FEV1/FVC <70%
- FEV1 <30% predicted or FEV1 <50% predicted plus chronic respiratory failure
- Chronic, productive cough
- Shortness of breath, especially with exercise and dressing and undressing, and during activities
- Weight loss
- Blue skin color, especially in the lips, fingers, and toes
- Edema in the lower extremities
- Life threatening COPD flare-ups
- Patients should be admitted to the hospital

B2 Agonist Inhaler.
- Albuterol 2 puffs PRN up to QID duration (30-90 days) determined by patient use.
- Patient Education. Proper use of inhaler and risk factor avoidance.

Anticholinergic Inhaler.
- Ipratropium HFA 2 puffs QID (1 inhaler=30 days)
- Patient education. Proper use of inhaler and risk factor avoidance.

Long-acting Anticholinergic Inhaler.
- Tiotropium 1 puff QD (1 inhaler=30 days) nonKOP
- Patient Education. Proper use of inhaler and risk factor avoidance.

Continue regimen. Follow up at least every 12 months with peak flow and consider spirometry based on symptoms or every 2 years.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, September 1996, Revised 11/06, 3/10, 7/12, Reviewed 4/02, 4/03, 10/03, 11/06, 3/10

Tiotropium is a Prior Authorization Agent. Prior authorization criteria must be met and noted in the special instructions field of the order. Criteria include the following:
1. Patient did not respond to ipratropium 2 puffs QID
2. Severe COPD
3. Very Severe COPD
Note: Tiotropium must be prescribed NONKOP. The device contains 2 piercing needles.
Add Inhaled Corticosteroid.
Beclomethasone HFA 1 puff BID
1 inhaler lasts 60 days.
Measure if it does not last 50 days.

13

14

15

Patient Stably?
Yes
Continue regimen. Follow up at least every 12 months with peak flow and consider spirometry based on symptoms or every 2 years.

• Increase dose of inhaled corticosteroid.
Beclomethasone HFA 2 puffs BID (1 inhaler lasts 30 days).

• Reinforce Patient Education. Proper use of inhaler, importance of scheduled dosing of anticholinergics and corticosteroid inhalers, and risk factor avoidance.

No

16

17

18

Patient Stably?
Yes
Continue regimen. Follow up at least every 12 months with peak flow and consider spirometry based on symptoms or every 2 years.

No

19

Consider referral to specialist.

Demonstrate proper inhaler technique and verify patient's understanding by observing the patient performing the technique:

1. Remove cap and hold upright.
2. Shake inhaler.
3. Tilt head back slightly and breathe out.
4. Position inhaler for open mouth (preferred) or closed mouth technique (see Diagram A&B).
5. Press down on inhaler to release medication as you start to breathe in slowly.
6. Breathe in slowly for 3-5 seconds.
7. Hold breath for 10 seconds to allow drug to reach deeply into lungs.
8. Repeat for next puff waiting 1 minute between puffs to allow second drug to penetrate lungs better.
9. Bronchodilator (B agonist, Albuterol) should be administered before other inhaled to allow best response.
10. Corticosteroid (Teramcinolone) should be taken every dose as prescribed by your doctor even if you are experiencing no symptoms to prevent attacks. These drugs do not work well on an as-needed basis for acute symptoms.

Note: This technique does not work with dry powder capsule inhalers.

Adapted from NAEP
Inhaler parts:
1. Dust cap  
2. Mouthpiece  
3. Base  
4. Piercing Button  
5. Center chamber  
6. Air intake vents

Figure 2: Inhaler Technique Tiotropium
1. Open the inhaler cap by pulling upwards and then open the mouthpiece.
2. Place 1 capsule in the center chamber.
3. Close the mouthpiece. You will hear a click when it is firmly closed.
4. Hold the inhaler with the mouthpiece upwards and press the piercing button in once. This makes a hole in the capsule and allows the medication inside the capsule to be released.
5. Breath out completely.
6. Raise the inhaler to your mouth and close your lips tightly around the mouthpiece. Keep your head in an upright position and breathe in slowly and deeply at a rate sufficient to hear the capsule vibrate. Hold your breath as long as is comfortable.
7. Open the mouthpiece again and turn the inhaler upside down to discard the capsule.
8. Close the mouthpiece and inhaler cap for storage.

Notes:
Do not store capsules in the inhaler
Do not open capsule package until you are ready to use the inhaler
I. Definition—According to the GOLD guidelines, "COPD is a disease state characterized by airflow limitation that is not fully reversible. The airflow limitation is usually both progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases."

II. Diagnosis
A. Consider diagnosis if patient has symptoms consistent with COPD and/or risk factors associated with the disease:
   1. Cough—present intermittently or every day, often present throughout the day. Seldom only nocturnal
   2. Sputum production
   3. Dyspnea—progressive (worsen over time), persistent (present every day), worse with exercise, worse during respiratory infections.
   4. Acute bronchitis—repeated episodes
   5. Onset in mid-life
B. Diagnosis is confirmed by spirometry:
   1. Post Bronchodilator FEV1 <80% of predicted value
   2. FEV1/FVC < 70%
C. Peak flow—low Peak flow is consistent with COPD but has less specificity
D. Chest X-ray—It is seldom diagnostic unless obvious bullous disease is seen but may be used to exclude other diagnoses.
E. Alpha-1 antitrypsin deficiency screening—Consider in patient that develops COPD at young age (<45 years) or has family history.

III. Classification

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| 0—At Risk | Normal Spirometry  
|         | Chronic Symptoms (e.g., cough, sputum production)                      |
| 1-Mild COPD | FEV1/FVC <70%  
|         | FEV1 <80% of predicted value  
|         | Usually, but not always a chronic productive cough                      |
| 2- Moderate COPD | FEV1/FVC <70%  
|         | FEV1 <80% of predicted value  
|         | Chronic productive cough  
|         | Shortness of Breath, especially with exercise                            |
|         | An occasional COPD flare up                                             |
| 3- Severe COPD | FEV1/FVC <70%  
|         | 30%<FEV1<50% of predicted value                                        |
|         | Chronic productive cough  
|         | Shortness of Breath  
|         | Fatigue and reduced ability to exercise                                  |
|         | Repeated and sometimes severe COPD flare ups                            |
| 4—Very Severe COPD | FEV1/FVC <70%  
|         | FEV1 <50% predicted or FEV1 < 50% predicted plus chronic respiratory failure |
|         | Chronic productive cough  
|         | Shortness of Breath, especially with exercise and  
|         | dressing and undressing themselves.                                    |
|         | Weight Loss  
|         | Blue skin color, especially in the lips, fingers and toes.             |
|         | Edema lower extremities  
|         | Life threatening COPD flare ups                                        |
IV. Risk Factors
A. Tobacco Smoke
B. Occupational dust and chemicals
C. Smoke from home cooking and heating fuel

V. Patient Evaluation
A. Obtain thorough medical history
1. Risk factors
2. Past medical history of respiratory problems such as asthma, allergies, infections, etc.
3. Family history of respiratory disease
4. History of symptom development and impact on activities and function
5. History of exacerbations/hospitalizations
6. Presence of co-morbidities such as heart disease and rheumatic disease
7. Past and current treatments
B. Physical Exam- Rarely diagnostic but important

VI. Goals of therapy
A. Prevent disease progression
B. Relieve symptoms
C. Improve exercise intolerance
D. Prevent complications
E. Prevent exacerbations
F. Reduce mortality
G. Prevent or minimize adverse effects of therapy

VII. Treatment
A. Nonpharmacologic Treatment
1. Risk factor avoidance (e.g. smoking cessation)
2. Exercise
3. Oxygen- Consider if patient has stage 4 COPD with chronic respiratory failure
4. PaO2 < 7.3 kPa (55mmHg) or SaO2 < 88% with or without hypoxemia or PaO2 between 7.3 kPa-8 kPa (55mmHg) or SaO2 90% of all evidence of pulmonary hypertension, peripheral edema suggesting heart failure or polycythemia (HCT > 55%).

B. Pharmacological Treatment- Approach to therapy is stepwise depending on disease severity.
1. Bronchodilators- Mainstay of therapy for COPD. Short-acting Beta 2 agonists are used as needed. Anticholinergics are used daily.
2. Glucocorticosteroids- May be considered in patients with severe COPD with symptomatic improvement with inhaled steroid or repeated exacerbations. Has not been shown to modify decline
### CHECKLIST FOR SECONDARY PREVENTION OF CORONARY ARTERY DISEASE*

The protocol does not replace sound clinical judgment nor is it intended to strictly apply to all patients.

#### DISEASE STATE MANAGEMENT

<table>
<thead>
<tr>
<th>ACHIEVED?</th>
<th>GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Blood pressure goal achieved?</td>
</tr>
<tr>
<td></td>
<td>&lt; 140/90 mm Hg or &lt; 130/80 mm Hg if patient has diabetes or chronic kidney disease</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Hypertension algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Lipid goal achieved?</td>
</tr>
<tr>
<td></td>
<td>LDL &lt; 100 mg/dL for pre-existing CAD patients</td>
</tr>
<tr>
<td></td>
<td>LDL &lt; 70 mg/dL if patient has pre-existing CAD and diabetes</td>
</tr>
<tr>
<td></td>
<td>If trig &gt; 200 mg/dL, then non-HDL-C** should be at least</td>
</tr>
<tr>
<td></td>
<td>&lt; 130 mg/dL and &lt; 100 mg/dL for very high risk patients</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Hypertension algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Diabetes goal achieved?</td>
</tr>
<tr>
<td></td>
<td>HbA1c &lt; 7%</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Diabetes algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Exhibiting heart failure symptoms or diagnosed with heart failure?</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Heart Failure algorithm</td>
</tr>
</tbody>
</table>

#### LIFESTYLE MODIFICATIONS***

<table>
<thead>
<tr>
<th>ACHIEVED?</th>
<th>GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Smoking cessation achieved?</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Tobacco algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Weight management achieved?</td>
</tr>
<tr>
<td></td>
<td>BMI: 18.5 to 24.9 kg/m²</td>
</tr>
<tr>
<td></td>
<td>Waist circumference: &lt; 40 inches in men</td>
</tr>
<tr>
<td></td>
<td>&lt; 35 inches in women</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Tobacco algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Physical activity achieved?</td>
</tr>
<tr>
<td></td>
<td>Minimum of 30 minutes 5 days per week</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Tobacco algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Diet for health initiated (or other diet as clinically indicated)?</td>
</tr>
<tr>
<td></td>
<td>Encourage low salt and low fat</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Tobacco algorithm</td>
</tr>
<tr>
<td>Yes</td>
<td>Dental evaluation annually?</td>
</tr>
<tr>
<td>No</td>
<td>If not, Refer to Tobacco algorithm</td>
</tr>
</tbody>
</table>

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* Patients covered by this guideline include those with established coronary and other atherosclerotic vascular disease, including peripheral arterial disease, atherosclerotic aortic disease, and carotid artery disease. The treatment of a patient whose only manifestation of cardiovascular risk is diabetes is not covered by this guideline.

** Non-HDL-C = Total cholesterol – HDL cholesterol.

*** If Lifestyle Modifications are not met, then initiate treatment, perform education, or refer as appropriate.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved May 2008. Revised 9/09, 05/2012.
### MEDICATION MANAGEMENT

<table>
<thead>
<tr>
<th>INITIATED?</th>
<th>DRUG THERAPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Antiplatelet therapy initiated?1</td>
</tr>
<tr>
<td>No</td>
<td>• Start aspirin (unless contraindicated).</td>
</tr>
<tr>
<td></td>
<td>• Low dose of 81 mg daily.</td>
</tr>
<tr>
<td></td>
<td>• Continue indefinitely.</td>
</tr>
<tr>
<td></td>
<td>• Start clopidogrel 75 mg daily (unless contraindicated).1</td>
</tr>
<tr>
<td></td>
<td>• In combination with aspirin for at least 12 months in patients after acute coronary syndrome or persistent coronary intervention with stent placement.</td>
</tr>
<tr>
<td></td>
<td>• Start warfarin in atrial fibrillation, prosthetic heart valve, left ventricular thrombus, or concomitant venous thromboembolic disease (unless contraindicated).2</td>
</tr>
<tr>
<td></td>
<td>• INR goal 2-3 or as guidelines or warfarin DMG recommend.</td>
</tr>
<tr>
<td></td>
<td>• Based on appropriate guidelines or if unclear through pharmacotherapy consult.</td>
</tr>
<tr>
<td>Yes</td>
<td>ACE inhibitor initiated (unless contraindicated)?3</td>
</tr>
<tr>
<td>No</td>
<td>• Initiate at least 2.5 mg of enalapril daily.</td>
</tr>
<tr>
<td></td>
<td>• Titrate to a maximum tolerated dose or to a maximum dose of enalapril 40 mg daily.</td>
</tr>
<tr>
<td></td>
<td>• If ACE inhibitor intolerant consider a non-formulary angiotensin receptor blocker (ARB).</td>
</tr>
<tr>
<td>Yes</td>
<td>β-blocker initiated (unless contraindicated)?4</td>
</tr>
<tr>
<td>No</td>
<td>• Titrate to a maximum tolerated dose or to a maximum recommended dose.</td>
</tr>
<tr>
<td>Yes</td>
<td>Aldosterone blockade initiated (unless contraindicated)?5</td>
</tr>
<tr>
<td>No</td>
<td>• Initiate spironolactone at 25 mg daily in patients with Ejection Fraction ≤ 40% and diabetes or heart failure.</td>
</tr>
<tr>
<td></td>
<td>• Titrate to a maximum tolerated dose or to a maximum dose of spironolactone 100 mg daily.</td>
</tr>
<tr>
<td>Yes</td>
<td>Influenza vaccine annually (unless contraindicated)?6</td>
</tr>
<tr>
<td>No</td>
<td>•</td>
</tr>
</tbody>
</table>

---

1. Contraindications to antiplatelet therapy include allergies and significant bleeding risk.
2. Contraindications to warfarin include allergies and significant bleeding risk.
3. Contraindications to ACE inhibitor therapy include allergies and certain renal abnormalities.
4. Contraindications to β-blocker therapy include allergies and certain heart rhythm abnormalities.
5. Contraindications to aldosterone blockade include allergies, renal dysfunction, and hyperkalemia (K >5.0 mEq/L).
6. Contraindications to influenza vaccine include egg allergy.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, Approved May 2008. Revised 09/09, 05/2012.
MAJOR DEPRESSIVE DISORDER

1. Rule out other cause for presentation.

2. Meet DSM-IV criteria for Major Depressive Disorder?
   - Yes
   - No

3. Treat underlying disorder

4. Obtain baseline BPRS.
   - Psychotherapy should be the initial treatment of choice and should be continued throughout treatment even if drug therapy is started.

5. Psychotic features?
   - Yes
   - No
   - Formulary SSRI antidepressant for > 4 weeks (Table 1)
   - Monitor & follow BPRS
   - Assess medication compliance

6. Adequate response per BPRS?
   - Yes
   - No
   - Formulary SSRI antidepressant plus antipsychotic (Refer to Psychosis Disease Management Guideline)
   - Taper and discontinue antipsychotic once psychotic symptoms resolve
   - Monitor & follow BPRS
   - Assess medication compliance
   - Go to box # 8

7. If compliance < 80%, counsel on medication compliance and re-evaluate diagnosis and need for medication.
   - Re-evaluate diagnosis
   - Increase dose of current agent to maximal tolerated dose for ≥ 6 weeks or
   - Switch to another formulary agent (Table 1)

8. Adequate response per BPRS?
   - Yes
   - No
   - Continue therapy (See Remission box 14)
   - Monitor & follow BPRS

9. If compliance < 80%, counsel on medication compliance and re-evaluate diagnosis and need for medication.
   - Re-evaluate diagnosis
   - Switch to another formulary agent from a different class (Table 1) or
   - Consider augmentation with Lithium or other mood stabilizing agent or
   - Consider lifestyle changes (diet, exercise, proper rest) as augmentation strategies or
   - Consider pharmacotherapy consult and/or nonformulary medication

10. Adequate response per BPRS?
    - Yes
    - No
    - Continue therapy (See Remission box 14)
    - Monitor & follow BPRS

11. Remission
    - Yes
    - No
    - Continue treatment dose for 6 to 12 months
    - Consider decreased frequency of psychotherapy
    - Consider tapering off antidepressant

12. Remission annually for compliance, and continued need for medication.
    - Yes
    - No

13. First episode?
    - Yes
    - No

14. Consider tapering off antidepressant

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved 1/99, revised 5/02, 2/03, 4/03, 11/05, 5/07, 1/11, 9/11
### Table 1: Formulary Antidepressants

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>May Consider First If</th>
<th>Initial Dose (mg/day)</th>
<th>Therapeutic Range (ng/mL)</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selective Serotonin Reuptake Inhibitor (SSRI)</strong></td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>Atypical features or dysthymia</td>
<td>20</td>
<td>(20 – 40)</td>
<td>Pregnancy Test – as clinically indicated; Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td></td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>Atypical features or dysthymia</td>
<td>20</td>
<td>(20 – 60)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>Significant anxiety</td>
<td>50</td>
<td>(50 – 200)</td>
<td></td>
</tr>
<tr>
<td><strong>Tricyclic Antidepressant</strong>* (TCA)</td>
<td>Nortriptyline</td>
<td>Pamelor®</td>
<td>Melancholic features</td>
<td>25 – 50</td>
<td>(75 – 150)</td>
<td>Pregnancy Test – as clinically indicated; Emergence of suicidal ideation or behavior; Liver function test at baseline; Nortriptyline dose &gt; 100 mg/day – EKG at baseline and as clinically indicated, and blood level within 2 weeks, then as clinically indicated</td>
</tr>
<tr>
<td></td>
<td>Trazodone</td>
<td>Desyrel®</td>
<td>Atypical features or dysthymia</td>
<td>100 – 150</td>
<td>(300 – 600)</td>
<td>Pregnancy Test – as clinically indicated; Emergence of suicidal ideation or behavior; Priapism</td>
</tr>
</tbody>
</table>

*Generally not recommended as first line or second line therapy for treatment of depression

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**BRIEF PSYCHIATRIC RATING SCALE (BPRS) - Instructions for the Clinician**

**Background:**

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual’s behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

**Instructions for Use and Scoring:**

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
### Brief Psychiatric Rating Scale (BPRS)

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not assessed</td>
</tr>
<tr>
<td>1</td>
<td>Not present</td>
</tr>
<tr>
<td>2</td>
<td>Very mild</td>
</tr>
<tr>
<td>3</td>
<td>Mild</td>
</tr>
<tr>
<td>4</td>
<td>Moderate</td>
</tr>
<tr>
<td>5</td>
<td>Moderately severe</td>
</tr>
<tr>
<td>6</td>
<td>Severe</td>
</tr>
<tr>
<td>7</td>
<td>Extremely severe</td>
</tr>
</tbody>
</table>

- **1. SOMATIC CONCERN** - Preoccupation with physical health, fear of physical illness, hypochondriasis.
- **2. ANXIETY** - Worry, fear, over-concern for present or future, uneasiness.
- **3. EMOTIONAL WITHDRAWAL** - Lack of spontaneous interaction, isolation, difficulty in relating to others.
- **4. CONCEPTUAL DISORGANIZATION** - Thought processes confused, disorganized, disoriented, disrupted.
- **5. IMPULSIONNESS**
- **6. MOTOR HYPERACTIVITY** - Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if hyperactivity is due to akathisia.
- **7. MANIFESTATION AND POSTURING** - Peculiar, bizarre, unnatural motor behavior (not including tic).
- **8. GRANDIOSITY** - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
- **9. DEPRESSIVE MOOD** - Sorrow, sadness, despondency, pessimism.
- **10. HOSTILITY** - Animosity, contempt, hostility, disinclination for others.
- **11. SUSPICIOUSNESS** - Mistrust, belief others harbor malicious or discriminatory intent.
- **12. HALLUCINATORY BEHAVIOR** - Perceptions without normal external stimulus correspondence.
- **13. MOTOR RETARDATION** - Slowed, weakened movements or speech, reduced body tone.
- **14. UNCOOPERATIVENESS** - Resistance, guardedness, rejection of authority.
- **15. UNUSUAL THOUGHT CONTENT** - Unusual, odd, strange, bizarre thought content.
- **16. BLUNTED AFFECT** - Reduced emotional tone, reduction in formal intensity of feelings, flatness.
- **17. EXCITEMENT** - Heightened emotional tone, agitation, increased reactivity.
- **18. DISTRACTIBILITY** - Confusion or lack of proper association for person, place, or time.
- **19. ELEVATED MOOD** - A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.
- **20. SUICIDALITY** - Expressed desire, intent, or actions to harm or kill self.
- **21. BIZARRE BEHAVIOR** - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.
- **22. SELF-NEGLECT** - Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.
- **23. DISTRACTIBILITY** - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individually attention may be drawn to noise in adjoining room, books on a shelf, interviewer’s clothing, etc.
TYPE 1 DIABETES MELLITUS

Institute lifestyle modification & group/individual education with specific patient goals.
- Baseline Labs: Hepatic Function Panel (LFP), UA, Lipid panel, thyroid function, EGC, fasting & 2 hour postprandial serum glucose and A1c.
- Initiate supravalent therapy if indicated (Table 5) and there are no contraindications to therapy (Table 1).
- Start low dose Ace-Inhibitor** (Enalapril 2.5mg QD) if no contraindications (see Table 5).
- Start statin therapy if LDL >100mg/dl. (Pravastatin 10 to 80mg if no contraindications – see Table 1.)
- Evaluate for target organ damage and co-morbidities – do baseline foot and eye exam.
- Weight loss (>10% above IBW), exercise plan, diet plan.
- Refer to Dental for oral/periodontal disease evaluation within 30 days from the initial chronic care visit.

**If intolerant to Ace-Inhibitor, microalbumin annually.
If microalbumin >36, consider non-dihydropyridine.
CCB (verapamil or diltiazem). Ace-inhibitor or CCB usage precludes necessity for annual microalbumin.

- Begin NPH insulin 0.5-0.6 units/kg/day. Administer 2/3 of dose before breakfast and 1/3 of dose before supper.
- Begin Regular sliding scale before each meal (AC).
- Order fingersticks (FS) 3 times a day before meals and at bedtime for 2 weeks.
- Follow up in 2 weeks

FOLLOW UP IN 2 WEEKS

Controlled?
- Yes
  - Reevaluate compliance with medications, exercise and diet.
  - Reevaluate regular sliding scale and NPH doses.
  - Consider referral to specialist.
- No
  - Is patient experiencing hypoglycemia ≥ twice a week? (FS <60mg/dl)?
    - Yes
      - Adjust insulin to prevent hypoglycemia.
      - Consider referral to specialist.
    - No
      - Evaluate the average amount of regular insulin needed before each meal for the past 2 weeks. Convert to fixed amount of regular insulin before each meal.
      - Monitor for hypoglycemia by obtaining FS AC and HS as clinically indicated – minimum of 4 times a week before different meals.
      - Return to clinic every month until stable, then follow up in Chronic Care Clinic.
      - Obtain A1c every 3 months
      - Obtain Complete Metabolic Panel (CMP), Hepatic Function Panel (LFP), Lipid panel, and UA annually
      - Conduct foot & eye exam annually

GLYCEMIC CONTROL INDEX*

<table>
<thead>
<tr>
<th>Ideal</th>
<th>Goal</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Blood Glucose</td>
<td>80-120</td>
<td>90-150</td>
</tr>
<tr>
<td>Eating Blood Glucose</td>
<td>100-140</td>
<td>&lt;150</td>
</tr>
<tr>
<td>A1c</td>
<td>7%</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Glycemic Control Statement:
Less stringent A1C goals than the general goal of < 7 % may be appropriate for patients with a history of severe hypoglycemia, limited life expectancy, advanced microvascular or macrovascular complications, or extensive comorbid conditions and those with longstanding diabetes in whom the general goal is difficult to attain despite diabetes self-management education, appropriate glucose monitoring, and effective doses of multiple glucose lowering agents including insulin.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1997, Revised 9/97, 3/01.

8/98, 9/02, 3/04, 9/06, 9/07.
7/08, 3/10.
**TYPE 2 DIABETES MELLITUS**

Random plasma glucose ≥ 200mg/dl, Fasting plasma glucose (FPG) ≥ 126 or A1c ≥ 6.5% on 2 occasions?

1. **IF FPG > 100mg/dl**
   - Yes: Recheck A1c in 3 months. Is A1c at goal of <7%?
     - Yes: Continue current therapy. Follow up in CEC in 6 months.
     - No: Recheck A1c every 6 months.
     - Continue current therapy. Follow up in CEC in 6 months.
     - Continue current therapy. Follow up in CEC in 6 months.

2. **IF FPG ≤ 100mg/dl**
   - Yes: Random microalbumin every 5 years in the most.
   - No: Categories of increased risk for diabetes:
     1. FPG 100 to 125 mg/dL
     2. A1C 5.7 to 6.4%
     3. 2hPG following OGTT 140 to 199 mg/dL
   - Counsel on exercise, diet and weight loss.
   - Provide diabetes education
   - Treat HTN and hyperlipidemia
   - Recheck FPG annually

   IF FPG <100mg/dl Rescreen every 3 years at the most
   - Recheck A1c in 3 months.
   - Is A1c at goal of <7%?
     - No: Continue current therapy. Follow up in CEC in 6 months.
     - Yes: Continue current therapy. Follow up in CEC in 6 months.

   3. Institute Lifestyle Modification & Group/Individual Education with Specific Patient Goals
   - Start metformin at 500mg qd if no contraindications (see Table 1). Titrate up to ≥1500mg/day in 500mg increments over 2-4 weeks. Maximum dose is 2500mg/day.
   - Order Complete Metabolic Panel (CMP), Hepatic Function Panel (LFP), UA, thyroid function, Lipid Panel and A1C.
   - Initiate aspirin therapy if indicated (Table 5) and there are no contraindications to therapy (Table 1)
   - Start low dose Ace-Inhibitor** (Enalapril 2.5mg QD) if no contraindication (see Table 1).
   - Start statin therapy if LDL is >100mg/dl. (Pravastatin 10 to 80mg if no contraindications – see Table 1.)
   - Evaluate for target organ damage and co-morbidities – do baseline foot and eye exam
   - Refer to Dental for oral/periodontal disease evaluation within 60 days from the initial chronic care visit

   4. Evaluate compliance with medications, diet and exercise plan.
   - Add glyburide if no contraindications (see Table 1). Starting dose is 2.5mg qd. Titrate up to 20mg/day in 2.5 – 5mg increments over 2-4 weeks.
   - Check AM and PM fructosamine (FL) for blood glucose (BG) tolerance.
   - Monitor for hypoglycemia.

   5. Reevaluate compliance with medications, diet and exercise plan.
   - Continue metformin.
   - Start evening insulin. Start NPH (0.2u/kg or 10-15u) every PM. Check FS. Titrate evening dose of NPH by 10% of total daily dose (TDD) until AM FS are at goal.
   - Reduce glyburide to 10mg every AM from BID.
   - Monitor for hypoglycemia.
   - Follow up at least monthly.

6. Reevaluate compliance with medications, diet and exercise plan.
   - Add glyburide if no contraindications (see Table 1). Starting dose is 2.5mg qd. Titrate up to 20mg/day in 2.5 – 5mg increments over 2-4 weeks.
   - Check AM and PM fructosamine (FL) for blood glucose (BG) tolerance.
   - Monitor for hypoglycemia.

7. Continue current therapy. Follow up in CEC in 6 months.
   - Recheck A1c every 6 months.
   - Recheck Complete Metabolic Panel (CMP), UA, Hepatic Function Panel (LFP) and Lipid Panel annually.
   - Conduct foot and eye exam annually.

8. Recheck A1c in 3 months. Is A1c at goal of <7%?
   - Yes: Continue current therapy. Follow up in CEC in 6 months.
   - No: Recheck A1c every 6 months.
   - Continue current therapy. Follow up in CEC in 6 months.
   - Continue current therapy. Follow up in CEC in 6 months.

9. Reevaluate compliance with medications, diet and exercise plan.
   - Continue metformin.
   - Start evening insulin. Start NPH (0.2u/kg or 10-15u) every PM. Check FS. Titrate evening dose of NPH by 10% of total daily dose (TDD) until AM FS are at goal.
   - Reduce glyburide to 10mg every AM from BID.
   - Monitor for hypoglycemia.
   - Follow up at least monthly.

10. Go to box #7

---

**GLYCEMIC CONTROL INDEX***

<table>
<thead>
<tr>
<th>Ideal</th>
<th>Goal</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Blood Glucose</td>
<td>80-120</td>
<td>90-130</td>
</tr>
<tr>
<td>Evening Blood Glucose</td>
<td>100-140</td>
<td>&lt;180</td>
</tr>
<tr>
<td>A1c</td>
<td>&lt;7%</td>
<td>&lt;7%</td>
</tr>
</tbody>
</table>

---

*See Glycemic Control Statement on page #1.

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Prepared By: The Correctional Managed Care Pharmacy & Therapeutics Committee, 03/1997, Revised 03/97, 6/98, 3/00, 03/03, 9/06, 9/07, 7/08, 3/10.
Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1997, Revised 9/97, 6/01, 4/03, 3/04, 9/06, 9/07, 7/08, 03/10.

13
Are PM fingersticks at goal?

Yes

14
Recheck A1c at 3 months.
Is A1c at goal of <7%?

No

Go to box #7

15
Are AM and PM fingersticks at goal?

Yes

16

Go to box #7

No

18
Recheck A1c at 3 months.
Is A1c at goal of <7%?

No

19
Are AM and PM fingersticks at goal?

Yes

20
Go to box #7

No

21
Am and PM fingersticks at goal?

Yes

22
Titrating NPH and/or Regular Insulin at or near TDD by 10%
if TDD is >200u/day, consider referral to specialist

No

23
Titrating NPH and/or Regular Insulin at or near TDD by 10%
if TDD is >200u/day, consider referral to specialist

Go to box #7

24

---

• Continue metformin and glyburide
  • Start Multi-dose Insulin Therapy by increasing NPH to twice daily dosing. Add NPH at 0.3u/kg in the AM and PM regimens started above in box #9. Titrates AM or PM dose of NPH by 10% of total daily dose (TDD) until AM and PM fingersticks are at goal.
  • Obtain AM and PM fingersticks (FS)
  • Monitor for hypoglycemia
  • Follow up at least monthly

• Intensify insulin regimen by adding Regular Insulin QD or BID if patient is not able to tolerate higher dose of NPH and/or is hyperglycemic after meals.
  • Taper and discontinue glyburide
  • Obtain AM and PM fingersticks (FS)
  • Monitor for hypoglycemia.
  • Follow up at least monthly

• Continue metformin

---

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1997, Revised 9/97, 6/01, 4/03, 3/04, 9/06, 9/07, 7/08, 03/10.
CONVERTING TYPE 2 DIABETICS FROM ORAL THERAPY TO INSULIN


Oral agent failure
- Patient is on maximum dose of glyburide and metformin and A1c is not at goal
- Do not use fixed dose 70/30 insulin unless patient is stable and only if doses of NPH and Regular insulin are similar to 70/30 ratio.

A1c ≥ 8.5%

Start evening insulin
- Discontinue metformin only if patient has contraindications (see Table 1)
- Decrease glyburide to 10mg every AM
- Start NPH at 0.1 to 0.25u/kg every PM. Titrate by 10% of Total Daily Dose (TDD) until fasting plasma glucose (FPG) is at goal.
- Check AM fingersticks
- Monitor for hypoglycemia

Start Multi-dose Insulin Regimen
- Discontinue metformin only if patient has contraindications (see Table 1)
- Start NPH at 0.3 - 0.5u/kg for TDD. Administer 2/3 of dose in the AM and 1/3 of dose in the PM. Titrate by 10% of TDD until AM and PM fingersticks are at goal.
- Check AM and PM fingersticks
- Monitor for hypoglycemia

Start Semi-Intensive Insulin Regimen
- Discontinue metformin only if patient has contraindications (see Table 1)
- Taper and discontinue glyburide
- Start NPH at 0.3 - 0.5u/kg for TDD. Administer 2/3 of dose in the AM and 1/3 of dose in PM.
- Start Regular Insulin at 5u in the AM and PM.
- Adjust NPH and Regular insulin by 10% of TDD in the AM and PM until AM and PM fingersticks are at goal.
- Monitor for hypoglycemia.

Check A1c q 3 months. Is A1c at goal <7%?

Yes
- Continue current therapy and follow up in CCC.
- Obtain A1c every 6 months
- Obtain Complete Metabolic Panel (CMP), UA, Hepatic Function Panel (LFP) and Lipid Panel annually
- Conduct foot and eye exam annually.
- Reinforce diet and exercise at each clinic visit

No

If pt is unable to tolerate higher dose of NPH and AM and/or PM FS are not at goal, may need to add regular insulin to regimen.

Yes
- Continue current therapy and follow up in CCC.
- Obtain A1c every 6 months
- Obtain Complete Metabolic Panel (CMP), UA, Hepatic Function Panel (LFP) and Lipid Panel annually
- Conduct foot and eye exam annually.
- Reinforce diet and exercise at each clinic visit

No

Reevaluate compliance with medications, exercise and diet.
- Titrate NPH and/or Regular insulin up or down by 10% of TDD. If TDD >200u/day, consider referral to specialist.
DIABETES DISEASE MANAGEMENT GUIDELINES

I. Assessment

A. Screening. Should be conducted on high risk individuals and those with suggestive symptomatology.

1. Criteria for Testing for Diabetes in Asymptomatic Undiagnosed Individuals:
   a. Testing for diabetes should be considered in all individuals at age 45 years and above, if normal, if should be repeated at 3 year intervals.
   b. Testing should be considered at a younger age or be carried out annually in individuals who:
      • are obese (≥ 120% desirable body weight/IBW or BMI ≥ 25 kg/m²)
      • have a first-degree relative with diabetes
      • are members of high-risk ethnic population (e.g., African-American, Latino Native American, Asian American, Pacific Islander)
      • have delivered a baby weighing > 9 lb or have been diagnosed with GDM
      • are hypertensive (≥ 140/90)
      • have an HDL cholesterol level ≤ 35 mg/dl and/or a triglyceride level ≥ 250 mg/dl
      • on previous testing, had IGT or IFG
      • have a history of vascular disease
      • have other clinical conditions associated with insulin resistance (e.g. PCOS or acanthosis nigricans)

B. Symptoms

1. Polyuria
2. Weight loss with polyphagia
3. Polydipsia
4. Blurred vision
5. Vaginitis or balanitis
6. Extremity numbness/paresthesia
7. Fatigue
8. Acanthosis Nigracans

C. Past Medical History: If previously diagnosed with diabetes, relevant history includes:

1. Periodontal disease
2. Exercise pattern
3. Eating patterns (frequency of going to chow and/or eating out of commissary)
4. Prior and current treatment of diabetes and results
5. Prior or current infections, frequency
6. Severity and cause of acute complications of DM (hypoglycemia/ketoacidosis)
7. Symptoms and treatment of chronic diabetic complications
   a. Microvascular: eye, kidney, nerve
   b. Macrovascular: cardiac, CVD, PAD
   c. Other: sexual dysfunction, gastroparesis

D. Physical exam. (Initial and CCC) Should include the following:

1. Height & Weight (complete at each visit)
2. Blood pressure (complete at each visit)
3. HEENT: Ophthalmoscopic examination (preferably dilated), oral exam, thyroid palpation
4. CV: cardiac exam, peripheral vascular exam to include pedal pulses
5. Extremities: Especially sensation of hands, fingers and feet
6. Abdominal exam
7. Skin examination
8. Neurological examination (to include monofilament exam on feet)
9. Dental examination

E. Lab Evaluation (See pathways for frequency)

1. Complete Metabolic Panel (CMP)
2. Fasting lipid panel
3. Urinalysis G & S if U/A abnormal
4. Calculated GFR
5. Test for microalbuminuria
6. A1c
7. EKG (if age > 35)
8. TSH (baseline)
9. Hepatic Function Panel (LFP)
II. Diagnosis
A. FPG: Ideally after an overnight fast (alternatively, no caloric intake for a minimum of 8 hours)
B. OGGT: Use is reserved for pregnant patients but may be used as an alternative to FPG
C. A1C: The test should be performed at a laboratory using a method that is NCEP certified and standardized to the DCCT assay

<table>
<thead>
<tr>
<th>CRITERIA FOR DIABETES MELLITUS DIAGNOSIS</th>
<th>Lab</th>
<th>Percentile</th>
<th>Categories of increased risk for diabetes</th>
<th>Diabetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Plasma Glucose (FPG)*</td>
<td>&lt; 100 mg/dL</td>
<td>100 to 125 mg/dL</td>
<td>2.12mg/dL</td>
<td></td>
</tr>
<tr>
<td>2hPG following OGGT*</td>
<td>&lt; 140 mg/dL</td>
<td>140 to 199 mg/dL</td>
<td>2.28mg/dL</td>
<td></td>
</tr>
<tr>
<td>HbA1c (A1C)*</td>
<td>&lt; 5.7%</td>
<td>5.7 to 6.4%</td>
<td>6.5%</td>
<td></td>
</tr>
</tbody>
</table>

*In the absence of unequivocal hyperglycemia the tests should be confirmed by repeat testing.

**OGGT = Oral glucose tolerance test.

III. Plan/Therapy
- Treatment should begin with metformin (see algorithm page 2), weight loss, dietary restrictions (ADA diet) and exercise.
  A. Diet: 45-55% total energy from carbohydrates, 20-35% from fat, 30 to 35% from protein and 20-35g of fiber daily
  B. Exercise: If there are no medical contraindications, at least 150 min/week of moderate-intensity aerobic physical activity (50-70% of maximum heart rate) and/or at least 75 min/week of vigorous aerobic exercise (>70% of maximum heart rate) is recommended
  C. Weight loss: Goal is to approach ideal body weight
  D. Pharmacologic Therapy:
  1. See Treatment Algorithms and tables 1-3.
  2. Glycemic Goals include A1c <7%, AM fingersticks 90-130mg/dL and PM fingersticks <180mg/dL
  E. Control of Co-morbid disease states such as:
    1. HTN  - SBP goal <130/80
    2. Lipids  - LDL <100 mg/dL, HDL < 40 mg/dL, TG < 150 mg/dL
  F. Vaccinations: pneumococcal and annual influenza

IV. Classification
A. Type 2 Diabetes: Should be an individualized assessment commensurate with the patient’s severity of illness.
  1. Goal of Antidote: if a patient is a brittle Type 1 Diabetic, for example, the patient should be assigned to a unit with 24 hour nursing coverage. Patients with severe diabetes and multi-system organ disease would be more appropriately monitored at a 24 hour nursing unit or RNF.
  2. Home Assignment: For most diabetics, who are stable, no restrictions. However, a severe diabete should probably not be assigned to a single cell. Those diabetes who are prone to hypoglycemia or ketosis should also be restricted to a lower floors, ground floor and restricted from climbing.
  3. Work Assignment: For patients prone to hypoglycemia or severe hypoglycemia, consideration should be given to restrictions from temperature and humidity extremes. Patients with documented peripheral vascular disease and/or neuropathy should not wear steel toe boots and should limit exposure.
  4. CPR: No restrictions unless severe diabetic, then as needed.
  5. Transportation: No restriction unless severe brittle diabetic that would necessitate nursing/EMS monitoring during transport.
EDUCATION FOR PATIENTS AND PRACTITIONERS

I. Who is educated?
A. Unit Practitioners – updated on diabetes so accurate and easy to understand information is provided to patients.
B. All diabetic patients
1. Type 1 diabetes – absolute deficiency in insulin secretion.
2. Type 2 diabetes – A combination of resistance to insulin action and inadequate compensatory insulin secretory response.

II. Who educates?
A. The Unit Team will delegate educational responsibility
1. Educator must document date and time of education in patient’s chart.
2. Physician, Physician’s Assistant, and Clinical Pharmacist have final responsibility to ensure education occurs (if not documented on chart as completed by some other designated education provider, must provide diabetes education at clinic visit).
3. Units with available dieticians will provide counseling on diet and how to choose the correct foods from the meal line, otherwise, diet counseling will be completed by the diabetes educator.

III. When does education take place?
A. Within the patient’s first week of stay on unit assignment OR at the initial visit to clinic, whichever comes first.
B. Group Education providing individual goals for weight, exercise, glucose levels, diet, etc.
C. Individual Education at clinic visits will supplement information provided by group education.

IV. What is included in diabetes education? (to include health services personnel and diabetic patients)
A. Pathophysiology of Type 1 versus Type 2 diabetes
B. Non-pharmacologic treatment plan & importance of lifestyle modifications
C. Signs, symptoms, and treatment for acute complications of diabetes mellitus
1. Hypoglycemia
   a. Signs and symptoms – diziness, light-headedness, diaphoresis, blurry vision
   b. Treatment – Counsel patient to ingest 15 grams of carbohydrates (i.e. 1 slice of bread, 4-5 small pieces of candy, ½ can of soda, 4 oz of orange juice). Have the patient wait 5-10 minutes for blood glucose to rise. If patient is continues to be symptomatic, counsel patient to have another 15 grams of carbohydrates or to seek medical attention.
2. Hyperglycemia
   a. Signs and symptoms – polyuria, polyphagia, polydipsia, blurred vision
   b. Treatment – exercise, hydration, diet counseling
3. DKA
   a. Signs and symptoms – polyuria, polyphagia, polydipsia, acute abdominal pain, nausea, shortness of breath, altered mental status, sinus tachycardia, ketotic breath
   b. Labs – serum ketones, anion gap/metabolic acidosis
   c. Treatment – manage as inpatient or as an emergent issue
D. Monitoring parameters – frequency and importance
1. A1c – Done every 3 months (if not at goal) or every 6 months (if at goal). A1c signifies overall control patient’s diabetes.
2. Finger stick – Ordinal at the provider’s discretion. This depicts a snapshot of patient’s blood glucose at the current time. The patient should be counseled to take the finger stick before the meal (i.e. breakfast and dinner). They should know what his or her goals are and be encouraged to self-record his or her glucose levels.
3. Lab work – serum ketones, anion gap/metabolic acidosis
4. Treatment – manage as inpatient or as an emergent issue
E. The importance of insulin – Patients should be counseled that diabetes is a progressive disease and that eventually he or she may be on insulin. Thoroughly counsel patient on potential side effects (i.e. hypoglycemia and possible weight gain), and how to manage them. Counsel patient to administer insulin while meals and that it is important not to skip meals when on insulin.
F. Proper techniques of administering insulin for all patients on insulin (i.e., proper self-administration, insulin preparation, mixing, and administration sites)
G. Chronic complications of diabetes (i.e., retinopathy, neuropathy, nephropathy, cardiovascular, cerebrovascular, and peripheral vascular disease) and means for prevention

H. Patient self-monitoring to include foot, skin, and wound care
Foot care tips:
1. Watch for pain, numbness, and/or wounds that will not heal.
2. Keep skin supple by drinking plenty of water. Never put lotion or moisturizers between the toes.
3. Wash feet daily with lukewarm water and soap.
4. Dry feet well, especially between the toes.
5. Check feet daily (excluding bottoms and between toes) for sores, redness, and swelling.
6. Change into clean socks daily.
7. Keep feet warm and dry.
8. Never walk barefoot.
10. Examine those daily for things that could hurt your foot such as rocks or debris.

I. Dental hygiene to include daily brushing in the morning and evening and flossing once daily.
Table 1. Contraindications to medications commonly used in Diabetes Management

<table>
<thead>
<tr>
<th>Medication</th>
<th>Absolute Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>• Renal impairment (i.e. SCr ≥ 1.4mg/dL in females and ≥ 1.5mg/dL in males)</td>
</tr>
<tr>
<td></td>
<td>• Metabolic acidosis, acute or chronic, including ketoacidosis</td>
</tr>
<tr>
<td></td>
<td>• Hypersensitivity to metformin</td>
</tr>
<tr>
<td>Glyburide</td>
<td>• Diabetic ketoacidosis</td>
</tr>
<tr>
<td></td>
<td>• Hypersensitivity to glyburide</td>
</tr>
<tr>
<td>Insulin</td>
<td>• Hypersensitivity to any component of the formulation</td>
</tr>
<tr>
<td>Enalapril</td>
<td>• Hypersensitivity to enalapril or other ACE inhibitors</td>
</tr>
<tr>
<td>Aspirin</td>
<td>• Syndrome of asthma, nasal polyps and rhinitis</td>
</tr>
<tr>
<td></td>
<td>• Inherited or acquired bleeding disorders (including factor VII and factor IX deficiency)</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
</tr>
<tr>
<td>Statins</td>
<td>• Unexplained persistent elevations of serum transaminases</td>
</tr>
</tbody>
</table>

Table 2. Comparison of Agents

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Decrease in A1c (%)</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifestyle monotherapy</td>
<td>1-2</td>
<td>Low cost, many benefits</td>
<td>Fails in 1 year</td>
</tr>
<tr>
<td>Metformin</td>
<td>1.5</td>
<td>Weight neutral, inexpensive</td>
<td>GI side effects, rare lactic acidosis</td>
</tr>
<tr>
<td>Glyburide</td>
<td>1.5 - 2.5</td>
<td>Inexpensive</td>
<td>Weight gain, hypoglycemia</td>
</tr>
<tr>
<td>Insulin</td>
<td>1.5</td>
<td>Improved lipid profile, inexpensive</td>
<td>Injections, monitoring, hypoglycemia, weight gain</td>
</tr>
</tbody>
</table>

Table 3. Pharmacokinetics of Insulin*

<table>
<thead>
<tr>
<th>Insulin</th>
<th>Onset of Action</th>
<th>Peak Action</th>
<th>Effective Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Insulin</td>
<td>30 to 60 min</td>
<td>2 to 3 hours</td>
<td>8-10 hours</td>
</tr>
<tr>
<td>NPH Insulin</td>
<td>2 to 4 hours</td>
<td>8 to 10 hours</td>
<td>12 to 18 hours</td>
</tr>
<tr>
<td>70/30 Insulin</td>
<td>30 to 60 min</td>
<td>3 to 12 hours</td>
<td>12 to 18 hours</td>
</tr>
</tbody>
</table>

Table 4. Sample Regular Insulin Sliding Scale

<table>
<thead>
<tr>
<th>Blood glucose range (mg/dL)</th>
<th>Units of regular insulin to be administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 to 200</td>
<td>2</td>
</tr>
<tr>
<td>201 to 250</td>
<td>4</td>
</tr>
<tr>
<td>251 to 300</td>
<td>6</td>
</tr>
<tr>
<td>301 to 350</td>
<td>8</td>
</tr>
<tr>
<td>351 to 400</td>
<td>10</td>
</tr>
<tr>
<td>401 to 450</td>
<td>12</td>
</tr>
<tr>
<td>451 to 500</td>
<td>14</td>
</tr>
<tr>
<td>&gt;501</td>
<td>Check for ketones, Contact unit provider</td>
</tr>
</tbody>
</table>

*UKPDS showed that a 1 percent fall in A1C was associated with a 35 percent reduction in microvascular endpoints, an 18 percent reduction in myocardial infarction, and a 17 percent reduction in all-cause mortality.

Pharmacologic Therapy
<table>
<thead>
<tr>
<th>Indication</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Prevention</strong></td>
<td></td>
</tr>
<tr>
<td>- Men &gt; 50 years of age with diabetes and at least 1 additional major cardiac risk factor (family history of CVD, hypertension, smoking, dyslipidemia, or albuminuria).</td>
<td>Consider aspirin therapy (75 to 162 mg/day).</td>
</tr>
<tr>
<td>- Women &gt; 60 years of age with diabetes and at least 1 additional major cardiac risk factor (family history of CVD, hypertension, smoking, dyslipidemia, or albuminuria).</td>
<td>Consider aspirin therapy (75 to 162 mg/day).</td>
</tr>
<tr>
<td>- Lower risk individuals, such as men &lt; 50 years of age or women &lt; 60 years of age without other major risk factors.</td>
<td>There is not sufficient evidence to recommend aspirin.</td>
</tr>
<tr>
<td>- Not recommended for patients &lt; 21 years.</td>
<td>Risk of Reye’s syndrome.</td>
</tr>
<tr>
<td><strong>Secondary Prevention</strong></td>
<td></td>
</tr>
<tr>
<td>- Patients with diabetes and a history of CVD.</td>
<td>Use aspirin therapy (75 to 162 mg/day).</td>
</tr>
<tr>
<td>- Patients with diabetes, CVD, and documented aspirin allergy.</td>
<td>Use clopidogrel (75 mg/day).</td>
</tr>
<tr>
<td>- Patients with diabetes, CVD, and an Acute Coronary Syndrome.</td>
<td>Combination therapy with aspirin (75 to 162 mg/day) and clopidogrel (75 mg/day) is reasonable for up to 1 year after the event.</td>
</tr>
</tbody>
</table>
Initial Assessment of Suspected Overdose
Management of TCA, Diphenhydramine, Benztropine & Anticonvulsant Overdose

NURSING ASSESSMENT FOR SUSPECTED OVERDOSE

Patient presents stating he/she has taken an overdose of pills:
1. Obtain patient pass.
2. Document: WHAT, HOW MANY, TIME THEY TOOK IF AVAILABLE (Patient may have taken another patient’s medication).
3. Initiate patient evaluation and assess level of consciousness. Monitor vital signs, oxygen saturation, & EKG. Initiate basic life support as indicated.
4. Monitor for side effects:
   a. Common (mild-moderate poisoning): Somnolence, anticholinergic effects (mydriasis, blurred vision, flushing, fever, dry mouth, urinary retention, decreased bowel sounds), tachycardia, nausea, and vomiting are common after overdose
   b. Moderate poisoning: Agitation, confusion, and hallucinations
   c. Severe poisoning: Delirium, psychosis, seizures, coma, respiratory depression, and ventricular dysrhythmias including torsades de pointe
5. Contact provider at the unit level or by telephone to obtain further orders.
6. Call Poison Center 1-800-222-1222 to report incident.

Suspected overdose of Diphenhydramine, Benztropine, Anticonvulsants, or Tricyclic Antidepressants (TCA)?

Yes

Obtain appropriate lab studies
Patient presents early and
• is fully conscious,
• has protected airway,
• is not at risk for GI perforation or hemorrhage and
• has not also ingested corrosives?

No

Consider patient medical history and exposure to other poisons. If patient is symptomatic transfer to ER.

Does the suspected overdose exceed the maximum daily dose? (See Dosing Table page 2)

No

Stabilize patient and provide general and supportive care, provide airway management if indicated. Transfer to ER.

Yes

Administer 8 ounces of Activated Charcoal slurry (Actidose®)

Observe 4-6 hours in the medical department.
• Consider additional courses of charcoal as clinically indicated.
• Consider repeat EKG to monitor for QT prolongation, ventricular arrhythmia, or heart block as clinically indicated.
• Obtain report and if asymptomatic release patient.
• Schedule follow up appointment next day and consider Mental Health referral.

Gastric lavage should only be performed within 1 hour of overdose and after an order has been obtained from a provider. Go to box 9 or transfer the patient to the ER if symptomatic.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved March 2011.
### Diphenhydramine, Benztropine & TCA Therapeutic and Toxic Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Therapeutic Dosing</th>
<th>Maximum Daily Dose</th>
<th>Common Dose of Severe Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benztropine</td>
<td>1-4 mg/day</td>
<td>8 mg/day</td>
<td></td>
</tr>
<tr>
<td>Dihydropyramine</td>
<td>25-50 mg q 4-6h</td>
<td>400 mg divided</td>
<td>&gt; 1 g</td>
</tr>
<tr>
<td>Desipramine</td>
<td>100-200 mg/day</td>
<td>300 mg/day</td>
<td>10-20 mg/kg</td>
</tr>
<tr>
<td>Doxepin</td>
<td>75-150 mg/day</td>
<td>300 mg/day</td>
<td>10-20 mg/kg</td>
</tr>
<tr>
<td>Imipramine</td>
<td>75-150 mg/day</td>
<td>200-300 mg/day</td>
<td>10-20 mg/kg</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>75-150 mg/day</td>
<td>150 mg/day</td>
<td>10-20 mg/kg</td>
</tr>
</tbody>
</table>

### Desipramine Therapeutic and Toxic Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Therapeutic Dosing</th>
<th>Maximum Daily Dose</th>
<th>Common Dose of Severe Toxicity</th>
<th>Usual Toxic Serum Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valproic Acid</td>
<td>15-60 mg/kg/day</td>
<td>60 mg/kg</td>
<td>&gt;28 g</td>
<td>&gt;450 mcg/mL</td>
</tr>
</tbody>
</table>

### Phenytoin Therapeutic and Toxic Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Therapeutic Dosing</th>
<th>Maximum Daily Dose</th>
<th>Common Dose of Severe Toxicity</th>
<th>Usual Toxic Serum Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenytoin</td>
<td>300-400 mg/day</td>
<td>1,000 mg divided</td>
<td>&gt;20 mg/kg</td>
<td>&gt;20 mg/mL</td>
</tr>
</tbody>
</table>

### Carbamazepine Therapeutic and Toxic Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Therapeutic Dosing</th>
<th>Maximum/Daily Dose</th>
<th>Common Dose of Severe Toxicity</th>
<th>Usual Toxic Serum Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>Up to 1200 mg/day, divided</td>
<td>1600 mg divided</td>
<td>&gt;800 mg</td>
<td>&gt;12 mcg/mL</td>
</tr>
</tbody>
</table>
## Gastrointestinal Pathways

The protocol does not replace sound clinical judgment nor is it intended to strictly apply to all patients.

<table>
<thead>
<tr>
<th>Symptom / Disease</th>
<th>Present?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heartburn</td>
<td>Yes</td>
<td>Refer to Dyspepsia algorithm</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Ulcer</td>
<td>Yes</td>
<td>Refer to Peptic Ulcer Disease algorithm</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Reflux</td>
<td>Yes</td>
<td>Refer to GERD algorithm</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>H. Pylori Positive</td>
<td>Yes</td>
<td>Refer to H. Pylori algorithm</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, Approved September 2010, Revised 3-12.
Dyspepsia defined as chronic or recurrent pain or discomfort located in the upper abdomen. Dyspepsia is a subjective negative feeling that is non-painful, and can include early satiety or upper abdominal fullness.

Heartburn and/or regurgitation are present or predominant or frequent (more than once a week)?

Yes

No

NSAID/Cox-2 inhibitor use?

Yes

No

Discontinue NSAID if possible. If not, consider lower dose and/or change to PPI.

Age > 55 or alarm features present?

Yes

No

Consider specialty referral

See H. Pylori Algorithm

The pathways do not replace sound clinical judgment nor are they intended to entirely replace clinical judgment. These pathways are for general use only.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee,

Peptic Ulcer Disease (PUD)

1. Known or suspected PUD, Begin PPI therapy with Omeprazole 20 mg QD.

2. Age > 55 or alarm features present? (bleeding, anemia, early satiety, unexplained weight loss [> 10% body weight], progressive dysphagia, odynophagia, persistent vomiting, a family history of gastrointestinal cancer, previous esophageal or gastric malignancy, previous documented peptic ulcer, esophageal reflux, or an abdominal mass)
   - Yes: Go to box #8
   - No: See H. Pylori Algorithm

3. NSAID use? (Not possible unless at least 7 days on NSAID)
   - Yes: Discontinue NSAID if possible.
     - No: Consider lower dose and/or change to PRN.

4. Resolution? (Any cure of symptoms)
   - Yes: End therapy. Consider maintenance therapy with omeprazole 20 mg QD particularly for patients that remain on chronic NSAIDs. Reevaluate periodically for continued need.
   - No: Go to box #8

5. Previous H. Pylori treatment?
   - Yes: Resolution? (Any cure of symptoms)
     - Yes: End therapy. Consider maintenance therapy with omeprazole 20 mg QD particularly for patients that remain on chronic NSAIDs. Reevaluate periodically for continued need.
     - No: Go to box #8
   - No: See H. Pylori Algorithm

GASTROESOPHAGEAL REFLUX DISEASE

1. Weight loss.
2. No eating prior to bed.
3. No reclining after eating.
4. Avoid known irritants.
5. Rule out drug induced problems, such as agents that reduce LES tone (e.g., theophylline, estrogens, opiates, calcium channel antagonists).
6. Discontinue NSAID usage when possible. If not, consider lower dose and/or change to PPI.
7. Smaller meal size especially the last meal of the day.

OTHER FACTORS NOT APPLICABLE OR FEASIBLE AT TDCJ
1. Avoid alcohol.
2. Smoking cessation.
3. Elevation of the head of the bed (do not approve extra mattress).
4. Small frequent meals (do not approve AM & HS snacks).
5. Avoid late meals.
Ranitidine 300 mg BID X 60 days. Consider compliance assessment prior to proceeding.

Symptoms resolved?

Yes

Continue with lowest effective dose of H2 antagonist that controls symptoms

No

Discontinue ranitidine and start omeprazole 20mg QD X 30 days. Most patients on QD dosing should take PPI before breakfast but nighttime acid may be better controlled if taken with evening meal. Consider compliance assessment prior to proceeding.

Symptoms resolved?

Yes

Continue with lowest effective dose of proton pump inhibitor that controls symptoms

No

Increase dose of omeprazole 20mg BID taken before breakfast and evening meal x 60 days. Consider compliance assessment prior to proceeding

Symptoms resolved?

Yes

Continue with lowest effective dose of proton pump inhibitor that controls symptoms

No

Consider addition of nighttime H2RA (ranitidine 150mg q HS) or Prokinetic agent (Metoclopramide* 10mg AC & HS x 60 days). Consider compliance assessment prior to proceeding

Symptoms resolved?

Yes

Continue therapy.

No

Symptoms resolved?

Yes

Consider specialty referral.

No

*Metoclopramide

- Cautions/contraindications: Patients with increased risk for extrapyramidal symptoms, GI obstruction, perforation or hemorrhage, pheochromocytoma, depression or epilepsy.
- Chronic treatment with metoclopramide can cause tardive dyskinesia, a serious movement disorder that is often irreversible. The risk of developing tardive dyskinesia increases with the duration of treatment and the total cumulative dose. The elderly, especially elderly women, are most likely to develop this condition.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee.
H. Pylori Treatment

1. Order H. pylori (IgG) serology (Note: not used for documentation of eradication)

2. Consider other diagnosis (e.g., GERD, nonulcer dyspepsia)

3. Consider Helicobacter pylori Infection treatment with combination therapy for 15 days:
   1. BMOT:
      A. Bismuth Subsalicylate 2 tabs QID
      B. Metronidazole 250mg QID
      C. Omeprazole 20mg BID
      D. Tetracycline 500mg QID
   2. Alternative regimens also for 15 days:
      1. First Alternative Choice:
         A. Doxycycline 100mg BID
         B. Amoxicillin 1000mg BID
         C. Omeprazole 20mg BID
         D. Bismuth Subsalicylate 2 tabs BID
      2. Second Alternative Choice:
         A. Amoxicillin 1000mg TID
         B. Rifabutin 150mg QD
         C. Omeprazole 20mg BID
      3. Alternative in penicillin allergic patients only:
         A. Doxycycline 100mg BID
         B. Metronidazole 500mg BID
         C. Omeprazole 20mg BID
         D. Bismuth Subsalicylate 2 tabs BID
   4. Consider a GI consult or Pharmacotherapy consult for other alternative suggestions.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved September 2010. Revised 3/12.
Obtain patient history

- Medical history – prior GI bleed, hepatic disease, peptic ulcer disease, malignancy, comorbidities (esp. heart, respiratory, or renal disease)?
- Medication history – NSAID, steroid, ASA, anticoagulant or antiplatelet agents?
- Associated symptoms – dizziness, confusion, angina, palpitations, cold/clammy extremities, weakness, epigastric pain, dysphagia, GERD, anorexia, abdominal pain, bleeding?

Complete physical exam

- Signs of hypovolemia – resting tachycardia (HR > 100 bpm), tachypnea (RR > 20/min), orthostatic hypotension (SBP decrease > 20 mmHg, DBP decrease > 10 mmHg, or HR increase > 20 bpm), supine hypotension (SBP < 80 mmHg), cold extremities, poor mentation. (Note: hematocrit is a poor early indicator of blood loss)
- Assess for acute abdomen (guarding, rebound tenderness, rigidity)
- Perform rectal exam
- Assess for physical signs of liver disease
- Assess for active bleeding – hematemesis, hematochezia, melena

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee, May 2012
Chronic Heart Failure
(Left Ventricular Systolic Dysfunction)

1) Control HTN, DM, and hyperlipidemia
2) Weight reduction in obese (educate on exercise)
3) Low sodium diet
4) Pneumococcal and flu vaccination
5) Smoking cessation
6) Discontinuation of alcohol
7) Refer to Dental for oral/periodontal disease evaluation within 30 days from the initial chronic care visit.

The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.

Controlled?

Yes

No

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved February 2000.
Revised 2/03, 4/03, 7/04, 9/06, 3/12. Reviewed 1/06, 1/09.

*Start/add Enalapril Depending on vitals:
Initial Dose = 2.5 mg to 10 mg QD
Target Dose = 20 mg BID
OR
Start/add other ACE Inhibitor or ARB
Titrate & attempt to increase to target dose for maximum effect.
Monitor K+, BP, SCr

* Substitutions for Contraindications and ADRs with ACE Inhibitor:
1) Cough - Angiotensin II Blocker (nonformulary)
2) Angioedema or renal stenosis (contraindication):
   Hydralazine 25 mg TID Target dose = 75 mg TID
   and
   Isosorbide mononitrate 30 mg QD Target dose = 60 mg QD

Monitoring:
- Weight
- NYHA Classification
- Ejection Fraction
- Symptom occurrence
- Heart rate
- Vital signs
- Laboratory parameters

*Start/add Furosemide 20 - 40 mg QD
• STOP HCTZ if previously initiated
  Titrate to control by 20 mg increments daily (maximum dose = 80 mg BID)
  Monitor electrolytes, BP, SCr

Start/add HCTZ 25 mg QD
Target Dose = 25 mg QD
Monitor BP, K+, SCr

Start/add Furosemide 20 - 40 mg QD
• STOP HCTZ if previously initiated
  Titrate to control by 20 mg increments daily (maximum dose = 80 mg BID)
  Monitor electrolytes, BP, SCr

Start/add Furosemide 20 - 40 mg QD
• STOP HCTZ if previously initiated
  Titrate to control by 20 mg increments daily (maximum dose = 80 mg BID)
  Monitor electrolytes, BP, SCr

Continue Therapy
If patient becomes symptomatic go to Box # 11
Monitor Symptoms (weight gain)
If patient has been STABLE for at least 1 month and has NO contraindications to Beta-blockers
Add carvedilol 3.125 mg BID and increase as tolerated
Target dose = 25 mg BID
(Monitor blood pressure and pulse as indicated)

Nonstable Patients:
Add Digoxin 0.25 mg QD
in renal dysfunction decrease dose to 0.125 mg QD
measure serum level at 1 week target level = 0.9 - 1.2 ng/ml
Monitor K+, Toxicity
When patient becomes stable add carvedilol and spironolactone as recommended by consult.

The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.
Healthcare providers Education

General measures:

- Control hypertension, diabetes, and hyperlipidemia to decrease risk of new cardiac injury
- Monitor weight closely (fast increase is a sign of exacerbation)
- Reduce fluid intake and restrict salt to a moderate degree (<3 grams)
- Encourage exercise (as tolerated) to prevent or reverse physical unconditioning
- Influenza and pneumococcal vaccines to decrease risk of serious respiratory infections
- Refer to Dental for oral/periodontal disease evaluation within 30 days from the initial chronic care visit.

-Medications to be AVOIED include:
  - Non-steroidal anti-inflammatory drugs can decrease the effectiveness of ACE inhibitors and diuretics and can worsen renal and cardiac function.
  - Anti-arrhythmics: heart failure patients can experience cardiodepressant and proarrhythmic effects.
  - Calcium Antagonists: lack of evidence supporting efficacy, safety concerns

Medications:

Enalapril - ACE Inhibitor
- **Benefit:** All patients should be on ACEI to promote favorable effects on cardiac remodeling and increase survival rate.
- **When to use:** In NYHA Class I-IV (at diagnosis or any point thereafter)
- **Dosage initialization:** Begin initial dose monitoring potassium, SCr changes, and blood pressure.
- **Monitor:** 1) BP for hypertension; 2) K+ for hypokalemia; 3) SCr for unexpected elevation and renal insufficiency. If these occur, decrease dose and treat appropriately.
- **NOTE:** Class I can remain on an ACEI as sole therapy if contraindicated due to renal artery stenosis, consider isosorbide dinitrate and hydralazine

HCTZ – thiazide diuretic
- **Benefit:** Will assist in reducing blood pressure if a concomitant problem.
- **When to use:** In NYHA class II Only use in mild edema (occasional symptoms)
- **Dosage initiation:** Start patient at 25 mg. There is no proven benefit to increasing this dose.
- **Monitor:** 1) BP for symptomatic hypotension; 2) K+ for hypokalemia
- **NOTE:** It does not reduce fluid as efficiently as furosemide.
- **NOTE:** If continuation of symptoms DC and start furosemide.

Furosemide – loop diuretic
- **Benefit:** Manage fluid overload to reduce or minimize symptoms
- **When to use:** In NYHA class IV if HCTZ fails, replace with furosemide.
- **Dosage and titration:** Titrate dose to symptoms – stabilize patient and maintain patient on smallest dose
- **Monitor:** 1) BP for symptomatic hypotension; 2) K+ for hypokalemia
- **NOTE:** Treat electrolyte imbalances and continue therapy**
- **Options:**
  1. small dose of K+ sparing diuretic – spironolactone (assist in reduction of morbidity and mortality)
  2. slow the titration of furosemide and add a K+ supplement

- **Stabilize patient before addition of other pharmacological therapy**
Metoprolol – beta-blocker
- **Benefit**: Beta-blocker use may prevent disease progression even if symptoms have not responded favorably to treatment
- **When to use**: Initiate therapy early – should be added to diuretics and ACE inhibitors can be used with vasodilators and digoxin
- **Dosage and titration**: Optimize diuretic therapy before and during initiation of treatment and start low. Delay planned increments until the early side effects produced by the low doses of Beta-blocker have disappeared
- **Monitor**: 1) BP for hypotension; 2) pulse for symptomatic bradycardia < 60 BPM; 3) fluid retention or worsening heart failure during titration
- **Note**: **Use in STABLE patients ONLY**
  **Advisory Patients**
  1) Side effects may occur early in therapy but they do not generally prevent long-term use
  2) Improvements in symptoms may not be seen for 2-3 months
- **Contraindications include**: **Asthma, Type 1 diabetes, bronchospirom, or acutely ill patients**

Digoxin
- **Benefit**: Unknown
- **When to use**: In NYHA Class II-IV in patients with atrial fibrillation
- **Dosage and titration**: Maintain Serum levels between 0.8ng/ml-2.0ng/ml
- **Monitor**: 1) K+ for hypokalemia or hyperkalemia (can cause digoxin toxicity); 2) Mg2+
  **hypomagnesemia (can maintain hypokalemia)**
- **Side effects**: (commonly seen at toxic levels > 2ng/ml)
  1) cardiac arrhythmias
  2) nausea and vomiting
  3) visual disturbances and confusion
- **Note**: **Can initiate in conjunction with ACE inhibitor, diuretics, or Beta-blockers if early in therapy and symptoms are still present**
  **DO NOT use if acutely decompensating (may need intravenous tx)**

Spironolactone
- **Benefit**: Cardioprotective and use can reduce symptoms, and risk of death and hospitalizations
- **When to use**: In NYHA Class III or IV (based on literature)
- **Dosage**: Initiate at 25mg daily
- **Monitor**: 1) K+ for hyperkalemia 2) signs of gynecomastia-make patients aware of the side effect
- **Note**: **Encourage patient developing gynecomastia to continue treatment because benefits of decreased mortality are so great**
Physical exam:
- Daily (or as often as possible) weight measurements – to prevent any unexpected exacerbation
- Measurement of edema
  - Patient’s weight increase over short-term
  - Degree of Jugular Venous Distention (response to abdominal pressure)
  - Presence of organ congestion (lungs, liver)
  - Magnitude of peripheral edema (legs, presacral area, abdomen)

Goals of Therapy:
1. Prolong survival or slow progression of HF
2. Reduce mortality
3. Improve symptoms to increase patient’s QOL
Heart Failure (HF) - inability of the heart to pump out all the blood that returns to it. Measured by an ejection fraction (EF)

Warning Signals (SEE YOUR DOCTOR IF)
- Difficulty breathing while lying down
- Decreased urination
- Unusual weight gain/weight loss
- Swollen ankles, feet, or hands
- Chest pain
- Irregular heart rate

DO NOT miss your medication (You may be taking one of the following)
- Diuretics – reduce the excess water your body retains (HCTZ, Triamterene/HCTZ, Furosemide)
- ACEI and Vasodilators – relaxes the blood vessels so the heart does not work as hard (Captopril, Enalapril, Hydralazine and Isosorbide)
- Beta-blockers – protect the heart by decreasing the heart rate (Metoprolol, Coreg or Carvedilol)
- Digoxin – increase the pumping action of the heart
- Spironolactone – is considered a diuretic that makes the body retain potassium

Diet - Avoid salt to reduce amount of fluid held in the tissues (Peanuts, chips, ramen noodles, pretzels)

Exercise – Consult your doctor. Regular exercise, such as walking, will improve cardiovascular fitness and help strengthen the heart muscle. A strong heart does not have to work as hard to pump blood through the body.

Dental hygiene - Regular dental hygiene is important and should include daily brushing in the morning and evening and flossing once daily.
Chronic Hepatitis B

1. Obtain baseline tests
   - CBC w/platelets
   - Bili, Alb, ALT, AST, AFP
   - Prothrombin time
   - HCV, HIV, anti-HAV total
   - HBeAg, HBV-DNA if potential treatment candidate
   - Vaccinate as indicated

Evidence of uncompensated cirrhosis?

Evidence of compensated cirrhosis?

HBV-DNA detectable?

Refer for treatment evaluation

HBV-DNA ≥ 2,000?

Refer for treatment evaluation

ALT WNL?

HBV-DNA ≥ 2,000?

Consider biopsy especially if over 40, and treat if disease present

Periodic monitoring:

Consider biopsy and treat if disease present

ALT WNL?

Consider biopsy and other causes of ALT elevation and treat accordingly

Periodic monitoring if not treated

Periodic monitoring:

* Periodic monitoring – HBV-DNA and ALT (HBeAg if previous test positive) q3m for first year, then q6-12m in subsequent years

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/09. Reviewed 1/2012.
### Box A - Level 2 Labs for Hepatitis B
- Quantitative HBV-DNA
- Abdominal ultrasound
- Alpha-fetoprotein
- Alpha-1 antitrypsin
- Ceruloplasmin
- GGT and CK-MB if over 40 or clinically indicated
- ALT, AST, bilirubin, BUN, creatinine
- CBC, platelets, PT, T, TSH
- Fe, TIBC

If not done in the preceding 6 months:
- ALT, AST, bilirubin, albumin, BUN, creatinine
- CBC, platelets, PT, T, TSH
- Fe, TIBC

### Table 1: Monitoring Schedule on nucleoside analog therapy for hepatitis B

<table>
<thead>
<tr>
<th>Week of Treatment</th>
<th>Continued Tx</th>
<th>4 mos.</th>
<th>6 mos.</th>
<th>Post Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pro Rx</td>
<td>J</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>CBC / diff</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>FT/PT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Liver tests**</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Free T4, T3, TSH</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>alpha-fetoprotein</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Complete stool (if on entacapone or benzodiazepin)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBV-DNA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HbA1c (if initially elevated)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSHBD (if HbA1c &gt; 6.5%)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week of Treatment</th>
<th>Treatment Week</th>
<th>Pro Rx</th>
<th>J</th>
<th>4 mos. Post Rx</th>
<th>6 mos. Post Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Rx</td>
<td>I</td>
<td>6</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>CBC / diff</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>FT/PT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Liver tests**</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Free T4, T3, TSH</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>alpha-fetoprotein</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HBV-DNA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HbA1c (if initially elevated)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSHBD (if HbA1c &gt; 6.5%)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Liver tests: ALT, AST, bilirubin (conjugated & unconjugated), albumin, Alkaline phosphatase, LDH

### Table 2: Monitoring Schedule on Peg-IFN alfa

<table>
<thead>
<tr>
<th>Treatment Week</th>
<th>Week of Treatment</th>
<th>Pro Rx</th>
<th>J</th>
<th>6</th>
<th>12</th>
<th>16</th>
<th>Pre Rx</th>
<th>4 mos. Post Rx</th>
<th>6 mos. Post Rx</th>
<th>Post Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC / diff</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>FT/PT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Liver tests**</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Free T4, T3, TSH</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>alpha-fetoprotein (AFP)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBV-DNA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HbA1c (if initially elevated)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSHBD (if HbA1c &gt; 6.5%)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Liver tests: ALT, AST, bilirubin (conjugated & unconjugated), albumin, Alkaline phosphatase, LDH

Note that monitoring schedule is by week for interferon and by month for nucleoside analogs
The pathway does not replace sound clinical judgment. It strictly applies to all inmates.

**Chronic Hepatitis C Evaluation and Treatment Pathway**

1. **HCV +**
2. Baseline evaluation
3. Preventive care (see box A)
4. Abnormal LFT or HIV+?
   - ↑ Alk phos,
   - ↑ bil,
   - ↑ PT,
   - ↓ alb,
   - ↓ plt)
5. Obtain AST, ALT and HCV-PCR (qual)
6. ALT, AST WNL and PCR-?
7. Monitor clinical status and lab at least once a year (Box E)
8. No
   - Yes
9. Obtain AST, ALT and HCV-PCR (qual) twice within 12 months at least 1 month apart
10. Yes
    - No
11. APRI Calculation
12. Go to Box 18
13. APRI Calculation
14. Yes
15. Yes
16. Absolute contraindications to treatment? (Box B)
17. Yes
18. No
19. Obtain Level 2 labs. (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.
20. Yes
21. No
22. Varićes or HCC present?
23. Yes
24. Treat with IFN and ribavirin as indicated
25. Yes
26. Consider Liver Transplant
27. Yes
28. Monitor clinical and lab status at least once per year. Consider repeat biopsy in 3-5 years. Forfeitable duration of inpatient care ≥ 10 years
29. No
30. Varices or HCC present?
31. Yes
32. Monitor and treat clinically as indicated. Consider for MRI, hospice or transplant submission as indicated.
33. Yes
34. Consider Liver Biopsy
35. No
36. Ludwig-Batts score >1?
37. No
38. Yes
39. Monitor clinical and lab status at least once per year (Box E)
40. Yes
41. No
42. Go to Box 19
43. Absolute or uncorrectable
44. Provide treatment to control or resolve contraindication, if possible. If absolute or not correctable go to Box 19
45. Yes
46. No
47. Consider Liver Biopsy
48. Yes
49. No
50. Consider Liver Transplant
51. Yes
52. No
53. Varices or HCC present?
54. Yes
55. Treat with IFN and ribavirin as indicated
56. Yes
57. No
58. APRI Calculation (use most recent lab results)
59. AST/ULN)/ Platelets (1,000/mm3) x 100
60. Calculator is available on CMCWEB

**Prepared by:** The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved July 2008; Revised 5/11.

The pathway does not replace sound clinical judgement nor is it intended to strictly apply to all patients.
Baseline Evaluation:
- History and physical
- ALT, AST, Alk Phos, Bilirubin
- CBC, platelets, PT, PTT
- HBsAg, anti-HBs, anti-HAV
- HIV
- BUN/Creatinine

Preventive Care:
- Education and counseling
- Natural history of disease
- Potential treatments
- Behaviors to avoid (eg, alcohol)
- Avoiding transmission
- Vaccination, if indicated

Hepatitis B
- Hepatitis A
- Additional care if cirrhosis present
- Pneumococcal vaccine
- Annual influenza vaccination
- Consider screening for hepatocellular carcinoma and esophageal varices

Box B – Contraindications
Refusal of treatment
Absolute contraindications:
- Uncompensated cirrhosis (Box C)
- Life-threatening comorbidity
- Uncontrolled autoimmune disorders
- Poorly controlled diabetes
- Solid organ transplant
- Untreated or uncontrolled hyperthyroidism
- Active suicidal ideation or poorly controlled psychiatric disorder
- Additional contraindications for diagnosis
- Pregnancy
- Hemoglobinopathies
- Hemotropic or other severe anemia
- Creatinine > 2

Relative contraindications:
- Ischemic cardiovascular or cerebrovascular disease
- Insufficient time left in system to complete work-up and treatment
- Poor compliance with work-up
- Evidence of ongoing high risk behavior
- Neutropenia or thrombocytopenia
- Poorly controlled HIV on HAART

Note: Treatable contraindications should be controlled or resolved and the patient reconsidered for treatment

Box C – Evidence of Uncompensated Cirrhosis
- Hepatic encephalopathy
- History of bleeding esophageal varices
- Ascites
- Laboratory abnormalities (but consider other causes of the abnormalities)
- Platelet count < 75,000
- Alkaline phosphatase > 2.0
- Prothrombin time prolonged > 2 sec
- Bilirubin > 1.5

Box D – Level 2 Labs
- Quantitative HCV-PCR
- HCV genotype
- Alpha 1 anti-trypsin
- Ceruloplasmin
- T4, TSH
- CBC and EKG if over 40 or clinically indicated
- Serum pregnancy test if female

<table>
<thead>
<tr>
<th>First time in the preceding 6 months:</th>
<th>AST, ALT, albumin, bilirubin, cholestrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC, platelets, PT</td>
<td>T4, TSH</td>
</tr>
<tr>
<td>Fe, TIBC</td>
<td></td>
</tr>
</tbody>
</table>

Box E – Annual Evaluation
- AST
- Platelet Count
- Other labs as clinically indicated

Box F – Comparison of Liver Biopsy Scoring Schema

<table>
<thead>
<tr>
<th>Stage</th>
<th>IASL</th>
<th>Ludwig-Batts</th>
<th>Metavir</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Fibrosis</td>
<td>No Fibrosis</td>
<td>Stage 0</td>
<td>F0</td>
</tr>
<tr>
<td>1 Fibrosis</td>
<td>Mild Fibrosis</td>
<td>Stage 1</td>
<td>F1</td>
</tr>
<tr>
<td>2 Fibrosis</td>
<td>Moderate Fibrosis</td>
<td>Stage 2</td>
<td>F2</td>
</tr>
<tr>
<td>3 Fibrosis</td>
<td>Severe Fibrosis</td>
<td>Stage 3</td>
<td>F3</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>Cirrhosis</td>
<td>Stage 4</td>
<td>F4</td>
</tr>
</tbody>
</table>

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved July 2008; Reviewed 5/11.
HIV DISEASE MANAGEMENT

1. Initial evaluation of HIV+ patients:
   1) Obtain medical history including sexual history, social history, medication history, & history of opportunistic infections.
   2) Complete physical examination: vital signs, height, general exam, neurologic examination, and pelvic exam with PAP and GC/chlamydia tests. Perform pelvic exam every 6 months for HIV+ female patients.
   3) Obtain baseline laboratories: CBC with differential, chemistry, LFTs, lipid profile, chronic hepatitis serology (Hepatitis C-anti-HCV, Hepatitis B- HBsAg, anti-HBc total, anti-HBs and Hepatitis A- anti-HAV total), RPR, CD4 count, HIV RNA viral load, PPD skin test, varicella-zoster titers, fasting blood glucose. Chest x-ray if pulmonary symptoms present or PPD is positive.
   4) Obtain resistance testing if HIV RNA > 1,000 copies/mL.
   5) Screen patients for risk of chronic kidney disease by obtaining urinalysis, calculating GFR, and assessing risk. Risk factors include family history of renal disease, African American, CD4 <200, VL > 4000, certain diseases (diabetes, HTN, hepatitis C co-infection), & concomitant use of nephrotoxic agents. If > 60, consider further evaluation. If normal & high risk based on risk factors, screen twice annually. If abnormal proteinuria does not have risk factors, follow up based on clinical signs or symptoms.
   6) Classify patient according to the 1993 CDC Revised Classification System for HIV Infection & record on the Master Problem List and PULHES and periodically thereafter as conditions change. Classification should be based upon the patient’s lowest CD4 count (see box A, page 3).
   7) Update vaccines: influenza vaccine annually, pneumococcal vaccine with single revaccination 5 years after the first dose, and hepatitis B & A vaccine if not already immune.
   8) Initiate prophylactic medication(s) for opportunistic infection(s) as indicated in box B & C page 3.
   9) Refer to dental for oral/periodontal evaluation within 30 days from initial chronic care visit.

2. Follow-up for HIV+ Patients:
   1) Evaluate in chronic care clinic at least every 6 months.
   2) Refer patients with CD4 counts < 500 cells/mm³ to Infectious Disease Specialist/Clinic or designated physician (Texas Tech Units) for evaluation (may be done by teledmedicine/DMS). Expedited referrals should be obtained for patients that are symptomatic or meet criteria in Box #3. If patient refuses, contact an Infectious Disease Specialist or designated physician (Texas Tech Units) for drug therapy and ITP recommendations.
   3) Refer patients with CD4 count <100 cells/mm³ to Infectious Disease Ophthalmologist/Clinic for a retinal examination to rule out CMV retinitis.
   4) Laboratories: HIV RNA viral load & CD4 count every 3-6 months. Obtain LFTs, lipid profile, CBC with differential, chemistry, fasting glucose, & urinalysis yearly.
   5) Consider discontinuing prophylactic medication(s) for opportunistic infection(s) as indicated in box B&C pages 3-4.

3. CD4 count < 350 cells/mm³, symptomatic, pregnant, HIV-associated neoplasmy, or hepatitis B co-infection when HBV treatment is indicated?
   
   
   1) Discuss pros & cons of drug therapy, adherence, resistance, administration, possible adverse effects & management.
   2) If patient committed, begin HAART. Consider follow up at 2 weeks to assess medication tolerance. Return to clinic in 1 month.
   3) If patient poor candidate for drug therapy and/or does not want to start therapy, return to clinic every 3-4 months for follow-up.

4. CD4 count 350 to 500 cells/mm³?
   
   
   1) Offer drug therapy.
   2) If patient committed, begin HAART. Consider follow up at 2 weeks to assess medication tolerance. Return to clinic in 1 month.
   3) If patient poor candidate for drug therapy and/or does not want to start therapy, return to clinic every 3-4 months for follow-up.

5. CD4 count > 500 cells/mm³?
   
   
   1) Refer to the referral sheet.
   2) Do not begin therapy.
   3) Monitor patient, return to clinic at least every 6 months.
   4) Obtain CD4 count and viral load every 3-6 months.
   5) Go to box #3 when patient parameters change.
### Box A: 1993 CDC Revised Classification System for HIV Infection and Expanded AIDS Surveillance Case Definition for Adolescents and Adults*

#### Clinical Categories

<table>
<thead>
<tr>
<th>CD4+ T-Cell Categories</th>
<th>(A) Asymptomatic, acute (primary) HIV infection, or persistent generalized lymphadenopathy</th>
<th>(B) Symptomatic, not A or C conditions</th>
<th>(C) AIDS indicator conditions***</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 500 cells/mm³ or ≥ 29%**</td>
<td>A1 B1 C1</td>
<td>200-499 cells/mm³ or 14-29%**</td>
<td>A2 B2 C2</td>
</tr>
<tr>
<td>&lt; 200 cells/mm³ or &lt; 14%**</td>
<td>A3 B3 C3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*patients with AIDS indicator conditions (C1, C2, C3) and CD4 counts < 200 (A3 or B3) are reported as AIDS cases

**CD4% of total lymphocyte count

***candidiasis, coccidioidomycosis, cryptococcosis, cryptosporidiosis, CMV, histoplasmosis, MAC, PCP, toxoplasmosis, wasting due to HIV, HIV encephalopathy, Kaposi’s sarcoma, etc.

### Box B: Primary Prophylaxis of Opportunistic Infections

<table>
<thead>
<tr>
<th>Initiate based on CD4 count (regardless of CD4 count)</th>
<th>Organism</th>
<th>Recommended Regimen</th>
<th>Alternative Regimens</th>
<th>Discontinuation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>M. tuberculosis</td>
<td>PPD ≥ 5 mm</td>
<td>INH 5mg/kg/day (max 300mg) or 900mg twice a week x 9 months</td>
<td>Rifampin 600mg po qd or Rifabutin 300mg po qd x 4 months</td>
</tr>
<tr>
<td>A. pneumoniea</td>
<td>Pneumococcal vaccine (repeat one time only in 5 years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza virus</td>
<td>Influenza vaccine (one dose annually)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A virus***</td>
<td>Hepatitis A vaccine (2 dose series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B virus*</td>
<td>Hepatitis B vaccine (3 dose series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 200**</td>
<td>Pneumocystis jirovecii</td>
<td>TMP-SMX DS qd, Mon-Fri, or three times a week</td>
<td>Dapsone 100mg qd or Pentamidine aerosolized 300mg q month</td>
<td>CD4 count &gt; 200 for &gt; 3 months (restart if CD4 count &lt; 200)</td>
</tr>
<tr>
<td>&lt; 100***</td>
<td>Encephalitis general</td>
<td>TMP-SMX DS qd</td>
<td>Dapsone 100mg qd + pyrimethamine 50mg q week + leucovorin 25mg q week</td>
<td>CD4 count &gt; 100 for &gt; 3 months (restart if CD4 count &lt; 100-200)</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>M. avium complex</td>
<td>Clarithromycin 500mg bid or rifabutin 500mg qd</td>
<td></td>
<td>CD4 count &gt; 50 for &gt; 3 months (restart if CD4 count &lt; 50)</td>
</tr>
</tbody>
</table>

* all susceptible (anti-HBc negative) patients

** start prophylaxis if have oropharyngeal candidiasis regardless of CD4 count

***if also antibody positive

****primary prophylaxis for CMV and deep fungal infections is generally not recommended

*****all susceptible patients

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee.

Approved 9/96, revised 9/97, 9/98, 7/02, 4/03, 1/04, 1/05, 5/06, 3/07, 5/07, 9/09, 7/10

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<table>
<thead>
<tr>
<th>Indication</th>
<th>Organism</th>
<th>Recommended Regimen</th>
<th>Alternative Regimen</th>
<th>Discontinuation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior PCP</td>
<td><em>Pneumocystis jirovecii</em></td>
<td>TMP-SMX DS qd</td>
<td>TMP-SMX DS Mon-Fri, Dapsone 100mg qd or Pentamidine aerosolized 10mg q month</td>
<td>CD4 count &gt; 200 for 3 months (restart if CD4 count &lt; 200 or PCP recurrence)</td>
</tr>
<tr>
<td>Prior toxoplastic encephalitis</td>
<td><em>Toxoplasmia gondii</em></td>
<td>sulfadiazine 1000-2000mg po qd + Pyrimethamine 25-50mg po qd + Leucovorin 10-25mg po qd</td>
<td>Clindamycin 500-4500mg po q 6-8 hrs + Pyrimethamine 25-50mg po qd + Leucovorin 10-25mg po qd</td>
<td>CD4 count &gt; 200 &amp; viral load undetectable &gt; 6 months* (restart if CD4 count &lt; 200)</td>
</tr>
<tr>
<td>Prior disseminated disease</td>
<td><em>M. avium complex</em></td>
<td>Clarithromycin 300mg po bid + Ethambutol 15mg/kg po qd +/- Rifabutin 300mg po qd</td>
<td>Azithromycin 500mg po qd + Ethambutol 15mg/kg po qd +/- Rifabutin 300mg po qd</td>
<td>CD4 count &gt; 100 for 6 months* (restart if CD4 count &lt; 100)</td>
</tr>
<tr>
<td>Prior end-organ disease</td>
<td><em>Cytomegalovirus (CMV)</em></td>
<td>Ganciclovir 5-6mg/kg/day IV 5-7 days a week or for retinitis ganciclovir 1gm po TID + SR implant q 6-9 months</td>
<td>Foscarnet IV 90mg/kg/day , Cidofovir 5mg/kg IV q 2 weeks, or Valganciclovir 1000mg po qd</td>
<td>CD4 count &gt; 100 for 5-6 months** (restart if CD4 count &lt; 100)</td>
</tr>
<tr>
<td>Prior disease</td>
<td><em>Cryptococcus neoformans</em></td>
<td>Fluconazole 200mg po qd</td>
<td>Itraconazole 200mg po qd, or Amphotericin (0.6-1mg/kg IV weekly or 3 times weekly)</td>
<td>CD4 count ≥ 200 for 6 months* (restart if CD4 count &lt; 200)</td>
</tr>
<tr>
<td>Prior disease</td>
<td><em>Histoplasma capsulatum</em></td>
<td>Itraconazole 200mg po bid</td>
<td>Amphotericin 1mg/kg IV weekly or Fluconazole 800mg qd</td>
<td>negative blood culture, CD4 count &gt; 150 for ≥ 6 months* (restart CD4 count ≤ 150)</td>
</tr>
<tr>
<td>Prior disease</td>
<td><em>Coccidiodes immitis</em></td>
<td>Fluconazole 400mg po qd</td>
<td>Itraconazole 200mg po bid or Amphotericin 1mg/kg IV weekly</td>
<td></td>
</tr>
<tr>
<td>Bacteremia</td>
<td><em>Salmonella species</em></td>
<td>Ciprofloxacin 500mg po bid x several months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent/severe recurrences</td>
<td><em>Hemophilus influenzae</em>***</td>
<td>Ceftriaxone 400mg po bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent/severe recurrences</td>
<td><em>Candida</em>** (oral, vulvovaginal, esophageal)</td>
<td>Fluconazole 100-200mg po qd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*if completed ≥ 12 months of treatment asymptomatic
**if initial treatment completed, asymptomatic, & regular ophthalmology exams
***recommended only if subsequent episodes are frequent or severe

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee.

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Patient and Provider Education

I. Who is educated?
   A. Health Services Personnel – updated on HIV so accurate and easy to understand information is provided to patients.
   B. All offenders with HIV

II. Who educates?
   A. Unit team will delegate educational responsibility - physicians and mid-level providers have the final responsibility to ensure education occurs.
   B. Educator must document education in patient’s chart.

III. When does education take place?
   A. Upon identification of having HIV.
   B. Individual education at clinic visit.
   C. Group education if available.

IV. What is included in education?
   A. Health Services Personnel
      1. Pathophysiology & diagnostic criteria
      2. Monitoring parameters
      3. Pharmacologic treatments
      4. Adverse event monitoring & management
      5. Drug resistance & importance of adherence
      6. Opportunistic infections & prophylactic therapy
      7. Goals of therapy
   B. Patients
      1. Pathophysiology
      2. Route of transmission
      3. Complications/risks of disease
      4. Pharmacologic treatments
      5. Monitoring parameters – frequency & importance
      6. Drug resistance & importance of adherence
      7. Individual treatment plan
      8. Dental hygiene to include daily brushing in the morning and evening and flossing once daily.
<table>
<thead>
<tr>
<th>Medication (Drug)</th>
<th>Dosage</th>
<th>Drug Interactions*</th>
<th>Adverse Effects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abacavir (ABC, Ziagen®)</td>
<td>300mg BID or 400mg QD</td>
<td></td>
<td>Hypersensitivity reaction characterized by fever, rash, malaise, anorexia, dyspnea, angioedema</td>
</tr>
<tr>
<td>didanosine IC (ddI, Videx IC®)</td>
<td>= 60kg 400mg QD or &lt; 60kg 375mg QD</td>
<td></td>
<td>Toxicity, nausea</td>
</tr>
<tr>
<td></td>
<td>CrCl = 60kg</td>
<td></td>
<td>Liver toxicity, nausea, diarrhea</td>
</tr>
<tr>
<td></td>
<td>60-90</td>
<td>200mg QD 125mg QD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 90 or HD</td>
<td>200mg QD 75mg QD</td>
<td></td>
</tr>
<tr>
<td>Etravirine (ETV, Emtriva®)</td>
<td>200mg QD</td>
<td></td>
<td>Nausea, vomiting, diarrhea, headache</td>
</tr>
<tr>
<td>lamivudine (3TC, Epivir®)</td>
<td>150mg BID or 300mg QD</td>
<td></td>
<td>Lactic acidosis with hepatic steatosis</td>
</tr>
<tr>
<td>stavudine (d4T, Zerit®)</td>
<td>&gt; 60kg 40mg BID</td>
<td></td>
<td>Lactic acidosis with hepatic steatosis</td>
</tr>
<tr>
<td></td>
<td>&lt; 60kg 30mg BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CrCl &gt; 60kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200mg q 12 150mg q 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200mg q 24 150mg q 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>zidovudine (AZT, ZDV, Retrovir®)</td>
<td>300mg BID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3: Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Drug Interactions*</th>
<th>Adverse Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efavirenz (EFV, Sustiva®)</td>
<td>600mg q HS best if taken on empty stomach</td>
<td>Rifampin, rifabutin, rifampicin, ergotamine, clarithromycin</td>
<td>Rash, CNS symptoms (e.g., dizziness, insomnia, vivid dreams), elevated LFTs, false positive cannabinoid test, avoid in pregnancy</td>
</tr>
<tr>
<td>Nevirapine (NVP, Viramune®)</td>
<td>200mg QD x 14 days Item 200mg BID or 400mg QD</td>
<td>Ketoconazole, rifampin, phenytoin, carbamazepine</td>
<td>Rash, elevated LFTs, hepatitis</td>
</tr>
</tbody>
</table>
| *not a complete list of drug interactions or adverse effects
<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage*</th>
<th>Drug Interactions**</th>
<th>Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atazanavir (ATV, Reyataz®)</td>
<td>400mg BID or 1200mg QD boosted or with Tenovir or RTV</td>
<td>Nausea, vomiting, diarrhea, rash, rash, hemolysis, increased bleeding in hemophiliacs</td>
<td>Diarrhea, nausea, prolongation of the QT interval, hyperbilirubinemia, jaundice, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Darunavir (DRV, Prezista®)</td>
<td>Treatment Naïve patient: DRV 800 + RTV 100 BID; Treatment Expressed patient: DRV 1000 + RTV 200 BID</td>
<td>Leucopenia, cholestasis, rhabdomyolysis, rhabdomyolysis, nephrotoxicity, rhabdomyolysis</td>
<td>Diarrhea, nausea, vomiting, rash, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Fosamprenavir (f-APV, Lexiva®)</td>
<td>1400mg BID boosted: f-APV 1400 + RTV 100-200 BID, f-APV 700 + RTV 100 BID; With EFV: f-APV 700 + RTV 100-200 BID</td>
<td>Lovastatin, rifampin, rifabutin, rifapentine, ergotamine</td>
<td>Nephrolithiasis, GI intolerance, nausea, vomiting, rash, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Indinavir (IDV, Crixivan®)</td>
<td>800mg QD drink plenty of fluids, best if given on empty stomach, best if separate dosing with ddI by 1 hr</td>
<td>Carbamazepine, levothyroxine, rhabdomyolysis, rhabdomyolysis, nephrotoxicity</td>
<td>Nephrolithiasis, GI intolerance, nausea, vomiting, rash, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Lopinavir 200mg + Ritonavir 50mg (LPV, Kaletra®)</td>
<td>2 tabs BID or 4 tabs QD boosted or with ddI or EFV or NVP boosted</td>
<td>Lovastatin, rifampin, rifabutin, rifapentine, ergotamine</td>
<td>Nausea, vomiting, diarrhea, anorexia, elevated LFTs, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Nelfinavir (NFV, Viracept®)</td>
<td>1250mg BID boosted: f-APV 1400 + RTV 100-200 BID, f-APV 700 + RTV 100 BID, f-APV 1400 + RTV 300 BID</td>
<td>Lovastatin, rifampin, rifabutin, rifapentine, ergotamine</td>
<td>Nausea, vomiting, diarrhea, anorexia, elevated LFTs, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Ritonavir (RTV, Norvir®)</td>
<td>600mg BID drink plenty of fluids, best if given on empty stomach, best if separate dosing with ddI by 1 hr</td>
<td>Lovastatin, amiodarone, quinidine, clopidogrel, rhabdomyolysis, nephrotoxicity, thrombocytopenia, theophylline</td>
<td>Nausea, vomiting, diarrhea, anorexia, elevated LFTs, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Saquinavir (SQV, Fortovase®)</td>
<td>1200mg TID BID boosted: f-APV 1000 + RTV 100 BID; With EFV: f-APV 1000 + RTV 100 BID</td>
<td>Lovastatin, rifampin, rifabutin, rifapentine, ergotamine</td>
<td>Nausea, vomiting, diarrhea, rash, elevated LFTs, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
<tr>
<td>Tipranavir (TPV, Aptivus®)</td>
<td>500mg + RTV 200mg BID boosted or with ddI</td>
<td>Lovastatin, amiodarone, quinidine, rhabdomyolysis, nephrotoxicity</td>
<td>Hypersensitivity, rash, hypophosphatemia, hyperglycemia, fat redistribution, increased bleeding in hemophiliacs</td>
</tr>
</tbody>
</table>

*Dosages if used as the only PI in the drug regimen, dosages are often reduced if used in combination with other agents

**Not a complete list of drug interactions or adverse effects

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### Table 6: CCR5 Antagonist

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Drug Interactions</th>
<th>Adverse Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maraviroc</td>
<td>Tropism testing is required before use</td>
<td>With Protease Inhibitors except tipranavir, delavirdine, ritonavir, efavirenz, clarithromycin</td>
<td>Abdominal pain, cough, dizziness, musculoskeletal symptoms, pyrexia, rash, upper respiratory tract infections, hepatotoxicity, orthostasis</td>
</tr>
<tr>
<td></td>
<td>150mg BID</td>
<td>With all NRTI, EFV, RPV, NVP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300mg BID</td>
<td>With EFV, rifampin, carbamazepine, phenytoin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>600mg BID</td>
<td>Potent CYP3A inhibitors such as protease inhibitors, delavirdine, ritonavir, clarithromycin</td>
<td>Abdominal pain, cough, dizziness, musculoskeletal symptoms, pyrexia, rash, upper respiratory tract infections, hepatotoxicity, orthostasis</td>
</tr>
</tbody>
</table>

### Table 7: Integrase Inhibitors

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Drug Interactions</th>
<th>Adverse Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raltegravir</td>
<td>400mg BID</td>
<td>rifampin</td>
<td>Nausea, headache, diarrhoea, pyrexia, fatigue, elevated CPK</td>
</tr>
<tr>
<td></td>
<td>With rifampin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>800mg BID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*not a complete list of drug interactions or adverse effects
I. Background
A. More than 50% of people do not know they are HIV-infected until they become symptomatic (an indicator of advanced disease).
B. Since the correctional setting is often an offender’s first interaction with the health care system, a thorough history of risk factors is important and HIV testing should be recommended to all new intakes.

II. Etiology
A. HIV (human immunodeficiency virus)
   1. Member of the Lentivirus family of retroviruses.
   2. There are two serotypes: HIV-1 and HIV-2. HIV-1 is the primary serotype in the U.S. HIV-2 is the primary serotype in Africa and is molecularly and serologically distinct. The two serotypes share only about 40% amino acid homology in their env surface glycoproteins.
   3. HIV is characterized by the presence of three main genes. The gag gene encodes for structural proteins of the viral core, the env gene encodes for the surface proteins of the virus, and the pol gene encodes for functional proteins including reverse transcriptase, ribonuclease, integrase, and protease.
B. AIDS (acquired immunodeficiency syndrome)
   1. Clinical syndrome characterized by profound immunologic deficits (CD4 count < 200 cells/mm³), opportunistic infections, and malignant neoplasms seen with prolonged HIV infection.

III. Transmission
A. All routes of transmission involve contact with contaminated blood or bodily fluids
B. Parenteral
   1. Occupational exposure - needle sticks
   2. Intravenous drug use - sharing contaminated needles
   3. Blood transfusion
   4. Organ transplant
C. Sexual
   1. Vaginal intercourse
   2. Anal intercourse
   3. Oral intercourse
D. Perinatal

IV. Presentation
A. Early
   1. Symptoms: fever, lymphadenopathy, pharyngitis, rash, myalgia, arthralgia, diarrhea, headache, nausea, vomiting, hepatosplenomegaly, weight loss
   2. Positive HIV antibody usually develops by 4-6 weeks following transmission, but rarely could be up to 12-24 weeks.
   3. Extremely high levels of HIV in the blood during acute infection is a hallmark of this disease stage
   4. Within days, HIV disseminates into sanctuary sites (lymph nodes, central nervous system) where it “hides out” and remains dormant.
   5. HIV viral levels decrease over the first 4 months post-transmission until plateauing to a set point (varies person to person)
B. Intermediate
   1. T cell destruction by HIV begins to weaken the immune system over time (in contrast to the acute stage, where the immune system “keeps pace” by producing an equivalent amount of CD4 cells).
   2. In general if untreated, there is an 8-10 year period during which an HIV+ individual undergoes a gradual decline in immune function (monitored by laboratory testing of CD4 count) and increase in HIV viral load (monitored by laboratory testing of viral load).
   3. Often no symptoms exhibited during this stage
   4. Factors which influence how long individuals will remain in this stage before progressing to advanced disease:
      a. How high the viral load is at setpoint
      b. If and when antiretroviral treatment is initiated
C. Late
   1. Untreated, the rapid replication of HIV will eventually deplete the immune system in most people to such an extent that the patient will lose critical body defenses and can succumb to infections, AIDS and ultimately death.
   2. Symptoms: opportunistic infections or malignancies, rash, neuropathy, diarrhea, recurrent vaginal candidiasis, thrush, herpes zoster, recurrent infections, anemia, weight loss
   3. Actual diagnosis of AIDS is made when the CD4 count falls below 200 cells/mm or when an AIDS-defining condition is diagnosed.
   4. Once a diagnosis of AIDS has been made, it remains with the patient even if his/her CD4 count returns to above 200 with antiretroviral therapy.
V. Diagnosis
   A. HIV antibody testing (if prior documentation unavailable or viral load is undetectable)
      1. Detects antibodies against HIV-1
      2. Median time to develop antibodies is 2 months after initial exposure; > 95% seroconvert within 6 months
      3. False positives: multiparous, recent influenza or hepatitis B vaccine, multiple blood transfusions, hematologic malignancy, chronic hemodialysis patients, autoimmune disorders such as SLE
      4. False negatives: newly infected & performed prior to antibody production, immunosuppressive therapy, bone marrow transplantation
   B. Viral load
      1. Diagnosis of acute HIV can be made by obtaining a quantitative HIV RNA PCR (viral load test)
      2. Infection must ultimately be confirmed with an HIV antibody test

VI. Treatment
   A. Table 8: Indication for drug therapy*
      | Clinical Category | CD4 Count | Recommendation |
      |------------------|-----------|----------------|
      | AIDS-defining illness | Any value | Treat |
      | Pregnancy | Any value | Treat |
      | HIV nephropathy | Any value | Treat |
      | Hepatitis B co-infected | Any value | Treatment when HBV treatment is indicated |
      | Asymptomatic | < 350 cells/mm³ | Treat |
      | Asymptomatic | > 500 cells/mm³ | Consider treatment |
      | Asymptomatic | > 500 cells/mm³ | Treatment generally deferred but may consider |
   B. Table 9: Recommended Initial Regimen for Treatment Naïve Patients*
      | Initial Regimen | Option for New Regimen |
      |----------------|------------------------|
      | NNRTI based | Efavirenz + Tenofovir + Emtricitabine (as triple combination) |
      | PI based | Atazanavir + Ritonavir QD + (Tenofovir/emtricitabine) |
      | INSTI based | Raltegravir + (Tenofovir/emtricitabine) |
      | Pregnancy | Lopinavir/ritonavir BID + Zidovudine + Lamivudine |
   C. Table 10: Alternative Regimens*
      | Initial Regimen | Option for New Regimen |
      |----------------|------------------------|
      | NRTI based | Efavirenz + Zidovudine + Emtricitabine |
      | PI based | Atazanavir + Ritonavir + Zidovudine + Emtricitabine |
      | | Atazanavir + Ritonavir + Abacavir + Emtricitabine |
      | | Nevirapine + Zidovudine + Emtricitabine |
      | | Atazanavir + Ritonavir + (Zidovudine + Emtricitabine) or (Tenofovir/emtricitabine) |
      | | Fosamprenavir + Ritonavir + (Abacavir + Emtricitabine) or (Tenofovir/emtricitabine) |
      | | Lopinavir/ritonavir + (Zidovudine + Emtricitabine) or (Tenofovir/emtricitabine) |
      | | Lopinavir/ritonavir + (Abacavir + Emtricitabine) or (Tenofovir/emtricitabine) |
      | | Lopinavir/ritonavir BID + Zidovudine + Lamivudine |

*adapted from Guidelines for the use of antiretroviral agents in HIV-1 infected adults and adolescents.
C. Regimens that should not be used

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monotherapy</td>
<td>Lack of potency &amp; sustained efficacy, rapid development of resistance</td>
</tr>
<tr>
<td>Dual nucleosides</td>
<td>Lack of potency &amp; sustained efficacy compared to triple drug regimens, resistance</td>
</tr>
<tr>
<td>Triple nucleosides</td>
<td>Higher rate of early virologic failure compared to other triple drug regimens</td>
</tr>
<tr>
<td>(Abacavir + Tenofovir + Lamivudine)</td>
<td></td>
</tr>
<tr>
<td>(Abacavir + Zidovudine + Lamivudine)</td>
<td></td>
</tr>
<tr>
<td>(Didanosine + Tenofovir + Lamivudine)</td>
<td></td>
</tr>
<tr>
<td>Quadruple nucleoside</td>
<td>Inferior virologic efficacy</td>
</tr>
<tr>
<td>(Abacavir + Lamivudine + Zidovudine + Tenofovir)</td>
<td></td>
</tr>
</tbody>
</table>

D. Combinations or Agents that should not be used

<table>
<thead>
<tr>
<th>Combination</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amprenavir + Fosamprenavir</td>
<td>Fosamprenavir is the prodrug of amprenavir. There is a possibility of toxicity without therapeutic benefit.</td>
</tr>
<tr>
<td>Atazanavir + Indinavir</td>
<td>Additive toxicity especially hyperbilirubinemia and jaundice</td>
</tr>
<tr>
<td>Didanosine + Stavudine</td>
<td>Additive toxicity especially neuropathy, pancreatitis, and lactic acidosis.</td>
</tr>
<tr>
<td>Didanosine + tenofovir</td>
<td>High rate of early virologic failure and rapid selection of resistance</td>
</tr>
<tr>
<td>Didanosine + Zalcitabine</td>
<td>Additive toxicity especially neuropathy</td>
</tr>
<tr>
<td>Efavirenz</td>
<td>First trimester of pregnancy, avoid throughout pregnancy</td>
</tr>
<tr>
<td>Stavudine + Zalcitabine</td>
<td>Additive toxicity especially neuropathy</td>
</tr>
<tr>
<td>Stavudine + Zidovudine</td>
<td>Decreased antiviral activity, antagonistic</td>
</tr>
<tr>
<td>Lamivudine + Zalcitabine</td>
<td>Decreased antiviral activity</td>
</tr>
<tr>
<td>Lamivudine + Emtricitabine</td>
<td>Same resistance profile and no benefit</td>
</tr>
<tr>
<td>Unboosted darunavir, saquinavir or tipranavir</td>
<td>Virologic benefit only demonstrated when boosted with ritonavir.</td>
</tr>
<tr>
<td>Nevirapine initiation in females with CD4 &gt; 250 or males with CD4 &gt; 400</td>
<td>Higher incidence of hepatic events, some fatal.</td>
</tr>
</tbody>
</table>
VII. Monitoring Therapy

A. CD4 Count
1. Indicator of immune system damage and risk for developing opportunistic infection, i.e., measure of immunological response
2. Specifically, it is a measure of the peripheral pool of CD4 cells which only accounts for approximately 2% of total lymphocyte population in the body
3. Together with viral load it is used to predict a patient’s risk for disease progression
4. Used to determine when to start antiretroviral therapy and to determine when to start or stop opportunistic infection prophylaxis
5. Measurements can vary due to technical & biological variations and have diurnal variation. As a result, it is important to follow the trend in CD4 count versus single value.
6. CD4 count should be monitored at baseline and every 3-6 months
7. +/- 30% change is considered a significant change

B. Viral Load
1. Indicator of the magnitude of viral replication & response to drug therapy, i.e., virological response
2. Specifically, it is a measure of viral replication and is reported as number of viral copies/ml of blood
3. Used to monitor a patient’s response to drug therapy
4. Decisions should be based on 2 measurements obtained 1-2 weeks apart due to technical & biological variations
5. Do not obtain within 4 weeks of intercurrent illness or immunization
6. Monitor at baseline, 2-8 weeks after initiating or changing therapy, and every 3-6 months thereafter
7. > 0.5 log or 3-fold change in viral load is considered significant
8. Should see 1 log (10-fold) decrease in viral load within 6 weeks (may take as long as 16 weeks if very high) of initiating drug therapy and should be undetectable within 4-6 months

C. Resistance Testing
1. Should be performed by experienced provider (e.g., Infectious Diseases Specialist) since requires expert interpretation
2. Absence of resistance should be interpreted cautiously in conjunction with previous drug use history
3. Should be performed at baseline, while on antiretroviral therapy or immediately (within 4 weeks) after discontinuation of therapy
4. Should not be performed if viral load < 1,000 copies/mL because amplification of virus is unreliable

D. HLA-B*5701 screening – Should be considered prior to prescribing abacavir. Abacavir should not be prescribed if positive and an abacavir allergy should be recorded in the patient’s medical record.

E. Co-receptor tropism assay – Must be obtained prior to prescribing a CCR5 inhibitor.

F. Response to Therapy
1. Generally see virologic, immunologic, and then clinical progression when a patient is failing therapy. These stages may be separated by months to years and discordant responses are possible.
2. Virologic Failure
   a. Incomplete virologic response (i.e., VL > 400 after 24 weeks of therapy or > 75 after 48 weeks of therapy)
   b. Virologic rebound after suppression. Repeated detectable viral load after prior suppression. This excludes isolated episodes of viremia (i.e. single level 50-1000)
3. Immunologic Failure
   a. Failure to increase CD4 count by 25-50 cells/mm$^3$ above baseline over 1 year
   b. CD4 count decreases below baseline
   c. Immunologic failure may not warrant drug therapy change if viral load is undetectable
4. Clinical Progression
   a. Occurrence or recurrence of HIV-related illness after 3 months excluding immune reconstitution which is generally seen within first 3 months of starting therapy
   b. Clinical progression may not warrant drug therapy change if viral load is undetectable
Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved February 1998, Revised April 7, 1999, 3/05, 7/09, 3/12.

1. H&P: Rule out secondary causes due to diabetes mellitus, hypothyroidism, chronic renal disease, obstructive liver disease, drugs (e.g., progestins, anabolic steroids, corticosteroids, antihypertensives).

2. Baseline laboratory: chemistry, thyroid function tests, urinalysis, liver function tests, lipid profile, BUN, S/Cr.

3. Evaluate patient for CHD risk factors and metabolic syndrome. See box A below.

4. Males < 35 years of age and females < 45 years of age should generally not be considered for drug therapy unless the patient has very high LDL (> 190 mg/dl) or multiple CHD risk factors. Instead dietary therapy should be emphasized.

5. Patients > 65 years of age should be considered for drug therapy if they are otherwise in good health and can expect a reasonably long life in the absence of CHD. Patients with chronic congestive heart failure, dementia, advanced malignant disease or active malignancy are not candidates for drug therapy.

6. Initiate Lifestyle Modifications (weight reduction in overweight patients, dietary therapy & increased physical activity) & Patient education for 12 weeks. See item 9 to initiate drug and diet control simultaneously.

1. Provide dietary counseling.

2. Initiate dietary therapy in patients without CHD with < 2 CHD risk factors when LDL is > 160 mg/dl. Goal of therapy is LDL < 160 mg/dl.

3. Initiate dietary therapy in patients without CHD with ≥ 2 CHD risk factors when LDL is > 130 mg/dl. Goal of therapy is LDL < 130 mg/dl.

4. Initiate dietary therapy in Severe Hyperlipidemia patients (LDL ≥ 190 mg/dl) or High Risk patients (CHD or CHD equivalent) when LDL is ≥ 160 mg/dl. Drug therapy should be considered now in high risk patients if LDL ≥ 190 mg/dl. Goal of therapy is LDL ≤ 100 mg/dl. Some experts recommend an optional goal ≤ 70 mg/dl for patients at very high risk (see box A).

5. Monitor lipid profile and assess diet adherence at 12 weeks.

6. For isolated hypertriglyceridemia or low HDL, see box B.

7. Active liver disease, abnormal elevations in liver function tests, patient experiencing an acute or serious condition predisposing to development of renal failure secondary to rhabdomyolysis (sepsis, hypotension, major surgery, trauma, severe metabolic, endocrine, or electrolyte disorders, or untreated epilepsy)?

8. Active liver disease, abnormal elevations in liver function tests, patient experiencing an acute or serious condition predisposing to development of renal failure secondary to rhabdomyolysis (sepsis, hypotension, major surgery, trauma, severe metabolic, endocrine, or electrolyte disorders, or untreated epilepsy)?

9. Consider referral or consult: Services, providers, & external consultation. Go to box #9 (page 7).

10. The decision to replace medical consultation care may be considered after 6 months in all patients.

11. HYPERLIPIDEMIA

1. 184 Risk factors: secondary causes due to diabetes mellitus, hypothyroidism, chronic renal disease, obstructive liver disease, drugs (e.g., progestins, anabolic steroids, corticosteroids, antihypertensives).

2. Baseline laboratory: chemistry, thyroid function tests, urinalysis, liver function tests, lipid profile, BUN, S/Cr.

3. Evaluate patient for CHD risk factors and metabolic syndrome. See box A below.

4. Males < 35 years of age and females < 45 years of age should generally not be considered for drug therapy unless the patient has very high LDL (> 190 mg/dl) or multiple CHD risk factors. Instead dietary therapy should be emphasized.

5. Patients > 65 years of age should be considered for drug therapy if they are otherwise in good health and can expect a reasonably long life in the absence of CHD. Patients with chronic congestive heart failure, dementia, advanced malignant disease or active malignancy are not candidates for drug therapy.

6. Initiate Lifestyle Modifications (weight reduction in overweight patients, dietary therapy & increased physical activity) & Patient education for 12 weeks. See item 9 to initiate drug and diet control simultaneously.

1. Provide dietary counseling.

2. Initiate dietary therapy in patients without CHD with < 2 CHD risk factors when LDL is > 160 mg/dl. Goal of therapy is LDL < 160 mg/dl.

3. Initiate dietary therapy in patients without CHD with ≥ 2 CHD risk factors when LDL is > 130 mg/dl. Goal of therapy is LDL < 130 mg/dl.

4. Initiate dietary therapy in Severe Hyperlipidemia patients (LDL ≥ 190 mg/dl) or High Risk patients (CHD or CHD equivalent) when LDL is ≥ 160 mg/dl. Drug therapy should be considered now in high risk patients if LDL ≥ 190 mg/dl. Goal of therapy is LDL ≤ 100 mg/dl. Some experts recommend an optional goal ≤ 70 mg/dl for patients at very high risk (see box A).

5. Monitor lipid profile and assess diet adherence at 12 weeks.

6. For isolated hypertriglyceridemia or low HDL, see box B.

7. Consider referral or consult: Services, providers, & external consultation. Go to box #9 (page 7).

8. The decision to replace medical consultation care may be considered after 6 months in all patients.
Drug Therapy

1. Pravastatin 40 mg

2. Nonformulary approval required for Rosuvastatin 10mg po qd. One of the following criteria generally met to use:
   A. > 30% reduction in LDL required to meet goal (see stratification below for LDL value)
   i. No CHD with ≤ 2 HD risk factors. Goal LDL < 160 (> 30% reduction= LDL > 225)
   ii. No CHD with ≥ 2 HD risk factors. Goal LDL < 130 ( > 30% reduction= LDL > 180)
   iii. CHD, CHD equivalence, or 10 yr risk ≥ 20%. Goal LDL < 100 ( > 30% reduction= LDL > 140)

B. Goal not reached with pravastatin 80mg/day after 12 weeks of therapy & compliance > 80%

3. For patients with elevated triglycerides or low HDL, consider gemfibrozil 600mg bid or niacin to a target dose of 1.5-2gm/day. TG levels >500mg/dl have been associated with pancreatitis and the initial ajm would be to reduce TG < 500mg/dl and then target LDL reduction if indicated. Caution should be used with combination therapy (especially with lovastatin) due to an increased risk of rhabdomyolysis and hepatotoxicity.

The pathways do not replace sound clinical judgment and are not intended to strictly apply to all patients.

---

**Drug Therapy Indicated.**

**Lipid-Lowering Agents**

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Starting Dose</th>
<th>Effect on Lipids</th>
<th>ADR</th>
<th>Contraindications</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statins</td>
<td></td>
<td>LDL ↓ 15-55%</td>
<td>Pravastatin 40mg QD</td>
<td>LDL, T ↑ 3-15%</td>
<td>Allopurinol</td>
</tr>
<tr>
<td>Basal</td>
<td>40mg QD</td>
<td>TG ↓ 1-40%</td>
<td>Cholestyramine 4gm QD</td>
<td>TG, T ↑ 3-5%</td>
<td><strong>Absolute</strong>: liver disease, GI upset, dysbetalipoproteinemia</td>
</tr>
<tr>
<td>Nicotinic Acid</td>
<td>500mg bid</td>
<td>LDL ↓ 5-25%</td>
<td>Niacin TR 500mg bid</td>
<td>GI upset</td>
<td><strong>Relative</strong>: chronic liver disease, severe gout, hyperuricemia</td>
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<tr>
<td>Fibric Acid</td>
<td>600mg bid</td>
<td>LDL ↓ 5-20%</td>
<td>Gemfibrozil 600mg bid</td>
<td>Dyspepsia</td>
<td><strong>Absolute</strong>: severe renal or liver disease</td>
</tr>
</tbody>
</table>

---

1. Assess compliance.
2. Intensify LDL-lowering therapy by increasing dose of statin if compliance is > 80%
3. Monitor LDL at 12 weeks to assess efficacy
4. RTC in 3 months

*Consider repeating steps 1-4 until goal LDL met or maximum dose reached. If patient prescribed pravastatin initially and goal LDL not reached with pravastatin/day after 12 weeks of therapy & compliance > 80%, consider trial of rosuvastatin.*

---

1. Monitor lipid profile (TC, LDL, HDL, TG) every 6-12 months
2. Monitor LFT & A1C as clinically indicated
3. Consider specialist referral or pharmacotherapy consult for consideration of combination therapy

---

*Consider lifestyle modifications and reinforce them every 6 months.*

---

* Use fibrates with caution:
   - cyclosporine, macrolide antibiotics, sake anthraquinone, potassium inhibitors, thienopyridines, P450 inhibitors (use fibrate with caution)
### Estimate of 10 Year Risk for Men

<table>
<thead>
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Hyperlipidemia Management

I. Who is educated?
   A. Unit Practitioners—updated on hyperlipidemia so accurate and easy to understand information is provided to patients
   B. All inmates with hyperlipidemia
      1. Primary prevention: inmates without evidence of CHD but who are at high risk because of high cholesterol together with multiple other CHD risk factors
      2. Secondary prevention: inmates with documented CHD

II. Who educates?
   The Unit Team will delegate educational responsibility
   A. The Educator must document date & time of education in patient’s chart
   B. Physicians and mid-level practitioners have final responsibility to ensure education occurs
   C. Units with available dieticians will provide counseling on diet & how to choose the correct foods from the menu. If dietician is unavailable, the Unit Team designee will complete counseling.

III. When does education take place?
   A. Upon identification as high risk OR for secondary prevention
   B. Group education: provides general information about hyperlipidemia, risk factors, weight, diet and exercise
   C. Individual education: occurs at clinic visit and provides individual risk assessment, goal setting, information about compliance with diet and exercise program and will supplement information provided by group education

IV. What is included in hyperlipidemia education?
   A. Health Services Personnel
      1. Pathophysiology & diagnostic criteria for hyperlipidemia
      2. Identification & management of secondary causes of hyperlipidemia
      3. Non-pharmacologic and pharmacologic treatments
      4. Follow-up evaluations
      5. Adverse event monitoring
   B. Hyperlipidemia patients
      1. Pathophysiology
      2. Individual treatment plan
      3. Lifestyle modifications
      4. Monitoring parameters: frequency and importance
      5. Complications/risk of disease

---

HEALTH SERVICES PERSONNEL EDUCATION HYPERLIPIDEMIA CLINIC

I. DEFINITION
   Hyperlipidemia is defined as an abnormally high concentration of fats in the blood. The major lipids are cholesterol and triglycerides. Concentrations of total cholesterol and low-density lipoprotein (LDL) cholesterol are highly associated with the development of CHD. An elevated, isolated triglyceride level may lead to pancreatitis and recent meta-analyses of prospective studies indicate that elevated triglycerides are an independent risk factor for CHD.

II. GENERAL PRINCIPLES
   Studies have shown a direct link between elevated cholesterol and the development of atherosclerosis and coronary heart disease (CHD). Much of the evidence from these studies supports the theory that lowering cholesterol is fundamental in reducing the morbidity and mortality from CHD. Recent clinical trials have shown that reducing LDL-cholesterol in patients with CHD, or those at risk for developing CHD, substantially decreases the risk of total mortality and the financial burden from cardiovascular disease. It is believed that a 1% reduction in cholesterol results in a 2% reduction in CHD risk. Screening and treatment strategies are based on risk stratification. Primary and secondary prevention trials have demonstrated that reduction of elevated total cholesterol and LDL cholesterol and increasing HDL cholesterol level can prevent the occurrence and recurrence of CHD. There is substantial evidence to support the use of aggressive treatment in patients with established CHD. Controversies exist in the area of primary prevention. The risk versus benefit of drug treatment in these patients should be carefully weighed, particularly in low-risk individuals.
III. PATIENT EVALUATION

A. Initial Clinical Evaluation

1. Age
2. Sex
3. Family History of lipid disorders, premature CHD, diabetes mellitus (DM)
4. Patient History of
   a. CHD
   b. Hypertension (HTN)
   c. DM
   d. Congenital heart disease (CHD)
   e. Peripheral vascular disease (PVD)
   f. Pancreatitis
   g. Peptic ulcer disease (PUD)
   h. Gout or hyperuricemia
   i. Thyroid disease
   j. Chronic renal insufficiency (CRI)
   k. Liver disease
   l. Tobacco and alcohol use
5. Diet History
6. Activity Level
7. Medication profile
8. Previous lipid levels
9. Physical Exam
   a. Height
   b. Weight
   c. Xanthomas
   d. Evidence of atherosclerosis

B. Risk Assessment

1. Major Risk Factors: (add 1 point for positive risk factors, subtract 1 point for negative risk factor)
   a. Positive Risk Factors*: (add 1 point for positive risk factors)
      i. Age (Male > 45 years; Female > 55 years)
      ii. Family History of Premature CHD (Heart attack or sudden cardiac death before age 55 in father or brother, or before 65 in mother or sister)
      iii. Current Cigarette Smoking
      iv. HTN (blood pressure 140/90 or higher, or taking antihypertensive medication)
      v. Low HDL-Cholesterol (<40 mg/dl)
   b. Negative Risk Factor: High HDL-Cholesterol (>60 mg/dl)

2. Complete 10 Year Risk Assessment for patients without CHD with ≥ 2 risk factors
3. Stratification of patients based on risk for development of future CHD events
   a. Low Risk
      i. No established CHD & <2 risk factors
      ii. Elevated cholesterol levels (LDL ≥ 160 mg/dl)
   b. Moderate Risk
      i. No established CHD & ≥2 risk factors
      ii. Elevated cholesterol levels (LDL ≥ 130 mg/dl)
   c. High Risk
      i. Established CHD
         a. CHD equivalent
            i. Atherosclerotic disease (peripheral arterial disease, abdominal aortic aneurysm, symptomatic carotid artery disease)
      ii. Diabetes
      iii. Multiple risk factors conferring a 10 year risk for CHD > 20%
      iv. Elevated cholesterol levels (LDL ≥ 100 mg/dl)
   d. Very High Risk
      i. Established CHD
      a. Multiple risk factors (especially diabetes)
      b. Over 65 years or poorly controlled risk factors
      c. Elevated cholesterol levels (LDL ≥ 100 mg/dl)
IV. TESTS TO GUIDE CLINICAL MANAGEMENT

**KEY:**
- TC = Total Cholesterol
- HDL-c = High-density lipoprotein cholesterol
- LDL-c = Low-density lipoprotein cholesterol
- TG = Triglyceride

A. Who To Test

1. Primary Prevention

   a. Fewer than 2 risk factors, no familial dyslipidemia:

   **PATIENTS** | **INITIAL SCREENING**
   --- | ---
   Patients 35-65 years | TC, HDL-c, LDL-c, TG
   Patients 65-75 years | Use clinical judgement based on life expectancy, TC, HDL-c, LDL-c, TG
   Patients > 75 years | Screening is not generally recommended for primary prevention

   *Adapted from ACP  **Adapted from NCEP III Guidelines

   b. 2 or more risk factors:

   **PATIENTS** | **INITIAL SCREENING**
   --- | ---
   Patients 35-65 years | TC, HDL-c, LDL-c, TG
   Patients 65-75 years | Use clinical judgement based on life expectancy, TC and HDL-c, LDL-c, TG
   Patients > 75 years | Screening is not generally recommended for primary prevention

   *Adapted from ACP  **Adapted from NCEP III Guidelines

   c. Patients at risk for familial dyslipidemia should be screened with a fasting lipid profile (TC, HDL-c, LDL-c, TG)

2. Secondary Prevention

   a. All patients under 75 years old with known CHD should have a fasting lipid profile (TC, HDL-c, LDL-c, TG), unless there is limited life expectancy due to other co-morbid diseases.

   b. For patients older than 75 screening is optional based on life expectancy.

B. Secondary Causes of Lipid Abnormalities

1. Drugs

   a. Alpha-agonists & antagonists - decrease TC & TG, increase HDL-cholesterol
   b. Beta-blockers - decrease TC, increase HDL-cholesterol
   c. Thiazide diuretics - increase TC, TG & HDL-cholesterol
   d. Oral contraceptives - increase TC, TG & HDL-cholesterol
   e. Cyclosporine - increase LDL-cholesterol
   f. Ethanol - increase TG
   g. Glucocorticoids - increase TC & TG
   h. Estrogens - increase TC & TG, decrease HDL-cholesterol

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2. Effects of Various Conditions

<table>
<thead>
<tr>
<th>DISORDER/PT CHARACTERISTIC</th>
<th>EFFECT ON LIPOIDS</th>
<th>L.A.T.E.T. TEST FOR SCREENING</th>
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<tbody>
<tr>
<td>Nephrotic Syndrome</td>
<td>Increase TC, Urinalysis, serum albumin</td>
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<tr>
<td>DM</td>
<td>Increase TC, increase TG, Decrease HDL-c</td>
<td>Glucose, A1c</td>
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<td>Obstructive Liver Disease</td>
<td>Increase TC, Liver function tests (LFT's)</td>
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<td>Hypothyroidism</td>
<td>Increase TC, increase TG, Thyroid function tests (TFT's)</td>
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<td>Chronic Renal Failure (CRF)</td>
<td>Increase TC, increase TG, Creatinine (Scr)</td>
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<tr>
<td>Obesity</td>
<td>Increase TC, decrease HDL-c</td>
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<tr>
<td>Alcohol</td>
<td>Increase TG, increase HDL-c</td>
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<tr>
<td>Inactivity</td>
<td>Decrease HDL-c</td>
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</table>

C. Factors That Alter Lipid Levels

1. Fasting
   - TC levels and HDL-cholesterol can be measured in the non-fasting patient. TG concentrations, however, are affected by recent food intake, and will alter the calculation of LDL cholesterol by the Friedewald equation: LDL-c = [TC] – [HDL-c] – [TG/5]. Therefore patients should be fasting for at least 12 hours prior to having blood drawn for lipid profile testing.

2. Elevated TG
   - If the TG concentration is > 400 mg/dl, a calculated LDL-c may be inaccurate. In this instance, a direct LDL-c measurement may be appropriate.

3. Illness
   - Recent myocardial infarction, stroke, surgery, trauma, or infection may transiently lower cholesterol.

V. MANAGEMENT

A. General Approach
   - Clinical decisions should be based on 2 lipid profiles, done 1 to 8 weeks apart, which have an LDL-c or TC difference of < 30 mg/dl.

1. Initial Classification in Patients Without CHD*

<table>
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<tr>
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<th>TC &lt; 200 mg/dl</th>
<th>TC &gt; 200-239 mg/dl</th>
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<th>HDL-c &lt; 40 mg/dl</th>
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2. Recommendations For Follow-up Screening Of Patients Without CHD*

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3. Treatment Decisions*

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</tr>
<tr>
<td>High</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Low Risk</td>
<td></td>
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<td></td>
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<tr>
<td>Moderate Risk</td>
<td></td>
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</tr>
<tr>
<td>High Risk</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Very High Risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from NCEP III Guidelines

139
B. Non-Pharmacologic Therapy
1. Diet
2. Exercise
3. Weight reduction in obese patients
4. Stop smoking
5. Decrease alcohol consumption

C. Pharmacotherapy
1. General Considerations
   - Diet changes and exercise should be attempted prior to initiation of drug therapy. Disease states that cause secondary dyslipidemia should be optimally managed prior to the initiation of drug therapy to treat dyslipidemia. In patients who are at particularly high risk, diet therapy and drug therapy may be initiated concurrently.
   - After dietary therapy, the first-line agents to treat hyperlipidemia are the HMG-CoA Reductase Inhibitors ("Statins"). In the past, niacin and bile acid sequestrants were used, but the shift has been to the statins. This has provided for a more aggressive approach to managing hyperlipidemia. The patients are usually well tolerated and consistent in taking the drug, but the expense is considerable.

   2. After dietary therapy, the first-line agents to treat hyperlipidemia are the HMG-CoA Reductase Inhibitors ("Statins"). In the past, niacin and bile acid sequestrants were used, but the shift has been to the statins. This has provided for a more aggressive approach to managing hyperlipidemia. The patients are usually well tolerated and consistent in taking the drug, but the expense is considerable.
   - Isolated hypertriglyceridemia or low HDL may be treated with gemfibrozil or nicotinic acid (see page 2 for a comparison of lipid lowering agents). Treatment for low HDL is generally reserved for persons with CHD and CHD risk equivalents. Triglyceride (TG) levels >500mg/dl have been associated with pancreatitis. In high risk persons, non-HDL-C (LDL + VLDL or total cholesterol minus HDL) is a secondary target when TGs are above 200mg/dl. In addition to diet and exercise, drug therapy may be considered in high risk patients when TG levels exceed 200mg/dl. The goal is 50mg/dl or higher than the identified LDL-C goal.

D. Metabolic Syndrome as a Secondary Target of Therapy
1. Definition: Constellation of lipid and nonlipid risk factors of metabolic origin that enhance the risk for CHD and is closely linked to insulin resistance.
2. Diagnosis: Patient has 3 or more of the risk factors listed below*

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Defining Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal Obesity</td>
<td>Men: &gt;102 cm (&gt;40 in)</td>
</tr>
<tr>
<td></td>
<td>Women: &gt;88 cm (&gt;35 in)</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>≥150 mg/dL</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td>Men: &lt;40 mg/dL</td>
</tr>
<tr>
<td></td>
<td>Women: &lt;50 mg/dL</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>≥130/85 mmHg</td>
</tr>
<tr>
<td>Fasting Glucose</td>
<td>≥110 mg/dL</td>
</tr>
</tbody>
</table>

*Adapted from NCEP III guidelines

3. Treatment
   - Primary goal of therapy is to achieve target goal for LDL cholesterol
   - Treat underlying causes (e.g., obesity and physical inactivity) with weight reduction & increased physical activity.
   - Treat associated nonlipid and lipid risk factors
      i. Treat hypertension
      ii. Use daily aspirin in patients with CHD
      iii. Treat elevated triglycerides (e.g., fibrate or nicotinic acid)
      iv. Treat low HDL cholesterol (e.g., fibrate or nicotinic acid)

E. Follow-up
1. History
   a. Diet Compliance
   b. Compliance with exercise program
   c. Medication compliance and presence of symptoms suggesting adverse drug reactions (if indicated)
   d. Current medications or pertinent changes in other drug therapy
   e. Biochemical markers of the modifiable risk factors
   f. Presence of muscular aches in large muscle groups

2. Physical Examination
   a. Weight
   b. Blood Pressure

3. Laboratory tests
   a. Fasting lipid profile
   b. LFTs as clinically indicated for patients on statins
   c. Creatine kinase (CK) if symptoms of myositis
   d. Glucose and/or A1c as clinically indicated for patients on metformin

4. Adverse event monitoring (including but not limited to):
   a. Significant elevations of liver enzymes (≥3 times the upper limit of normal) while on statins
   b. Symptoms of myositis while on statin therapy alone or in combination with other drugs
Hyperlipidemia (hyper = high levels, lipemia = fats in the blood) may be caused by high levels of cholesterol, high levels of triglycerides, or a combination of these two. In the hyperlipidemia clinic, we will discuss your lipid disorder as well as a plan of treatment for you. The treatment plan will depend on several factors such as your current risk for heart disease, your current disease status, how high your levels are, what medications you are taking, as well as other factors. You should read the information contained in this handout carefully. If any of the information that you are unclear about please do not hesitate to ask for clarification.

**HIGH CHOLESTEROL**

Many studies have shown that high cholesterol levels in the blood are a major risk factor for developing coronary heart disease (CHD). Some cholesterol in the blood is necessary. However, excess cholesterol in the blood may lead to fatty deposits in the walls of the arteries. These deposits can build up in the blood making blood flow to the heart more difficult. This process is known as atherosclerosis or "hardening of the arteries". The deposits build up in the walls of the arteries, which could lead to a heart attack. A variety of dietary cholesterol levels has been proven to decrease your risk of death from CHD and may decrease the incidence of atherosclerosis. Cholesterol is a waxy compound that the body needs and uses for many important functions. The liver makes some of the cholesterol from fat in the diet. The fat in the diet comes from meats, eggs, and fatty foods. There are two types of cholesterol: LDL-cholesterol (which has been called "bad cholesterol") and HDL-cholesterol (which has been called "good cholesterol"). The LDL-cholesterol is the type of cholesterol that is associated with atherosclerosis and heart disease. The HDL-cholesterol serves to protect the body from developing heart disease. A simple blood test can determine what a person's cholesterol level is. Changes in diet are often the most effective way to lower or maintain a healthy cholesterol level. One of the most important changes is to lower the amount of fat in the diet. Food packages, from the meat to the breakfast cereals, now have the percentage of fat and grams of fat on the label, which makes it easier to keep track of the amount of fat in the diet. One of the most important changes to make is to lower the amount of fat in the diet. Food packages, from the meats to the breakfast cereals, now have the percentage of fat and grams of fat on the label, which makes it easier to keep track of the amount of fat in the diet. One of the most important changes to make is to lower the amount of fat in the diet. Food packages, from the meats to the breakfast cereals, now have the percentage of fat and grams of fat on the label, which makes it easier to keep track of the amount of fat in the diet. One of the most important changes to make is to lower the amount of fat in the diet. Food packages, from the meats to the breakfast cereals, now have the percentage of fat and grams of fat on the label, which makes it easier to keep track of the amount of fat in the diet. One of the most important changes to make is to lower the amount of fat in the diet. 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Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 9/99, 8/02, 4/03, 1/04, 1/06, 5/09.

The pathways do not replace sound clinical judgement. We are designed to strictly apply to all patients.

Prehypertension (see appendix C)

Yes

Evaluate for target organ disease and cardiovascular risk factors (see appendix B).

Go to box #13, Page 2

The pathways do not replace sound clinical judgement. We are designed to strictly apply to all patients.

Continue encouraging lifestyle modifications. Follow-up in CCC per ITP.

Go to box #16, Page 2

Hypertension

Yes

Manage 2 causes (see appendix B).

Go to box #10, Page 2

Blood pressure between 121-129/81-89 (prehypertension)*

Yes

Go to box #13, Page 2

Blood pressure > 120/80 (normal)

Yes

No

No

No

No

No

Blood pressure > 120/80 (normal)

Yes

No

Drug abbreviations: ACEI, angiotensin converting enzyme inhibitor; BB, beta-blocker; CCB, calcium channel blocker

*Categories determined by highest BP category

†Initial combined therapy should be used cautiously in those at risk for orthostatic hypotension

¶Treat patients with chronic kidney disease or diabetes to BP goal of <130/80mmHg.

DBP, diastolic blood pressure; SBP, systolic blood pressure

Prehypertension

BP CLASSIFICATION

DBP* MMBP

SBP* MMBP

LIFESTYLE MODIFICATION

NO ANTIHYPERSTENSIVE INDICATION

WITH COMPELLING INDICATION

STAGE 1 HYPERTENSION

140-159 Or 90-99

Yes

Diuretics.

STAGE 2 HYPERTENSION

160 Or > 100

Yes

Two-drug combination for most† usually Thiazide-type diuretics and BB or ACEI or CCB.

STAGE 3 HYPERTENSION

SBP > 160 Or DBP > 110

Yes

Four-drug combination for most usually Thiazide-type diuretics and BB or ACEI or CCB.

STAGE 4 HYPERTENSION

SBP > 179 Or DBP > 119

Yes

Five-drug combination for most usually Thiazide-type diuretics and BB or ACEI or CCB.

INITIAL DRUG THERAPY

BP CLASSIFICATION

DBP* MMBP

SBP* MMBP

LIFESTYLE MODIFICATION

NO ANTIHYPERSTENSIVE INDICATION

WITH COMPELLING INDICATION

STAGE 1 HYPERTENSION

140-159 Or 90-99

Yes

Thiazide (see appendix D).

STAGE 2 HYPERTENSION

160 Or > 100

Yes

Two-drug combination for most† usually Thiazide-type diuretics and BB or ACEI or CCB.
Appendix A. CO-MORBIDITY FACTORS/COMPELLING INDICATIONS [1,2]

Patient Co-Morbidity/compelling indications or Demographics Which Represent Indications for Drug Therapy Modification

Isolated Systolic HTN – Thiazide Diuretic (HCTZ)

Angina Pectoris – BB (Amodil, Metoprolol), Then CCA (Verapamil, Diltiazem)

CHF or Ejection Fraction <40% – ACEI (should be used even if on diuretic already)

Diabetes Mellitus – ACEI (Enalapril), CCA (Verapamil, Diltiazem) may be considered in patients unable to tolerate ACEI or with contraindications. Maintain BP = 130/80.

Renal Insufficiency – Loop diuretic (Furosemide), BB or CCA (Verapamil & Diltiazem preferred), ACEI use is a relative contraindication in ACEI naïve patient. Maintain BP = 130/80.

Post Myocardial Infarction - NON-ISA BB (Metoprolol) and ACEI (Enalapril)

Recent Stroke Prevention - Thiazide Diuretic (HCTZ) and ACEI (Enalapril)

Recurrent Vascular Disease – CCA (Verapamil, Diltiazem)

Hypertensive Hyponatremia – Alpha blocker (Doxazosin)

Vascular Headaches - BB (Atenolol, Metoprolol) or CCA (Verapamil, Diltiazem).

Asthma or COPD – BB. Diuretic is relative contraindication.


CO-MORBIDITY FACTORS/COMPELLING INDICATIONS

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recommended Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated Systolic HTN</td>
<td>Thiazide Diuretic (HCTZ)</td>
</tr>
<tr>
<td>Angina Pectoris</td>
<td>BB (Amodil, Metoprolol), Then CCA (Verapamil, Diltiazem)</td>
</tr>
<tr>
<td>CHF or Ejection Fraction &lt;40%</td>
<td>ACEI (Enalapril), CCA (Verapamil, Diltiazem)</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>ACEI (Enalapril), CCA (Verapamil, Diltiazem)</td>
</tr>
<tr>
<td>Renal Insufficiency</td>
<td>Loop diuretic (Furosemide), BB or CCA (Verapamil &amp; Diltiazem preferred), ACEI use is a relative contraindication in ACEI naïve patient. Maintain BP = 130/80.</td>
</tr>
<tr>
<td>Post Myocardial Infarction</td>
<td>NON-ISA BB (Metoprolol) and ACEI (Enalapril)</td>
</tr>
<tr>
<td>Recent Stroke Prevention</td>
<td>Thiazide Diuretic (HCTZ) and ACEI (Enalapril)</td>
</tr>
<tr>
<td>Recurrent Vascular Disease</td>
<td>CCA (Verapamil, Diltiazem)</td>
</tr>
<tr>
<td>Hypertensive Hyponatremia</td>
<td>Alpha blocker (Doxazosin)</td>
</tr>
<tr>
<td>Vascular Headaches</td>
<td>BB (Atenolol, Metoprolol) or CCA (Verapamil, Diltiazem)</td>
</tr>
<tr>
<td>Asthma or COPD</td>
<td>BB. Diuretic is relative contraindication.</td>
</tr>
</tbody>
</table>


FORMULARY ANTIHYPERTENSIVES

<table>
<thead>
<tr>
<th>Category</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretics</td>
<td>Furosemide 20mg, 40mg</td>
</tr>
<tr>
<td></td>
<td>Hydrochlorothiazide 12.5mg, 25mg, 50mg</td>
</tr>
<tr>
<td></td>
<td>Metolurin 7mg</td>
</tr>
<tr>
<td></td>
<td>Triamterene 37.5mg / HCTZ 25mg</td>
</tr>
<tr>
<td>Beta Blocker</td>
<td>Amodil 25mg, 50mg</td>
</tr>
<tr>
<td></td>
<td>Metoprolol 25mg, 50mg, 100mg</td>
</tr>
<tr>
<td></td>
<td>Propranolol 10mg, 20mg, 40mg</td>
</tr>
<tr>
<td>Calcium Channel Blockers</td>
<td>Amlodipine 5mg, 10mg</td>
</tr>
<tr>
<td></td>
<td>Diltiazem 180mg, 240mg</td>
</tr>
<tr>
<td></td>
<td>Verapamil 180mg, 120mg</td>
</tr>
<tr>
<td>Alpha 1 Blocker</td>
<td>Doxazosin 1mg, 2mg, 4mg</td>
</tr>
<tr>
<td>Alpha 2 Agonist</td>
<td>Gasecoline 1mg, 2mg</td>
</tr>
<tr>
<td>ACE Inhibitor</td>
<td>Enalapril 2.5mg, 5mg, 10mg, 20mg</td>
</tr>
<tr>
<td>Other</td>
<td>Hydrochlorothiazide 25mg, 50mg</td>
</tr>
<tr>
<td></td>
<td>Minoxidil 2.5mg, 5mg</td>
</tr>
</tbody>
</table>
Detection and Confirmation

The following procedures are recommended for the detection and confirmation of hypertension:

- Patients should be seated in a chair with their backs supported and their arms bare and supported at heart level. Patients should have refrained from smoking or ingesting caffeine during the 30 minutes prior to the reading.
- BP measurement should begin after the patient has been at rest for at least 5 minutes.
- Appropriate cuff size must be used to ensure accurate readings. The bladder within the cuff should encircle at least 80% of the arm. A large adult cuff should be kept in all clinics.
- Measurement of BP with a mercury sphygmomanometer is the preferred method. However, a recently calibrated aneroid manometer or a validated electronic device can be used.
- SBP and DBP should be recorded.
- Two or more readings separated by 2 minutes should be obtained and averaged for proper confirmation. If these two readings differ by more than 5 mm Hg, additional readings should be obtained two weeks apart.

<table>
<thead>
<tr>
<th>SBP (mm Hg)</th>
<th>DBP (mm Hg)</th>
<th>Follow-up Recommended**</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;120</td>
<td>&lt;80</td>
<td>Recheck as clinically indicated in CCC per ITP</td>
</tr>
<tr>
<td>120-139</td>
<td>80-89</td>
<td>Confirm within 1 year in CCC per ITP***</td>
</tr>
<tr>
<td>≥140</td>
<td>≥90</td>
<td>Evaluate/Refer within 2 months</td>
</tr>
</tbody>
</table>

Recommendation for Follow-up Based on Initial Blood Pressure Readings

If systolic and diastolic categories are different, follow-up should be for the shorter time (e.g. 160/86 mm Hg should be evaluated or referred within one month).

Medical History

- Known duration and levels of elevated blood pressure.
- Patient history or symptoms of CHD, heart failure, cerebrovascular disease, peripheral vascular disease, renal disease, diabetes mellitus, dyslipidemia, gout, or sexual dysfunction.
- Family history of high blood pressure, premature CHD, stroke, diabetes, dyslipidemia, or renal disease.
- Symptoms suggestive of hypertension (headache, nose bleeds, dizziness, abnormal physical exam).
- History of recent changes in weight, leisure time physical activity, and smoking or tobacco use.
- Dietary assessment including intake of sodium, alcohol, saturated fat and caffeine.
- History of all prescribed and OTC medications, herbal remedies, and illicit drugs.
- Results and adverse effects of past antihypertensive therapy.
- Psychosocial and environmental factors that may influence hypertension control.

Cardiovascular Risk Factors

- Hypertension
- Obesity (Body Mass Index ≥ 30kg/m²)
- Physical inactivity
- Dyslipidemia
- Diabetes Mellitus
- Microalbuminuria or estimated GFR < 60 ml/min
- Age (>55 males, >65 females)
- Family history of premature cardiovascular disease (males < 55 or females < 65)
Appendix B. HYPERTENSION DISEASE MANAGEMENT GUIDELINES

**Physical Exam**
- Two or more blood pressure readings separated by 2 minutes with the patient supine or seated.
- Verification in the contralateral arm (if values are different, the higher value should be used).
- Measurement of weight, height, and waist circumference.
- Funduscopic examination for hypertensive retinopathy (i.e., arteriolar narrowing, focal arteriolar constrictions, arteriovenous crossing changes, hemorrhages and exudates, disc edema).
- Examination for the neck for carotid bruits, distended veins, or enlarged thyroid gland.
- Examination of the heart for abnormalities in the rate and rhythm, increase size, precordial heave, clicks, murmurs and third and fourth heart sounds.
- Examination of the lungs for rales and evidence for bronchospasm.
- Examination of the abdomen for bruits, enlarged kidney, masses and abnormal aortic pulsation.
- Examination of the extremities for diminished or absent peripheral arterial pulses, bruits, and edema.
- Neurological assessment.

**Routine Laboratory Test**
Routine laboratory test recommended prior to initiating therapy and annually to determine end organ damage and other risk factors include:
- U/A
- CBC
- Chem 20
- Fasting Lipid Profile (cardiac risk)
- TSH (baseline)
- EKG

**Secondary Causes of Hypertension**
- Renal disease
- Coarctation of the aorta
- Mineralocorticoid excess states
- Cushing's Syndrome
- Pharmacodynamic
- Pregnancy
- Drug-induced
- Sleep apnea
- Thyroid or parathyroid disease
- Obstructive uropathy

**Hypertensive Urgency Sample Protocol**
If patient is not currently prescribed a fast-acting antihypertensive agent, may consider giving a loading dose of clonidine 0.1mg, followed by 0.1mg hourly until goal is reached or a 0.6mg total dose (J Clin Hypertens 3 (3):158-164, 2001).

Prehypertension Classification*

Background:
Prehypertension is defined as having a systolic blood pressure within the range of 120-139 mmHg and/or a diastolic blood pressure of 80-89 mmHg. By creating this new classification (which was formerly considered "normotensive" in previous JNC reports), an additional 22% of American adults—approximately 44 million persons—are now taken out of the normal blood pressure range and are placed "at risk" for the development of hypertension.

Several reputable studies support the prehypertension categorization through the following findings:

- Framingham Heart Study found that an individual 30-year old (who was then normotensive in the study) has a 90% probability of developing HTN in their lifetime and a 60% probability of receiving anti-HTN meds.
- Framingham Heart Study found that individuals with blood pressure values in the range of 130-139/85-89 mmHg have a 2-fold increased risk of cardiovascular disease (CVD) versus a person with BP <120/80.
- Meta-analysis of 61 studies indicated that risk of death from CVD and stroke increases linearly with increasing BP beginning as low as 115/75 mmHg and for each increment of 20/10 mmHg the risk of CVD DOUBLES.
- According to Greenlund et al. (2004), persons with prehypertension were found to have a higher prevalence of other risk factors for heart disease and stroke (hyperlipidemia, obesity, diabetes) vs. normotensive persons.

Aggressive Management of the Prehypertensive Patient:
The main purpose of the prehypertension category is to identify persons who are at risk of developing hypertension and hypertension-related long-term complications in the future. It is important that healthcare providers identify prehypertensive patients early and manage this condition aggressively.

- **EDUCATION IS THE KEY HERE!** This is the opportunity to counsel patients on the serious complications of HTN and to promote healthy habits and lifestyle changes so that an actual diagnosis of HTN may be avoided. Keep in mind the following when managing the prehypertensive patient:
  - For persons without compelling indications (diabetes and/or kidney disease): treat with therapeutic lifestyle modifications only (see below). Follow-up in CCC per ITP.
  - For persons with compelling indications (diabetes and/or kidney disease): treat with therapeutic lifestyle modifications and begin drug therapy (see Appendix A). Follow-up in 4-8 weeks.

Therapeutic Lifestyle Modifications**:
There is no evidence yet to support the use of medications to treat prehypertension. Lifestyle modifications are currently the gold standard in the management of the condition. Suggested modifications and the extent of systolic blood pressure reduction are as follows:

<table>
<thead>
<tr>
<th>Modification</th>
<th>Recommendation</th>
<th>Approximate SBP Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction</td>
<td>Encourage patient to maintain normal body weight (BMI of 18-24.9)</td>
<td>5-20 mmHg for weight lost</td>
</tr>
<tr>
<td>Diet</td>
<td>Consider DFH and encourage adherence. Discourage commissary foods.</td>
<td>8-14 mmHg</td>
</tr>
<tr>
<td>Dietary sodium restriction</td>
<td>Encourage patient to reduce daily sodium intake to no more than 2.4g sodium or 6g NaCl</td>
<td>2-8 mmHg</td>
</tr>
<tr>
<td>Physical activity</td>
<td>Encourage patient to engage in physical activity for at least 30 minutes per day most days of the week</td>
<td>4-9 mmHg</td>
</tr>
</tbody>
</table>


**Set realistic goals for your patients and discuss the value of obtaining and goal setting. Be sure to praise or discuss gradual changes to their lifestyle, as they are more likely to comply with one change at a time.
HYPERTENSION EMERGENCY

Hypertensive emergencies are characterized by severe elevations in BP (>180/120 mm Hg) complicated by evidence of impending or progressive target organ damage. While hypertensive emergencies occur rarely, immediate blood pressure reduction is required to limit target organ damage. Target organ damage may be manifested as hypertensive encephalopathy, intracranial hemorrhage, acute myocardial infarction, acute left ventricular failure with pulmonary edema, dissecting aortic aneurysm, acute renal failure or eclampsia. Most hypertensive emergencies are treated initially with parenteral agents. Blood pressure reduction does not need to reach the normal range immediately. The initial goal of therapy is to reduce the mean arterial blood pressure* by no more than 25% within minutes to 1 hour, then, if stable, toward 160/100 to 110 mm Hg within 2 to 6 hours, avoiding excessive falls in pressure that may precipitate renal, cerebral, or coronary ischemia.

HYPERTENSION URGENCY

Hypertensive urgencies are those situations with severe elevations in BP without progressive target organ damage. Examples include upper levels of Stage 2 hypertension associated with severe headaches, shortness of breath, epistaxis, or severe anxiety. Blood pressure may be reduced within several hours. Elevated blood pressure alone, in absence of symptoms or new or progressive target organ damage, rarely requires emergency therapy. Hypertensive urgencies can be managed with oral doses of drugs which have a relatively fast onset of action. The choices include beta-blockers, ACE-inhibitors, alpha2-agonists, or calcium channel antagonists.

Obtain History
Perform Physical Exam
Obtain BP both arms, Evaluate heart, lungs and neck veins for evidence of CHF; examine optic fundi for hemorrhages, exudates or papilledema; determine all pulses especially if aortic dissection is suspect; perform abdominal exam for evidence of renal artery stenosis; Perform neurological exam; Evaluate head at 45° angle
Establish intravenous line
Evaluate target organ damage
Obtain EKG
Obtain labs
Chem-10, CBC, Urinalysis

Evaluate target organ damage (see text above)

1. Obtain History including compliance?
   BP > 180 mm Hg systolic and/or >120 mm diastolic
   or
   HTN with optic disc edema?
   or
   Progressive target organ damage?

2. Obtain History
   Normal MAP is: 70-105 mmHg

3. Obtain EKG

4. Obtain labs
   Chem-10, CBC, Urinalysis
   Evaluate target organ damage

5. Transfer to nearest emergency room
   Call 911 and follow unit protocol.
   For UTMB, if ambulance is not immediately available call 911.

6. Follow up in Chronic Care Clinic per ITP.
   Counsel patients with poor compliance.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 1/08, 5/11; Revised 10/98, 4/02, 4/03, 3/04.


Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 1/08, 5/11; Revised 10/98, 4/02, 4/03, 3/04.

*MAP = (1/3) (SBP-DBP) + DBP

Multiple doses of medication may be needed over time to adequately reduce blood pressure. Observe for at least 3-6 hours and discharge from medical department when patient is clinically stable. Follow up next day to obtain BP reading. Follow up in Chronic Care Clinic per ITP. Counsel patients with poor compliance.

The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.
HYPOGLYCEMIA

1. Patient presents with signs & symptoms of hypoglycemia (generally BG <60mg/dL.)
   1. Patient with known diabetes or insulinoma – go to box #2
   2. Patient not known to have diabetes – go to box #2 to treat hypoglycemia and then treat underlying disease such as drugs (e.g., pentamidine, salicylates, ethanol), end stage liver disease, renal disease, endocrine deficiencies, non-beta cell tumors, prior gastric surgery, or inherited metabolic disorders.

2. Is the patient conscious and cooperative?
   No
   Yes

3. Notify unit provider & establish IV access.

4. Has IV access been established after at least 2 attempts?
   No
   Yes

5. If unable to establish IV access, administer Glucagon (1mg/cc) – 1mL IM or SQ. Dose may be repeated 1 time in 30 minutes.
   Administer 50mL of D50 IVP, followed by infusion of 5-10% dextrose. Continue infusion until glucose >70mg/dL.

6. Have symptoms resolved?
   Yes
   No

7. Discharge the patient when plasma glucose levels remain >70mg/dL. Before discharging the patient, it is important to consider medical staff availability, offender housing, and duration of effect of the agent being used for the treatment of hypoglycemia. Consider scheduling patient who has had recurrent episodes for follow up appointment with unit provider for evaluation and possible medication adjustment.

8. Investigate other etiologies for mental status change and consider transfer to a higher level of care.

9. Discharge the patient when plasma glucose levels remain >70mg/dL. Before discharging the patient, it is important to consider medical staff availability, offender housing, and duration of effect of the agent being used for the treatment of hypoglycemia. Ingestion of a snack or meal shortly after glucose levels are raised is advisable. Response to IV dextrose may be transient. Schedule follow up with unit provider for evaluation and possible medication evaluation.

10. Treat orally & notify unit provider. Administer 1-2 tubes of oral glucose gel (1 tube contains 15 grams of glucose) or glucose-containing fluids, candy, or food. In general, 15-20g oral glucose will be adequate. Redcheck blood glucose (BG) in 15 minutes and repeat above until BG >70mg/dL.

   Ingestion of a snack or meal shortly after plasma glucose concentration is raised is advisable if given oral glucose, because response is transient (typically < 2 hours).

   Discharge the patient when plasma glucose levels remain >70mg/dL. Before discharging the patient, it is important to consider medical staff availability, offender housing, and duration of effect of the agent being used for the treatment of hypoglycemia.

   Consider scheduling patient who has had recurrent episodes for follow up appointment with unit provider for evaluation and possible medication adjustment.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, January 2006. Reviewed 5/10.
I. Definition – Blood glucose < 60mg/dL. However, glucose thresholds for hypoglycemia-induced symptoms and physiologic responses may vary between patients. Therefore, an important framework for making the diagnosis of hypoglycemia is Whipple’s triad:

1. Symptoms consistent with hypoglycemia,
2. A low plasma glucose concentration, and
3. Relief of symptoms after the plasma glucose level is raised.

Hypoglycemia can cause significant morbidity and can be lethal, if severe and prolonged; it should be considered in any patient with confusion, altered level of consciousness, or seizures.

II. Signs & Symptoms

A. Behavioral changes
B. Confusion
C. Fatigue
D. Loss of consciousness
E. Seizure
F. Palpitations
G. Tremor
H. Anxiety
I. Sweating
J. Hunger
K. Pallor
L. Increased heart rate & blood pressure
M. Hypothermia
N. Low plasma or blood glucose

III. Risk Factors

A. Medication (insulin or oral agents) excess
B. Decreased influx of exogenous glucose (e.g., skipped or missed meals or snacks)
C. Increased glucose utilization (e.g., increase in exercise)
D. Reduced insulin clearance (e.g., renal failure)

IV. Prevention

A. Address issue of hypoglycemia at each visit.
   1. Is the patient having episodes of hypoglycemia, how frequently are they occurring, and are they severe?
   2. What is relationship of hypoglycemia to drug administration, meals, and exercise?
B. Educate the patient on symptoms of hypoglycemia and what to do when they occur.
C. In patients with recurrent episodes of hypoglycemia or a severe episode of hypoglycemia, consider
   1. Increasing the frequency of glucose monitoring
   2. Adjusting the patient’s medication regimen
   3. Ordering snacks for ingestion between meals
   4. Evaluating the patient’s other medications (e.g., non-selective beta blockers) to determine if there is a medication that may be masking the symptoms of hypoglycemia making it difficult for the patient to identify hypoglycemic episodes for early intervention & self-management
### Formulary Substitutions for Commonly Prescribed Non-Formulary Medications

Patients should be evaluated for use of formulary agents whenever possible. Clinicians should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects. The recommendations listed below are not intended to replace sound clinical judgment.

<table>
<thead>
<tr>
<th>Non-Formulary Medication</th>
<th>Formulary Medication</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Anti-Hypertensive Medications</strong></td>
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<tr>
<td>Felodipine (Plendil®) 2.5 - 10 mg qd</td>
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<tr>
<td>Amlodipine (Norvasc®) 5 mg, 10 mg tablets</td>
<td>5 mg qd to 5 mg qd</td>
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<tr>
<td>Nifedipine (Procardia XL®) 30 - 120 mg qd</td>
<td>30 mg qd to 5 mg qd</td>
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<tr>
<td>Nisoldipine (Sular®) 10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
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<tr>
<td>Enalapril (Vasotec®) 2.5 - 40 mg daily in single or divided doses</td>
<td>7.5 mg qd to 5 mg qd</td>
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<td>Losartan (Cozaar®) 50 - 100 mg qd</td>
<td>50 mg qd to 5 mg qd</td>
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<tr>
<td>Olmesartan (Benicar®) 20 - 40 mg qd</td>
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<td>Telmisartan (Micardis®) 20 - 80 mg qd</td>
<td>20 mg qd to 5 mg qd</td>
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<td>Valsartan (Diovan®) 80 - 320 mg qd</td>
<td>80 mg qd to 5 mg qd</td>
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<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
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<tr>
<td>Acebutolol (Sectral®)</td>
<td>100 - 1200 mg in divided doses</td>
<td>Atenolol (Tenormin®) 25 mg, 50 mg tablets</td>
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<tr>
<td>Betaxolol (Betopic®)</td>
<td>5 - 20 mg qd</td>
<td>Metoprolol (Lopressor®) 25 mg, 50 mg, 100 mg tablets</td>
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<tr>
<td>Bisoprolol (Zebeta®)</td>
<td>2.5 - 10 mg qd</td>
<td>Propranolol (Inderal®) 10 mg, 20 mg, 40 mg tablets</td>
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<tr>
<td>Candesartol (Cordarone®)</td>
<td>25 - 100 mg qd</td>
<td>Metoprolol succinate (Toprol XL®) 25 mg, 50 mg, 100 mg tablets</td>
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<tr>
<td>Nadolol (Corgard®)</td>
<td>40 - 120 mg qd</td>
<td>Propranolol long-acting (Inderal LA®) 10 mg, 20 mg, 40 mg tablets</td>
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<td>Penbutolol (Levatol®)</td>
<td>10 - 40 mg qd</td>
<td>Timolol (Blocadren®) 30 - 20 mg divided bid</td>
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<td>Pindolol (Visken®)</td>
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<tr>
<td>Propranolol (Inderal®)</td>
<td>10 mg, 20 mg, 40 mg tablets</td>
<td>Timolol (Blocadren®) 30 - 20 mg divided bid</td>
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<tr>
<td>Prazosin (Minipress®)</td>
<td>3 - 20 mg in 2 - 3 doses/day</td>
<td>Terazosin (Hytrin®) 1 mg, 2 mg, 5 mg, 10 mg capsules</td>
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<tr>
<td>Doxazosin (Cardura®)</td>
<td>1 - 16 mg q hs</td>
<td>Terazosin (Hytrin®) 1 mg, 2 mg, 5 mg, 10 mg capsules</td>
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<tr>
<td>Clonidine (Catapres®)</td>
<td>0.1 - 0.8 mg tid</td>
<td>Guanfacine (Tenex®) 1 mg, 2 mg tablets</td>
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Anti-Hypertensive Medications Continued
<table>
<thead>
<tr>
<th>Name of Medication</th>
<th>Dose Range and Frequency</th>
<th>Name of Medication and Dosages Available</th>
<th>Dose Range and Frequency</th>
<th>Approximate Equivalent (Non-formulary to Formulary)</th>
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<tbody>
<tr>
<td><strong>Anti-Hyperlipidemic Medications</strong></td>
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<tr>
<td>Fluvastatin (Lescol®)</td>
<td>20-80 mg qd</td>
<td>Pravastatin (Pravachol®)</td>
<td>10-80 mg qd</td>
<td>40 mg qd to 20 mg qd</td>
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<tr>
<td>Lovastatin (Mevacor®)</td>
<td>10-80 mg qd</td>
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<td>20 mg qd to 40 mg qd</td>
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<tr>
<td>Pitavastatin (Inzyta®)</td>
<td>1-4 mg qd</td>
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<td>5 mg qd to 40 mg qd</td>
<td></td>
</tr>
<tr>
<td>Simvastatin (Zocor®)</td>
<td>5-80 mg qd</td>
<td></td>
<td>20 mg qd to 40 mg qd</td>
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<tr>
<td>Atorvastatin (Lipitor®)</td>
<td>10-80 mg qd</td>
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<td>10 mg qd to 40 mg qd</td>
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<tr>
<td>Resatorvas (Crestor®)</td>
<td>5-40 mg qd</td>
<td></td>
<td>5 mg qd to 80 mg qd</td>
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<tr>
<td>Fenofibrate (T vicor®)</td>
<td>48-145 mg qd</td>
<td>Gemfibrozil (Lopid®) 600 mg tablets</td>
<td>600 mg bid</td>
<td>48-145 mg qd to 600 mg bid</td>
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<tr>
<td>Colestipol (Ce lestor®)</td>
<td>5-30 g/day</td>
<td>Cholestyramine (Questran®) 4g powder</td>
<td>4-24 g/day</td>
<td>5g qd to 4g qd</td>
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<td><strong>Anti-diabetic Medications</strong></td>
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<tr>
<td>Aspart (Novolog®)</td>
<td></td>
<td>Regular (Novolin R®) 100 units/ml vial, 10 ml</td>
<td>Unit to unit conversion</td>
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<tr>
<td>Lispro (Humalog®)</td>
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<tr>
<td>Glulisine (Apidra®)</td>
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<tr>
<td>Regular (Humulin R®)</td>
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<td></td>
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<tr>
<td>Glargine (Lantus®)</td>
<td></td>
<td>NPH (Novolin N®) 100 units/ml vial, 10 ml</td>
<td>Unit to unit conversion</td>
<td></td>
</tr>
<tr>
<td>Detemir (Levemir®)</td>
<td></td>
<td></td>
<td>Unit to unit conversion</td>
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<tr>
<td>NPH (Humulin®)</td>
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<td>NPH and Regular Insulin</td>
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<tr>
<td>NPH 50/ Regular 50 (Humulin 50/50®)</td>
<td></td>
<td>NPH 70/Regular 30 (Novolin 70/30®) 100 units/ml, 10 ml</td>
<td>NPH and Regular Insulin</td>
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<tr>
<td>Lispro Protamine 50S/ Lispro 50 Humalog Mix 50/50®</td>
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<tr>
<td>Lispro Protamine 75S/ Lispro 25 Humalog Mix 75/25®</td>
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<tr>
<td>Aspart Protamine 70/ Aspart 30 (Novolog Mix 70/30®)</td>
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<td></td>
<td></td>
<td>NPH (Novolin N®)</td>
<td>Novolin 70/30 or NPH and Regular Insulin</td>
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*Formulary Addenda page 3*
<table>
<thead>
<tr>
<th>Name of Medication</th>
<th>Dose Range and Frequency</th>
<th>Name of Medication and Dosages Available</th>
<th>Dose Range and Frequency</th>
<th>Approximate Equivalent (Non-formulary to Formulary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glimepiride (Amaryl®)</td>
<td>1 - 8 mg qd</td>
<td></td>
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<td>2 mg qd to 5 mg qd</td>
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<tr>
<td>Glyburide (Diabeta®)</td>
<td>5 – 20 mg in single or divided doses</td>
<td>Glipizide (Glucotrol®, 5mg, 10mg tablets)</td>
<td>5 mg qd to 5 mg qd</td>
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</tr>
<tr>
<td>Glyburide micronized (Glycuent PresTab®)</td>
<td>1.5 - 12 mg in single or divided doses</td>
<td>Glipizide (Glucotrol®, 5mg, 10mg tablets)</td>
<td>3 mg to 5 mg qd</td>
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<tr>
<td>Tolazamide</td>
<td>100 mg qd – 500 mg bid</td>
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<td></td>
<td>250 mg qd to 5 mg qd</td>
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<tr>
<td>Tolbutamine</td>
<td>500 – 2000 mg daily in 1 - 3 divided doses</td>
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<td></td>
<td>500 mg BID to 5 mg qd</td>
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<tr>
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<td></td>
<td><strong>Respiratory Medications</strong></td>
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<tr>
<td>Tiotropium (Spiriva®)</td>
<td>1 capsule qd</td>
<td>Ipratropium (Atrovent®)</td>
<td>2 puffs qd</td>
<td>1 capsule qd to 2 puffs qd</td>
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<tr>
<td>Atrovent / Ipratropium (Combivent®)</td>
<td>2 puffs qd</td>
<td>Albuterol (Ventolin®)</td>
<td>2 puffs qd pm SCB</td>
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<td></td>
<td></td>
<td>Ipratropium (Atrovent®)</td>
<td>2 puffs qd</td>
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<tr>
<td>Budesonide (Pulmicort Turbuhaler®)</td>
<td>380 – 1200 mcg/day divided bid</td>
<td>Beclomethasone HFA (QVAR®)</td>
<td>60 - 480 mcg/day divided bid</td>
<td>Convert based on whether the patient was dosed at low, medium, or high dose; then convert to Qvar® dosing listed below: Low dose (puffs) = 1 puff bid; Medium dose (puffs) = 2-3 puffs bid; High dose (puffs) = 4 puffs bid.</td>
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<tr>
<td>Flunisolide (Aerospan®)</td>
<td>500 – 2000 mcg/day divided bid</td>
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<tr>
<td>Mometasone (Asmanex Twisthaler®)</td>
<td>200 – 400 mcg/day given once daily or divided bid</td>
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<td>Triamcinolone (Azmacort®)</td>
<td>300 – 1500 mcg/day divided 2 – 4 times/day</td>
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<tr>
<td>Fluticasone (Flovent MDI®)</td>
<td>88 – 440 mcg/day divided bid</td>
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<td>Non-Formulary Medication</td>
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<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
<td>Dose Range and Frequency</td>
<td>Approximate Equivalent (Non-formulary to Formulary)</td>
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<td><strong>Gastrointestinal Medications</strong></td>
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<tr>
<td>Cimetidine (Tagamet®)</td>
<td>300 – 1600 mg/day in single doses or divided bid - qid</td>
<td>150 mg qd + 300 mg bid</td>
<td>400 mg bid to 150mg bid</td>
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<tr>
<td>Famotidine (Pepcid®)</td>
<td>150 – 80mg/day in single or divided doses</td>
<td>Ranitidine (Zantac®) 150mg tablet</td>
<td>150mg bid to 150mg bid</td>
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<td>Nizatidine (Axid AR®)</td>
<td>150 - 300mg/day in single or divided doses</td>
<td>400 mg bid to 150mg bid</td>
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<td>Dexlansoprazole (Dexilant®)</td>
<td>30-60mg qd</td>
<td>Omeprazole (Prilosec®) 20mg capsule</td>
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<td>Esomeprazole (Nexium®)</td>
<td>20-40mg qd</td>
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<td>Lansoprazole (Prevacid®)</td>
<td>15-30mg qd</td>
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<tr>
<td><strong>Anti-Retrovirals Medications</strong></td>
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<tr>
<td>Lamivudine (Epivir®, 3TC)</td>
<td>150mg bid or 300mg qd</td>
<td>Emtricitabine (Emtriva®, FTC) 200 mg capsules</td>
<td>200 mg qd</td>
<td>300mg qd to 200mg qd</td>
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<tr>
<td>Lamivudine + Abacavir (Epzicom®)</td>
<td>300mg/600mg qd</td>
<td>Trizivir® 300mg/300mg/300mg</td>
<td>600 mg qd + 300 mg bid</td>
<td>Trizivir® to FTC 200mg qd + ABC 600mg qd</td>
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<tr>
<td>Lamivudine + Zidovudine (Combivir®)</td>
<td>150mg/ 300mg bid</td>
<td>Trizivir® 300mg/300mg/300mg</td>
<td>150mg bid</td>
<td>Trizivir® to FTC 200mg qd + AZT 300 mg bid</td>
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<tr>
<td>Abacavir + Lamivudine + Zidovudine (Trizivir®)</td>
<td>300mg/250mg/300mg</td>
<td>Trizivir® 300mg/300mg/300mg</td>
<td>600 mg qd + 200 mg bid</td>
<td>Trizivir® to ABC 600mg qd + FTC 200mg qd + AZT 300mg bid</td>
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Formulary Substitutions page 5
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<th>Non-Formulary Medication</th>
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<tbody>
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<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td>Very High Potency Topical Steroids</td>
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<tr>
<td>Betamethasone dipropionate, augmented (Diprolene®) 0.05%</td>
<td>Clobetasol propionate (Removate®) 0.05% ointment 15 gm tube</td>
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<tr>
<td>Diflorasone diacetate (ApexCon®) 0.05%</td>
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<tr>
<td>Halobetasol propionate 0.05% (Ultrastar®)</td>
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<tr>
<td>High Potency Topical Steroids</td>
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<tr>
<td>Amcinonide (Cyclocort®) 0.1%</td>
<td>Fluocinonide (Lidex®) 0.05% cream 60 gm tube</td>
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<tr>
<td>Betamethasone dipropionate (Diprolene®) 0.05%</td>
<td>0.05% ointment 15 gm tube</td>
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<tr>
<td>Betamethasone valerate (Valesone®) 0.1%</td>
<td>0.05% cream 15 gm tube</td>
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<tr>
<td>Diflorasone diacetate (Florone®) 0.05%</td>
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<tr>
<td>Halcinonide (Halog®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triamcinolone acetonide (Kenalog®) 0.05%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate Potency Topical Steroids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betamethasone valerate (Psorion Cream®) 0.05%</td>
<td>Triamcinolone acetonide (Kenalog®) 0.025% ointment 15 gm tube</td>
<td></td>
</tr>
<tr>
<td>Clocortolone pivalate (Cloderm®) 0.01%</td>
<td>0.025% cream 15 gm tube</td>
<td></td>
</tr>
<tr>
<td>Fluocinolone acetonide (Fluron®) 0.025%</td>
<td>0.1% cream 15 gm tube, 1 lb jar</td>
<td></td>
</tr>
<tr>
<td>Flurandrenolide (Cordran®) 0.05%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone propionate (Cutivate®) 0.05%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone butyrate (Locoid®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone valerate (Westcot®) 0.2%</td>
<td></td>
<td></td>
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<tr>
<td>Mometasone furoate (Elocon®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prednicarbate (Dermatop®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Potency Topical Steroids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alclometasone dipropionate (Adclove®) 0.05%</td>
<td>Fluocinolone (Synalar®) 0.01% 60 mL solution</td>
<td></td>
</tr>
<tr>
<td>Desonide (DesOwen®) 0.05%</td>
<td>Hydrocortisone (Hytone®) 1% 30 gm tube, unit dose packets</td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone 0.5%, 2.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>Anti-Glaucoma Medications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bimatoprost (Lumigan®) 0.03% Ophthalmic Solution</td>
<td>1 gtt in affected eye q pm</td>
<td>Latanoprost (Xalatan®) 0.005% Ophthalmic solution</td>
</tr>
<tr>
<td>Travoprost (Travatan®) 0.004% Ophthalmic Solution</td>
<td>1 gtt in affected eye q pm</td>
<td></td>
</tr>
<tr>
<td>Betaxolol (Betoptic®) 0.5% Ophthalmic Solution</td>
<td>1-2 gts in affected eye bid</td>
<td>Timolol (Timoptic®) 0.5% Ophthalmic Solution</td>
</tr>
<tr>
<td>Lecobunolol (Betagan®) 0.25% and 0.5% Ophthalmic Solution</td>
<td>0.25% - 1-2 gts in affected eye bid 0.5% - 3-2 gts in affected eye qd</td>
<td></td>
</tr>
<tr>
<td>Metipanolol (OptiPranolol®) 0.3% Ophthalmic Solution</td>
<td>1 gtt in affected eye bid</td>
<td></td>
</tr>
<tr>
<td>Timolol (Timoptic-XE®) 0.25% and 0.5% Ophthalmic Gel Forming Solution</td>
<td>1 gtt in affected eye qd</td>
<td>Pilocarpine (Isopto Carpine®) 2%, 4% Ophthalmic Solution</td>
</tr>
<tr>
<td>Carbochol (Isopto Carbachol®) 0.75%, 1.5%, 2.25% Ophthalmic Solution</td>
<td>2 gts in affected eye up to 3 times daily</td>
<td>Pilocarpine (Isopto Carpine®) 2%, 4% Ophthalmic Solution</td>
</tr>
<tr>
<td>Dorzolamide (Trusopt®) 2% Ophthalmic Solution</td>
<td>1 gtt in affected eye tid</td>
<td>Brinzolamide (Azopt®) 3% Ophthalmic Suspension</td>
</tr>
<tr>
<td>Dorzolamide 2% + Timolol 0.5% (Cosopt®) Ophthalmic Solution</td>
<td>1 gtt in affected eye bid</td>
<td>Brinzolamide (Azopt®) 3% Ophthalmic Suspension + Timolol (Timoptic®) 0.5% Ophthalmic Solution</td>
</tr>
</tbody>
</table>

*Formulary Substitutions page 7*
<table>
<thead>
<tr>
<th>Non-Formulary Medication</th>
<th>Formulary Medication</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td>Calcium carbonate (Titralac®) 420mg chewable tablet</td>
<td>1 tablet qid</td>
<td>Calcium carbonate (Tums®) 500mg chewable tablet</td>
</tr>
<tr>
<td>Ferrous gluconate (Fergon®) 325mg tablet</td>
<td>2 tablets qd</td>
<td>Ferrous sulfate (Feosol®) 325mg tablet</td>
</tr>
<tr>
<td>Docusate calcium (Surfak®) 240mg capsule</td>
<td>240mg qd</td>
<td>Docusate sodium (Colace®) 100, 200mg capsule</td>
</tr>
</tbody>
</table>

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee July 2008, Revised May 2011

Formulary Substitutions page 8
OPIOID DISCONTINUATION

1. Counsel patient on the signs & symptoms of withdrawal
   • Check baseline blood pressure.
   • Do not discontinue methadone in a pregnant patient. Therapy may be discontinued postpartum.

2. Does the patient have underlying cardiac disease, i.e. CAD, Heart Failure, history of arrhythmias?
   Yes  No

3. Transfer patient to a 24 hour acute care medical facility.

4. Is patient having severe withdrawal symptoms? (Table 1).
   Yes  No

5. • Monitor vital signs daily
   • Provide supportive care for pain, nausea, vomiting and diarrhea

6. • Administer clonidine at 0.1mg tid up to 0.3mg tid for 7 days; taper over additional 3 days.
   • Monitor vital signs before every administration of clonidine. It should be held if systolic blood pressure (SBP) <90mmHg, diastolic blood pressure (DBP) <60mmHg, or pulse rate (PR) <50 bpm.
   • Provide supportive care for pain, nausea, vomiting and diarrhea.

7. Monitor patient for severe complications, i.e. signs of dehydration and acute mental status changes. If present, go to Box 3.

Table 1. Severity of Symptoms

<table>
<thead>
<tr>
<th>Mild</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craving</td>
<td>Nausea, vomiting</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Dysphoria</td>
<td>Weight loss</td>
</tr>
<tr>
<td>Yawning</td>
<td>Fever (usually low grade)</td>
</tr>
<tr>
<td>Perspiration</td>
<td>Increased blood pressure, pulse rate</td>
</tr>
<tr>
<td>Lactation</td>
<td>Twitching of muscles and</td>
</tr>
<tr>
<td>Rhinorrhea</td>
<td>kicking movements of the lower</td>
</tr>
<tr>
<td>Restless and broken sleep</td>
<td></td>
</tr>
<tr>
<td>Increasingly dilated pupils</td>
<td></td>
</tr>
<tr>
<td>Pilocerection</td>
<td>extremities.</td>
</tr>
<tr>
<td>Hot and cold flashes</td>
<td></td>
</tr>
</tbody>
</table>

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, October 2008. Reviewed 01/11.

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I. Opioid withdrawal

A. Definition - Clinical syndrome produced by discontinuation of an opioid drug from an opioid-dependent patient

B. Onset of symptoms - Initial signs and symptoms may occur in a few hours or up to 48 hours after cessation or reduction in dosage of an opioid, depending upon the half-life of the drug concerned. Withdrawal of longer-acting opioids, produces a withdrawal syndrome with a more delayed onset, milder severity and prolonged duration

C. Symptoms
   1. Usually are self-limiting and generally non-life threatening, unless there is a concurrent serious medical condition
   2. Milder symptoms may include restlessness, mydriasis, lacrimation, rhinorrhea, sneezing, piloerection, yawning, perspiration, restless sleep and aggressive behavior
   3. More severe symptoms may include muscle spasms, back aches, abdominal cramps, hot and cold flashes, insomnia, nausea, vomiting, diarrhea, tachypnea, hypertension, hypotension, tachycardia, bradycardia and cardiac arrhythmias

II. Management

A. Educate the patient on signs and symptoms of withdrawal

B. Monitor the following
   1. Vital signs daily
   2. Signs of dehydration, acute mental changes and aggravation of underlying cardiac disease

C. Provide supportive care if needed
   1. Pain - ibuprofen, acetaminophen
   2. Nausea & Vomiting - promethazine
   3. Diarrhea - loperamide

D. Clonidine may be used to alleviate severe symptoms
   1. Usual Dose - 0.1mg po tid up to 0.3mg po tid (0.006mg/kg/day in divided doses, maximum 1mg/day)
   2. Continue effective dose for 7 days, then taper and discontinue over the next 3 days
   3. Monitoring
      a. Vital signs should be checked before every administration of clonidine.
      b. Clonidine should be held if SBP <90mmHg, DBP <60mmHg, or PR < 50 bpm
Chronic Cancer Pain

1. The provider should complete a thorough history and physical including a comprehensive pain assessment (pg 2) to determine location, quality, type and frequency.
2. Provide patient with pain management education (see pg 6).
3. Initiate Non-Pharmacological Therapy as available and indicated (pg 2).

Patient is in Cancer Pain Crisis?

Yes

See Oncologic Emergency (pg 6)

No

Yes

See Table 1, pg 3.

No

Opioid naïve:

First line therapy:

- Acetaminophen 650mg up to Q4 hours
- Ibuprofen 400-800mg up to QID
- Naproxen 250-500mg BID

Second line therapy:

- Salsalate 500mg BID-TID
- Meloxicam 7.5-15mg once daily

Failure of first & second line therapy:

- Consider addition and titration of adjunctive therapy according to pain syndrome (Table 1, pg 3).

Opioid currently prescribed:

- Consider continuation of current analgesic regimen and increase dose if pain is not controlled.
- Assess pain control & opioid side effects at each visit.
- If pain goals are not met, reassess and consider adjunctive therapy.

Severe Pain (Scale:7-10)

OPIOID NAÏVE:

First line therapy:

- Morphine IR Elixir 10mg/5ml
- Morphine SR Tabs 15mg, 30mg, 60mg

Outpatient:

- For very severe pain, consider infirmary bed placement for initial titration; otherwise,

- Start morphine elixir 10mg BID-QID for the first 24-48 hours to establish pain control.
- If pain is expected to be continuous, convert to morphine SR 15-30mg every 12 hours. Give morphine elixir 10mg-20mg as needed for breakthrough pain up to QID.

Inpatient:

- Start morphine elixir at 10mg every 4 hours. Reassess pain relief 60 minutes post dose and every 4 hours. Repeat dose & titrate as needed.
- Once stable for 24 hours, calculate total daily dosage of morphine and convert to long acting morphine SR. Give in 2 divided doses at 12 hour intervals.

- Provide short acting rescue opioids at 10-15% of total daily scheduled dose. Give in divided doses as needed.

OR

CURRENTLY PRESCRIBED OPIOID:

- Increase total daily scheduled opioid dose 50-75%. Administer as morphine SR divided Q12H.
- Give morphine elixir 10mg-20mg as needed for breakthrough pain up to QID.

Prepared By: The Correctional Managed Care Pharmacy & Therapeutics Committee. July 2010

Drug Max Daily Dose

Acetaminophen (APAP) 4000mg
APAP-codeine 300/30mg 13 tablets
Ibuprofen 3200mg
Meloxicam 15mg
Propoxyphene/AAP 100&650mg 3 6 tablets
Naproxen 1500mg
Salsalate 2000mg

1. See NSAID adverse effects and cautions (pg 2).
2. Begin prophyactic bowel regimen when starting opioids (Table 4, pg 5).
3. Propoxyphene not recommended long term or in high doses due to toxic CNS sideeffects.

1. No

Persistent pain despite adequate dose & titration?

Yes

5

Stop up therapy to next pain severity as needed (severe, moderate to severe).

If pain not adequately controlled despite adjustment of dose, reassess again in 30 days for further adjustment of dose & titration.

If pain persists, consider consultation with oncologist or pain specialist.
I. History & Physical – oncologic treatment, radiation, surgery and pre-existing chronic pain

II. Pain Assessment

A. Qualify pain (C.O.L.D.E.R.)
   1. **C** = character or quality of pain
      a. Somatic pain in skin, muscle, or bone that is well localized and is often described as aching, stabbing, throbbing, or pressure.
      b. Visceral pain in organs that is poorly localized and is often described as gnawing, cramping, or aching.
      c. Neuropathic pain that is often described as sharp, tingling, burning, shooting, or stubbing and is associated with numbness.
   2. **O** = onset of pain
   3. **L** = location of pain including referral pattern and radiation
   4. **D** = duration of pain
   5. **E** = exacerbation, what factors aggravate or worsen pain
   6. **R** = remission, what factors alleviate or improve pain

B. Use pain rating scale to assess intensity of pain
   1. Evaluate pain currently and within last 24 hours
   2. Evaluate pain at rest and with movement

C. Identify associated symptoms such as nausea, vomiting or sleep disturbance

D. Identify potential etiology – cancer, cancer therapy (XRT, chemotherapy, surgery), or not cancer related

E. Determine if pain interferes with activities

F. Observe pain response during physical exam and movement during clinic visit to assess level of pain and interference with daily activities.

G. Current and past pain medication use – reason for use, length of therapy, effectiveness, side effects, and reason for discontinuation

III. Psychosocial Assessment – psychiatric history, risk factors for aberrant use or diversion, risk factors for undertreatment of pain

IV. Management

A. Treat underlying causes

B. Non-Pharmacologic Interventions
   1. Consider assistive devices for bed, bath, and walking if indicated
   2. Consider physical therapy (PT) if indicated. PT techniques may be useful in teaching patients to control pain, by moving in a safe and structured way.
   3. Consider thermal therapy with heat (by hot towels) or ice. Note: Appropriate measures should be used to reduce risk to skin.

C. Pharmacologic Therapy
   1. Stepwise approach including simple analgesics, opioid combinations, and opioid analgesics plus or minus adjunctive therapy.
   2. NSAIDS
      a. If two NSAIDS are tried in succession without efficacy, use another approach to analgesia
      b. If NSAIDS are effective but treatment is limited by toxicities that are not deemed serious, consider trial of another NSAID that is less readily avoided (e.g., Meloxicam)
      c. Adverse effects - Toxicity of some anti-cancer treatment may increase the risk profile of NSAIDS
         i. Renal – Discontinue NSAID if BUN or creatinine doubles or if hypertension develops or worsens
         ii. GI – If patient develops gastric upset or nausea, consider discontinuing NSAID, changing agents, or adding protective therapy such as ranitidine or omeprazole. If patient develops ulcer or gastrointestinal hemorrhage, discontinue NSAID.
         iii. Cardiac – Discontinue NSAID if hypertension develops or worsens
      d. Monitoring
         i. Baseline blood pressure, BUN, creatinine, CBC, fecal occult blood
         ii. Repeat as clinically indicated every 3 months
      e. Caution – NSAIDS are antipyretics and may mask fever. Use caution in patients on myelosuppressive chemotherapy. NSAIDS may have antithrombotic effects that can increase the risk of bleeding to patients who are thrombocytopenic or on myelosuppressive chemotherapy and likely to become thrombocytopenic. Consider non-steroidal salicylates such as salicylate.
   3. Adjunctive therapy
      a. Consider addition of adjunctive therapy according to pain syndrome
      b. Titrate dose to adequate response or intolerable side effects.
### Table 1: Adjunctive Therapy

<table>
<thead>
<tr>
<th>Pain Descriptor</th>
<th>Cancer Pain Syndrome (Drug Class)</th>
<th>Selected Drugs</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aching, dull, localized tenderness</td>
<td>Base (NSAIDs)</td>
<td>Ibuprofen 400-800 mg QID</td>
<td>-Max daily dose 3200 mg -May cause GI upset</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meloxicam 7.5-15 mg QD</td>
<td>-Max daily dose 15 mg -May cause GI upset</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Naproxen 250-500 mg QID</td>
<td>-Max daily dose 1500 mg -May cause GI upset</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salsalate 300mg BID-TID</td>
<td>-Max daily dose 3000mg -May cause GI upset</td>
</tr>
<tr>
<td>Deep, burning, referred, poorly localized</td>
<td>Visceral (Corticosteroids)</td>
<td>Prednisone 10 – 80 mg daily</td>
<td>-May increase blood glucose -May cause GI upset -Increased appetite -May cause CNS symptoms -May cause osteopenia</td>
</tr>
<tr>
<td></td>
<td>Neuropathic (Tricyclic Antidepressants)</td>
<td>Nortriptyline 25 – 150 mg divided doses or HS</td>
<td>-Less sedating -Less anti-cholinergic effects -Max daily dose 150 mg</td>
</tr>
<tr>
<td></td>
<td>Neuropathic (Anticonvulsants)</td>
<td>Carbamazepine 200-400 mg BID – QID</td>
<td>-Sedating -Max daily dose 1600 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabapentin 100mg TID, 300-900 mg TID</td>
<td>-Generally requires doses ≥ 1000mg/day -Potential for abuse (sedation &amp; dizziness) -Drug of choice for lancinating pain -Non-formulary medication -Max daily dose 3600 mg -Dosage base on renal function</td>
</tr>
<tr>
<td>Colic-cramping abdominal pain, bladder spasms</td>
<td>Smooth muscle spasms (Anticholinergics)</td>
<td>Oxybutynin 5-10 mg TID</td>
<td>-Used for bladder spasms and retention -Max daily dose 30 mg</td>
</tr>
</tbody>
</table>

### V. Opioid Analgesics

**A. General Principles**

1. The appropriate dose is the dose that relieves the patient’s pain throughout the dosing interval without causing unmanageable side effects.
2. For continuous pain, provide pain medication on a regular schedule with supplemental doses for breakthrough pain.
3. Consider converting from short-acting opioids to extended-release opioids for control of chronic persistent pain when 24 hour opioid requirement is stable.
4. Provide rescue doses of short-acting opioids for pain not relieved by sustained-release opioid including breakthrough pain or acute exacerbations of pain, activity, or position related pain or pain at the end of dosing interval.
5. Rescue (breakthrough) dosing – usually provided as 10-15% of the 24 hour total daily schedule dose as needed.

**B. Dose Titration**

1. If 3 or more rescue doses are needed in a 24 hour period, an increase in dose may be necessary.
2. Calculate dosage increase based upon total daily opioid dose around the clock including scheduled and prn doses. Example: Total 24 hour opioid requirement, morphine 15mg SR BID (30mg) + 3 x 10mg breakthrough doses = 60mg or new opioid dose of 30mg SR BID. As an alternative to calculating the total daily dose model use the following guide:
   - Pain < 4 Increase dose by 25%
   - Pain 4-7 Increase dose by 25% to 50%
   - Pain ≥ 8 Increase dose by 50% to 100%
3. The rapidity of dose escalation should be related to the severity of the symptoms.
4. If patient is experiencing unmanageable side effects and pain ≤ 4, consider downward dose titration by approximately 25% and reevaluate. Monitor to ensure pain control without escalation.

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C. Switching opioids
1. Switch from fixed combination opioids to single entity opioid when acetaminophen dose > 4000mg/day.
2. Conversion equation:
   \[
   \text{Equianalgesic dose (route) current opioid} \times \frac{24\text{ hour dose (route) current opioid}}{24\text{ hour dose (route) new opioid}} = \text{Equianalgesic dose (route) new opioid}
   \]
3. To convert from one opioid to another:
   a. Total the amount of current opioid(s) taken in a 24 hour period that effectively controls pain.
   b. Calculate the equianalgesic dose of the new opioid (Table 2).
   c. If patient was effectively controlled, reduce the dose by 25-50% to allow for incomplete cross tolerance between different opioids. During the first 24 hours, titrate rapidly to analgesic effect. If previous dose was ineffective, may begin with 100% of equianalgesic dose or increase that by 25%.
   d. Lastly divide the total daily dose of new opioid needed by the number of doses per day to determine the individual dose (e.g., new 24-hour morphine dose of 60mg, may be given as 10mg elixir Q 4 hrs or morphine SR 30mg Q 12 hrs).

Table 2. Equianalgesic Opioid Dose Conversions

<table>
<thead>
<tr>
<th>Opioid</th>
<th>Oral Dose (mg)</th>
<th>Parenteral (IV/SC) Dose</th>
<th>Conversion Factor IV to PO</th>
<th>Duration of Action (hrs)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>50</td>
<td>10</td>
<td>1</td>
<td>SR: 4hrs</td>
<td>SR: 12hrs</td>
</tr>
<tr>
<td>Codeine</td>
<td>200</td>
<td>1.30</td>
<td>1.3</td>
<td>3-4hrs</td>
<td></td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>30-200</td>
<td>NA</td>
<td>NA</td>
<td>1-2</td>
<td>6-8hrs</td>
</tr>
<tr>
<td>Methadone</td>
<td>3-20</td>
<td>10</td>
<td>2</td>
<td>4-6hrs</td>
<td>• Extremely long half-life and should be used with caution to avoid accumulation. • Equianalgesic dosing with methadone is dose-dependent and subject to significant inter-patient variability. It is generally not recommended for pain management and should be used cautiously to avoid overdose.</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>7.5</td>
<td>1.5</td>
<td>2</td>
<td>2-3hrs</td>
<td>• Weak opioid agonist. Recommended maximum dose is 400mg daily to avoid CNS toxicity. • Risk of over dosage or suicide for patients who are addiction prone, taking tranquilizers or antidepressant drugs. • Requires dose adjustment in renal &amp; hepatic impairment.</td>
</tr>
<tr>
<td>Tramadol</td>
<td>50-100</td>
<td>NA</td>
<td>NA</td>
<td>3-7hrs</td>
<td></td>
</tr>
</tbody>
</table>

D. Fentanyl patches
1. Use restricted to hospice patients or inpatients who are NPO without G-tube placement.
2. Due to risk of fatal respiratory depression, use of fentanyl is not recommended for opioid-naïve patients.
3. Patches should only be used in patients with stable opioid requirements. Due to its long half-life, the dose may be difficult to titrate if pain is not well controlled.
4. Use cautiously with CYP450 3A4 inhibitors, which can increase fentanyl plasma concentrations.
5. For doses exceeding 100mcg, multiple patches can be used. Usual duration of action is 72 hours, but may be reduced to 48 hours for some patients.
6. Fever and heat from external sources (lamp, hot compress) accelerate drug release and should be avoided.
7. Fentanyl patches may be needed particularly during the first 2-24 hours after converting to the patch.
8. Dose adjustments should be based on the average amount of additional (rescue) opioid required over the 72 hour period.

Converting to Fentanyl patch
* Calculate the total 24 hour morphine dose.
* Table 3 displays the range of 24-hour oral morphine doses that are recommended for conversion to each fentanyl dose. Titrate no more frequently than every 3 days after the initial dose and every 6 days thereafter until analgesic efficacy.
* Due to patient variability, the doses suggested in table 3 are a guide. Clinical judgment must be used to titrate to the desired response.
<table>
<thead>
<tr>
<th>Oral Morphine (mg/24 hours)</th>
<th>Parenteral Morphine (mg/24 hours)</th>
<th>Transdermal Fentanyl Equivalent (mcg/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-65</td>
<td>8-22</td>
<td>25</td>
</tr>
<tr>
<td>65-115</td>
<td>23-37</td>
<td>50</td>
</tr>
<tr>
<td>116-150</td>
<td>38-52</td>
<td>75</td>
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<tr>
<td>151-200</td>
<td>53-67</td>
<td>100</td>
</tr>
<tr>
<td>201-225</td>
<td>68-82</td>
<td>125</td>
</tr>
<tr>
<td>226-300</td>
<td>83-100</td>
<td>150</td>
</tr>
</tbody>
</table>

**Table 3: Management of Opioid Side Effects**

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Action</th>
</tr>
</thead>
</table>
| Constipation  |  Anticipate and treat prophylactically: limit intake of fluids, fibre and physical activity.  
                                Maintain a bowel regimen that includes at least 1 bowel movement every 24 hours. 
                                Encourage increased fluids, fiber and physical activity.  
                                Calcium polycarbophil (2 to 4 tablets every 12 hours) 
                                For acute treatment of constipation, additional agents may be provided as needed:  
                               - Milk of magnesia 15-60 ml daily or occasionally 
                               - Lactulose 30-150 ml daily 
                               - Bisacodyl 10-15 mg daily 
                               - Consider use of a prokinetic agent (metoclopramide 10-20 mg qd) |
| Nausea         |  Take medications with food. 
                                Encourage patient to contact PCP if condition persists more than 1 week or is bothersome. |
| Sedation       |  Sedation can be reduced or avoided with slow titration. 
                                Sedation Scale:  
                               Level 1: Awake and alert 
                               Level 2: Slightly drowsy 
                               Level 3: Frequently drowsy, easily arousable, drifts off to sleep during conversation 
                               Level 4: Somnolent, minimal or no response to physical stimulation |
| Itching        |  Itching is often self-limiting but may be dose-related.  
                                Consider antihistamines (e.g., diphenhydramine) 
                                Rule out allergies (e.g., developmental reaction, hives) |
| Urinary Hesitation | Go back to previously tolerated dose with slow titration. 
                                Consider fecal impaction as a potential cause of urinary retention. |

**Table 4: Fentanyl Conversion**

<table>
<thead>
<tr>
<th>Oral Morphine (mg/24 hours)</th>
<th>Parenteral Morphine (mg/24 hours)</th>
<th>Transdermal Fentanyl Equivalent (mcg/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-65</td>
<td>8-22</td>
<td>25</td>
</tr>
<tr>
<td>65-115</td>
<td>23-37</td>
<td>50</td>
</tr>
<tr>
<td>116-150</td>
<td>38-52</td>
<td>75</td>
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<td>151-200</td>
<td>53-67</td>
<td>100</td>
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<tr>
<td>201-225</td>
<td>68-82</td>
<td>125</td>
</tr>
<tr>
<td>226-300</td>
<td>83-100</td>
<td>150</td>
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</table>
Table 5: Mosby Pain Rating Scale

<table>
<thead>
<tr>
<th>Verbal/Vocal</th>
<th>Daily Movement</th>
<th>Facial</th>
<th>Touching</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Positive</td>
<td>0</td>
<td>Smiling</td>
</tr>
<tr>
<td>2-4</td>
<td>Whimper/moans</td>
<td>2-4</td>
<td>Neutral, shifting, pacing</td>
</tr>
<tr>
<td>5-7</td>
<td>Repetitive</td>
<td>5-7</td>
<td>Frown, grimace</td>
</tr>
<tr>
<td>8-10</td>
<td>Screaming</td>
<td>8-10</td>
<td>Screaming</td>
</tr>
</tbody>
</table>

Table 6: Non-Communicative Rating Scale

<table>
<thead>
<tr>
<th>Verbal/Vocal</th>
<th>Daily Movement</th>
<th>Facial</th>
<th>Touching</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Positive</td>
<td>0</td>
<td>Smiling</td>
</tr>
<tr>
<td>2-4</td>
<td>Whimper/moans</td>
<td>2-4</td>
<td>Neutral, shifting, pacing</td>
</tr>
<tr>
<td>5-7</td>
<td>Repetitive</td>
<td>5-7</td>
<td>Frown, grimace</td>
</tr>
<tr>
<td>8-10</td>
<td>Screaming</td>
<td>8-10</td>
<td>Screaming</td>
</tr>
</tbody>
</table>

E. Patient Education

1. Relaxation and deep/breathing techniques - These methods direct the patient’s attention on performing a specific task, instead of concentrating on the pain.
2. Exercise - Aids in the correction of posture and may relieve symptoms in patients with nonspecific neck or lower back pain.
3. Encourage patients to report poor pain control or side effects.
4. Discuss treatment goals and expectations.
5. Discuss treatment options, potential side effects, and management of adverse effects.
6. If prescribed, discuss long term use of opioid analgesics and concerns of addiction and need to increase dose if tolerance develops.

F. Referrals

1. Consider referral or consultation with a pain specialist if pain is not controlled despite adequate dose, titration, and use of adjunctive therapies.
2. Oncologic Emergency - Severe uncontrolled pain is a medical emergency and should be evaluated and treated promptly (e.g., surgery, anesthetics, radiation therapy, antibiotics). Potential causes are listed below.
   a. Metastases – brain, epidural, leptomeningeal
   b. Infection
   c. Bone fracture or impending fracture of weight bearing bone
   d. Obstructed or perforated viscous
3. Consider mental health referral if patient appears to be depressed.

G. Monitoring and Assessment

1. Assess the four A’s at each clinic visit.
   a. Adverse effects
   b. Adherence to treatment & signs of aberrant drug related behavior
   c. Activity – functional status, both physical and psychosocial
   d. Analgesic efficacy – pain, functioning, effectiveness
2. Use pain rating scales to assess intensity of pain (Table 5 and 6)
3. Prior to changing therapy
   a. Compare pain assessment scores for changes
   b. Ensure analgesics are given as prescribed
   c. Evaluate need for adjunctive medications
   d. Evaluate the appropriateness of dosing intervals
   e. Consider need for dose increase and spread titration to maximum daily dose as tolerated before changing drug therapy.
ACUTE

Mild to Moderate Pain?
Yes

SEVERE PAIN
1. Activity modification as appropriate
2. Diclofenac 400 mg QID PRN X 7 days
3. Chlorzoxazone 500 mg TID X 7 days if needed
4. Methocarbamol 500 mg TID X 7 days if needed

Resolved?
Yes

APAP 650 mg TID-QID X 7 days
Alternatives:
- Ibuprofen 400 mg QID PRN X 7 days
- Other NSAIDs

Resolved?
Yes

No

Resolved?
Yes

Resolved?
Yes

Resolved?
Yes

Enter Acute Pathway

Resolved?
Yes

No

Enter Chronic Back Pain Pathway on page 2 at box #2

Resolved?
Yes

End Therapy

Resolved?
Yes

End Therapy

Resolved?
Yes

End Therapy

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved September 1995; Revised 3/05, 1/08; Revised 8/98, 4/02, 4/03, 5/11.
CHRONIC

Consider:
1) Nonmechanical source of pain;
2) Imaging studies;
3) Definitive Procedure.

Chronic pain persists.

Counsel Patient Regarding Nature of Disease
(1) Weight Loss & Exercise
(2) Coping with Chronic Pain
(3) Self Exercise/Strengthen Plan (Provide Exercise Handout available on CMCWEB DEPD homepage)
Medication:
Ibuprofen 600 mg TID PRN X 30 days

Improved and adequate work up for nonmechanical etiology?

Yes

No

Consider referral to further identify etiology.

Continue chronic maintenance at lowest effective dose.

NSAIDs may cause an increased risk of serious cardiovascular thrombotic events, myocardial infarction, and stroke, which can be fatal. This risk may be increased in patients with cardiovascular disease or risk factors for cardiovascular disease. Ibuprofen is contraindicated for the treatment of peri-operative pain in the setting of coronary artery bypass graft (CABG) surgery. NSAIDs can also cause an increased risk of serious gastrointestinal adverse events especially in the elderly, including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved September 1995; Revised 3/05, 1/08; Revised 8/98, 4/02, 4/03, 5/11.
Complete a history and physical including a pain assessment (page 2) to determine location, quality, type and intensity. If applicable, go to other pain pathway:

- Low back pain
- Neuropathic pain
- Chronic cancer pain

**Mild pain?**

Yes

APAP 325 mg – 2 tabs TID prn x 10 days KOP
or
Ibuprofen 200mg QID prn x 10 days KOP

Resolved?

Yes

End therapy.

No

Resolved?

Yes

 Treat another 10 – 20 days. Consider the following:
- Increase dose to maximally tolerated dose.
- Select another agent from a different drug class.
- Re-evaluate etiology of pain.

No

Re-evaluate etiology of pain.

No

Complete a history and physical including a pain assessment (page 2) to determine location, quality, type and intensity. If applicable, go to other pain pathway:

- Low back pain
- Neuropathic pain
- Chronic cancer pain

**Resolved?**

Yes

End therapy.

No

Re-evaluate etiology of pain.
I. History & Physical - Observe pain response during physical exam and movement during clinic visit to assess level of pain and interference with daily activities.

II. Pain Assessment
   A. Qualify pain (C.O.L.D.E.R.)
      1. C = character or quality of pain
         a. Somatic pain in skin, muscle, or bone that is well localized and is often described as aching, stabbing, throbbing, or pressure.
         b. Visceral pain in organs that is poorly localized and is often described as gnawing, cramping, or aching.
         c. Neuropathic pain that is often described as sharp, tingling, burning, shooting, or stabbing and/or associated with numbness.
      2. O = onset of pain
      3. L = location of pain including referral pattern and radiation
      4. D = duration of pain
      5. E = exacerbation, what factors aggravate or worsen pain
      6. R = remission, what factors alleviate or improve pain
   B. Evaluate pain currently and within last 24 hours and evaluate pain at rest and with movement
   C. Identify potential etiology
   D. Determine if pain interferes with activities

III. Psychosocial Assessment – psychiatric history, risk factors for aberrant use or diversion, risk factors for under-treatment of pain

IV. Pharmacologic Therapy
   A. Use simple analgesics – If treatment is ineffective:
      1. Increase dose to maximally tolerated dose or
      2. Select another agent from a different drug class
   B. Refer to other pain pathways if needed
      1. Low back pain
      2. Neuropathic pain
      3. Chronic cancer pain

Table 1: Formulary analgesics

<table>
<thead>
<tr>
<th>Formulary Medications</th>
<th>Usual Directions</th>
<th>Max Daily Dose</th>
<th>Drug Class</th>
</tr>
</thead>
</table>
| Acetaminophen (APAP) 325mg | 1-2 tablets 2-4 times daily | 6,000mg/day | | *Denotes Floor Stock Item
| Ibuprofen 200mg | 1 tablet 2-3 times daily | 1,200mg/day | NSAID – propionic acid |
| Ibuprofen 400mg | 1 tablet 2-3 times daily | 2,400mg/day | NSAID – propionic acid |
| Ibuprofen 600mg | 1 tablet 2-3 times daily | 3,600mg/day | NSAID – propionic acid |
| Ibuprofen 800mg | 1 tablet 2-3 times daily | 4,800mg/day | NSAID – propionic acid |
| Salsalate 500mg | 1-2 tablets 2-3 times daily | 3,000mg/day | NSAID – non-acetylated salicylate |
| Naproxen 250mg | 1 tablet 2 times daily | 500mg/day | NSAID – propionic acid |
| Naproxen 500mg | 1 tablet 2 times daily | 1,000mg/day | NSAID – propionic acid |
| Meloxicam 7.5mg | 1 tablet once daily | 7.5mg/day | NSAID – oxicam |

*Ranges should not be used in ordering medications.
**NEUROPATHIC PAIN**

1. **Pain Assessment:**
   1. Detailed history
   2. Focused physical exam
   3. Treat underlying cause(s) appropriately

2. **Initial Treatment:**
   1. Provide patient education
   2. Pharmacologic Treatment – Monotherapy preferred

   **Drug Class Initial Dose Titration Target Dose**
   - Acetaminophen Analgesic 325mg tid prn 325mg q week Max dose=4g/day
   - Ibuprofen Analgesic 200mg bid-tid prn 200mg q week Max dose=3.2g/day
   - Naproxen Analgesic 250mg bid prn 250mg q week 500mg bid
   - Nortriptyline Antidepressant 25mg q hs 25mg q month 75-150mg/day
   - Carbamazepine* Anticonvulsant 200mg qd 200mg q month 1000-1600mg/day
   - Divalproex Sodium Anticonvulsant 250 mg qd 250mg q month 500-1250 mg/day
   - Phenytoin Anticonvulsant 100mg qd 100mg q month 300-500mg/day
   - Pyridoxine** Other 50mg qd - Max dose=100mg/day

   *see carbamazepine precaution on page 3
   **for drug-induced neuropathy (e.g., prescribe pyridoxine prophylactically with isoniazid)

3. **Adequate pain relief?**
   - Yes
   - No

4. **Continue therapy & monitor patient for continual response & adverse effects**
   - Yes
   - No

5. **Adequate pain relief?**
   - Titrated dose as outlined in box 2. Consider switching to a different agent if patient does not respond to adequate trial.
   - Yes
   - No

6. **Adequate pain relief?**
   - Titrated dose as outlined in box 2. Consider combination therapy if patient does not respond to an adequate trial of monotherapy.
   - Yes
   - No

7. **Consider other therapeutic alternatives**
   - Yes
   - No

8. **Consider combining combination therapy if patient does not respond to first combination:**
   - Yes
   - No

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. Approved January 2005; Revised 3/08, 5/11.
I. Treatment Principles
A. Treat underlying conditions
1. Pain is not a diagnosis, it is a symptom. Patients should be evaluated for underlying medical conditions that might be the cause of pain and those conditions should be managed appropriately.
2. Common causes of neuropathic pain
   a. Disease process (e.g., HIV, diabetes, herpes zoster)
   b. Iatrogenic causes
      i. Antiretrovirals (e.g., zalcitabine=ddC, didanosine=ddI, stavudine=d4T)
      ii. Antibacterials (e.g., dapsone, isoniazid)
      iii. Antineoplastics (e.g., vinblastine, cisplatin)
   c. Nutritional deficiencies (e.g., vitamin B-12 deficiency)
B. Pain relief
1. Important to educate patients and define realistic goals and treatment expectations
2. Complete pain relief is unlikely to be achieved and most therapies only result in 30-50% reduction in pain
3. Generally respond to analgesics, antidepressants, and/or anticonvulsants
4. Combination therapy may be considered for patients that do not respond to monotherapy

II. Patient Evaluation
A. Assessment
1. General history - predisposing factors
   a. Past medical history
   b. Family history
   c. Social history
   a. C=character or quality of pain
   b. O=onset
   c. L=location of pain
   d. D=duration of pain
   e. E=exacerbation, what makes pain worse
   f. R=remission, what makes pain better
   g. Patient pain rating if possible
3. Physical exam
   a. Vitals
   b. Functional assessment
   c. Focused physical exam of part of body associated with pain


<table>
<thead>
<tr>
<th>Small Fiber Neuropathy</th>
<th>Large Fiber Neuropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal muscle-stretch reflexes</td>
<td>Reduced or absent muscle-stretch reflexes</td>
</tr>
<tr>
<td>Normal muscle strength</td>
<td>Normal or slightly reduced muscle strength</td>
</tr>
<tr>
<td>Normal proprioception &amp; vibration sensation</td>
<td>Reduced proprioception &amp; vibration sensation</td>
</tr>
<tr>
<td>Reduced distal pinprick sensation</td>
<td>Reduced pinprick &amp; touch sensation</td>
</tr>
</tbody>
</table>

B. Presentation
1. Burning pain
2. Sharp pain described as pins & needles, prickling, or stabbing pain
3. Shooting pain
4. Aching in toes & feet reflects damage to longest axons
5. Tingling
6. Numbness
7. Often exacerbated at night or with standing or walking

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III. Management

A. Treat underlying causes such as poor glycemic control in diabetics, correct nutritional deficiencies, and/or discontinue drug therapy if possible that may be causing neuropathic pain

B. Pharmacologic therapy

1. Analgesics, antidepressants, and anticonvulsants are mainstays of therapy

2. Evaluate selection of drugs based on co-morbidities and intensity of pain

3. Allow adequate time between dose adjustments

4. Combination therapy may be considered for patients that do not respond to monotherapy

5. Gabapentin (Neurontin®) – When compared head-to-head with amitriptyline, gabapentin had equal efficacy. Reduction in neuropathic pain required doses higher than 1600mg/day. In some studies, sedation and dizziness were more common with gabapentin compared to amitriptyline. Disadvantages of gabapentin included the relative cost and the divided dosing needed in most patients.

6. Carbamazepine (Tegretol®) Genetic Testing Recommended for People with Asian Ancestry
   a. Serious skin reactions (e.g., Stevens-Johnson Syndrome) are more common in people with the HLA-B 1502 variant, a mutation found primarily in Asians. Reactions have been fatal.
   b. Carbamazepine should not be prescribed for patients with Asian ancestry unless no other reasonable alternative exists. In so, patients must undergo genetic testing for the mutation before being prescribed carbamazepine. Providers must obtain approval from their Regional or District Medical Director prior to ordering the test.
   c. The risks versus benefits of carbamazepine therapy should be weighed in patients that test positive and discussed with the Regional or District Medical Director prior to initiating therapy.
   d. Carbamazepine therapy may be continued in intake Asian patients or Asian patients already taking the medication for ≥3 months if they have not experienced adverse effects.

C. Patient Education

1. Pathophysiology
2. Treatment goals
3. Treatment expectations
4. Treatment plan

D. Consider specialty referral for patients that do not respond to an adequate trial of pharmacologic therapy or that might require additional diagnostic evaluation
POST TRAUMATIC STRESS DISORDER and ACUTE STRESS DISORDER

1. Rule out medical causes of presentation

2. Perform BPRS and Determine if Meet DSM-IV Criteria for Post-Traumatic Stress Disorder or Acute Stress Disorder?

   a. Yes
   - Perform BPRS
   - Antidepressant therapy effective with documented symptom improvement with > 80% compliance?

   b. No
   - Referral to psychotherapy and initiate medication per appropriate co-morbid treatment pathway

   - Yes
   - Perform BPRS
   - Antidepressant therapy effective with documented symptom improvement with > 80% compliance?

3. Treat underlying disorder

4. Comorbid depression, bipolar disorder, or other anxiety disorder?

   a. Yes
   - Refer to psychotherapy and initiate medication per appropriate co-morbid treatment pathway

   b. No

5. Perform BPRS and Determine if Meets DSM-IV Criteria for Post-Traumatic Stress Disorder or Acute Stress Disorder?

6. Initiate Psychotherapy and
   - One of the following formulary antidepressants for at least 6-12 weeks: (Note: SSRIs are considered first-line therapy)
     - Fluoxetine 20-80mg
     - Citalopram 20-40mg
     - Sertraline 50-200mg
   - Or, one of the following second-line agents for at least 6-12 weeks:
     - Nortriptyline 25-150mg
   - See page 2 for recommended monitoring parameters

7. 1. Perform BPRS
    2. Antidepressant therapy effective with documented symptom improvement with > 80% compliance?

8. 1. Continue maintenance treatment for 12 months, reassessing as determined by unit mental health provider
    2. After 12 months, may consider gradual discontinuation of pharmacotherapy
    3. In case of relapse, see box 6 and resume treatment that had proven effective

9. 1. Reevaluate diagnosis
    2. Counsel regarding importance of medication adherence.
    3. Consider:
       A. Increase toward full therapeutic dose of current antidepressant as clinically indicated and tolerated by the patient for at least 6-12 weeks or,
       B. Switch to alternative formulary antidepressant (See Box 6) or,
       C. Consider augmentation with risperidone or non-formulary prazosin (if nightmares are prevalent symptoms, see page 2 for monitoring parameters)
C. Pharmacotherapy consult or,
D. Request for non-formulary medication.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved May 2002, revised 2/03, 9/05, 7/08, 5/11, 9/11. Reviewed 8/03.
<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Initial Dose (Dose Range) (mg/day)</th>
<th>Therapeutic Range (ng/mL)</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram 20mg, 40mg tablet</td>
<td>Celexa® 20</td>
<td>20 (20 – 40)</td>
<td></td>
<td>Pregnancy Test – as clinically indicated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine 20mg capsule</td>
<td>Prozac® 20</td>
<td>20 (20 – 60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline 50mg, 100mg tablet</td>
<td>Zoloft®</td>
<td>50 (50 – 200)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tricyclic Antidepressant* (TCA)</td>
<td>Nortriptyline 25mg, 50mg, 75mg capsule</td>
<td>Pamelor® 25 – 50</td>
<td>50 (75 – 150)</td>
<td>50 – 150</td>
<td>Pregnancy Test – as clinically indicated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Liver function test at baseline.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nortriptyline dose &gt; 100 ng/mL – EKG at baseline and clinically indicated, and blood level within 2 weeks, then as clinically indicated</td>
</tr>
<tr>
<td>Other*</td>
<td>Prazosin 1mg capsule</td>
<td>Minipres®</td>
<td>Initial dose 1mg HS, taper gradually up to 15mg HS based upon response</td>
<td></td>
<td>Pregnancy Test – as clinically indicated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Monitor supine, standing, and sitting BP; orthostatic hypotension. When discontinuing, taper over 1 week or more.</td>
</tr>
</tbody>
</table>

* Not a formulary agent but may be requested via nonformulary approval process if nightmares are a predominant symptom.

Medication Selection
Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

Table 1: Formulary Treatments for PTSD
BRIEF PSYCHIATRIC RATING SCALE (BPRS) - Instructions for the Clinician

Background:
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual’s behavior over the previous 2-3 days should also be considered and can be reported by the patient’s caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not assessed</td>
</tr>
<tr>
<td>1</td>
<td>Not present</td>
</tr>
<tr>
<td>2</td>
<td>Very mild</td>
</tr>
<tr>
<td>3</td>
<td>Mild</td>
</tr>
<tr>
<td>4</td>
<td>Moderate</td>
</tr>
<tr>
<td>5</td>
<td>Moderately severe</td>
</tr>
<tr>
<td>6</td>
<td>Severe</td>
</tr>
<tr>
<td>7</td>
<td>Extremely severe</td>
</tr>
</tbody>
</table>

1. Somatic Concern - Preoccupation with physical health, fear of physical illness, hypochondriasis.
2. Anxiety - Worry, fear, over-concern for present or future, uneasiness.
3. Emotional Withdrawal - Lack of spontaneous interaction, isolation deficiency in relating to others.
5. Impulsiveness.
6. Motor Hyperactivity - Increase in energy level evidenced in more frequent movement and/or rapid speech.
7. Mannerisms and Posturing - Peculiar, bizarre, unnatural motor behavior (not including tic).
8. Grandiosity - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
9. Depressive Mood - Sorrows, sadness, despondency, pessimism.
10. Hostility - Animosity, contempt, belittling, disdain for others.
11. Suspiciousness - Misinterpreting, believing others harbor malicious or discriminatory intent.
13. Motor Retardation - Slowed, weakened movements or speech, reduced body tone.
15. Unusual Thought Content - Unusual, odd, strange, bizarre thought content.
16. Blunted Affect - Reduced emotional tone, reduction in formal intensity of feelings, flatness.
17. Excitement - Heightened emotional tone, agitation, increased reactivity.
18. Disorganization - Confusion or lack of proper association for person, place or time.
19. Elevated Mood - A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.
20. Suicidality - Expressed desire, intent, or actions to harm or kill self.
21. Bizarre Behavior - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.
22. Self-Neglect - Hygiene, appearance, or eating behavior below socially acceptable standards or life threatening.
23. Distractibility - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual’s attention may be drawn to noise in adjoining room, books on a shelf, interviewer’s clothing, etc.
MANAGEMENT OF THE ACUTELY PSYCHOTIC PATIENT

1. Rule out medical causes (e.g., hypoglycemia)

2. Meet Criteria for Psychosis as Defined in DSM-IV?
   - Yes
   - No

3. Treat Underlying Disorder
   - Yes
   - No

4. Administer Haloperidol 2 - 5 mg IM; May repeat q 60 minutes as needed (maximum of 20 mg/day), along with Diphenhydramine 50 mg IM, may repeat in 20 – 30 minutes if necessary (max 200 mg/day)
   - OR
   - Ziprasidone 20 mg IM q 4 hours as needed (maximum of 40 mg/day)

5. Effective control of target symptoms (psychosis, agitation, and/or behavioral dyscontrol)?
   - Yes
   - No

6. Repeat Diphenhydramine dose q 20-30 minutes (max 200 mg/day)

7. Effective control of target symptoms (psychosis, agitation, and/or behavioral dyscontrol)?
   - Yes
   - No

8. Get to Box 4

9. Repeat dose of agent (within limits listed in Box 4)
   - OR
   - Switch to alternative agent (See Box 4)
   - OR
   - Consider IM lorazepam 0.5 – 2 mg adjunct q 60 minutes as needed for persistent agitation (max 6 mg/day)

10. Effective control of target symptoms (psychosis, agitation, and/or behavioral dyscontrol)?
    - Yes
    - No

11. NOTE: Due to very low risk for EPS, adjunctive anticholinergic medication is generally not needed with IM ziprasidone.

12. Consider pharmacotherapy consult
    - OR
    - Second opinion
    - OR
    - Referral to Inpatient Facility for evaluation

Prepared By the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 12/02, reviewed 4/03, 3/11, revised 11/05, 1/09, 7/10

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Monitoring Parameters (Check patient at least once in first 15 minutes, then every 30 minutes at least (twice in the next hour if patient remains on the unit))

- **Mental Status**: Alert and oriented, motor activity, speech, excess sedation
- **Extrapyramidal Symptoms (EPS)**: Dystonia, parkinsonism, akathisia, tremor, dyskinesia
- **Behavior**: Psychosis (i.e. hallucinations, delusions, disorganized speech/behavior...), assaultive, agitated
- **Neuroleptic Malignant Syndrome (NMS)**: Dehydration, vital signs, muscle rigidity, diaphoresis, alteration in consciousness, autonomic dysfunction (orthostatic hypotension, drooling, urinary incontinence, unusually rapid breathing)
- **Vital Signs**: Blood pressure, pulse, temperature, respiration (as clinically indicated)

Management of Adverse Effects

- **Neuroleptic Malignant Syndrome (NMS)**
  - Medical emergency
  - Evaluate through medical department for possible referral to hospital ER
- **Acute Dystonic Reaction**
  - Diphenhydramine 50 mg IM (max 200 mg/day) or,
- **Worsening Mental Status**
  - Immediately contact psychiatric provider for evaluation
  - Reconsider possible medical etiology for presentation

Prepared By the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 12/02, reviewed 4/03, 3/11
revised 11/05, 1/09, 7/10
Chronic Psychosis

1. Meets DSM-IV Criteria for Psychosis?
   - Yes
   - Obtain baseline information
   - BPRS
   - AIMS
   - Laboratories in Table 1
   - Monitor & follow BPRS, Mental Status Exam & AIMS
   - First Generation Antipsychotic (FGA) – Titrate up to a maximum of 1,000mg CPZ equivalents and treat for at least 6 weeks (Table 3)
   - Second Generation Antipsychotic (SGA)
   - Risperidone up to maximum 6mg/day and treat for at least 6 weeks
   - Consider formulary SGA if
   - AIMS positive for tardive dyskinesia
   - First break psychosis
   - History of positive response

2. Signs of Adverse Effects?
   - No
   - Yes

3. Obtain baseline information
   - BPRS
   - AIMS
   - Laboratories in Table 1

4. Assess medication compliance
   - First Generation Antipsychotic (FGA) – Titrate up to a maximum of 1,000mg CPZ equivalents and treat for at least 6 weeks (Table 3)
   - Second Generation Antipsychotic (SGA)
   - Risperidone up to maximum 6mg/day and treat for at least 6 weeks
   - Consider formulary SGA if
   - AIMS positive for tardive dyskinesia
   - First break psychosis
   - History of positive response

5. Adequate response per BPRS?
   - No
   - Yes
   - Go to Adverse Effect Management page 2

6. Signs of Adverse Effects?
   - No
   - Yes
   - Go to Adverse Effect Management page 2

7. Adequate response per BPRS?
   - No
   - Yes
   - Go to Adverse Effect Management page 2

8. Signs of Adverse Effects?
   - No
   - Yes
   - Go to Adverse Effect Management page 2

9. Assess compliance, provide compliance counseling as indicated, & re-evaluate diagnosis
   - Increase dose of current agent to maximal tolerated dose (Table 3) or
   - Switch to another formulary agent from a different class or
   - If resistance noted, switch to prior authorization agent Ziprasidone titrated up to 80mg BID within 3 days and then up to maximum 80mg BID for at least 6 weeks.

10. Adequate response per BPRS?
    - No
    - Yes
    - Go to Adverse Effect Management page 2

11. Signs of Adverse Effects?
    - No
    - Yes
    - Go to Adverse Effect Management page 2

12. Assess compliance & Re-evaluate diagnosis
    - Change drug therapy
    - If patient has received trial of 2 SGA and has no contraindications, consider trial FGA
    - If patient hasn’t received trial of olanzapine or ziprasidone, consider trial of one of these agents
    - Consider non-formulary SGA
    - Go to box 17, page 2

Note: For any non-compliance in past despite adequate education and compounded antipsychotics
consider using one of long-acting injectable antipsychotic preparations. Once stabilized on long-acting injectable attempt switch back to oral therapy. Refer to long-acting injectable antipsychotic guidelines-page 3.
• Review table 3 and consider selecting an agent with a lower incidence of EPS or
• Lower the dose of the antipsychotic agent to the lowest effective dose or
• Switch to SGA or
• Treat EPS with one of the following agents.
  • Benztropine 1 – 6 mg/day
  • Diphenhydramine 25 – 100 mg/day
  • Amantadine 100 – 300 mg/day
  • Propranolol 20 – 120 mg/day
  • Short term use of benzodiazepines may be considered in severe cases in an
    inpatient setting.
  • Increase dose of agent or switch to alternate anti-EPS agent if ineffective.

Adverse Effect Management

### EPS

- Lower the dose of the antipsychotic agent to the lowest effective dose or
- Switch to SGA or
- Treat with Propranolol 20 – 120 mg/day. Titrate dose as tolerated and as needed.

### Akathisia

- Diagnosis supported by ABMS
- Switch to SGA
- Consider pharmacotherapy consult for treatment options

### Tardive Dyskinesia

- Medical emergency
- Evaluate through medical department for possible referral to emergency room
- Consider STAT CPK
- Discontinue antipsychotic

### Neuroleptic Malignant Syndrome

- Stop treatment and transfer to inpatient setting
- Treat with n-acetyl-cysteine or dantrolene sodium
- Consider pharmacotherapy consult
Guidelines for Use of Long Acting Injectable Antipsychotic Agents

1. Significant noncompliance or partial compliance leading to decompensation or poor function and/or requirement for compelled medications with oral antipsychotic

2. First break psychosis or history of tardive dyskinesia per AMDIS?
   - Yes
   - No

   3. Initiate non-formulary Risperidone LA injection 25mg IM q 2 weeks. Titrate to therapeutic dose no more frequently than every 4 weeks up to maximum 50mg IM q 2 weeks.
   - Observe response for 6 months at maximum tolerated dose.
   - Continue oral antipsychotic for minimum of first 3 weeks

   4. Initiate haloperidol or fluphenazine decanoate. Titrate to therapeutic dose.
   - Observe response for 6 months at maximum tolerated dose.

5. Well tolerated and adequate response?
   - Yes
   - No

   6. Continue at lowest effective dose.
      - Monitor per recommendations in table 1 and 2
      - Attempt switch to oral therapy if compliant and stable.

   7. Consider pharmacotherapy consult and/or non-formulary medication
Table 1: Metabolic and Endocrine Monitoring Guidelines

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>Q 6 Months</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight-Height-IMI</td>
<td>X</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure, Pulse</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Complete Metabolic Panel</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>EKG</td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>Prolactin¹</td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.
1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease or the patient is > 40 years old.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia.

Additional Monitoring Parameters for Specific Agents

- Ziprasidone (Geodon®) - EKG at baseline then annually or as clinically indicated
- Quetiapine (Seroquel®) - Ophthalmic exam checking for cataracts every 6 months
- Clozapine (Clozaril®) - refer to Pharmacy Policy 55-20 for recommendations

Table 2: Outcome and Adverse Effect Monitoring

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS (Abnormal Voluntary Movement Scale)</td>
<td>X</td>
<td>Baseline and at least every 6 months</td>
</tr>
<tr>
<td>*Acute EPS - Akathisia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Tardive Dyskinesia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Status Exam</td>
<td>X</td>
<td>Baseline and at least every 6 months</td>
</tr>
<tr>
<td>BPRS (Brief Psychiatric Rating Scale)</td>
<td>X</td>
<td>* Baseline and at least every 6 months</td>
</tr>
<tr>
<td>* Medication is started, changed or discontinued</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3: Antipsychotic Dosages and Adverse Effects

<table>
<thead>
<tr>
<th>Agent</th>
<th>Potency</th>
<th>Traditional Equivalents (approx. mg)</th>
<th>Dose Range (mg/day)</th>
<th>Adverse Effects</th>
<th>Weight Gain</th>
<th>EPS</th>
<th>Sedation</th>
<th>Anticholinergic</th>
<th>Orthostasis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorpromazine (Thorazine&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>Low</td>
<td>100</td>
<td>50-800</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Fluphenazine (Prolixin&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>High</td>
<td>2</td>
<td>1-40</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Haloperidol (Haldol&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>High</td>
<td>2</td>
<td>1-100</td>
<td>++</td>
<td>+++</td>
<td>*</td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Molindone (Moban&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>Mid</td>
<td>10</td>
<td>15-225</td>
<td>++</td>
<td>++</td>
<td></td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Perphenazine (Trilafon&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>Mid</td>
<td>8</td>
<td>12-84</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Thioridazine (Mellaril&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>Low</td>
<td>100</td>
<td>20-800</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Thiothixene (Navane&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>High</td>
<td>4</td>
<td>6-60</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Trifluoperazine (Stelazine&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>High</td>
<td>3</td>
<td>2-40</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td><strong>Atypicals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aripiprazole (Abilify&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>7.5</td>
<td>10-30</td>
<td>+/0</td>
<td>0/0</td>
<td>+/0</td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Chlorpromazine (Clinate&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>50</td>
<td>75-900</td>
<td>++++</td>
<td>0</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Olanzapine (Zyprexa&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>5</td>
<td>3-20</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Paliperidone (Invega&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>3</td>
<td>3-12</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Quetiapine (Seroquel&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>125</td>
<td>100-800</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Risperidone (Risperdal&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>2</td>
<td>0.5-6</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Ziprasidone (Geodon&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>60</td>
<td>120-480</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Asenapine (Saphris&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>7</td>
<td>5-20</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Iloperidone (Fanapt&lt;sup&gt;5&lt;/sup&gt;)</td>
<td>++++</td>
<td>7</td>
<td>12-24</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td></td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

<sup>1</sup>Should only be used in treatment refractory illness.  Contraindicated for use with agents that are known to prolong QTc and agents that inhibit metabolism of thioridazine (such as: fluoxetine, paroxetine, fluvoxamine, propranolol)<br>  <sup>2</sup>dose-dependent<br>  <sup>3</sup>partially D2 agonist
ABNORMAL INVOLUNTARY MOVEMENT SCALE

Complete examination procedure outlined in the instructions before making rating. Rate highest severity observed.
Movements occurring upon activation rate one less than those occurring spontaneously.

<table>
<thead>
<tr>
<th>Date of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>Muscles of facial expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. movements of forehead, eyebrows, preorbital area, cheeks, include frowning, blinding, smiling, grimacing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Lips and perioral area</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. puckering, pouting, smacking</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Jaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. biting, clenching, chewing, mouth opening, lateral movement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate only increase in movement both in and out of mouth, not inability to sustain movement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Upper (arms, wrists, hands, fingers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include chronic movements (i.e. rapid objectively purposeless, irregular, spontaneous); athetoid movements (i.e. slow, irregular, complex, serpentine). DO NOT include tremor (i.e. repetitive, regular, rhythmic.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Lower (legs, knees, ankles, toes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. lateral knee movement, foot tapping, heel dropping, foot squirming, inversion, and eversion of foot</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Neck shoulders, hips</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. rocking, twisting, squirming, pelvic gyrations</td>
<td></td>
</tr>
</tbody>
</table>

| 8 | Severity of abnormal movements |

| 9 | Incapacitation due to abnormal movements |

<table>
<thead>
<tr>
<th>10</th>
<th>Patient's awareness of abnormal movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate only patient's report: No awareness=0, Aware, no distress=1, Aware, mild distress=2, Aware, moderate distress=3, Aware, severe distress=4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>Current problems with teeth &amp;/or dentures?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No=0, Yes=1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12</th>
<th>Does patient usually wear dentures?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No=0, Yes=1</td>
<td></td>
</tr>
</tbody>
</table>

| 13 | COMMENTS: |
BRIEF PSYCHIATRIC RATING SCALE (BPRS)
Instructions for the Clinician

Background:
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed an antipsychotic.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:
Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.____</td>
<td>BLUNTED AFFECT</td>
<td>Reduced emotional tone, reduction in formal intensity of feelings, flatness.</td>
</tr>
<tr>
<td>17.____</td>
<td>EXCITEMENT</td>
<td>Heightened emotional tone, agitation, increased reactivity.</td>
</tr>
<tr>
<td>18.____</td>
<td>DISORIENTATION</td>
<td>Confusion or lack of proper association for person, place or time.</td>
</tr>
<tr>
<td>19.____</td>
<td>ELEVATED MOOD</td>
<td>A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.</td>
</tr>
<tr>
<td>20.____</td>
<td>SUCIDALITY</td>
<td>Expressed desire, intent, or actions to harm or kill self.</td>
</tr>
<tr>
<td>21.____</td>
<td>BIZARRE BEHAVIOR</td>
<td>Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.</td>
</tr>
<tr>
<td>22.____</td>
<td>SELF-NEGLECT</td>
<td>Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.</td>
</tr>
<tr>
<td>23.____</td>
<td>DISTRACTIBILITY</td>
<td>Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
Psychotropic Agents: Dosing, Approximate Equivalent Doses, & Recommendations for Switching Agents

Patients should be evaluated for use of formulary psychotropic agents whenever possible. Clinicians should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects. The recommendations listed below are not intended to replace sound clinical judgment.

When treating elderly patients with psychotropic agents, lower starting doses and slower dose titrations may be required.

Note: UTMB Mental Health Services Policy B-2. Prescribing of Psychoactive Medications. All offenders arriving in TDCJ with a current prescription for psychoactive medications will be continued on such medications (unless clinically contraindicated) until they are assessed by a psychiatrist or psychiatric physician assistant/nurse practitioner. Offenders referred for initial psychiatric assessment must be seen within 30 days of the referral.

### Table 1: Antidepressants

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/Day)</th>
<th>APPROXIMATE EQUIVALENT DOSE (MG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tricyclic Antidepressants (TCAs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amitriptyline (Elavil®)</td>
<td>N</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td>Amoxapine (Asendin®)</td>
<td>N</td>
<td>100-400</td>
<td>100</td>
</tr>
<tr>
<td>Clomipramine (Anafranil®)</td>
<td>N</td>
<td>100-250</td>
<td>100</td>
</tr>
<tr>
<td>Desipramine (Norpramin®)</td>
<td>N</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td>Doxepin (Sinequan®)</td>
<td>N</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td>Imipramine (Tofranil®)</td>
<td>Y (TJJD only)</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td>Maprotiline (Ludiomil®)</td>
<td>N</td>
<td>100-225</td>
<td>100</td>
</tr>
<tr>
<td>Nortriptyline (Pamelor®)</td>
<td>Y</td>
<td>50-150</td>
<td>50</td>
</tr>
<tr>
<td>Protriptyline (Vivactil®)</td>
<td>N</td>
<td>15-60</td>
<td>20</td>
</tr>
<tr>
<td>Trimipramine (Surmontil®)</td>
<td>N</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td><strong>Selective Serotonin Reuptake Inhibitors (SSRIs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citalopram (Celexa®)</td>
<td>Y</td>
<td>20-40</td>
<td>20</td>
</tr>
<tr>
<td>Escitalopram (Lexapro®)</td>
<td>N</td>
<td>10-20</td>
<td>10</td>
</tr>
<tr>
<td>Fluoxetine (Prozac®)</td>
<td>Y</td>
<td>20-80</td>
<td>20</td>
</tr>
<tr>
<td>Fluvoxamine (Luvox®)</td>
<td>N</td>
<td>100-300</td>
<td>100</td>
</tr>
<tr>
<td>Paroxetine (Paxil®)</td>
<td>N</td>
<td>20-50</td>
<td>20</td>
</tr>
<tr>
<td>Sertraline (Zoloft®)</td>
<td>Y</td>
<td>50-200</td>
<td>50</td>
</tr>
<tr>
<td><strong>Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venlafaxine (Effexor®)</td>
<td>N</td>
<td>75-375</td>
<td>150</td>
</tr>
<tr>
<td>Duloxetine (Cymbalta®)</td>
<td>N</td>
<td>40-60</td>
<td>30</td>
</tr>
<tr>
<td>Milnacipran (Savella®)</td>
<td>N</td>
<td>100-200</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Monoamine Oxidase Inhibitors (MAOIs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(the following are inexact estimates for approximate equivalent dosing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isocarboxazid (Marplan®)</td>
<td>N</td>
<td>10-10</td>
<td>10</td>
</tr>
<tr>
<td>Phenelzine (Nardil®)</td>
<td>N</td>
<td>15-90</td>
<td>15</td>
</tr>
<tr>
<td>Tranylcypromine (Paminter®)</td>
<td>N</td>
<td>10-60</td>
<td>10</td>
</tr>
<tr>
<td>Selegiline (Emsam®)</td>
<td>N</td>
<td>6-12 (transdermal)</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: This dosing tool does not replace sound clinical judgment, nor is it intended to strictly apply to all patients.
Other (the following are inexact estimates for approximate equivalent dosing)

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/DAY)</th>
<th>APPROXIMATE EQUIVALENT DOSE (MG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bupropion (Wellbutrin®)</td>
<td>N</td>
<td>300-450</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SR = 150-400</td>
<td>SR = 150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XL = 150-450</td>
<td>XL = 150</td>
</tr>
<tr>
<td>Mirtazapine (Remeron®)</td>
<td>N</td>
<td>15-45</td>
<td>15</td>
</tr>
<tr>
<td>Trazodone (Desyrel®)</td>
<td>Y</td>
<td>150-600</td>
<td>50</td>
</tr>
<tr>
<td>Nefazodone (Serzone®)</td>
<td>N</td>
<td>300-600</td>
<td>100</td>
</tr>
<tr>
<td>Vilazodone (Viibryd®)</td>
<td>N</td>
<td>20-40</td>
<td>N/A</td>
</tr>
</tbody>
</table>

†Doses are approximate equivalencies only within the specified drug category.
*no data currently available on equivalent dosing

Switching Antidepressant Agents

TCA to TCA
If switching from one TCA to another, a cross-taper is generally not necessary. Since the usual dosage range for most TCAs is 100-300mg/day (nortriptyline is 50-150mg/day), it would be acceptable to use the same daily dose when switching between agents except protriptyline and nortriptyline. For example, a patient prescribed 300mg/day of amitriptyline could be switched to 300mg/day of desipramine.

TCA to SSRI
If switching from a TCA to a SSRI, the dose of the TCA may be tapered over 3 days while initiating therapy with the SSRI. A more conservative approach would be to taper the TCA first over 3 days and then begin therapy with the SSRI.

SSRI to SSRI
If switching from one SSRI to another, a cross-taper is generally not necessary. Table 1 should be used when selecting an approximate equivalent dose.

Table 2: Guidelines for Switching Between Antidepressants

<table>
<thead>
<tr>
<th>FROM (Drug #1)</th>
<th>TO (Drug #2)</th>
<th>STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCA or Others</td>
<td>TCA</td>
<td>Discontinue Drug #1 by taper while initiating the new TCA OR Discontinue Drug #1 by taper and then initiate therapy with the new TCA OR Discontinue Drug #1 and start Drug #2 the next day</td>
</tr>
<tr>
<td>TCA or Others</td>
<td>SSRI</td>
<td>Discontinue Drug #1 by taper over 3 days while initiating the SSRI OR Discontinue Drug #1 by taper over 3 days and then initiate therapy with the SSRI</td>
</tr>
<tr>
<td>TCA or Others</td>
<td>Others</td>
<td>Discontinue Drug #1 and start Drug #2 the next day OR Discontinue Drug #1 by taper and start Drug #2 gradually</td>
</tr>
<tr>
<td>TCA</td>
<td>MAOI</td>
<td>Discontinue the TCA by taper (doses &gt;100mg/day). After a 2-week washout, start MAOI</td>
</tr>
</tbody>
</table>

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FROM Drug #1 TO Drug #2 STRATEGY

SSRI (with the exception of fluoxetine) SSRI
Discontinue the SSRI and start the new SSRI the next day
OR Discontinue the SSRI by taper and start new SSRI gradually

SSRI (with the exception of fluoxetine) TCA or Others
Discontinue the SSRI and start Drug #2 the next day
OR Discontinue the SSRI by taper and start Drug #2 gradually

Fluoxetine SSRI
Stop Drug #1 abruptly and start new SSRI at ½ normal starting dose 4 to 7 days later

Fluoxetine TCA or Other
Stop Drug #1 abruptly and start Drug #2 gradually

SSRI MAOI
Discontinue SSRI. After a 5-week washout period for fluoxetine or 2-week washout period for sertraline, paroxetine, or citalopram, start MAOI

MAOI MAOI, TCA, SSRI, or Others
Discontinue MAOI. After a 2-week washout, start MAOI, TCA, SSRI, or others

## ANTIPSYCHOTICS

Table 3: Antipsychotics1,8,12,13,17

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/DAY)</th>
<th>APPROXIMATE EQUIVALENT DOSE (MG)</th>
</tr>
</thead>
</table>
| High-Potency First Generation Agents
| Pimozide (Orap®) | N | 1-10 | 2 |
| Thiothixine (Prolixin®) | Y | 0.5-20 | 2 |
| Haloperidol (Haldol®) | Y | 0.5-20 | 2 |
| Mid-Potency First Generation Agents
| Loxapine (Loxitane®) | N | 25-250 | 10 |
| Molindone (Moban®) | N | 15-225 | 10 |
| Perphenazine (Trilafon®) | Y | 16-64 | 10 |
| Thiothixene (Navane®) | Y | 5-40 | 4 |
| Trifluoperazine (Stelazine®) | Y | 2-40 | 5 |
| Low-Potency First Generation Agents
| Chlorpromazine (Thorazine®) | Y | 200-1000 | OFF |
| Thoridazine (Mellaril®) | N | 200-300 | 100 |
| Second Generation Agents
| Ziprasidone (Abilify®) | N | 10-30 | 7.5 |
| Olanzapine (Zyprexa®) | N | 7.5-90 | 50 |
| Ziprasidone (Geodon®) | N | 5-20 | 5 |
| Quetiapine (Seroquel®) | N | 50-400 | 75 |
| Aripiprazole (Abilify®) | Y | 0.5-6 | 2 |
| Olanzapine (Zyprexa®) | N | 10-30 | N/A |
| Ziprasidone (Geodon®) | N | 10-30 | N/A |
| Lurasidone (Latuda®)* | N | 40-80 | N/A |

*no data currently available on equivalent dosing
Switching Antipsychotic Agents

Little study data is available, but studies of abrupt discontinuation versus cross-tapering strategies from other antipsychotics to ziprasidone, olanzapine, and aripiprazole found no difference in outcomes. The method used should be individualized based on the patient and the period of overlapping should be minimized if cross-tapering is selected. Cross-tapering may be considered for patients that are clinically unstable or only recently stabilized, are on high doses, have had a recent relapse, are being treated as outpatients, or are having a partial response to their current agent and may require a slower titration rate on the new agent to improve tolerability. Unless there is a medication intolerance, switching of antipsychotic agents is not advised until a trial of adequate dose and duration (4-6 weeks) is completed.

Table 4: Basic Switch Strategies

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>ADVANTAGE</th>
<th>DISADVANTAGE</th>
<th>RECOMMENDED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrupt Switching</td>
<td>Low risk of drug interactions</td>
<td>Withdrawal reactions</td>
<td>Patients with serious adverse event(s)</td>
</tr>
<tr>
<td>Gradual Switching</td>
<td>Low risk of withdrawal reactions, few drug interactions</td>
<td>Danger of symptom exacerbation</td>
<td>Patients with low risk of relapse</td>
</tr>
<tr>
<td>Cross-tapering</td>
<td>Safest to prevent relapse</td>
<td>Drug interactions complicated</td>
<td>Recently stabilized patients</td>
</tr>
</tbody>
</table>

Abrupt Switching is simultaneous cessation of prior antipsychotic and initiation of new antipsychotic.

Gradual Switching is adding the new antipsychotic at the therapeutic dose, while the previous antipsychotic is slowly tapered off.

Cross-tapering is gradually decreasing and tapering the existing antipsychotic, while at the same time initiating and gradually increasing the new antipsychotic.

Table 5: Study Switch Strategies

<table>
<thead>
<tr>
<th>FROM (DRUG #1)</th>
<th>TO (DRUG #2)</th>
<th>STRATEGY</th>
</tr>
</thead>
</table>
| Typical agent, Risperidone, or Olanzapine | Ziprasidone* | • Ziprasidone 40mg bid x 2 days followed by doses ranging up to 160mg/day divided twice daily  
• Abrupt discontinuation: Drug #1 discontinued the day before starting ziprasidone  
OR  
• Ziprasidone 40mg bid x 2 days followed by doses ranging up to 160mg/day divided twice daily  
• Immediate dose reduction with cross-taper: Dose of Drug #1 reduced 50% for first week and then Drug #1 discontinued  
OR  
• Ziprasidone 40mg bid x 2 days followed by doses ranging up to 160mg/day divided twice daily  
• Delayed dose reduction with cross-taper: Dose of Drug #1 continued then reduced 50% on day 4 and then Drug #1 discontinued at the end of 1 week  

Typical agent | Olanzapine | • Olanzapine 10mg daily (starting dose)  
• Abrupt discontinuation: Drug #1 discontinued the day before starting olanzapine  
OR  
• Olanzapine 10mg daily (starting dose)  
• Dose reduction with overlap: Dose of Drug #1 given in decreasing doses for 2 weeks then discontinued  

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FROM (Drug #1) TO (Drug #2)

**STRATEGY**

- Aripiprazole 15mg daily (starting dose)
- Abrupt discontinuation: Drug #1 discontinued the day before starting aripiprazole
- Aripiprazole 15mg daily (starting dose)
- Dose reduction with overlap: Dose of Drug #1 reduced by 50% for the first week, reduced another 50% during week 2, and then discontinued
- Aripiprazole: 10mg/day for 1 week, then 20mg/day for 1 week, then up to 30mg/day thereafter if necessary
- Cross-titration with dose reduction: Dose of Drug #1 reduced by 50% for the first week, reduced another 50% during week 2, and then discontinued

*all patients were on ziprasidone monotherapy by the second week regardless of switching strategy

**Long-Acting Injectable Antipsychotics**

Use of a long-acting injectable antipsychotic should be considered for patients displaying significant noncompliance or partial compliance leading to decompensation, poor function, and/or requirement for compelled medications.

After 6 months of treatment with injections, it is recommended that a transition back to oral therapy be considered if the patient’s symptoms have stabilized and compliance with oral medications is >80%.

<table>
<thead>
<tr>
<th>DRUG FORMULARY AGENT</th>
<th>USUAL Dose (MG)</th>
<th>USUAL DOSING INTERVAL</th>
<th>MAXIMUM DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloperidol decanoate (Haldol-D®)</td>
<td>Y 50-200</td>
<td>Q 4wks</td>
<td>450mg Q 4 wks</td>
</tr>
<tr>
<td>Fluphenazine decanoate (Prolixin-D®)</td>
<td>Y 25-50</td>
<td>Q 2-3wks</td>
<td>100mg Q 2wks</td>
</tr>
<tr>
<td>Risperidone long acting (Risperdal Consta®)</td>
<td>N 25-50</td>
<td>Q 2wks</td>
<td>100mg Q 2wks</td>
</tr>
<tr>
<td>Paliperidone long acting (Invega Sustenna®)</td>
<td>N 75-234</td>
<td>Q 4wks</td>
<td>234mg Q 4wks</td>
</tr>
</tbody>
</table>

**Initiating Long-Acting Injectable Antipsychotics**

**Haloperidol Decanoate (Haldol-D®)**

Loading dose method (preferred)

- **Month 1**: Initiate haloperidol decanoate at 20 times the oral haloperidol dose; discontinue oral haloperidol at time of first injection
- **Month 2**: Haloperidol decanoate 15 times the oral haloperidol dose
- **Month 3 and thereafter**: Haloperidol decanoate 10 times the oral haloperidol dose

Traditional dosing method

- **Month 1**: Initiate haloperidol decanoate at 10-15 times the oral haloperidol dose; continue oral haloperidol for 1 month, then discontinue

**Fluphenazine Decanoate (Prolixin-D®)**

Initiate fluphenazine decanoate at 1.2-1.6 times the oral fluphenazine dose; continue oral fluphenazine for 1-4 weeks, then discontinue

**Risperidone Long-Acting Injection (Risperdal Consta®)**

Initiate Risperdal Consta at 25mg IM q 2weeks, continue oral risperidone for 3 weeks, then discontinue.
## Table 7: Agents Used to Treat Bipolar Disorder

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/DAY)</th>
<th>TARGET DRUG CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>Y</td>
<td>900-2400</td>
<td>0.6 - 1.2 mmol/L</td>
</tr>
<tr>
<td>Olanzapine and Fluoxetine (Symbyax®)</td>
<td>N</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Oxcarbazepine (Trileptal®)</td>
<td>N</td>
<td>1200-2400</td>
<td>N/A</td>
</tr>
<tr>
<td>Lamotrigine (Lamictal®)</td>
<td>N</td>
<td>100-400</td>
<td>N/A</td>
</tr>
<tr>
<td>Valproic Acid (Depakene®)</td>
<td>N</td>
<td>1000-2500 (20 mg/kg/d)</td>
<td>50-125 mcg/mL</td>
</tr>
<tr>
<td>Divalproex Sodium (Depakote®)</td>
<td>Y</td>
<td>1500-2500 (20 mg/kg/d)</td>
<td>50-125 mcg/mL</td>
</tr>
</tbody>
</table>

### Anticonvulsant Agents

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/DAY)</th>
<th>TARGET DRUG CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine (Tegretol®)</td>
<td>Y</td>
<td>400-1600</td>
<td>4-12 mcg/mL</td>
</tr>
<tr>
<td>Lamotrigine (Lamictal®)</td>
<td>N</td>
<td>100-400</td>
<td>N/A</td>
</tr>
<tr>
<td>Valproic Acid (Depakene®)</td>
<td>N</td>
<td>1000-2500 (20 mg/kg/d)</td>
<td>50-125 mcg/mL</td>
</tr>
</tbody>
</table>

### Second Generation Antipsychotics

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FORMULARY AGENT</th>
<th>USUAL DOSE (MG/DAY)</th>
<th>TARGET DRUG CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine (Clozaril®)</td>
<td>N</td>
<td>100-300</td>
<td>350-700 mcg/mL</td>
</tr>
<tr>
<td>Quetiapine (Seroquel®)</td>
<td>N</td>
<td>400-800</td>
<td>N/A</td>
</tr>
<tr>
<td>Aripiprazole (Abilify®)</td>
<td>N</td>
<td>10-20</td>
<td>N/A</td>
</tr>
<tr>
<td>Ziprasidone (Geodon®)</td>
<td>N</td>
<td>80-160</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Switching Agents for the Treatment of Bipolar Disorder

In general, the new agent should be started and titrated upward to an effective dose if a medication is to be discontinued. The dose of the old agent may then be decreased gradually over the next month. The general goal is to avoid abrupt discontinuation of the old medication until the new agent is established.

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Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved July 2006. Revised 7/12.
Management of Razor Blade Ingestion

1. Patient reports razor blade ingestion

2. Treat bleeding as necessary

3. Symptoms of foreign body lodged in esophagus?
   - Yes
   - No
   - Obtain chest X-ray as soon as available.
   - Obtain STAT chest X-ray (send to ER if not available on the unit).

4. No
   - Razor blade visualized below the lower esophageal junction?
     - Yes
     - Mental Health Evaluation (MHE)
     - Admit to crisis management if indicated by MHE
     - Signs of acute abdomen or bleeding?
       - Yes
       - Abdominal exam at least daily x 3-4 days.
       - End
       - Further follow up as needed.
       - Discharge from crisis management when indicated
     - No

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee.
Management of Razor Blade Ingestion

While razor blade ingestion has the potential for severe outcomes, it generally is not as serious as many would think. Once the razor blade reaches the stomach, gastric acid quickly dulls the edge and erodes the body of the razor blade. The most dangerous potential complication of razor blade ingestion is esophageal perforation. Once the blade has passed into the stomach the risk of serious complications is much lower.

When a foreign body is ingested, the most clinically significant locations for it to be come lodged are the level of the cricopharyngeus muscle and the ileocecal valve. However, most foreign bodies that have passed through the esophagus will continue to pass through the body uneventfully.

When an offender gives a history of razor blade ingestion, treat clinically significant bleeding if present. A chest x-ray should be obtained and should be adequate to visualize the entire esophagus. This may require 2 films.

If x-ray is not immediately available on the unit, it may be acceptable to observe the patient closely while awaiting the x-ray, if the patient is asymptomatic. Mental health evaluation may be done during this period if indicated. However, if the patient is symptomatic of a foreign body lodged in the esophagus, the CXR should be done as soon as possible and may require transfer to a local medical center.

If the x-ray shows the razor blade above the level of the lower esophageal junction, or if the patient has signs or symptoms of esophageal perforation (swelling, erythema, tenderness or crepitus in the neck region, or fever or chest pain), they should be referred immediately to an appropriate medical center for removal of the foreign body.

If the razor blade has already passed into the stomach, off site referral is rarely needed. Mental health evaluation should be done if indicated. The patient should be examined daily for 3-4 days with particular attention to the RLQ location of the ileocecal valve. The patient should be instructed to return immediately if they experience localized abdominal pain, vomiting, abdominal distension, melena or rectal bleeding, fever or dizziness.
RHINITIS

1. Counsel Patient:
   (1) Avoid Precipitating Factors
   (2) Increase Fluids

2. End Intervention

3. Mild Symptoms?
   Yes
   Loratadine 10 mg QD or Chlorpheniramine (CTM) 4 mg QID X 14 days
   No
   Contraindications to Decongestants? (e.g. HTN, etc.)
   Yes
   Loratadine or CTM plus phenylephrine x 14 days
   No
   Reseek?

4. Yes
   Infection Present?
   Yes
   Consider Alternative Therapy for Chronic Rhinitis
   No
   Yes
   Go To Sinusitis Pathway Box #6

5. No
   Yes
   End Therapy

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
Acute Seizures

Seizure Activity for 0-5 Minutes
- Confirm clinical findings by observing continuous seizure activity or one additional seizure.
- Rule out suspected symptom amplification.
- Rule out underlying medical issue.

Suspect seizure activity?

- Observe x 2 hours; if no activity, discharge from medical department.

- Administer oxygen by nasal cannula or mask, position head for unobstructed airway, consider intubation if respiratory assistance is needed.
- Establish an IV (normal saline).
- Obtain glucose finger stick.
- Draw venous samples for glucose, chemistries, hematology parameters, toxicology screens, and antiepileptic drug levels (if available).
- Determine oxygenation with oximetry or arterial blood gases (if available).

Seizure Activity continuing for 6-9 minutes?

- If patient is hypoglycemic or blood glucose is not available, inject 50ml of 50% glucose by direct push into the IV.
- Consider injecting 100mg of thiamine IV prior to glucose administration if alcohol abuse is suspected.
- New onset seizures—refer to Seizure Disorder DMG for care.
- Consider administering extra dose of currently ordered oral antiepileptic drug (AED) if receiving treatment.
- Observe for a minimum of two hours and discharge from medical department following full recovery.
- Follow up with medical provider in 48-72 hours.
- Follow up in Chronic Care Clinic per ITP.
- Confirm medication adherence
- Modify therapy if indicated per Seizure Disorder DMG.

Seizure activity continuing for 10-20 minutes?

- Go to box #11, page 2.

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Status epilepticus is defined as continuous seizure activity or two or more seizures without full recovery of consciousness between seizures lasting longer than 30 minutes.

Anticonvulsant drug therapy should be initiated if seizures last 10 minutes.

Administer the following if not already implemented:
- Inject 50ml of 50% glucose by direct push into the I.V.
- Consider injecting 100mg of thiamine I.V. prior to glucose administration if alcohol abuse is suspected.
- Administer lorazepam 4 mg at 2 mg/minute by slow IVP.
  - May be repeated after 10 minutes (usual maximum total dose 8mg) if seizures do not stop or another begins.
- Monitor blood pressure and watch for signs of respiratory depression.

Seizure activity continuing for 30 minutes?

- New onset seizures- refer to Seizure Disorder DMG for care.
- Confirm medication adherence and reinforce education if receiving AED therapy.
- Consider administering extra dose of currently ordered oral antiepileptic drug (AED) before discharging the patient.
- Observe for a minimum of two hours and discharge from medical department following full recovery.
- Follow up next day and obtain AED serum levels.
- Follow up in Chronic Care Clinic per ITP.
- Modify therapy if indicated per Seizure Disorder DMG.

If the patient does not respond to 2 doses of lorazepam, transport the patient to a higher level of care.

Transfer to the nearest Emergency room
Follow current unit protocol.

Follow up with the patient within 1 week upon return from the emergency room or hospital.
- Confirm medication adherence and reinforce education.
- Obtain AED serum levels and adjust treatment plan if indicated.
- Follow up in chronic care clinic per ITP.
- New onset seizures- refer to Seizure Disorder DMG for care.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1998, Reviewed 1/01, 4/03, 1/07. Revised 7/07, 10/08, 9/10.
Seizure Disorder

For new onset seizures, attempt accurate diagnosis. Rule out underlying medical etiology. Consult Neurology if necessary.

Attempt to confirm seizure activity within last 2 years.

Is patient on antiepileptic drug (AED) therapy?

If seizure activity is confirmed, initiate AED monotherapy based on seizure classification. (Table 1)

or

If seizure activity is ruled out, discontinue from Chronic Care Clinic or No seizure activity for ≥ 2 years, may consider D/C from Chronic Care Clinic.

Check medication compliance. Obtain AED level.

Is AED therapy effective and tolerated?

Monitor & obtain laboratories appropriate to AED utilized. (Table 2). Consider the following which may apply:
1. Counsel on importance of compliance
2. Adjust dose
3. Change to alternate AED
4. Add additional AED
5. Such neurology consult.

Initiate rational AED regimen (Table 1) Go to box #7.
Then discontinue other agents with slow taper or Discontinue AED if chronic seizure diagnosis is ruled out.

If patient has been seizure free for ≥ 2 years, may consider discontinuation from chronic care clinic or Initiate AED monotherapy based on seizure classification. (Table 1) Go to box #7 period.

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1998, Revised 3/01, 4/03.
Revised 11/05, 3/07, 3/08, 10/08, 9/10.

Successful discontinuation of AED may be possible if:
• Seizure free for ≥ 2 years
• Single type of partial or generalized seizure
• Normal neurological exam
• EEG normalized with AED treatment

Successful discontinuation of AED may be not necessarily diagnostic for a seizure disorder and may not require long-term AED therapy.
Table 1: Most Commonly Used Drugs for Specific Seizure Disorders

<table>
<thead>
<tr>
<th>Seizure Disorder</th>
<th>Most Commonly Used Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence</td>
<td>Gabapentin, Lamotrigine, Oxcarbazepine, Phenobarbitol, Topiramate, Zonisamide</td>
</tr>
<tr>
<td>Partial</td>
<td>Levetiracetam, Divalproex Sodium</td>
</tr>
</tbody>
</table>

Begin treatment with single drug using recommended initial daily dosing. Up to 70% of patients can be managed with monotherapy. Ensure proper medication adherence prior to modifying regimen. Medication noncompliance is one of the primary reasons for treatment failure.

Table 2: Monitoring Parameters for Formulary Anticonvulsants

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CBC with platelets</th>
<th>Complete Metabolic Panel</th>
<th>DDG</th>
<th>Blood levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 3: Monitoring Parameters for Anticonvulsants

<table>
<thead>
<tr>
<th>Parameter</th>
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<td>Phenobarbital</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4: Monitoring Parameters for Non-Formulary Anticonvulsants

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CBC with platelets</th>
<th>Complete Metabolic Panel</th>
<th>DDG</th>
<th>Blood levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4: Monitoring Parameters for Non-Formulary Anticonvulsants

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CBC with platelets</th>
<th>Complete Metabolic Panel</th>
<th>DDG</th>
<th>Blood levels</th>
</tr>
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<tbody>
<tr>
<td>Carbamazepine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Definitions:

1. **Seizure**—isolated clinical event consisting of paroxysmal discharges occurring synchronously in a large population of cortical neurons characterized on the electroencephalogram (EEG) as a sharp wave or “spike.”

2. **Epilepsy**—a chronic disorder of the nervous system characterized by recurrent and unprovoked seizures.
   (Term may be applied after two unprovoked seizures).

Diagnosis:

Seizures are a symptom of an underlying disorder, which may be genetic, traumatic, metabolic, infectious, malignant, or pharmacological (e.g., drug intoxication or withdrawal). Identifying the underlying disorder, accurately classifying the seizure type, and selecting appropriate treatment are imperative for controlling seizures and preventing further brain dysfunction.

Steps for practical clinical evaluation:

1. **Obtain a medical history.** Determine whether there is a family history of epilepsy or personal history of head trauma, birth complications, febrile convulsions, alcohol or drug abuse, cancer, or vascular abnormalities (stroke). Events before, during, and after seizures should be assessed as well as a history of successful and unsuccessful treatments of seizures including medications. Medications that may cause seizures include recreational drugs (e.g., alcohol, cocaine/crack, ephedra), methylphenidate, imipenem, lidocaine, metoclopramide, theophylline, tricyclic antidepressants, meperidine (active metabolite—renal failure), and antiepileptics when used inappropriately for a non-indicated seizure type. It is important to differentiate epilepsy from alcohol or other drug withdrawal seizures because the latter generally do not require antiepileptic drugs.

2. **Physical examination.** Look for disorder associated with epilepsy, including head trauma, infections of the ears or sinuses (which may spread to the brain), congenital abnormalities, neurological disorders, alcohol or drug abuse, and cancer.

3. **Electroencephalographic (EEG) Studies.** Approximately 50% of epileptic patients show no abnormality on a single EEG, and approximately 19% of persons with true seizures, multiple EEG studies show no abnormalities. EEG provides 3 types of information: (1) confirmation of presence of abnormal electrical activity, (2) information about the type of seizure disorder, and (3) location of the seizure focus.

4. **Lab tests and Neuroimaging.** The following tests may be useful in determining the underlying cause of seizure activity.
   - Electrolytes
   - Blood glucose
   - Liver function
   - Toxic substance screening
   - EEG in the waking and sleeping states
   - Imaging tests: magnetic resonance imaging (MRI) or computed tomography (CT)
   - Prolactin levels may be considered if pseudoseizure is suspected

5. **Diagnostic Formulation and Treatment Plan.** Once an accurate classification of seizure type has been established, an appropriate antiepileptic drug should be administered for patients who have had two or more seizures. If a patient has only had one seizure, medications are warranted if one or more risk factors for recurrent seizures are present including evidence of a structural lesion, EEG abnormalities, partial type seizures, or a family history of seizures. Otherwise, a patient who has experienced only one seizure is usually monitored but not given medication.
Classification: The International Classification of Epileptic Seizures

There are 2 main types of epilepsy: partial seizures and generalized seizures.

Partial Seizures—Begin in one hemisphere of the brain and, unless they become secondarily generalized, result in an asymmetric clinical manifestation. Partial epilepsy may begin in infancy and may be difficult to recognize in the elderly population.

1. Types of Partial Seizures
   - **Simple Partial Seizure**—no loss of consciousness
     - Motor function symptoms
     - Sensory or somatosensory symptoms
     - Automatisms
   - **Complex Partial Seizure**—alteration/loss of consciousness
     - Simple partial onset followed by impairment of consciousness—with or without automatisms
     - Impaired consciousness at onset—with or without automatisms
     - Other symptoms may include auditory loss or alterations of behavior
     - May be misdiagnosed as psychotic episodes
   - Patients with complex partial seizures are generally amnestic to these events

2. Treatment Options:
   - **Formulary**- Carbamazepine, Phenytoin, Divalproex Sodium, Primidone, Levetiracetam,
   - **Nonformulary**- Gabapentin, Lamotrigine, Oxcarbazepine, Phenobarbital, Tiagabine, Topiramate, Zonisamide

Generalized Seizures—Involvement of both brain hemispheres with bilateral motor manifestations and a loss of consciousness

1. Types of Generalized Seizures
   - **Generalized Absence Seizure**—sudden onset, brief (seconds), blank stare, possibly a brief upward rotation of the eyes, and lip-smacking (confused for daydreaming)
   - Generally occurs in young children through adolescence
   - Can be precipitated by hyperventilation
   - EEG during the seizure has a characteristic 2-to-4 cycle/s spike and slow-wave complex
   - Important to differentiate absence from complex partial seizures
   - **Drugs of Choice (formulary)**- Ethosuximide or Divalproex Sodium
   - **Other options (nonformulary)**- Clonazepam, Lamotrigine, Topiramate

   - **Generalized Tonic-Clonic Seizure** (formerly called grand mal seizure)—there are two phases to this seizure type: tonic phase and clonic phase
   - Tonic phase: Rigid, violent, sudden muscular contractions of the face and neck, trunk, and extremities
   - Clonic phase: Repetitive jerks; cyanosis continues; foam at the mouth; small grunting respirations; between seizures, but deep respirations as all muscles relax at the end of the seizure
   - **Drugs of Choice (formulary)**- Phenytoin, Carbamazepine, Divalproex Sodium, Primidone, Levetiracetam
   - **Other options (nonformulary)**- Phenytoin, Topiramate, Gabapentin, Lamotrigine, Oxcarbazepine

   - **Myoclonic Seizure**—brief shock-like muscular contractions of the face, trunk, and extremities. May be isolated events or rapidly repetitive
   - **Atonic Seizure**—a sudden loss of muscle tone
   - May be described as a head-drop, the dropping of the limb, or a slumping to the ground
   - These patients often wear protective head-ware to prevent trauma
   - **Drugs of Choice (formulary)**- Divalproex Sodium, Levetiracetam, Primidone
   - **Other options (nonformulary)**- Topiramate, Phenytoin, Oxcarbazepine

   - **Juvenile Myoclonic Epilepsy (JME)**—Myoclonic seizures precede generalized tonic-clonic seizure; generally occur upon awakening; sleep deprivation and alcohol commonly precipitate; lifelong treatment required.
   - **Drug of Choice (formulary)**- Divalproex Sodium
   - **Other options (nonformulary)**- Lamotrigine

   - **Infantile Spasms**—Begin in the 1st 6 months of life; occur in clusters, several times a day; parents describe symptoms that sound like colic; high mortality and morbidity; treated with ACTH, oral steroids, or vigabatrin.

2. Other Seizure Types
   - **Catamenial Epilepsy**—Associated with hormonal changes during menstruation; may be treated with acetazolamide (Diamox®)
   - **Post-traumatic Epilepsy**—Seizures that occur after head trauma; patients may be started on phenytoin for a period of 7 days; if no seizures occur, it should be discontinued. The utility of this therapy is controversial.
<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Trade Name</th>
<th>MOA</th>
<th>Usual Adult Dose</th>
<th>FDA Approved Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>Tegretol®</td>
<td>Inhibits Na channels</td>
<td>200-2400 mg divided tid-qid</td>
<td>Complex partial seizures, generalized tonic-clonic, infantile spasm syndrome</td>
</tr>
<tr>
<td>Sodium Valproate</td>
<td>Depakene®</td>
<td>Enhances GABA</td>
<td>1000-1200 mg divided tid-qid</td>
<td>Infantile spasms, Lennox-Gastaut syndrome, Myoclonic seizures</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Dilantin®</td>
<td>Inhibits Na channels</td>
<td>300-600 mg divided qid</td>
<td>Complex partial seizures, generalized tonic-clonic, infantile spasm syndrome, Myoclonic seizures</td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Zarontin®</td>
<td>Inhibits NADPH-linked aldehyde reductase</td>
<td>20-40 mg/kg/day divided bid</td>
<td>Absence seizures</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>(nonformulary)</td>
<td>Enhances GABA</td>
<td>1000-2000 mg/day divided tid-qid</td>
<td>Absence seizures</td>
</tr>
<tr>
<td>Levetiracetam</td>
<td>Keppra®</td>
<td>Unknown</td>
<td>1000-3000 mg/day divided bid-tid</td>
<td>Partial seizures with and without secondary generalized seizures</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Neurontin®</td>
<td>Unclear</td>
<td>900-1800 mg/day divided tid</td>
<td>Adjunctive therapy for partial seizures with and without secondary generalized seizures</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Topamax®</td>
<td>GABA agonist and non-NMDA glutamate receptor antagonist</td>
<td>200-400 mg/day</td>
<td>Adjunctive therapy for partial seizures and generalized tonic-clonic seizures, Lennox-Gastaut syndrome</td>
</tr>
<tr>
<td>Vigabatrin</td>
<td>Sabril®</td>
<td>Increases the levels of GABA by inhibiting GABA transaminase</td>
<td>500-1500 mg/day (adults)</td>
<td>Infantile spasms; adult complex partial seizures unresponsive to safer alternatives</td>
</tr>
<tr>
<td>Zonisamide</td>
<td>Zonegran®</td>
<td>Inhibits Na channels &amp; voltage-dependent Ca currents; binds to GABA receptors and facilitates dopamine and serotonin neurotransmission</td>
<td>100-400 mg/day divided bid-tid</td>
<td>Adjunctive therapy for partial seizures</td>
</tr>
</tbody>
</table>

MOA: Mechanism of Action
JME: Juvenile Myoclonic Epilepsy

Table 3: Antiepileptic Drug Selection

Seizure Disorder, Page 3
Principles of Treatment with Confirmed Seizure Disorder

1. Monotherapy—always preferred

2. Polytherapy (2 agents) — unless patient compliance is poor or second agent is contraindicated

3. Polytherapy (3 agents) — although rarely needed, add a third AED if: a) combination of anticonvulsants is tolerated and significantly reduce s seizure frequency or severity, b) the two anticonvulsants have been maximized. Reasons and discontinuance unnecessary anticonvulsants as soon as possible.

4. Do not abruptly discontinue any anticonvulsant or this may precipitate status epilepticus.

5. Consider patient co-medication and possible drug interactions upon initiation of therapy, during therapy, and upon drug discontinuation. Many of the antiepileptic agents may increase or decrease metabolism of other medications.

6. Benefits versus risks must be weighed during pregnancy. The fewest number of antiepileptic agents (and lowest dose) that control seizures should be used. The second-generation antiepileptics (levetiracetam, gabapentin, lamotrigine, topiramate, oxcarbazepine) are rated as Pregnancy Category C, which means that risk cannot be ruled out. Human studies are lacking, and animal studies are either positive for fetal risk or lacking. The first generation antiepileptics (phenytoin, phenobarbital, primidone, carbamazepine, valproic acid) are rated as Pregnancy Category D. This means there is positive evidence of risk. Investigational or post-marketing data show risk to the fetus. However, potential benefits may justify potential risks. The first generation antiepileptics (phenytoin, phenobarbital, primidone, carbamazepine, valproic acid) are used in Pregnancy Category D. This means there is positive evidence of risk. Investigational or post-marketing data show risk to the fetus. However, potential benefits may outweigh potential risks. The drug may be acceptable if other drugs cannot be used or are ineffective.

Potential Reasons for Treatment Failure

- Incorrect diagnosis
- Inappropriate anticonvulsant selected
- Inappropriate dose
- Subtherapeutic levels
- Poor patient adherence
- Refractory seizures
- Patient co-morbidities and possible drug interactions upon initiation of therapy, during therapy, and upon drug discontinuation. Many of the antiepileptic agents may increase or decrease metabolism of other medications.

Contraindications (C/I)/Cautions/Monitoring Parameters

1. Carbamazepine (Tegretol®)
   - Genetic Testing Recommended for People with Asian Ancestry
   - The risks versus benefits of carbamazepine therapy should be weighed in patients that test positive and discussed with the Regional or District Medical Director prior to ordering the test.
   - C/I—hypersensitivity to carbamazepine, tricyclic antidepressants, or any component of the formulation; with or within 14 days of MAOI use;
   - Bone marrow depression; pregnancy
   - Use with caution in patients with increased intracranial pressure
   - Use cautiously in patients with impaired liver or renal function
   - Use with care in patients with impaired hearing
   - Use with caution in patients with cardiac conduction defects
   - C/I—hypersensitivity to hydantoins; sinus bradycardia, sino-atrial block, second and third degree AV block or in patients with Adams-Stokes syndrome; pregnancy
   - Use with caution in patients with impaired liver or renal function
   - Use with caution in patients with impaired hearing
   - Use with care in patients with cardiac conduction defects
   - C/I- hypersensitivity to hydantoins; sinus bradycardia, sino-atrial block, second and third degree AV block or in patients with Adams-Stokes syndrome; pregnancy
   - Use with caution in patients with impaired liver or renal function
   - Use with caution in patients with impaired hearing
   - Use with care in patients with cardiac conduction defects

2. Phenytoin
   - Benefits versus risks must be weighed during pregnancy. The fewest number of antiepileptic agents (and lowest dose) that control seizures should be used. The second-generation antiepileptics (levetiracetam, gabapentin, lamotrigine, topiramate, oxcarbazepine) are rated as Pregnancy Category C, which means that risk cannot be ruled out. Human studies are lacking, and animal studies are either positive for fetal risk or lacking. The first generation antiepileptics (phenytoin, phenobarbital, primidone, carbamazepine, valproic acid) are rated as Pregnancy Category D. This means there is positive evidence of risk. Investigational or post-marketing data show risk to the fetus. However, potential benefits may justify potential risks. The first generation antiepileptics (phenytoin, phenobarbital, primidone, carbamazepine, valproic acid) are used in Pregnancy Category D. This means there is positive evidence of risk. Investigational or post-marketing data show risk to the fetus. However, potential benefits may outweigh potential risks. The drug may be acceptable if other drugs cannot be used or are ineffective.

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3. Divalproex Sodium

- Black box warning—fatal hepatotoxicity
- Black box warning—fatal hemorrhagic pancreatitis
- Black box warning—teratogenic
- C/I- hepatic disease/significant hepatic dysfunction; hypersensitivity to divalproex sodium; known urea cycle disorders; pregnancy
- Increased ammonia levels may occur despite normal liver function. In symptomatic patients, monitor measurement of ammonia levels. If ammonia is increased, discontinue valproate and evaluate patient for underlying urea cycle disorder. If ammonia levels are increased and patient is asymptomatic, monitor ammonia levels weekly. If elevation persists, consider discontinuation of divalproex.
- Counsel patients to recognize signs and symptoms of pancreatitis and advise patients to seek immediate medical attention if those symptoms occur.
- Thrombocytopenia may occur and appears to be dose-related. Consider obtaining CBC at baseline, then twice monthly first two months, and annually or as clinically indicated. Consider obtaining protime, INR, PPT at baseline and annually.
- Patients at higher risk for hepatotoxicity may include the following: patients on multiple anticonvulsants, children, those with congenital metabolic disorders, those with severe seizure disorder accompanied by mental retardation, and those with organic brain disease.
- Discontinue divalproex sodium in the presence of significant hepatic dysfunction, suspected, or apparent (LFTs >3 times normal limit). Consider obtaining LFTs at baseline and at frequent intervals thereafter, especially during the first 6 months. Results of careful interim medical history and physical examination should also be considered.
- Consider measurement of divalproex sodium level weekly for two weeks, then annually or as clinically indicated.
- Therapeutic blood level-50-100mcg/ml
- Toxic concentration->150mcg/ml

**= all AEDs carry an FDA mandated warning for the potential of increased risk of suicidal thoughts or behavior vs. placebo (0.43 versus 0.22%)**

Table 4

<table>
<thead>
<tr>
<th>DRUG</th>
<th>ADRS</th>
<th>DRUG INTERACTIONS/DI/COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabapentin</td>
<td>Weight gain, peripheral edema</td>
<td>• DI - no known interactions with other AEDs</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>Dose-dependent: ataxia, blurred or double vision, disorientation, GI upset, sleepiness.</td>
<td>• DI - avoid contraception, enzyme inducing AEDs, rifampin. VPA levels reduced and VPA may increase lamotrigine levels.</td>
</tr>
<tr>
<td></td>
<td>Non-dose-dependent: skin rash</td>
<td>Use with caution in renal impairment.</td>
</tr>
<tr>
<td></td>
<td>Other hypersensitivity including risk of hepatic and renal failure and DIC</td>
<td>Dose adjustment recommended if lowest therapeutic level is reached and renal test is normal after two weeks, then annually or as clinically indicated.</td>
</tr>
<tr>
<td></td>
<td>Non-dose-dependent: skin rash, itching, rash</td>
<td>• DI- unknown clinical significance unknown; no known interactions with other AEDs.</td>
</tr>
<tr>
<td></td>
<td>Other hypersensitivity including risk of hepatic and renal failure and DIC</td>
<td>• Renal elimination; dose adjustment in renal insufficiency and elderly.</td>
</tr>
<tr>
<td></td>
<td>Non-dose-dependent: hyperammonia, skin rash</td>
<td>• DI- oral contraceptives, diuretics, AEDs, dihydropyridine calcium channel blockers.</td>
</tr>
<tr>
<td></td>
<td>Other: hypersensitivity including risk of hepatic and renal failure and DIC</td>
<td>• 50% dose reduction recommended in renal insufficiency.</td>
</tr>
<tr>
<td></td>
<td>Non-dose-dependent: skin rash, itching, rash</td>
<td>• Renal elimination; dose adjustment in renal insufficiency and elderly.</td>
</tr>
<tr>
<td></td>
<td>Other hypersensitivity including risk of hepatic and renal failure and DIC</td>
<td>• Pregnancy Category C. Crosses placenta and breast milk.</td>
</tr>
</tbody>
</table>
**Pseudoseizures**

1. **Definition:** “Psychogenic seizures are episodes involving affective, autonomic, or somatomotor manifestations that are precipitated by emotional distress.” Other terms used to refer to these events include nonepileptic seizures, hysterical seizure, pseudoseizure, and nonepileptic attack disorder.

2. **Epidemiology:** Pseudoseizures account for 15-20% of admissions to epilepsy units. Women are affected more frequently than men by a factor of 3.5:1. Peak incidence is in the third to fourth decades.

3. **Diagnosis:** Epilepsy in patients with psychogenic seizures ranges from 10 to 60 percent.

   - **Clinical Characteristics of Pseudoseizure** - Gates et al successfully identified 96% of pseudoseizures using the following criteria.

     - **Strongly suggestive**
       - Prolonged duration of event (10-30)
       - Preservation of consciousness despite whole body jerking
       - Bizarre and asynchronous motor movements
       - Pelvic thrusting movements
       - Not stereotypical

     - **Strongly against**
       - Injuries sustained during spells
       - Tongue laceration, especially sides of tongue
       - Incontinence

   - **Schneider et al.** cautions that the diagnosis of pseudoseizure should not be solely based on clinical information. Video EEG monitoring is recommended if pseudoseizure is suspected.

   - **Elevated prolactin** may be predictive of tonic-clonic or partial seizures (more reliable in tonic-clonic seizures). Blood sample should be optimally drawn within 30 minutes of seizure. The reference interval for serum prolactin is in the range of 1 to 25 ng/mL (1 to 25 μg/L) for females and 1 to 20 ng/mL (1 to 20 μg/L) for males. However, a normal prolactin level does not confirm pseudoseizures.

4. **Management:** Anticonvulsant therapy is not indicated in pseudoseizures. A mental health referral should be considered. Psychotherapy and drug therapy for underlying psychiatric disorder is indicated in most cases. Psychogenic seizures occur in patients with conversion disorders, anxiety and panic disorder, depression, post-traumatic stress disorder, schizophrenia, and personality disorders.

---

**Table 4 continued**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>ADRS</th>
<th>DRUG INTERACTIONS (DI)/COMMENTS</th>
</tr>
</thead>
</table>
| Topiramate | Non-dependent: dizziness, confusion, nausea, vomiting, headache, paresthesia, weight loss, irritability, disturbances. | **DI** - AEDs.  Hepatic impairment may require dosage reduction or longer dosing intervals.  Pregnancy Category C. Excreted in breast milk.
| Zonisamide | Non-dependent: diarrhea, constipation, dizziness, rash, headache, nausea, vomiting, weight loss, rashes, paresthesia. | **DI** - topiramate (additive toxicity); enzyme-inducing AEDs reduce half-life 50%; cyclosporine, ketoconazole, miconazole inhibit metabolism.  **Non-dose-dependent:** Exacerbation of mild to moderate epilepsy.  **Others:** Renal and hepatic impairment dose adjustment unknown.  **Sulfonamide derivative:** Cross reaction in sulfa allergic patients.  **Counsel patient to drink plenty of fluids.**  **Crosses placenta and breast milk.**  **Pregnancy Category C.**  **Others:** Nephrolithiasis, liver toxicity, leukopenia.  **Non-dose-dependent:** Exacerbation of mild to moderate epilepsy.  **Others:** Renal and hepatic impairment dose adjustment unknown.  **Sulfonamide derivative:** Cross reaction in sulfa allergic patients.  **Counsel patient to drink plenty of fluids.**  **Crosses placenta and breast milk.**  **Pregnancy Category C.**
Withdrawal of Anticonvulsants

1. Risk of Seizure Relapse:
   - Relapse rates are highest among children and adults in the first 12 months (especially in the first 6 months) after antiepileptic drug (AED) withdrawal.
   - The risk of withdrawal continues to decrease with time.

2. Considerations for AED Discontinuation:
   - Patients who have been seizure-free for a minimum of two years on AED treatment.
   - Patients who experience only a single type of partial seizure or a single type of generalized tonic-clonic seizure.
   - Normal neurological examination and normal intelligence quotient (IQ).
   - EEG normalized with treatment.

3. Drug Discontinuation:
   - Risks and consequences of seizure recurrence versus continued treatment should be weighed.
   - High remission rates 1 and 2 years after AED withdrawal supports discontinuation of treatment when a patient has been seizure-free for 2 years or more.
   - The decision to withdraw AED medications in a seizure-free (≥2 years) patient should be based on patient-specific factors.
   - If discontinuation of AED is warranted, the tapering schedule should be slow (most clinical trials suggest dose should be tapered over 6 months) and tailored to the specific drug, dosage, and serum concentrations for each patient.

4. Phenobarbital Tapering:
   - Phenobarbital monotherapy – If antiepileptic drug (AED) needs to be continued, the new agent should be started and therapeutic levels achieved prior to initiating phenobarbital taper (see below table).
   - Phenobarbital polypharmacy – please note that monotherapy is preferred.
   - If patient is a good candidate for monotherapy (based on type of seizure, history of past treatments, compliance), initiate phenobarbital taper (see below table) without the addition of another agent.
   - If patient needs to be continued on polytherapy, a new agent should be started and therapeutic levels achieved prior to initiating the phenobarbital taper (see below table).

<p>| Table 5 |</p>
<table>
<thead>
<tr>
<th>Factors Against Drug Withdrawal</th>
<th>Factors in Favor of Drug Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent-onset epilepsy</td>
<td>Childhood-onset epilepsy</td>
</tr>
<tr>
<td>Adult-onset epilepsy</td>
<td>Bilateral-onset epilepsy</td>
</tr>
<tr>
<td>Partial epilepsy</td>
<td>Myoclonic generalized epilepsy</td>
</tr>
<tr>
<td>Juvenile myoclonic epilepsy</td>
<td>Benign epilepsy with centrotemporal spikes</td>
</tr>
<tr>
<td>Presence of underlying neurological condition</td>
<td>Normal EEG (children)</td>
</tr>
<tr>
<td>Abnormal EEG (children)</td>
<td>Childbearing potential and planning pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Table 6</td>
<td></td>
</tr>
<tr>
<td>Tapering schedule: Decrease phenobarbital dose by 30mg a month over 1-6 month period.</td>
<td></td>
</tr>
<tr>
<td>Example: Patient is receiving 120mg/day</td>
<td></td>
</tr>
<tr>
<td>1st month, patient receives 90mg/day</td>
<td></td>
</tr>
<tr>
<td>2nd month, patient receives 60mg/day</td>
<td></td>
</tr>
<tr>
<td>3rd month, patient receives 30mg/day</td>
<td></td>
</tr>
<tr>
<td>4th month, patient receives 0mg/day</td>
<td></td>
</tr>
<tr>
<td>Labs: If patient has undetectable phenobarbital levels (&lt;2mg/L) and a history of noncompliance, a taper may not be necessary.</td>
<td></td>
</tr>
<tr>
<td>Monitor: Provider must monitor patient for any new seizure activity. He/she must determine if the underlying disorder has returned or if the seizures were the result of withdrawing the phenobarbital too quickly. Phenobarbital should be tapered more slowly if the latter is true.</td>
<td></td>
</tr>
</tbody>
</table>
SINUSITIS

Loratadine 10 mg 1 QD X 7 Days
or
CTM 4 mg 1 QID X 7 Days

If patient has severe symptoms such as fever, symptoms > 7 days with purulent nasal secretions and maxillary facial or tooth pain or tenderness, then continue on to box #4.

End Therapy

Resolved?

Yes

No

Continue symptomatic treatment as needed. Is Infection Present?

Yes

No

Refer to Rhinitis Treatment Pathway.

Penicillin Allergy?

Amoxicillin 500 mg TID X 14 Days KOP

Bactrim DS BID X 14 Days KOP
or
If Sulfa Allergic - Doxycycline 100 mg BID X 14 Days KOP

If responding, but not completely resolved, continue current treatment for an additional 4 weeks.

Resolved?

Yes

No

Consider Nonformulary Medication for Resistant Organism

Augmentin 875 mg BID X 14 Days
Clariotique 500mg BID X 14 Days
Clarithromycin 500mg BID X 14 Days
Levofloxacin 500 mg QD X 14 Days
(For PCN Allergic, 10% cross-sensitivity with Cephalosporins)

End Therapy

Go to page 2.

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 3/05, 5/11; Revised 8/98, 4/02, 4/03, 5/04, 5/08.
SINUSITIS

14. If responding, but not completely resolved, continue current treatment for an additional 4 weeks.

15. Received?

16. End Therapy

17. Evaluate and consider referral to a specialist.
Patient presents with symptoms of skin & soft tissue infection. (Refer to Correctional Managed Health Care Infection Control Manual/Policy B-14.16 for additional information).

Does patient have symptoms of systemic illness such as fever, tachycardia, hypotension?

Yes

- Is cellulitis or impetigo present without abscess or other draining skin lesion?
  
  Yes
  
  Treat empirically with combination therapy for both strepococcal and staphylococcal infections.  Reevaluate if not clinically improving.
  
  • Bactrim DS 1 tab BID + Amoxicillin 500 mg TID X ≥ 7 Days (extend several days beyond resolution);
  
  or
  
  • Doxycycline 100 mg BID + Amoxicillin 500 mg TID X ≥ 7 Days (extend several days beyond resolution)

No

- Immunocompromised condition (Diabetes, Hepatitis B, Hepatitis C, HIV) present or trauma such as bites?
  
  Yes
  
  A. Underlying condition should be controlled as well as possible.
  
  B. Obtain culture and sensitivity (C&S) using Levine method*
  
  C. If fluctuant, perform incision and drainage (I&D)
  
  D. If not fluctuant, treat with warm compresses for 20 minutes 2 to 3 times per day until resolved.
  
  E. Start Antibiotics**
  
  Go to Page 2, box 15

No

Assess for recurrence: Has the patient had ≥ 3 clinical or culture-proven infections in a six-month period?

Yes

1. Obtain C&S using Levine method*

2. Treat with I&D

3. Start Antibiotics**

4. Go to Page 2, box 15

May consider staph decolonization protocol.

• Non-formulary approval: mupirocin 2% ointment BID for 5 days

• Refer to protocol in Infection Control Manual Policy B-14.16, Procedure V.D.4

No

In the lesion fluctuant?

Yes

Treat with warm compresses for 20 minutes 2 to 3 times per day until resolved.

Go to Page 2, box 15

No

Is the lesion < 5cm?

Yes

May be treated with I&D alone

Go to Page 2, box 15

No

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
Provide Patient Education

- Staph Fact Sheet (Infection Control P&P B-14.16, Attachment A)
- Return to clinic (RTC) if infection worsens
- RTC if not improving in 3 days
- RTC if not healed in 2 weeks

*Culture Using the Levine Method*

A. Cleanse the wound with sterile water or normal saline to wash away any slough, necrotic tissue or dried exudate.
B. Moisture the culture tip. If the wound is moist, a sterile swab can be used straight from the packaging. If the wound is dry, then the swab tip should be moistened with sterile water to increase the chances of recovering organisms from the site.
C. Collect in a zig-zag motion — the swab should be moved across the wound surface in a zig-zag motion, at the same time, being rotated between the fingers.
D. Send to lab — immediately following the collection, the swab should be returned to its container (placed into the transport medium) and accurately labeled.
TINEA PEDIS

Patient Counseling:
(1) Wash With Soap & Water
(2) Dry Feet Well
(3) Wear Clean Socks

Topical Antifungal Cream
1% Tolnaftate ($0.59) or
1% Clotrimazole Cream ($1.31)
BID X 30 days

Resolution?

End Therapy and Reinforce Counseling

Consider other agent not used above
1% Tolnaftate Cream or
1% Clotrimazole Cream
BID X 30 days

Resolution?

Consider pharmacotherapy consultation

Consider Dermatology Consultation

Resolution?

Refer to Box # 4

Chronic Anticoagulation Using Warfarin

1. Does patient have documented indication for chronic anticoagulation therapy? See Table 5 for indications.

   No

2. Re-evaluate need for continued therapy. Discontinue if not indicated.

   Yes

3. War? PT/INR value measured ≤ 28 days ago?

   No

4. Order a PT/INR to be drawn in 5 days. Make sure date of draw is M – F. Schedule patient to be seen in 7 days. Continue to Box 5.

   Yes

5. Does patient have > 1 medical indication for chronic anticoagulation therapy? Refer to Table 5.

   Yes

6. Compare the goal INR ranges and therapy durations for each indication. If the INRs differ, choose the higher goal.

   No

7. Determine the goal INR range and therapy duration for the patient’s indication. Document date of therapy completion, if applicable.

   Yes

8. Has the patient recently experienced signs/symptoms of thromboembolism? See Table 4.

   No

9. Consider transport to higher level of care.

   Yes

10. Has the patient recently experienced signs/symptoms of moderate to severe bleeding? See Table 3.

    No

11. Decision of therapy completed?

    No


    Yes

13. INR value ≤ Goal INR range.

    No

14. Continue current warfarin regimen. Order INR to be drawn 2 days before next visit. Verify date of draw is M – F. Schedule patient in 30, 60, or 90 days as clinically indicated. Return to Box 8.

15. INR value > Goal INR range.

    Yes

16. Counsel patient on importance of warfarin adherence. Order INR to be drawn 2 days before next visit. Verify date of draw is M – F. Schedule patient in 7 to 14 days for follow-up. Return to Box 8.

   No

17. Warfarin adherence > 75% over last 30 days?

   Yes

18. Continue to Box #20 on the next page.

   No

19. Order INR to be drawn at least every 28 days regardless of follow-up schedule.

The pathways do not replace sound clinical judgment, nor are they intended to strictly apply to all patients.

Counsel patient on the effects of medication / food / conditions on INR. Increase total weekly dose of warfarin (Table 6 or 7). Order INR to be drawn 2 days before next visit. Verify INR will be drawn on a M – F. Schedule patient for follow-up in 7 to 14 days. Return to Box #8.
I. Treatment Principles
A. Primary vs. Secondary Prevention
1. Primary prevention: Circumventing a thrombotic event before it happens
2. Secondary prevention: Avoiding a recurrence of a thrombotic event in a patient who has already experienced one
B. Negative Consequences of NOT Providing Venous Thromboembolism (VTE) Prophylaxis
1. Symptomatic deep venous thrombosis (DVT) or pulmonary embolism (PE)
2. Fatal PE
3. Costs of tests used to diagnose symptomatic patients
4. Risks and costs of treating unprevented VTE
5. Increased risk of recurrence
6. Development of chronic post-thrombotic syndrome
C. Risk Factors Associated With Deep Venous Thrombosis (DVT)

### Table 1: Risk Factors Associated With Deep Venous Thrombosis

<table>
<thead>
<tr>
<th>Risk Factors Associated With Deep Venous Thrombosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Cancer: currently on treatment, treatment within past 6 months, or not receiving curative treatment</td>
</tr>
<tr>
<td>- Paralysis, paresis, or any other factor that leads to a severe decrease in ability to move about</td>
</tr>
<tr>
<td>- Confined to bed for &gt; 3 days</td>
</tr>
<tr>
<td>- Major surgery (esp. orthopedic) in the last 12 weeks that required general or regional anesthesia lasting &gt; 30 minutes</td>
</tr>
<tr>
<td>- Heparin-Induced Thrombocytopenia (HIT)</td>
</tr>
</tbody>
</table>
| - Pharmacotherapy  
  o Estrogenic oral contraceptive agents |
  o Post-menopausal hormone therapy  
  ▪ Hormonal |
  ▪ Radiotherapy |
  ▪ Chemotherapy |
| - History of VTE  
  - Age > 60 years  
  - Fracture of hip / pelvis / leg(s)  
  - Indwelling central venous catheter  
  - Major medical illness (e.g. HF, MI, TIA, ischemic stroke)  
  - Hypercoagulable States  
  o Cancer  
    ▪ Activated Protein C Resistance Factor / Factor V Leiden mutation  
    ▪ Protein C or S deficiency  
    ▪ Antithrombin deficiency  
    ▪ Factor VIII or XI excess (> 90th percentile)  
    ▪ Antiphospholipid Antibody Syndrome  
    ▪ Dysfibrinogenemia  
    ▪ Hyperhomocysteinemia  
    ▪ Excess of Inhibitor of Plasminogen Activator  
    ▪ Inflammatory Bowel Disease  
    ▪ Crohn’s Disease / Crohn’s Colitis  
    ▪ Nephrotic Syndrome  
    ▪ Pregnancy and post-partum period |

D. Risk Factors Associated With Pulmonary Embolism (PE)
1. History of PE or DVT
2. Recent surgery or immobilization (e.g., plaster cast)
3. Resting heart rate consistently > 100 beats per minute
4. Cancer / malignancy
5. Age > 60 years

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E. Risk Factors Associated with Developing A Severe Bleed While On Warfarin Therapy

TABLE 2
Factors That Increase Risk of Developing A Severe Bleed During Warfarin Therapy

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &gt; 65 years</td>
<td>History of GI bleeds, peptic ulcerations, etc.</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>Renal insufficiency</td>
</tr>
<tr>
<td>Anemia</td>
<td>Antiplatlet therapy</td>
</tr>
<tr>
<td>Female gender</td>
<td>History of recent or past bleeding event</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>Drug abuse</td>
</tr>
</tbody>
</table>

F. Determining the target INR (International Normalized Ratio) and INR Range for Warfarin
1. The target, or goal INR represents the intensity of warfarin therapy.
2. For most medical indications, the target INR is 2.5, with a goal range of 2.0 to 3.0.
3. For higher-risk conditions, the target INR is 3.0, with a goal range of 2.5 to 3.5.
4. An INR lower than 2.0 significantly increases the risk of developing a VTE, while an INR > 4.0 significantly increases the risk of developing a bleed.
5. A patient’s INR can be affected by multiple variables such as:
   a. Age
   b. Drug interactions
   c. Food interactions
   d. Medical conditions
   e. Laboratory error
   f. Poor medication adherence
   g. Genetic and environmental factors

G. Determining Treatment Duration
1. Studies have consistently shown that a longer duration of treatment with warfarin is associated with both a decrease in the incidence of VTE and an increase in the risk of experiencing a bleeding event.
2. Duration is determined by indication.

II. Patient Evaluation
A. Physical Exam
1. Assess the patient for signs and symptoms of a possible acute, severe bleed. See Table 3.

TABLE 3
Signs & Symptoms Of Possible Acute, Severe Bleed

<table>
<thead>
<tr>
<th>Severe headache that fails to resolve</th>
<th>Hypovolemic shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease ≥ 10 mmHg in systolic BP or an ↑ ≥ 10 beats per minute or more in pulse rate when rising from a lying down position to a standing position</td>
<td>Tachycardia at rest or with mild exertion (skin may be cool and clammy)</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Hematuria</td>
</tr>
<tr>
<td>Decrease in supine blood pressure</td>
<td>Melena</td>
</tr>
<tr>
<td>Hematemesis</td>
<td>Melenorhagia</td>
</tr>
<tr>
<td>Hemoptyysis</td>
<td>Hematochezia as indicated by 1 or more of the following:</td>
</tr>
<tr>
<td>o Fainting upon rising from a lying position or from a sitting position</td>
<td>o Bright red colored stool</td>
</tr>
<tr>
<td></td>
<td>o Mahogany colored stool</td>
</tr>
<tr>
<td></td>
<td>o Pure blood</td>
</tr>
<tr>
<td></td>
<td>o Blood mixed with formed stool</td>
</tr>
<tr>
<td></td>
<td>o Bloody diarrhea</td>
</tr>
</tbody>
</table>
2. Assess the patient for signs and symptoms of venous thromboembolism (VTE) and/or pulmonary embolism (PE). See Table 4.

**TABLE 4**

<table>
<thead>
<tr>
<th>Signs &amp; Symptoms Of Venous Thromboembolism (VTE) &amp; Pulmonary Embolism (PE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venous Thromboembolism</strong></td>
</tr>
<tr>
<td>• Tenderness localized to deep venous system (e.g. calf)</td>
</tr>
<tr>
<td>• Difference in calf circumference &gt; 3 cm when compared to asymptomatic leg (measure 10 cm (4 in) below the tibial tuberosity)</td>
</tr>
<tr>
<td>• Pitting edema present on symptomatic leg only</td>
</tr>
<tr>
<td>• Collateral superficial veins, non-varicose</td>
</tr>
<tr>
<td>• Elevated D-dimer reading</td>
</tr>
</tbody>
</table>

**B. Medical History:** Obtain the following information to use with recent INR value to evaluate / develop treatment plan:

1. Indication(s) for treatment
2. Treatment duration
3. Problems
   a. Signs/symptoms of bleeding
   b. Signs/symptoms of VTE / PE
   c. Adherence
   d. Recent illness / hospitalization
4. Review
   a. Most current medication profile
   b. Diet
   c. Commissary
   d. Drug use

**III. Management of Chronic Warfarin Anticoagulation Therapy**

A. The patient’s indication(s) determine his/her INR goal as well as the duration of treatment. Consult Table 5 below to determine this and to review any special considerations for that particular indication.

B. While the following conditions are often acutely or initially treated with other antithrombotic agents in addition to warfarin therapy, this guideline only addresses the CHRONIC treatment of the conditions with warfarin. AFTER the condition has been acutely treated.
### Table 5: Indications and Target INRs and Acceptable INR Ranges

**ACRONYMS:** AF = Atrial Fibrillation, CTHP = Chronic Thromboembolic Pulmonary Hypertension, DM = Diabetes Mellitus, DVT = Deep Venous Thrombosis, HF = Heart Failure, HTN = Hypertension, INR = International Normalized Ratio, LMWH = Low Molecular Weight Heparin, PAF = Paroxysmal (intermittent) Atrial Fibrillation, PE = Pulmonary Embolism, TEE = Transesophageal Echocardiography, TIA = Transient Ischemic Attack, UFH = Unfractionated Heparin, NSR = Normal Sinus Rhythm, STEMI = ST-elevation Myocardial Infarction, MI = Myocardial Infarction, VKA = Vitamin K Antagonist (ie. warfarin), ASA = Aspirin

<table>
<thead>
<tr>
<th>Medical Condition or Atrial Flutter</th>
<th>Specific Indication</th>
<th>Target INR</th>
<th>INR Range</th>
<th>Duration of Therapy</th>
<th>Comments/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial Fibrillation or Atrial Flutter</td>
<td>Age &lt; 75 years, no risk factors</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>+ History of ischemic stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ History of systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ History of poor left ventricular systolic function and/or HF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Age &gt; 75 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ DM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ HTN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planned cardioversion to sinus rhythm</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>War 1 weeks before elective cardioversion and continue for 4 weeks after successful cardioversion</td>
<td>NA</td>
</tr>
<tr>
<td>Mitral Valve Stenosis</td>
<td>Patient with no additional risk factors</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Planned cardioversion to sinus rhythm</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td>Antiphospholipid Antibody Syndrome or Presence of Lupus Inhibitor</td>
<td>Patient with no additional risk factors</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Planned cardioversion to sinus rhythm</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td>Cerebral Venous Sinus Thrombosis</td>
<td>No additional risk factors</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Up to 12 months</td>
<td>NA</td>
</tr>
<tr>
<td>DVT or PE</td>
<td>1st episode, secondary to reversible risk factor</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>3 months</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>1st episode, diplophylacys</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>As listed 1 months; consider long-term therapy</td>
<td>NA</td>
</tr>
<tr>
<td>Recurrence</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Until cancer resolves or indefinitely</td>
<td>LMWH recommended for the first 3 – 6 months</td>
<td>NA</td>
</tr>
<tr>
<td>Mitral Annular Calcification</td>
<td>Complicated by systemic embolism, ischemic stroke, or TIA with AF</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin if indicated</td>
</tr>
<tr>
<td></td>
<td>Recurrence episode despite aspirin therapy</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>NA</td>
</tr>
<tr>
<td>Mitral Valve Stenosis</td>
<td>Patient with TEE showing left atrial thrombus</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Until thrombus resolution is documented by repeat TEE</td>
<td>Percutaneous mitral balloon valvuloplasty (PMBV) can only be performed if no thrombus present on TEE</td>
</tr>
<tr>
<td>Medical Condition</td>
<td>Specific Indication</td>
<td>Target INR</td>
<td>INR Range</td>
<td>Duration of Therapy</td>
<td>Comments/Notes</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>-----------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Aortic Mitral Valve</td>
<td>AF</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>Aspirin 81 mg/day.</td>
</tr>
<tr>
<td></td>
<td>Documented systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent TIA or ischemic stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MI</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>At least 3 months post-MI. Combination with aspirin 81 mg/day.</td>
</tr>
<tr>
<td></td>
<td>Post-MI, high risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large anterior MI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant HF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intracranial thrombus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>History of thromboembolic event</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aortic Mitral Valve</td>
<td>AF</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Left atrial thrombus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NSR with atrial diameter ≥ 55 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aortic Mitral Valve</td>
<td>AF with systemic embolism and/or left atrial thrombus while on therapeutic INR</td>
<td>2.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td>Bioprosthetic Valve</td>
<td>ANY Position</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NSR with systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No other VKA indications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td>Combine with aspirin 81 mg/day.</td>
</tr>
<tr>
<td></td>
<td>Systemic embolism despite previously prophylactic therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Target 2.5 (2.0 – 3.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Target 3.0 (2.5 – 3.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Valve</td>
<td>ANY Position</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td>Consider addition of aspirin 81 mg/day in patients with atherosclerotic disease.</td>
</tr>
<tr>
<td></td>
<td>History of systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NSR</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin 81 mg/day.</td>
</tr>
<tr>
<td></td>
<td>No other VKA indications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position with:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypercoagulable state</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low ejection fraction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any additional thromboembolic risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.0 – 4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.0 – 4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.0 – 4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Target INR: Refer to the table for the target International Normalized Ratio (INR). INR Range: The range within which the INR should be maintained. Duration of Therapy: The duration for which the therapy is recommended. Comments/Notes: Additional comments or notes regarding the therapy.
C. Subtherapeutic levels increase the patient’s risk for developing an embolism. Use the following tables to adjust the patient’s dose when his/her INR is more than 0.5 units lower than the lowest INR in the target range.

1. A 10% change in total weekly warfarin dose will result in an approximate INR change of 0.7 to 0.8.
2. A 15% change in total weekly warfarin dose will result in an approximate INR change of 1.

**Table 6. Unit Management of Subtherapeutic INR, with INR Target 2.5, Goal Range 2.0 – 3.0**

<table>
<thead>
<tr>
<th>Patient INR</th>
<th>Warfarin Dose Adjustment</th>
<th>Schedule Next INR To Be Drawn In</th>
<th>Schedule For Reevaluation In</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 to 1.4</td>
<td>Increase total weekly dose by 10% to 20%</td>
<td>2 days before next visit</td>
<td>7 – 14 days</td>
</tr>
<tr>
<td>1.5 to 1.9</td>
<td>Increase total weekly dose by 5% to 10%</td>
<td>2 days before next visit</td>
<td>7 – 14 days</td>
</tr>
</tbody>
</table>

**Table 7. Unit Management of Subtherapeutic INR with INR Target 3.0, Goal Range 2.5 – 3.5**

<table>
<thead>
<tr>
<th>Patient INR</th>
<th>Warfarin Dose Adjustment</th>
<th>Schedule Next INR To Be Drawn In</th>
<th>Schedule For Reevaluation In</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2.0</td>
<td>Increase total weekly dose by 10% to 20%</td>
<td>2 days before next visit</td>
<td>7 – 14 days</td>
</tr>
<tr>
<td>2.0 – 2.4</td>
<td>Increase total weekly dose by 5% to 15%</td>
<td>2 days before next visit</td>
<td>7 – 14 days</td>
</tr>
</tbody>
</table>
D. Supratherapeutic levels increase the patient’s risk for developing a severe bleed. Use the following table to adjust the patient’s dose when his/her INR is more than 0.5 units greater than the greatest INR in the target range.

1. A 10% change in total weekly warfarin dose will result in an approximate INR change of 0.7 to 0.8.
2. A 15% change in total weekly warfarin dose will result in an approximate INR change of 1.
3. An oral Vitamin K dose of 1.0 to 2.5 may result in an INR change varying from 2 to 5 INR units. Monitoring essential when using Vitamin K to correct supratherapeutic INR levels.

<table>
<thead>
<tr>
<th>Bleeding Severity</th>
<th>Patient INR</th>
<th>Vitamin K (oral dose)</th>
<th>Warfarin Adjustment</th>
<th>Schedule next INR to be drawn in:</th>
<th>Schedule for reevaluation in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without signs &amp; symptoms of serious bleeding, and without urgent or recent surgery</td>
<td>More than therapeutic up to 4.9</td>
<td>None</td>
<td>Hold 1 dose or Decrease total weekly dose by 5% - 15%</td>
<td>2 days before next visit</td>
<td>7 – 14 days</td>
</tr>
<tr>
<td></td>
<td>5.0 – 8.0</td>
<td>None</td>
<td>Hold 1 dose. Decrease total weekly dose by 10% to 20%</td>
<td>Within next 1 – 2 days</td>
<td>1 – 2 days. Unit evaluation of signs of excess bleeding should be frequently performed.</td>
</tr>
<tr>
<td></td>
<td>2.5 mg</td>
<td>Hold 1 dose. Decrease total weekly dose by 10% to 20%,</td>
<td>Within next 1 – 2 days</td>
<td>1 – 2 days. Unit evaluation of signs of excess bleeding should be frequently performed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 9</td>
<td>2.5 – 5 mg, based on patient risk for bleeding</td>
<td>Hold warfarin until INR within therapeutic range. Then, resume at a dose that is 20% to 50% less than previous regimen’s total weekly dose.</td>
<td>Within next 1 – 2 days</td>
<td>As soon as possible if INR still higher than desirable, may administer another dose of Vitamin K; 2.5 mg by mouth 24 hours after first dose.</td>
</tr>
<tr>
<td></td>
<td>≥ 10 or Serious bleeding at any INR elevation</td>
<td>Hold warfarin and consider transport to higher level of care.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### E. Factors That Can Result In A Subtherapeutic or Supratherapeutic Warfarin Level or Alter Warfarin’s Effect

#### TABLE 9

<table>
<thead>
<tr>
<th>Warfarin’s Effects and/or INR</th>
<th>Warfarin’s Effects and/or INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>[SuPratherapeutic]</td>
<td>[Subtherapeutic]</td>
</tr>
<tr>
<td>Aminoglutethimide</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Allopurinol</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Androgens: testosterone, oxandrolone, methyltestosterone</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Cephalosporins: cephalexin, cefazolin, cefadroxil, ceftriaxone</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Antithyroid agents: propylthiouracil, methimazole</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Amphotericin B</td>
<td>Allopurinol</td>
</tr>
<tr>
<td>Antiplatelet agents: aspirin, clopidogrel, ticlopidine, prasugrel</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>CYP2C9 inducing drugs: carbamazepine, phenobarbital, phenytoin, primidone, rifampin, rifapentine, ritonavir</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>CYP2C9 inhibiting drugs: amiodarone, chloramphenicol, cimetidine, lovastatin, imatinib, fluoxetine, fluvoxamine, metronidazole, fluconazole, voriconazole, zafirlukast</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Bosentan</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Antihyperlipidemic agents: gemfibrozil, clofibrate, fenofibrate</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>NSAID Agents: aspirin, ibuprofen, indomethacin, naproxen, meloxicam</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Anticonvulsants: phenytoin, valproic acid</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Omeprazole</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Quinidine</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Quinolone antibiotics: ciprofloxacin, levofloxacin</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Tetracycline derivatives: tetracycline, doxycycline</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Amoxicillin, ampicillin, nafcillin, dicloxacillin, penicillin</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Levothyroxine</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Contraceptives: norethindrone / ethinyl estradiol, norgestrel / ethinyl estradiol, ethinyl estradiol / conjugated estrogens</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Carisoprodol, cyclobenzaprine, nortriptyline</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Trazodone</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Selective serotonin reuptake inhibitors: citalopram, fluoxetine, paroxetine, sertraline</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Sulfonamide derivatives: trimethoprim / sulfamethoxazole</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Tetracycline derivatives: tetracycline, doxycycline</td>
<td>Aminoglutethimide</td>
</tr>
</tbody>
</table>
### TABLE 10: Foods That Alter the Effects of Warfarin

<table>
<thead>
<tr>
<th>Foods that ↑ Warfarin’s Effects and/or INR</th>
<th>Foods that ↓ Warfarin Effects and/or INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverages: Juice, cranberry</td>
<td>Beverages: Margarina, Mayonnaise, Oil, canola, Oil, vegetable, Oil, soybean, Oil, olive, Foods containing Olestra® synthetic fats</td>
</tr>
<tr>
<td>Fats &amp; Dressings:</td>
<td></td>
</tr>
<tr>
<td>High in Vitamin K</td>
<td></td>
</tr>
<tr>
<td>Vegetables: Asparagus, Avocado, Broccoli, Brussel sprouts, Cabbage, Cabbage, red Collard greens, Endives, raw, Green scallions, raw, Kale, raw leaf, Lettuce, raw, Mustard greens, Parsley, Peas, green, cooked, Spinach, raw leaf, Turnip greens, raw, Watercress, raw</td>
<td></td>
</tr>
<tr>
<td>Over-the-Counter Supplements: Vitamin E</td>
<td>Over-the-Counter Supplements: Vitamin supplements containing Vitamin K Vitamin C, high-dose Nutritional supplement beverages (e.g. Osmolite®)</td>
</tr>
</tbody>
</table>

### TABLE 11: Factors That May Change Warfarin’s Effects

<table>
<thead>
<tr>
<th>Factors That Can ↑ Warfarin’s Effects</th>
<th>Factors That Can ↓ Warfarin’s Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood dyscrasias</td>
<td>Diet high in Vitamin K</td>
</tr>
<tr>
<td>Cancer</td>
<td>Edema</td>
</tr>
<tr>
<td>Collagen vascular disease</td>
<td>Hereditary coumarin resistance</td>
</tr>
<tr>
<td>Congestive Heart Failure (CHF)</td>
<td>Hyperlipidemia</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Hypothyroidism</td>
</tr>
<tr>
<td>Dietary deficiencies / poor nutritional state</td>
<td>Nephrotic syndrome</td>
</tr>
<tr>
<td>Elevated temperature / fever</td>
<td></td>
</tr>
<tr>
<td>Hepatic Disorders:</td>
<td></td>
</tr>
<tr>
<td>- Infectious hepatitis</td>
<td></td>
</tr>
<tr>
<td>- Jaundice</td>
<td></td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td></td>
</tr>
<tr>
<td>Prolonged hot weather / dehydration</td>
<td></td>
</tr>
<tr>
<td>Steatorrhea</td>
<td></td>
</tr>
<tr>
<td>Vitamin K deficiency</td>
<td></td>
</tr>
</tbody>
</table>
IV. Patient Education

A. Who educates?
1. Any provider involved in providing clinical warfarin therapy management services
2. Providers caring for a patient on chronic warfarin therapy
3. Specialty clinic providers of care related to the reason for a patient’s chronic warfarin therapy.
   a. For example, cardiology
4. Educator must document in patient’s medical record.

B. When does education occur?
1. Clinical warfarin therapy management sessions
2. When patient is stable, following a thromboembolic event or a hemorrhagic event.
3. Group education if available

C. What topics are covered when educating the patient?
1. Relationship between VTE and the patient’s current medical condition(s)
2. Relationship between INR and:
   a. The patient’s current medical condition(s)
   b. The risk for VTE / bleed
3. Role of adherence in warfarin therapy
4. Role of drug interactions in warfarin therapy
5. Role of changes in diet in warfarin therapy
6. Importance of modifying lifestyle / risk factors in preventing VTE and related conditions, when appropriate
7. Adjusting activities of daily living to minimize the risk of experiencing a bleed while on chronic warfarin therapy
8. Signs and symptoms of VTE and/or bleed, and when to drop a sick call for either of these.
9. Any relevant topic about which the patient requests information
## WOUND CARE PATHWAYS

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

<table>
<thead>
<tr>
<th>Wound / Patient Characteristics</th>
<th>Present?</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mobility impaired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Low Braden Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bony prominence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Located in areas of pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Malnourished</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Moisture exposure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Yes  ☐ No  Refer to Pressure Wound DMG

<table>
<thead>
<tr>
<th>Wound / Patient Characteristics</th>
<th>Present?</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Callous formation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dry skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Decreased sensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Located in plantar aspect of foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Diabetes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Yes  ☐ No  Refer to Neuropathic Wound DMG

<table>
<thead>
<tr>
<th>Wound / Patient Characteristics</th>
<th>Present?</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Located in lower extremities, below the ankle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Decreased peripheral pulses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Smooth wound edges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Wounds are usually small and deep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Wound bed is dry or pale pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &quot;Punched out&quot; lesions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Poor hair and nail growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Distal wounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ABI &lt;0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Irregular classification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Yes  ☐ No  Refer to Arterial Insufficiency Wound DMG

<table>
<thead>
<tr>
<th>Wound / Patient Characteristics</th>
<th>Present?</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Located in gaited area, mostly in the medial malleolus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Positive peripheral pulses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Larger, irregular borders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Wounds are usually large and superficial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Wound bed is hard, red and moist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Painful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Surrounding skin usually has stasis dermatitis and hemosiderin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ABI &gt;0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Presence of scar tissue increases risk of re-ulceration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Varicocities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Yes  ☐ No  Refer to Venous Insufficiency Wound DMG

<table>
<thead>
<tr>
<th>Wound / Patient Characteristics</th>
<th>Present?</th>
<th>If yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Caused by incisional wound dehiscence or laceration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Occurred post-op</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Yes  ☐ No  Refer to Surgical Wound DMG

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, November 2005. Revised 1/07, 11/07, 3/10, 7/12. Reviewed 1/08.
Patient Assessment:
1. Obtain ABI. An ABI > 0.9 is diagnostic for Arterial Insufficiency.
2. Assess the patient for symptoms of intermittent claudication. Regardless of normal ABI (0.9 to 1.2) patient may still have arterial insufficiency disease if symptomatic, and further work-up is warranted.
3. Counsel the patient on smoking cessation, to not cross legs, to avoid constrictive garments and to avoid caffeine.
4. Consider ASA 81mg to 325mg for the treatment of intermittent claudication.
5. Know that undiagnosed arterial insufficiency wounds can lead to osteomyelitis.
6. Manage underlying diseases that can increase risk of arterial insufficiency disease (e.g. hypertension, hyperlipidemia, cardiovascular disease and diabetes mellitus).
7. If needed, provide adequate pain control (refer to pain disease management guidelines).
8. Educate the patient on any factors that may slow wound healing (e.g. medications and nutritional status).
9. Consider consultation with the Wound Care Specialist.
10. Ensure tetanus status is up to date.

Wound Bed Description

- Does the patient have an arterial insufficiency wound that requires treatment?

Objective
- Protect newly formed tissue
- Support granulation and tissue growth
- Debridement and decrease bacterial burden
- Debridement

OFFLOAD
- Use offloading equipment i.e., heel protectors, pressure relieving overlays, crutches and trapezes

CLEANSE
- Work with soap and water or a commercial wound cleanser
- Flush with 250cc's of normal saline or sterile water

PROTECT WOUND
- Consider using skin prep, hydrocolloid window paning dressing, or foam with silicone adhesive

Wound Bed Optimalization Granulation Local Infection/Critical Colonization Necrotic/Slough

Dry Wound Bed
- Hydrocolloid
- Astmo (of saline)
- Silver alginate
- Cadexomer Iodine
- Silver dressing
- Cadexomer Iodine

Partial skin loss
- Hydrocolloid
- Astmo (of saline)
- Silver alginate
- Cadexomer Iodine
- Silver dressing
- Cadexomer Iodine

Necrotic wound
- Hydrocolloid
- Astmo (of saline)
- Silver alginate
- Cadexomer Iodine

No
- Continue care until wound is healed and educate on wound care prevention.

Yes
- Continue usual care and observe.

Yes
- Continue usual care and observe.

Yes
- Continue usual care and observe.

Yes
- Continue usual care until wound is healed and educate on wound care prevention.

Yes
- Continue usual care until wound is healed and educate on wound care prevention.

Yes
- Continue usual care until wound is healed and educate on wound care prevention.

Yes
- Continue usual care until wound is healed and educate on wound care prevention.

Yes
- Continue usual care until wound is healed and educate on wound care prevention.
### Patient Assessment:
1. Check feet for structural changes, bony prominences, or for painless wounds with even margins.
2. Test for sensory function using a 5.07/10gm monofilament.
3. Obtain ABI to rule out arterial insufficiency. Refer to Arterial Insufficiency disease management guidelines.
4. Manage underlying diseases that can increase risk of neuropathic wounds (e.g., diabetes mellitus, hypertension, hyperlipidemia).
5. If needed, provide adequate pain control (refer to pain disease management guidelines).
6. Ensure immune status is up to date.
7. Evaluate the patient for any factors that may slow wound healing (e.g., medications and nutritional status).
8. Consider consultation with a Wound Care Specialist.

### Does the patient have a neuropathic wound that requires treatment?

<table>
<thead>
<tr>
<th>Objective</th>
<th>Protect newly formed tissue</th>
<th>Support granulation and tissue growth</th>
<th>Debridement and decrease bacterial burden</th>
<th>Substitution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offload</strong></td>
<td>Use offloading equipment (i.e., heel protectors, pressure-relieving overlay, crutches and trapezes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cleanse</strong></td>
<td>Wash with soap and water or commercial wound cleanser</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protect Periwound</strong></td>
<td>Consider using skin prep, hydrocolloid window paning dressing, or foam with silicone adhesive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wet Wound Bed</strong></td>
<td>Primary Dressing</td>
<td>Hydrocolloid</td>
<td>Cadexomer Iodine</td>
<td>Silver alginate</td>
</tr>
<tr>
<td></td>
<td>Secondary Dressing</td>
<td>In</td>
<td>Agree (non-adherent)</td>
<td>Wound</td>
</tr>
<tr>
<td><strong>Mist Wound Bed</strong></td>
<td>Primary Dressing</td>
<td>Hydrocolloid</td>
<td>Silver dressing</td>
<td>Cadexomer Iodine</td>
</tr>
<tr>
<td></td>
<td>Secondary Dressing</td>
<td>In</td>
<td>Agree (non-adherent)</td>
<td>Wound</td>
</tr>
<tr>
<td><strong>Dry Wound Bed</strong></td>
<td>Primary Dressing</td>
<td>Hydrogel</td>
<td>Cadexomer Iodine</td>
<td>Hydrogel</td>
</tr>
<tr>
<td></td>
<td>Secondary Dressing</td>
<td>In</td>
<td>Agree (non-adherent)</td>
<td>Wound</td>
</tr>
</tbody>
</table>

### Treat wound according to wound bed description. Most neuropathic wounds will be dry (refer to the highlighted section of the table).

### Debridement is the mainstay of therapy, as well as patient education on wound prevention and early detection/screening.

### NEUROPATHIC WOUNDS

<table>
<thead>
<tr>
<th>Wound Bed</th>
<th>Epitheliazation</th>
<th>Granulation</th>
<th>Local Infection/Critical colonization</th>
<th>Calcium/Necrotic Slough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Dressing</td>
<td>Hydrocolloid</td>
<td>Cadexomer Iodine</td>
<td>Silver alginate</td>
<td></td>
</tr>
<tr>
<td>Secondary Dressing</td>
<td>In</td>
<td>Agree (non-adherent)</td>
<td>Wound</td>
<td></td>
</tr>
</tbody>
</table>

### Consider evaluation for osteomyelitis:
- X-ray if indicated
- Bone scan if indicated
- Ortho referral if indicated

### If wound is stagnant or not improving, consider dressing change or referral to Wound Care Specialist.

### Continue care until wound is healed and educate pt on wound care prevention.
**PERIWOUND**

The clean and dry
• Keep area
• Offload

**PERIWOUND**

Non-blanchable
If wound appears
to be worsening,
wound care (see
importance of
erythema of
patient on the
reeducate the
Is the skin
intact skin
intended to strictly apply
The pathways do not
replace sound clinical
judgment nor are they
replace sound clinical
judgment nor are they
considered guidelines
reflect sound clinical
judgment.

---

**Stage 1**
Non-thoroughly oozes of intact skin

1. Risk for development of wounds should be determined at intake, each clinic visit and each Chronic Care Clinic visit in high risk patients (e.g., paraplegic, quadriplegic, hemiplegic, geriatric, patient with immobility, diabetes, malnourished patients, patients with peripheral arterial disease, and immunocompromised patients) using the Braden Scale for Predicting Pressure Sore Risk (Located in the EMR Note Builder Template as Wound Care page 4)

2. May consider moisturizing skin cream for patients with a Braden Scale score less than 14 to protect skin integrity.

3. Perform physical and visually assess patients to wound development at each clinic visit.

4. Counsel patient regarding the importance of adequate hydration and nutrition.

5. Counsel patient regarding the importance of offloading for wound prevention.

6. If needed, provide adequate pain control (refer to pain disease management guideline).

7. Ensure tetanus status is up to date.

8. Evaluate the patient for any factors that may slow wound healing (e.g., medications and nutritional status).

9. Consider consultation with the Wound Care Specialist.

10. Consider consultation with the Pain Management Specialist.

11. Consider consultation with the Wound Care Specialist.

---

**Stage 2**
Partial thickness skin loss involving damage or absence of epidermis and/or dermis

- Does the patient have a pressure wound that requires treatment?

- TREAT WOUND ACCORDING TO STAGE

---

**Stage 3**
Full thickness skin loss involving damage or absence of subcutaneous tissue that may extend to underlying fascia

- Does the patient have a pressure wound that requires treatment?

- TREAT WOUND ACCORDING TO STAGE

---

**Stage 4**
Full thickness loss with destruction, tissue necrosis or damage to muscle, bone, or other structures

- Does the patient have a pressure wound that requires treatment?

- TREAT WOUND ACCORDING TO STAGE

---

**Unstageable**

- Does the patient have a pressure wound that requires treatment?

- TREAT WOUND ACCORDING TO STAGE

---

**Wound – Braden Scale**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Unstageable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Wound Care page 4**
VENOUS INSUFFICIENCY WOUNDS

Patient Assessment:
1. Obtain ABI to rule out arterial insufficiency. Refer to Arterial Insufficiency disease management guidelines.
2. May consider moisturizing skin cream for stasis dermatitis.
3. Manage underlying diseases that can increase risk of venous insufficiency disease (e.g. hypertension and diabetes mellitus).
4. If needed, provide adequate pain control (refer to pain disease management guidelines).
5. Ensure tetanus status is up to date.
6. Evaluate the patient for any factors that may slow wound healing (e.g. medications and nutritional status).
7. Consider consultation with the Wound Care Specialist.

Does the patient have a venous insufficiency wound that requires treatment?

Wound Bed Epitheliazation<br>Wound Bed Granulation<br>Local Infection/Colonization<br>Necrotic/Slough

Objective<br>Protect newly formed tissue<br>Support granulation and tissue growth<br>Debridement and decrease bacterial burden<br>Debridement

OFFLOAD<br>Use offloading equipment (e.g., heel protectors, pressure relieving overlays, crutches and trapeze).

CLEANSE<br>Wash with soap and water or a commercial wound cleanser. Flush with 250cc of normal saline or sterile water.

PROJECT PERIWOUND<br>Consider using skin prep, hydrocolloid window paning dressing, or foam with silicone adhesive.

Wet Wound Bed<br>Primary Dressing: Hydrocolloid • Silver alginate<br>Secondary Dressing: 4% Silver • Cadexomer Iodine

Wet Wound Bed<br>Primary Dressing: Hydrocolloid • Silver alginate<br>Secondary Dressing: 4% Silver • Cadexomer Iodine

Wet Wound Bed<br>Primary Dressing: Hydrocolloid • Silver alginate<br>Secondary Dressing: 4% Silver • Cadexomer Iodine

Dry Wound Bed<br>Primary Dressing: Hydrocolloid • Hydrogel<br>Secondary Dressing: 4% Silver • Hydrogel

3. Does the patient have a venous insufficiency wound that requires treatment? Yes ± Silicone patient on wound prevention. Refer the patient to Chronic Care Clinic. No ± Continue care until wound is healed and educate pt on wound care prevention.

4. If wound is stagnant or not improving, consider dressing regimen change or refer to Wound Care Specialist.

5. Continue care until wound is healed and educate pt on wound care prevention.

The pathways do not replace wound clinical judgment but are intended to strictly apply to all patients.

1. Control the patient on:
   - Exercises and mobility training
   - Lower extremity elevation

2. Use compression therapy to manage edema.
   - Arterial insufficiency with an ABI <0.8
   - Acute infection
   - Pulmonary edema
   - Uncontrolled or severe CHF
   - Active deep vein thrombosis

3. Treat wound according to wound bed description. Most venous insufficiency wounds will be wet or moist (refer to the highlighted sections of the below chart).

7. Counsel the patient on:
   - Exercises and mobility training
   - Lower extremity elevation

8. Use compression therapy to manage edema.

Contraindications:
- Arterial insufficiency with an ABI <0.8
- Acute infection
- Baseline or severe CHF
- Active deep vein thrombosis

9. Continue care until wound is healed and educate pt on wound care prevention.

10. If wound is stagnant or not improving, consider dressing regimen change or refer to Wound Care Specialist.

Is the wound healing? Yes ± Continue care until wound is healed and educate pt on wound care prevention. No ± If wound is stagnant or not improving, consider dressing regimen change or refer to Wound Care Specialist.

11. Wound Care page 5

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**Patient Assessment:**
1. Address comorbidities and optimize treatment e.g., diabetes, renal disease, infections (HIV, HCV, skin, bone), circulatory/stomach, obesity.
2. If needed, provide adequate pain control (refer to pain disease management guideline).
3. Ensure tissue status is open.
4. Evaluate the patient for any factors that may delay wound healing (e.g., medications and nutritional status).
5. Consider consultation with the Wound Care Specialist.

**Wound Characteristics**

- Painful
- Redness
- Swelling
- Increased drainage
- Increased odor

**Objective**
- Protect newly formed tissue
- Support granulation and tissue growth
- Debridement and decrease bacterial burden

**Debridement**
- OFFLOAD Use offloading equipment i.e., heel protectors, pressure relieving overlay, crutches and trapezes
- CLEANSE Wash with soap and water or a commercial wound cleanser
- Flush with 250cc’s of normal saline or sterile water
- PROTECT PERIWOUND Consider using skin prep, hydrocolloid window paning dressing, or foam with silicone adhesive.

**Wound Bed**

- **Primary Intention**
  - Wounds that are approximated with surgical closure.

- **Secondary Intention**
  - Wounds which are left open and fill in with granulation or scar tissue.

- **Tertiary Intention**
  - Large or infected wounds which require debridement or drainage prior to closure.

<table>
<thead>
<tr>
<th>Wound Bed</th>
<th>Epithelialization</th>
<th>Granulation</th>
<th>Local Infection</th>
<th>Wound Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>Hydrocolloid</td>
<td>Foam</td>
<td>Cadexomer Iodine</td>
<td>Silver alginate</td>
</tr>
<tr>
<td>Wet</td>
<td>Silver dressing</td>
<td>Cadexomer Iodine</td>
<td>Silver alginate</td>
<td>Cadexomer Iodine</td>
</tr>
<tr>
<td>Dry</td>
<td>Hydrogel</td>
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<td>Silver alginate</td>
<td>Hydrogel</td>
</tr>
</tbody>
</table>

**Reassess wound every 4 weeks.**

- Is the wound healing?

**Surgical Wounds**

**Patient Assessment:**
1. Address co-morbidities and optimize treatment e.g., diabetes, renal disease, infections (HIV, HCV, skin, bone), circulatory/stomach, obesity.
2. If needed, provide adequate pain control (refer to pain disease management guideline).
3. Ensure tissue status is open.
4. Evaluate the patient for any factors that may delay wound healing (e.g., medications and nutritional status).
5. Consider consultation with the Wound Care Specialist.

**Prevent surgical complications**

- Remove surgical sutures per recommendation.
- Remove any dry and corn
- Continue care until wound is healed and educate pt on wound care prevention.

**Surgical Site Infections**
- Delayed Healing
- Bleeding
- Dehiscence
- Evisceration

- Remove surgical sutures per recommendation
- Keep area dry and clean
- Off-load
- Avoid mechanical stress on the wound
- Cautious use of anticoagulants and NSAIDS
- Avoid mechanical stress on the wound
- Consider abdominal binders or montgomery straps
- Avoid mechanical stress on the wound
- Avoid lifting
- Consider abdominal binders or montgomery straps

- Avoid mechanical stress on the wound
- Avoid lifting
- Consider abdominal binders or montgomery straps

**The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.**

**Primary Intention**
- Wounds that are approximated with surgical closure.

**Secondary Intention**
- Wounds which are left open and fill in with granulation or scar tissue.

**Tertiary Intention**
- Large or infected wounds which require debridement or drainage prior to closure.

**Objective**
- Protect newly formed tissue
- Support granulation and tissue growth
- Debridement and decrease bacterial burden

**OFFLOAD**
- Use offloading equipment i.e., heel protectors, pressure relieving overlay, crutches and trapezes

**CLEANSE**
- Wash with soap and water or a commercial wound cleanser
- Flush with 250cc’s of normal saline or sterile water

**PROTECT PERIWOUND**
- Consider using skin prep, hydrocolloid window paning dressing, or foam with silicone adhesive.

**Wound Bed**

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</table>

**Reassess wound every 4 weeks.**

- Is the wound healing?

**Surgical Wounds**

**Patient Assessment:**
1. Address co-morbidities and optimize treatment e.g., diabetes, renal disease, infections (HIV, HCV, skin, bone), circulatory/stomach, obesity.
2. If needed, provide adequate pain control (refer to pain disease management guideline).
3. Ensure tissue status is open.
4. Evaluate the patient for any factors that may delay wound healing (e.g., medications and nutritional status).
5. Consider consultation with the Wound Care Specialist.

**Prevent surgical complications**

- Remove surgical sutures per recommendation.
- Remove any dry and corn
- Continue care until wound is healed and educate pt on wound care prevention.
Provider Education

Purpose
1. To define different kinds of wounds and how to individualize treatment regimens per wound type
2. To define specific language for the assessment of wounds
3. To provide preventative measures and prevention education for each high-risk population
4. To provide education on specific treatment measures

Definitions/Description
I. Arterial Insufficiency Wounds
   A. Definition: Wound caused by the partial or complete blockage of arterial blood flow to the internal organs, arms or leg as a result of arteriosclerosis. Intermittent claudication (defined as pain, fatigue or cramping in the leg muscles occurring with activity) is a common symptom of arterial insufficiency. ABI is <0.9.
   B. Description of wound: Arterial insufficiency wounds will appear small and “punched out”, with round and smooth margins. Wounds are usually deep, and the wound bed is dry, pale pink or grey.

II. Neuropathic Wounds
   A. Definition: Wound caused by peripheral neuropathy and constant pressure or repeated trauma to lower extremities, otherwise known as diabetic foot ulcers in diabetics.
   B. Description of wound: Wound usually located on the plantar aspect of the foot with a pressure point. It will be painless, surrounded by a callous, and have even wound margins. Wound bed is usually deep and dry.

III. Pressure Wounds
   A. Definition: Wound caused by localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure or pressure combined with shear and/or friction.
   B. Description of wound: Wound usually located on a pressure point and is defined by the level of tissue involved.

IV. Venous Insufficiency Wounds
   A. Definition: Wound caused by improper functioning of the venous valves, usually of the legs. It is the most common type of leg ulcers, accounting for 50-80% of all cases.
   B. Description of wound: Wound usually located on the Gaiter area, where area has been exposed to trauma and/or skin is the weakest (e.g. scar sites of skin graft). Wound will be superficial, irregular in shape, and painful. Wound bed is barely, red and wet.

V. Surgical Wounds
   A. Definition: Wound caused by a precise, planned break in the skin integrity or sutured laceration.
   B. Description of wound: Wound usually occurring post-surgery based on type of closure.

Prevention of Wounds

Manage underlying risk factors
A. Arterial Insufficiency Wounds:
   1. Optimize management of hypertension, hyperlipidemia and diabetes through therapeutic lifestyle changes and pharmacotherapy
   2. Improve tissue perfusion by avoiding tobacco, caffeine, and wearing constrictive garments, not crossing legs and staying hydrated.
   3. Consider antiplatelet medication for peripheral arterial disease.
   4. Counsel patient on conducting daily inspections of skin and to notify a health care provider if any lesions start to form.

B. Neuropathic Wounds
   1. Assess patient for neuropathy by testing for sensory function using a 5.07/10gm monofilament:
      a. Demonstrate sensation on forearm or hand.
      b. Place monofilament perpendicular to test site on plantar aspect of foot.
      c. Bow into C-shape for one second.
      d. Test minimum of four sites, avoiding calluses, scar and ulcers.
   2. Optimize glycemic control in diabetics
   3. Counsel patient to off-load lower extremities to prevent repetitive pressure and trauma to feet.
   4. Counsel patient to visually inspect feet for lesions, ulcers and calluses.
   5. Manage the risk factors for peripheral arterial disease, e.g. hypertension, hyperlipidemia, smoking.
   6. Rule for proper fitting footwear.
   7. Counsel patient on conducting daily inspections of skin and to notify a health care provider if any lesions start to form.

C. Pressure Wounds
   1. Assess patient’s risk for the development of wounds at intake, each clinic visit and Chronic Care Clinic visit in high risk patients using the Braden Scale (Located in the EMR Note Builder Template as “Wound - Braden Scale”)
   2. High risk patients are:
      a. Paraplegics, quadriplegics, hemiplegics
      b. Geriatric patients
      c. Patients with incontinence
      d. Diabetics
      e. Immunocompromised patients
      f. Patients with peripheral arterial disease
      g. Malnourished patients
   3. Physically and visually inspect areas prone to wound development at each clinic visit.
   4. Maintain skin integrity by keeping area clean and dry:
      a. Gentle cleansing for bed bound and/or incontinent patients.
      b. Prevent moisture retention by changing intermittent patient frequently and using moisture barrier creams.
      c. Consider moisturizing deodorants for patients with a Braden Scale score of less than 14.
   5. Offload:
      a. Reposition at least every 2 hours or as indicated. Use turning sheets, ramps or lifts to position to prevent shear and drag.
      b. Reposition bed of bed no more than 30 degrees.
      c. Raise heels off the bed by placing pillows under legs allowing the heels to hang off the edge or use heel protectors.
      d. Use pressure reducing devices, e.g. Sheets mattress, as available.
Wound Care page 8

8. Optimize glycemic control in diabetics.
9. Manage the risk factors for peripheral arterial disease, e.g., hypertension, hyperlipidemia, smoking.
10. Treat underlying disease to improve immune system in immunocompromised patients.
11. Counsel patient on conducting daily inspections of skin and to notify a health care provider if any lesions start to form.

D. Venous Insufficiency Wounds
1. Optimize management of hypertension, hyperlipidemia and diabetes through therapeutic lifestyle changes and pharmacotherapy
2. Counsel patient to implement therapeutic lifestyle changes with diet and exercise to maintain normal body mass index (BMI)
3. Counsel patient to discontinue smoking.
4. Counsel patient on conducting daily inspections of skin and to notify a health care provider if any lesions start to form.
5. Counsel patient that compression therapy is the mainstay of prevention and treatment.

E. Surgical wounds
1. Counsel patient to avoid mechanical stress on the incision.
2. Counsel patient on conducting daily inspections of skin and to notify a health care provider if any lesions start to form.

III. Screen for medications that may impede wound healing
A. Anticoagulants – form hematomas
B. Aspirin – suppress inflammation
C. NSAIDS – suppress inflammation, protein synthesis and epithelization

III. Evaluate nutritional status
A. Counsel patient on the importance of adequate hydration and nutrition.
B. Assist adequate protein intake.
C. Consider an appetite stimulant if unintentional weight loss leads to loss of lean body mass. Evaluate for underlying cause of weight loss.

Assessment of Wounds
I. Determine the mechanism of injury. CONSIDER obtaining the appropriate diagnostic workup.
A. Arterial insufficiency wounds
1. Ankle-Brachial Index (ABI) Measurement is a non-invasive tool necessary for screening arterial insufficiency. Refer to Vascular Surgery Lab.
   a. How ABI is performed:
      i. Equipment: blood pressure and handheld Doppler device with a vascular probe
      ii. ABI = Ankle Systolic BP / Brachial Systolic BP
      iii. Using a BP cuff and Doppler, measure the systolic BP in the right dorsalis pedis and right posterior tibial arteries. Use the higher SBP to calculate the ABI for the right leg.
      iv. Using a BP cuff and Doppler, measure the systolic BP in the left dorsalis pedis and left posterior tibial arteries. Use the higher SBP to calculate the ABI for the left leg.
      v. Using a BP cuff, measure the systolic BP in the brachial artery in both arms. Use the higher SBP for the ABI formula to calculate the ABI in both the right and left legs.
   b. ABI Interpretation
      i. ABI > 1.2 is not a valid test. Refer to vascular surgery due to possible stiffening of vessels secondary to diabetes or hypertension
      ii. ABI 0.9 to 1.2 is normal
      iii. ABI 0.6 to 0.8 is borderline perfusion. Manage wound according to Arterial Insufficiency DMG.
      iv. ABI of < 0.5 is critical ischemia and requires immediate referral to vascular surgery
B. Neuropathic wounds
1. Check ABI to screen for arterial insufficiency, which commonly co-exist with peripheral neuropathy.
2. Screen for infection with wound culture, and screen for osteomyelitis with x-ray.
3. Classify the wound according to the Wagner Grading System
   a. Grade 0 – No open foot lesions
   b. Grade 1 – Presence of superficial ulcer, partial or full thickness
   c. Grade 2 – Ulcer extends to ligaments, tendon, joint capsule or deep fascia without abscess or osteomyelitis
   d. Grade 3 – Presence of deep ulcer with abscess, osteomyelitis or joint sepsis
   e. Grade 4 – Gangrene localized to the footbed or heel
   f. Grade 5 – Extensive gangrene
C. Pressure wounds
1. Screen for infection with wound culture, and screen for osteomyelitis with x-ray.
2. Stage the wound based upon the level of tissue involvement. ONLY pressure wounds are staged.
   a. Stage I – non-blanchable erythema
   b. Stage II – partial thickness skin loss involving the epidermis and/or dermis
   c. Stage III – full thickness skin loss involving the epidermis and/or dermis without necrotic tissue
   d. Stage IV – full thickness skin loss involving damage to muscle, bone, or supporting structures
   e. Deep Tissue Injury – Pressure or maroon localized area of intact skin
   f. Unstageable – Full-thickness tissue loss in which the base of the ulcer is covered by necrotic tissue
D. Venous insufficiency wounds
1. Screen for concomitant arterial insufficiency by checking the ABI. Compression should not be used with ABI <0.8.
2. Screen for DVT (deep vein thrombosis) by checking ultrasonography.
E. Surgical wounds – screen for infection with wound culture, and screen for osteomyelitis with x-ray.

II. Identify any underlying co-morbidities – diabetes, hypertension, hyperlipidemia or chronic infections.

III. Review medication profile
A. Optimize control of underlying comorbidities
B. Identify medications that may impair wound healing.

IV. Review status, including weight
V. Wound documentation (document using the EMR Note Builder Template: “Wound – Wound Care Assessment Form”)

A. Type of wound
B. Location of wound
C. Measurement of wound
   1. What is the size of the wound (measure in centimeters)?
      a. Measure actual ulcer. Do not include the periwound in the measurement.
      b. Measure the longest length (cm) x widest width (cm) x deepest depth (cm).
   2. Depth
   3. Document undermining (when the linear erode under the wound edges)
D. Describe the wound bed
   1. Red/pink – healthy granulating tissue
   2. Yellow/tan – slough
   3. Black – eschar
   4. Pale – decreased circulation (often seen in arterial insufficiency wounds)
E. Describe the periwound (wound edges)
   1. Describe structure and quality: calloused, rolled, healing with epithelization, scarred, or pigmented.
   2. Temperature: cool or warm
   3. Edematous
F. Describe the wound drainage
   1. Amount (mild, moderate, copious) in the wound, NOT on the dressing
   2. Color
   3. Type:
      a. Serous – inflammatory phase of wound healing
      b. Sanguineous – from bleeding
      c. Purulent – from infection
   4. Consistency of drainage: thick or thin
G. Note color

Treatment of Wounds
Step 1: Cleanse the wound, then dry
A. Superficial wounds - cleanse with soap and water or use a commercial cleanser
B. Deeper wounds – flush with 250cc’s of normal saline or sterile water
C. Do not use iodine or betadine as these are cytotoxic to healing skin.
D. Do not soak the wound.

Step 2: Protect the periwound (skin surrounding the edges of the wound). Options include:
A. Copolymer skin prep – do not use with silicone adhesive
B. Hydrocolloid dressing

Step 3: Apply primary dressing directly to the wound bed. Options include:
A. Gauze (wet to moist) dressing (refer to Debridement on page 10, section IV.C.)
B. Alginate – for moderate to highly draining wounds (refer Debridement on page 10, section IV. A.)
C. Hydrogel – for minimally or moderately draining wounds (refer to Debridement on page 10, section IV. A.)
D. Silver dressing (refer to Management of Infection on page 10, section II.C. and D.)
   1. Silver infused sheets or gel for dry or moist wounds
   2. Silver with alginate for wet wounds
E. Cadexomer iodine dressing (refer to Management of Infection on page 10, section II.C. and D.)
F. Chemical debrider – collagenase for debridement of calloused and necrotic wounds (refer to Debridement on page 10, section IV.B)

Step 4: Apply secondary dressing to wound bed. Options include:
A. Gauze dressing – use with hydrogel, wet to moist dressings or chemical debrider
B. Foam dressing – use with silver dressing or cadexomer iodine
C. Hydrocolloid dressing – use with silver dressing or cadexomer iodine
D. Permeable dressing – use with hydrogel, wet to moist dressing or chemical debrider

Debridement
I. Purpose
A. Decreases bacterial load and reduces risk of infection, as devitalized material is conducive for infection and supports the growth of organisms that hinder wound healing.
B. Increases effectiveness of topical treatments
C. Decreases wound odor

II. Indication – for removal of necrotic tissue, debris, callus, foreign material, eschar and slough.

III. Contraindications
A. Red, granular wounds
B. Hastened with eschar without ulcers, ulcers, fluctuance or drainage
C. Patient factors
   1. Comorbidities (e.g. uncontrolled diabetes)
   2. Thrombocytopenia
   3. Anticoagulation use
   4. Patient setting (e.g. hospice)
IV. Different types of debridement

A. Autolytic debridement - uses body's endogenous enzymes to debride necrotic tissue with moisture-retentive dressing (example: Alginate dressings)

1. Indicated for non-infected wounds with necrotic tissue
2. Advantages:
   a. Moist wound healing
   b. Dressing changes are fast/easy and can be every 72 to 96 hours
3. Disadvantages - patients often comment of odor

B. Enzymatic debridement - uses prescribed enzymes to debride necrotic tissue with moisture-retentive dressing (example: collagenase with hydrocolloid dressing; do not use iodine or silver containing dressings as silver and iodine deactivates the collagenase)

1. Indicated for infected and non-infected wounds with necrotic tissue
2. Advantages:
   a. Moist wound healing
   b. Dressing changes are fast/easy
3. Disadvantages - dressing changes are up to BID to TID

C. Mechanical debridement - uses force to remove devitalized tissue (example: gauze (wet to moist) dressings)

1. Advantages:
   a. Dressing changes are fast/easy
   b. Decreases odor
   c. Decreases drainage in highly exudative wounds
2. Disadvantages:
   a. Nonselective debridement
   b. Painful
   c. Peri-wound maceration
   d. Dressing changes up to BID to TID

D. Sharp debridement - uses forceps, scissors or scalpel to remove devitalized tissue

E. Surgical debridement – debridement in a sterile operating room environment.

F. Biological debridement – uses maggot larvae for debridement of necrotic tissue.

Management of Infection

I. Prevention of infection

A. Wash hands with soap, water and friction.
B. Open supplies just prior to use.
C. Keep wound covered at all times except during examination.
D. Treat most infected wound last.
E. Change gloves between dressings.

II. Stages of infection

A. Contamination

1. Description: Existence of non-replicating bacteria within a wound. All chronic wounds are contaminated.

2. Management: Irrigate or cleanse with sterile water or normal saline

B. Colonization

1. Description: Presence of replicating bacteria, but does not adversely affect the individual (no odor, no drainage).

2. Management: Irrigate or cleanse with sterile water or normal saline

C. Critical colonization

1. Description: Theoretical point when the bacteria becomes a biofilm. Wound may start exuding serous fluid, have an odor and/or have friable or red granulation tissue.

2. Management: Consider a wound culture using the Levine technique, and topical antimicrobial treatment (e.g. antimicrobial dressings such silver or cadexomer iodine dressings or triple antibiotic cream).

D. Infection

1. Description: When bacteria invade the body tissue of the host. A wound culture will have bacterial levels greater than \( 10^5 \) organisms per gram. Wound healing becomes stalled or reversed. Wound will be warm to touch, edematous and erythematous. Bacteria may gain access to systemic circulation. Patient may start exhibiting systemic symptoms of infection.

2. Management: Consider clinical work-up for infection (monitor vitals, obtain labs such as CBC and cultures via the Levine technique, and order appropriate x-rays if needed). Use appropriate systemic antibiotics plus topical antimicrobial treatment (e.g. antimicrobial dressings such silver or cadexomer iodine dressings or triple antibiotic cream).

3. SYSTEMIC antibiotics are only indicated when the wound is INFECTED.

III. Culture using the Levine technique

A. Cleanse the wound with sterile water or normal saline to wash away any slough, necrotic tissue or dried exudate.

B. Use the culture tip

1. If the wound is moist, a sterile swab can be used straight from the packaging
2. If the wound is dry, then the swab tip should be moistened with sterile water to increase the chances of recovering organisms from the dry area

C. Collect in a zig-zag motion - the swab should be moved across the wound surface in a zig-zag motion, at the same time, being rotated between the fingers

D. Send to lab - immediately following the collection, the swab should be returned to its container (placed into the transport medium) and accurately labeled.
### Braden Scale For Predicting Pressure Sore Risk

Located in the EMR Note Builder template as “Wound-Braden Scale”

**Directions:** Assessment should be done upon intake, every clinic visit, and Chronic Care Clinic visit for high risk patients (defined on page 3). New Patients with a total score of 13 or less are considered to be at risk for developing pressure sores (15-16 = low risk, 13-14 = moderate risk, 12 or less = high risk).

<table>
<thead>
<tr>
<th>Sensory Perception Ability to perceive sensory feedback is normal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completed Limited</td>
</tr>
<tr>
<td>Unresponsive does not move, does not respond to verbal or physical stimuli.</td>
</tr>
<tr>
<td>2. Very Limited</td>
</tr>
<tr>
<td>Responds only to painful stimuli.</td>
</tr>
<tr>
<td>3. Highly Limited</td>
</tr>
<tr>
<td>Responds to verbal commands, but cannot move, or move only enough to prevent pressure.</td>
</tr>
<tr>
<td>4. No Impairment</td>
</tr>
<tr>
<td>Responds to verbal or painful stimuli.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moisture Degree to which skin is exposed to body fluids.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completely Moist</td>
</tr>
<tr>
<td>Linen needs to be changed every time patient is moved or turned.</td>
</tr>
<tr>
<td>2. Very Moist</td>
</tr>
<tr>
<td>Patient is changed, but not always with an extra linen.</td>
</tr>
<tr>
<td>3. Occasionally Moist</td>
</tr>
<tr>
<td>Patient is changed, but not always.</td>
</tr>
<tr>
<td>4. Barely Moist</td>
</tr>
<tr>
<td>Patient is very dry; no signs of wetness.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity Degree of physical activity Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completely Immobile</td>
</tr>
<tr>
<td>Patient is unable to change his body position without assistance.</td>
</tr>
<tr>
<td>2. Limited</td>
</tr>
<tr>
<td>Patient is able to change body position with minimal assistance.</td>
</tr>
<tr>
<td>3. Occasionally Limited</td>
</tr>
<tr>
<td>Patient is able to change position with assistance.</td>
</tr>
<tr>
<td>4. No Limitation</td>
</tr>
<tr>
<td>Patient can change position independently.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nourishment Usual diet intake pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Very Poor</td>
</tr>
<tr>
<td>Patient needs a complete meal frequently.</td>
</tr>
<tr>
<td>2. Poor</td>
</tr>
<tr>
<td>Patient eats less than 5 days a week.</td>
</tr>
<tr>
<td>3. Adequate</td>
</tr>
<tr>
<td>Patient receives less than optimum nutrition.</td>
</tr>
<tr>
<td>4. Excellent</td>
</tr>
<tr>
<td>Patient meets nutritional needs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Friction &amp; Shear</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Position</td>
</tr>
<tr>
<td>Patient rarely experiences friction or shear.</td>
</tr>
<tr>
<td>2. Potential Problem</td>
</tr>
<tr>
<td>Patient may experience friction or shear.</td>
</tr>
<tr>
<td>3. No Apparent Problem</td>
</tr>
<tr>
<td>Patient is unlikely to develop a shear or friction problem.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Score</th>
</tr>
</thead>
</table>

---

**Note:** Patients with a total score of 16 or less are considered to be at risk for developing pressure ulcers (15-16 = low risk, 13-14 = moderate risk, 12 or less = high risk).
## Wound Care Assessment Form

Located in the EMR Note Builder Template as "Wound - Wound Care Assessment Form"

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th>TDC#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date and time of evaluation:</td>
<td></td>
</tr>
<tr>
<td>Admit Date:</td>
<td></td>
</tr>
<tr>
<td>Patient Diagnosis:</td>
<td></td>
</tr>
<tr>
<td>Braden Score:</td>
<td></td>
</tr>
<tr>
<td>Location of Wound 1</td>
<td></td>
</tr>
<tr>
<td>Location of Wound 2</td>
<td></td>
</tr>
<tr>
<td>Location of Wound 3</td>
<td></td>
</tr>
</tbody>
</table>

### Description of Wound

<table>
<thead>
<tr>
<th>Wound 1</th>
<th>Wound 2</th>
<th>Wound 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Around Wound</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin color around wound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bright red or blanches to touch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Dark red or purple, non-blancheable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. White or grey pallor, macerated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Irritated, dermatomic reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peripheral tissue edema (press 5 seconds)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Minimal swelling around wound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Non-pitting edema, skin shiny and taut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pitting edema</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peripheral tissue firmness (induration)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Minimal firmness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cannot gently pinch tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Firmness extends to surrounding tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DRAINAGE OF THE WOUND</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exudate type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sanguinous (bloody)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Serous (clear)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Serosanguinous (watery pink)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Purulent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Odor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exudate amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. None or dry wound tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Scant or moist wound tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Small or wet wound tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Moderate or saturated wound tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Large or draining obvious</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### DESCRIPTION OF WOUND

**WOUND 1**

**WOUND 2**

**WOUND 3**

#### ARCHITECTURE OF UNHEALED WOUND

**Measurements in centimeters (cm)**

1. **Length (vertical dimension) in cm**
2. **Width (horizontal dimension) in cm**
3. **Depth (deepest, do not include tunnel) in cm**

#### WOUND BED CHARACTERISTICS

**Necrotic type**

1. None visible
2. Non-adherent yellow slough
3. Loosely adherent yellow slough
4. Adherent soft, eschar
5. Firmly adherent, hard eschar

**Granulation tissue type**

1. Skin intact
2. Bright, beefy red
3. Pink or dull, dusky red
4. Combination of #2 and #3
5. Obscured

#### Undermining/Tunneling Wound

<table>
<thead>
<tr>
<th>Location of undermining/tunneling (use clock as reference)</th>
<th>Depth of tunnel in cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example, right ischial wound with tunnel</td>
<td>Tunnel at 3 o'clock</td>
</tr>
<tr>
<td></td>
<td>3 cm</td>
</tr>
</tbody>
</table>

#### GOALS

<table>
<thead>
<tr>
<th>GOALS MET</th>
<th>NOT MET</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Facilitate granulation and re-epithelialization through use of clean technique during cleansing and dressing change</td>
<td></td>
</tr>
<tr>
<td>2. Promote granulation tissue of wound bed</td>
<td></td>
</tr>
<tr>
<td>3. Soften and remove non-viable tissue</td>
<td></td>
</tr>
<tr>
<td>4. Patient will express understanding and importance of the educational information presented</td>
<td></td>
</tr>
</tbody>
</table>

#### PLAN:

- 
- 
- 

237
Acne Vulgaris
(Adolescents)

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Patient diagnosed with acne vulgaris
1. Classify severity (table 1, page 3)
2. Begin nonpharmacologic management (page 4)
3. Provide patient education

Preparing by the Correctional Managed Care Pharmacy and Therapeutics Committee. November 2006. Revised 10/09, 4/12.

**Moderate Acne**
5. Start benzoyl peroxide 5% applied QD - BID to acne prone areas obtained from dorm. Follow up in 6 - 8 weeks to assess response.

4. Is the patient responding to therapy?
   - Yes
     - Continue therapy & follow up as needed. Consider tapering therapy for maintenance.
   - No
     - Assess adherence to treatment plan.
       - Discontinue benzoyl peroxide 5%.
       - Start benzoyl peroxide 10% applied QD - BID to acne prone areas.
       - Follow up in 6 - 8 weeks to assess response.

**Moderately Severe to Severe Acne**
15. Start combination therapy.
   1. Benzoyl peroxide 10% applied BID
   2. Tetracycline 500mg orally BID or doxycycline 100mg orally BID
   (Erythromycin 250mg - 500mg orally BID may be considered if the patient is intolerant or unable to take tetracycline or doxycycline)
   Follow up in 6-8 weeks to assess response.

14. Is the patient responding to therapy?
   - Yes
   - Assess adherence to treatment plan.
     - Benzoyl peroxide 10% applied QD in AM.
     - Differin (adapalene) gel 0.1% applied QD in PM. Nonformulary approval required.
     - Continue tetracycline or doxycycline.
     - Follow up in 6-8 weeks to assess response.
   - No
     - Go to box #17 page 2

16. Is the patient responding to therapy?
   - No
   - Assess adherence to treatment plan.
     - Benzoyl peroxide 10% applied QD if began with QD dosing.
     - If began with BID dosing, add clindamycin 1% topical solution applied BID to acne prone areas.
     - Follow up in 6-8 weeks to assess response.
   - Yes
     - Go to box #17 page 2

   - Intensify treatment to BID dosing if began with QD dosing.
   - If began with BID dosing, add clindamycin 1% topical solution applied BID to acne prone areas.
   - Follow up in 6-8 weeks to assess response.

8. Continue therapy & follow up as needed.
   - Consider tapering or discontinuing oral antibiotics for maintenance.

7. Is the patient responding to therapy?
   - Yes
     - Go to box #17 page 2
   - No
     - Assess adherence to treatment plan.
       - Taper clindamycin 1% applied BID to acne prone areas.
       - Continue tetracycline or doxycycline.
       - Follow up in 6-8 weeks to assess response.

6. Assess adherence to treatment plan.
   - Discontinue benzoyl peroxide 5%.
   - Start benzoyl peroxide 10% applied QD - BID to acne prone areas.
   - Follow up in 6 - 8 weeks to assess response.

11. Assess adherence to treatment plan.
    - Intensify treatment plan by adding second topical agent if not already on it.
    - Intensify treatment plan by adding oral therapy if already on combination topical therapy (go to box #15).

10. Assess adherence to treatment plan.
    - Intensify treatment plan by adding second topical agent if not already on it.
    - Intensify treatment plan by adding oral therapy if already on combination topical therapy (go to box #15).
Assess adherence to treatment plan. Consider referral for patients with any of the following:
1. Hyperandrogenism for possible hormonal therapy
2. Unresponsive scarring acne or acne conglobata for possible isotretinoin therapy
3. Acne fulminans

Is the patient responding to therapy?

Yes

No

Continue therapy & follow up as needed. Consider discontinuing oral antibiotics and continuing topical therapy for maintenance.

Assess adherence to treatment plan. Consider referral for patients with any of the following:
1. Hyperandrogenism for possible hormonal therapy
2. Unresponsive scarring acne or acne conglobata for possible isotretinoin therapy
3. Acne fulminans
I. Definitions
A. Acne vulgaris – Disorder of the skin characterized by open or closed comedones. Inflammatory lesions may also be present such as papules, pustules or nodules. It commonly occurs on the face, arms, chest and back.

B. Closed comedones (whiteheads) – Sebaceous follicle plugged with sebum, dead cells and bacteria with a thin overlying epithelial membrane.

C. Open comedones (blackheads) – Sebaceous follicle plugged with sebum, dead cells and bacteria.

D. Acne conglobata – Chronic and severe form of acne vulgaris that is more common in males than females with a usual age of onset between 18 and 30 years. It is characterized by comedones, inflammation, deep abscesses, severe damage to the skin and scarring. It is usually widespread affecting the face, neck, trunk, arms and buttocks.

E. Acne fulminans – Severe form of acne vulgaris that may occur suddenly in a patient with inflammatory acne. It is characterized by ulcerating acne, fever, and inflammation and joint pain especially of the hips and knees.

II. Etiology – Multifactorial disease generally characterized by
A. Abnormal keratinization – Hyperproliferation of keratinocytes and abnormalities in differentiation and desquamation which may prevent normal shedding and obstruct the follicle.

B. Increase in hormones – May lead to enlargement of sebaceous glands and increased production of sebum.

C. Bacterial Growth – Propionibacterium acnes growth in the plugged follicle may contribute to the development of inflammation by activating an immune response.

D. Immune Hypersensitivity – Cells of the immune system accumulate and produce an inflammatory reaction.

III. Diagnosis
A. Lesions are commonly located on the face and upper trunk where sebaceous glands are more concentrated.
   1. Comedones
   2. Pustules
   3. Nodules
   4. Redness & inflammation around skin eruptions
   5. Scarring of skin

B. Evaluate for secondary causes (e.g., Cushing’s, polycystic ovary disease, hyperandrogenism in women)

C. Classification – Correct classification of severity aids in the selection of appropriate treatment. Acne is considered inflammatory if papules, pustules, or nodules are present.

<table>
<thead>
<tr>
<th>Severity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Comedones present. Small and few (&lt;10) papules and pustules may be present.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Moderate numbers of comedones (10-40) and papules and pustules (10-40) are present. Mild disease of the trunk may also be present.</td>
</tr>
<tr>
<td>Moderately Severe</td>
<td>Many comedones (50-200) and papules and pustules (50-100), occasional deeper nodular inflamed lesions (&lt;5). Widespread often involving the face and trunk.</td>
</tr>
<tr>
<td>Severe</td>
<td>Many comedones, papules, and nodules present. Nodulocystic acne and acne conglobata with more severe and painful nodular or pustular lesions.</td>
</tr>
</tbody>
</table>

Acne vulgaris

Mild acne

Moderate

Moderately severe

Severe

[Image of acne types]
IV. Management – Goals of therapy include controlling flares, decreasing lesions, and preventing scar formation.

Acne may get worse with treatment before it gets better.

A. Nonpharmacologic Treatment
1. Gently wash skin twice a day with water and mild soap
2. Avoid scrubbing hard and abrasive cleaners.
3. Do not squeeze blemishes
4. Avoid factors that may exacerbate acne
   a. Mechanical obstruction (e.g., helmets, shirt collars)
   b. Certain medications (e.g., corticosteroids, isoniazid, lithium, phenytoin)

B. Pharmacologic Treatment
1. Topical Treatment – 6 to 8 weeks generally required to see best results and to determine effectiveness before adjusting alternative therapy. Should be used on acne-prone areas not just individual blemishes to prevent formation of new blemishes. Flares may occur when medications are discontinued.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoyl Peroxide 3-10%</td>
<td>Apply QD-BID</td>
<td>Skin irritation, erythema, dryness, scaling</td>
<td>Effective for inflammatory lesions. Bactericidal &amp; mild keratolytic. May bleach clothing &amp; bedding.</td>
</tr>
<tr>
<td>Clindamycin 1% Topical Solution</td>
<td>Apply QD-BID</td>
<td>Skin irritation, may stain clothing</td>
<td>Effective for inflammatory lesions. Resistance a problem when used alone. Use in combination with benzoyl peroxide limits resistance. No role in therapy if oral antibiotics are used.</td>
</tr>
<tr>
<td>Adapalene 0.1% gel (Differin®)</td>
<td>Apply q HS. May use every other day to minimize irritation</td>
<td>Skin irritation, erythema, dryness, scaling, photosensitivity</td>
<td>Non-formulary medication. Maximum response usually requires 12 weeks. Not recommended in pregnancy. Apply sparingly.</td>
</tr>
</tbody>
</table>

2. Oral Therapy - Generally reserved for moderate to severe inflammatory acne, acne that is extensive and difficult to reach with topical agents, and patients that fail to respond to a combination of topical agents. Oral antibiotic therapy is usually prescribed for 3 to 4 months with the goal to discontinue therapy and to follow up with topical therapy as maintenance if needed. The use of benzoyl peroxide with topical or oral antibiotics decreases the emergence of resistant bacteria. If oral antibiotic therapy is discontinued and restarted, prescribe the same antibiotic the second time as long as it remains effective.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythromycin</td>
<td>250mg - 500mg BID (take on an empty stomach or immediately before meals)</td>
<td>GI upset</td>
<td>Resistance more common compared to other agents therefore reserve for patients that are intolerant or unable to take tetracycline or doxycycline. Response may take 6 weeks and full effect may take up to 3 months.</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>250mg - 500mg BID - QID (Take on an empty stomach i.e., 1 hour prior to, or 2 hours after meals)</td>
<td>GI upset, photosensitivity, overgrowth &amp; infection of gram-negative bacteria with prolonged or repeated use</td>
<td>Do not use in pregnancy or children &lt;8 years of age. Response may take 6 weeks and full effect may take up to 3 months. Avoid concurrent use of aluminum, magnesium, calcium, or iron-containing products due to reduced drug absorption and efficacy. Dairy products may also reduce efficacy.</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>100-200mg QD - BID (May be taken with food to decrease GI upset)</td>
<td>GI upset, photosensitivity, overgrowth &amp; infection of gram-negative bacteria with prolonged or repeated use</td>
<td>Do not use in pregnancy or children &lt;8 years of age. Response may take 6 weeks and full effect may take up to 3 months. Avoid concurrent use of aluminum, magnesium, calcium, or iron-containing products due to reduced drug absorption and efficacy.</td>
</tr>
</tbody>
</table>
### Other oral therapies

**Isotretinoin***  
*(Accutane®)*  
**Must enroll in iPLEDGE program to prescribe***  

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Comments</th>
</tr>
</thead>
</table>
| **Isotretinoin***  
*(Accutane®)* | 0.5 to 1 mg/kg day in 2 divided doses given with food for 15-20 weeks or until total cyst count decreases by 70%, whichever is sooner. If necessary, a second course may be offered after at least 8 weeks of completing first course. | Teratogenic, hypertriglyceridemia, elevated LFTs, dryness of lips, ocular, nasal, and oral mucosa and skin, arthralgias, photosensitivity, decreased night vision, case reports of depression, initial flaring at initiation of therapy | • Nonformulary medication.  
• Relapse rates higher for patients < 16 years at initial treatment, for patients with very severe acne that involves the trunk, and for adult women.  
• Reserved for patients with severe acne that does not respond to combination oral and topical therapy.  
• Only treatment that leads to remission that may be permanent  
• Do not use in pregnancy |
| **Oral Contraceptives** | 1 tablet QD                                                           | Nausea, weight gain, thrombosis, edema                                           | • Consider for women with signs of hyperandrogenism, failed conventional therapy, or quickly relapse after isotretinoin.  
• Especially useful in patients that desire contraception or have irregular menstrual cycles or hirsutism.  
• Effects seen within 6 to 9 months  
• Do not use in pregnancy |
| **Spironolactone** | 50 to 100mg QD                                                        | Teratogenic, drowsiness, GI upset, hyperkalemia                                   | • May be added to oral contraceptive therapy if not effective after several months of therapy  
• Do not use in pregnancy |

*Must meet and follow criteria in iPLEDGE program to prescribe.  
For more information go to  
www.ipledgeprogram.com  
or call 1-866-495-0654.
Patient Education

1. Cause of acne
2. Goals of Therapy
   a. Decrease and/or resolve lesions
   b. Control and/or prevent flares
   c. Prevent scar formation
3. General Information
   a. Acne is not the result of poor hygiene and excessive skin washing and scrubbing may actually worsen acne.
   b. Face Washing: Gently wash affected areas with warm soapy water, rinse with warm water thoroughly, then use a final rinse with cool water. Do this twice a day in the morning and night as well as after heavy perspiration.
   c. Blemishes and pimples should not be squeezed. This can worsen acne and lead to scarring.
   d. Skin care: Do not pick or squeeze acne lesions. Remember that pimples are temporary, but picking lesions can result in scars and scars are permanent.
4. Treatment Plan
   a. General information
      • Medications used to treat acne do not work immediately. It may take 6-8 weeks to see visible improvements and may take up to 3 months to see maximum effects with some treatments.
      • Acne may get worse with treatment before it gets better.
      • Topical medications should be applied to dry skin, applied sparingly (pea-size amount is usually sufficient to cover the face), and should be applied to all acne prone areas and not just visible blemishes.
      • Certain medications (e.g., adapalene, isotretinoin, certain oral antibiotics) may increase the patient’s risk for sunburns. Avoiding excessive exposure to sunlight is recommended.
      • Shampoo hair regularly. If hair is oily, wash hair daily.
      • Avoid greasy hair-care products. Oily hair-care products such as oil-containing gels and pomades, can drip onto skin and clog pores.
      • Water-based lotions and cosmetics are less comedogenic than oil-based products.
      • Wet face prior to shaving and shave lightly.
   b. Information on specific therapy prescribed
5. Importance of Adherence
ANXIETY and PANIC DISORDER Adolescents

1. Rule out medical or medication causes of presentation.

2. Signs/symptoms of anxiety?
   - Yes
   - No

3. Presence of panic attacks?
   - Yes
   - No

4. Perform BPRS. Meet DSM-IV Criteria for Anxiety Disorder?
   - Yes
   - No

5. Perform BPRS. Meet DSM-IV Criteria for Panic Disorder?
   - Yes
   - No

6. Initiate Psychotherapy and/or one of the following formulary SSRIs for at least 6-12 weeks:
   - Citalopram 20-40mg
   - Fluoxetine 20-80mg
   - Sertraline 25-200mg
   - Start at lower end of dosing range and gradually titrate upward to decrease potentially activating side effects

7. 
   - Continue maintenance treatment for 6-12 months, reassessing as determined by unit mental health provider
   - After 12-18 months may consider discontinuation of pharmacotherapy
   - In case of relapse, see box 7 and resume treatment that had proven effective

8. Perform BPRS. SSRI therapy effective with >80% medication compliance?
   - Yes
   - No

9. 1. Reevaluate diagnosis.
   2. Counsel regarding importance of medication adherence.
   3. Consider:
      A. Increase toward full therapeutic dose of current antidepressant as clinically indicated and tolerated by the patient for at least 6-12 weeks or,
      B. Switch to alternative formulary antidepressant (Table 3, page 3) or,
      C. Pharmacotherapy consult

10. 1. Recruit diagnosis.
    2. Counsel regarding importance of medication adherence.
    3. Consider:
        A. Increase toward full therapeutic dose of current antidepressant as clinically indicated and tolerated by the patient for at least 6-12 weeks or,
        B. Switch to alternative formulary antidepressant (Table 3, page 3) or,
        C. Pharmacotherapy consult

Prepared By The Texas Youth Commission and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 4/11, 10/11.
I. Medications - When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

### Table 1: Monitoring Parameters

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>May Consider First If</th>
<th>Initial Dose (Dose Range) mg/day</th>
<th>Monitoring</th>
</tr>
</thead>
</table>
| Selective Serotonin       | Citalopram   | Celexa®    | Atypical features or dysthymia | 20 (20 – 40)                     | • Pregnancy Test – as clinically indicated  
                          |              |            |                        |                                  | • Emergence of suicidal ideation or behavior  
                          | Fluoxetine   | Prozac®    | Atypical features or dysthymia | 20 (20 – 60)                     |                                  |
| Tricyclic Antidepressant* | Nortriptyline| Pamelor®   | Melancholic features   | 25 – 50 (75 – 150)               | • Pregnancy Test – as clinically indicated  
                          |              |            |                        |                                  | • Emergence of suicidal ideation or behavior  
                          |              |            |                        |                                  | • Liver function tests, blood pressure, and heart rate at baseline  
                          |              |            |                        |                                  | • EKG considered at baseline and periodically, unless there is a personal or family history of cardiovascular disease  
                          |              |            |                        |                                  | • If Nortriptyline dose > 100 mg/day, EKG at baseline and as clinically indicated and blood level within 7 days and then as clinically indicated  
                          | Trazodone    | Desyrel®   | Atypical features or dysthymia | 100 – 150 (300 – 600)            | • Pregnancy Test – as clinically indicated  
                          |              |            |                        |                                  | • Emergence of suicidal ideation or behavior  

### Table 2: Monitoring Nortriptyline Drug Levels

<table>
<thead>
<tr>
<th>Therapeutic Drug Level</th>
<th>Toxicity Likely</th>
<th>Signs of Toxicity</th>
<th>Management of Toxicity</th>
<th>Timing of Drug Levels</th>
</tr>
</thead>
</table>
| ≥ 50 – 100 mg/day      | > 500 ng/mL      | Agitation, tachycardia, confusion, hypotension, hypertension, seizures, cardiac arrhythmias, CNS depression, heart block, leading to death | Hold medications and patient has back medical evaluation with vital signs and EKG  
                          |                  |                    | Transfer patient to acute care setting if clinically necessary  
                          |                  |                    | Steady state concentration generally reached within 4-11 days  
                          |                  |                    | 6-12 hours after last dose for patients taking once daily or 4-6 hours after last dose of divided dose regimen |

*Therapeutic Monitoring*

1. Medications - When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.
Antidepressants increase the risk of suicidal thinking and behavior (suicidality) in children and adolescents with major depressive disorder (MDD) and other psychiatric disorders. Anyone considering the use of any antidepressant in a child or adolescent must balance this risk with the clinical need. Patients who are started on therapy should be observed closely for clinical worsening, suicidality, or unusual changes in behavior.

**Medication Selection**

Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

Table 3: Formulary Agents

<table>
<thead>
<tr>
<th>Formulary Therapeutic Class</th>
<th>Medication Name</th>
<th>Brand Name</th>
<th>Dosage Form</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>Tablet</td>
<td>20mg, 40mg</td>
</tr>
<tr>
<td></td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>Capsule</td>
<td>20mg</td>
</tr>
<tr>
<td></td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>Tablet</td>
<td>50mg, 100mg</td>
</tr>
<tr>
<td>Serotonin/Norepinephrine Reuptake Inhibitor (SNRI)</td>
<td>Venlafaxine</td>
<td>Effexor®</td>
<td>Capsule</td>
<td>37.5mg, 75mg</td>
</tr>
<tr>
<td>Tricyclic Antidepressant*</td>
<td>Nortriptyline</td>
<td>Pamelor®</td>
<td>Capsule</td>
<td>25mg, 50mg</td>
</tr>
<tr>
<td></td>
<td>Imipramine</td>
<td>Tofranil®</td>
<td>Capsule</td>
<td>25mg, 50mg</td>
</tr>
<tr>
<td>Other*</td>
<td>Trazodone</td>
<td>Desyrel®</td>
<td>Tablet</td>
<td>50mg, 100mg</td>
</tr>
</tbody>
</table>

*Not recommended as first line or second line therapy for treatment of anxiety or panic disorder in children or adolescents.
BRIEF PSYCHIATRIC RATING SCALE (BPRS)

Instructions for the Clinician

Background:

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychiatric medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
**Brief Psychiatric Rating Scale (BPRS)**

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SOMATIC CONCERN</td>
<td>Preoccupation with physical health, fear of physical illness, hypochondriasis.</td>
</tr>
<tr>
<td>2.</td>
<td>ANXIETY</td>
<td>Worry, fear, over-concern for present or future, uneasiness</td>
</tr>
<tr>
<td>3.</td>
<td>EMOTIONAL WITHDRAWAL</td>
<td>Lack of spontaneous interaction, isolation deficiency in relating to others.</td>
</tr>
<tr>
<td>4.</td>
<td>CONCEPTUAL DISORGANIZATION</td>
<td>Thought processes confused, disorganized, disrupted.</td>
</tr>
<tr>
<td>5.</td>
<td>IMPULSIVENESS</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>MOTOR HYPERACTIVITY</td>
<td>Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.</td>
</tr>
<tr>
<td>7.</td>
<td>MANNERISMS AND POSTURING</td>
<td>Peculiar, bizarre, unnatural motor behavior (not including tic).</td>
</tr>
<tr>
<td>8.</td>
<td>GRANDIOSITY</td>
<td>Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.</td>
</tr>
<tr>
<td>9.</td>
<td>DEPRESSIVE MOOD</td>
<td>Sorrow, sadness, despondency, pessimism.</td>
</tr>
<tr>
<td>10.</td>
<td>HOSTILITY</td>
<td>Animosity, contempt, ill will, disdain for others.</td>
</tr>
<tr>
<td>11.</td>
<td>SUSPICION</td>
<td>Mistrust, belief others harbor malicious or discriminatory intent.</td>
</tr>
<tr>
<td>12.</td>
<td>HALLUCINATORY BEHAVIOR</td>
<td>Perceptions without normal external stimulus correspondence.</td>
</tr>
<tr>
<td>13.</td>
<td>MOTOR RETARDATION</td>
<td>Slowed, weakened movements or speech, reduced body tone.</td>
</tr>
<tr>
<td>14.</td>
<td>UNCOOPERATIVENESS</td>
<td>Resistance, guardedness, rejection of authority.</td>
</tr>
<tr>
<td>15.</td>
<td>UNUSUAL THOUGHT CONTENT</td>
<td>Unusual, odd, strange, bizarre thought content.</td>
</tr>
<tr>
<td>16.</td>
<td>BLUNTED AFFECT</td>
<td>Reduced emotional tone, reduction in formal intensity of feelings, flatness.</td>
</tr>
<tr>
<td>17.</td>
<td>EXCITEMENT</td>
<td>Heightened emotional tone, agitation, increased reactivity.</td>
</tr>
<tr>
<td>18.</td>
<td>DISORIENTATION</td>
<td>Confusion or lack of proper association for person, place or time.</td>
</tr>
<tr>
<td>19.</td>
<td>ELEVATED MOOD</td>
<td>A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.</td>
</tr>
<tr>
<td>20.</td>
<td>SUICIDALITY</td>
<td>Expressed desire, intent, or actions to harm or kill self.</td>
</tr>
<tr>
<td>21.</td>
<td>BIZARRE BEHAVIOR</td>
<td>Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.</td>
</tr>
<tr>
<td>22.</td>
<td>SELF-NEGLECT</td>
<td>Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.</td>
</tr>
<tr>
<td>23.</td>
<td>DISTRACTIBILITY</td>
<td>Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractions is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
ATTENTION DEFICIT HYPERACTIVITY DISORDER
(Youths)

1. Meets DSM-IV criteria for ADHD

2. Obtain baseline monitoring as indicated in Table 1. Medication selection is covered on pages 2-3.

3. Titrate mixed amphetamine salts XR to no more than 30mg/day (4-6 weeks)
   - Inadequate response per ADHD rating scale
   - Assess compliance

4. Continue treatment and monitor per recommendations in Tables 1-2
   - Adequate response per ADHD rating scale

5. Titrate methylphenidate ER to no more than 2mg/kg/day or 72mg/day (4-6 weeks)
   - Inadequate response per ADHD rating scale
   - Assess compliance

6. Continue treatment and monitor per recommendations in Tables 1-2
   - Adequate response per ADHD rating scale

7. Titrate prior authorization agent atomoxetine 0.5-1.2mg/kg/day up to maximum of 100mg/day (4-6 weeks)
   - Inadequate response per ADHD rating scale
   - Assess compliance

8. Continue treatment and monitor per recommendations in Tables 1-2
   - Adequate response per ADHD rating scale

9. Consider one of the following options:
   1. Guanfacine 0.05-0.08mg/kg/day up to maximum 4mg/day (4-6 weeks)
   2. Nonformulary use of buproprion XL 1.4-3.6mg/kg/day up to maximum of 300mg/day (4-6 weeks)

   - Inadequate response per ADHD rating scale
   - Assess compliance

10. Continue treatment and monitor per recommendations in Tables 1-2
    - Adequate response per ADHD rating scale

11. Combination therapy with agents listed above (4-6 weeks)
    - Inadequate response per ADHD rating scale
    - Assess compliance

12. Continue treatment and monitor per recommendations in Tables 1-2
    - Adequate response per ADHD rating scale

13. Reconsider diagnosis and consider psychopharmacology consultation
    - Assess compliance

Prepared by: The Texas Juvenile Justice Department and reviewed by the Correctional Managed Care Pharmacy and Therapeutics Committee. October 2001, revised 5/12/02, 2/25/04, 10/06, 4/19/10, 8/15/11, 1/30/12.
Table 1: Monitoring Guidelines

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency</th>
<th>Baseline</th>
<th>Each Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height, weight, BMI</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Blood pressure &amp; pulse</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>EKG</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the values listed above more frequently if clinically indicated.

Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease. This would include a history of severe palpitations, fainting, exercise intolerance not accounted for by obesity, or strong family history of sudden death. Postoperative tetralogy of Fallot, coronary artery abnormalities, and subaortic stenosis are known cardiac problems that require special considerations in using stimulants. Chest pain, arrhythmia, hypertension, or syncope may be signs of hypertrophic cardiomyopathy, which has been associated with sudden unexpected deaths in children and adolescents. The risk of sudden unexplained death was determined by the FDA advisory committee, the American Academy of Pediatrics, and the American Academy of Child and Adolescent Psychiatry to be a very rare event that is not any higher than what would be expected in the general population. The American Heart Association does recommend careful assessment through a cardiac history, a physical exam, and evaluation for risk factors in children.

Table 2: Outcomes Monitoring

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Each Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD rating scale</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Providers should review the results of the ADHD rating scale prior to initiating therapy, changing therapy, and at each visit.

ADHD rating scale should be completed during Multi-Disciplinary Team meetings every 30 days.

Medication Selection

Newly diagnosed patients should receive a therapeutic trial of the formulary stimulants unless it is clearly not indicated.

1. If the patient has had a documented significant side effect to the agents in the past.
2. If the patient has already failed a trial of both agents after a therapeutic trial of adequate dose and duration (4-6 weeks).
3. If the patient has a contraindication to therapy.
Formulary Medications

Formulary agents – Practitioners may prescribe any agent on the formulary without restrictions based on patient assessment and clinical judgment.

Table 3

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>Adderall®</td>
<td>Tablet</td>
<td>5mg</td>
</tr>
<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>Adderall®</td>
<td>Tablet</td>
<td>10mg</td>
</tr>
<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>Adderall XR®</td>
<td>Capsule</td>
<td>10mg</td>
</tr>
<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>Adderall XR®</td>
<td>Capsule</td>
<td>20mg</td>
</tr>
<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>Adderall XR®</td>
<td>Capsule</td>
<td>30mg</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Concerta ER®</td>
<td>Tablet ER</td>
<td>27mg</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Concerta ER®</td>
<td>Tablet ER</td>
<td>36mg</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Concerta ER®</td>
<td>Tablet ER</td>
<td>54mg</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Ritalin®</td>
<td>Tablet</td>
<td>2mg</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Ritalin®</td>
<td>Tablet</td>
<td>5mg</td>
</tr>
<tr>
<td>Guanfacine</td>
<td>Tenex</td>
<td>Tablet</td>
<td>1mg</td>
</tr>
<tr>
<td>Guanfacine</td>
<td>Tenex</td>
<td>Tablet</td>
<td>2mg</td>
</tr>
</tbody>
</table>

Prior Authorization Agents – Prior authorization agents are medications that may be prescribed if specific clinical criteria are met. The prior authorization criteria must be met and included in the special instructions field of the order when the medication is entered in the EMR. All other uses require non-formulary approval.

Table 4

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomoxetine</td>
<td>Strattera®</td>
<td>Capsule</td>
<td>25mg, 40mg, 60mg, 80mg, 100mg</td>
<td>ADHD and: • Failure on adequate dose and trial of both formulary stimulants • Insomnia to both formulary stimulants • Contraindication to use of both formulary stimulants • Significant history of substance abuse • Comorbid anxiety disorder</td>
</tr>
</tbody>
</table>
ADHD Dose Conversion Recommendations for Psychostimulant Medications

Patients should be evaluated for use of formulary agents whenever possible. Clinicians should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects. If there is a question or concern regarding medication adherence with a given regimen prior to conversion, consider re-titrating from starting dosage with formulary alternative. The recommendations listed below are not intended to replace sound clinical judgment.

Table 5

<table>
<thead>
<tr>
<th>Product</th>
<th>Focalin XR</th>
<th>Concerta</th>
<th>Ritalin LA</th>
<th>Ritalin IR</th>
<th>Verelan</th>
<th>Desipramine</th>
<th>Adderall IR</th>
<th>Adderall SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mg</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>10-20 mg</td>
<td>10-18 mg</td>
<td>5-10 mg</td>
<td>5-10 mg</td>
<td>5-10 mg</td>
</tr>
<tr>
<td>10 mg</td>
<td>6 mg</td>
<td>10 mg</td>
<td>15-25 mg</td>
<td>12.5 mg</td>
<td>10-12 mg</td>
<td>25 mg</td>
<td>20-30 mg</td>
<td>20-30 mg</td>
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<tr>
<td>20 mg</td>
<td>12 mg</td>
<td>20 mg</td>
<td>25-40 mg</td>
<td>20-30 mg</td>
<td>25-30 mg</td>
<td>50 mg</td>
<td>30-50 mg</td>
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<tr>
<td>30 mg</td>
<td>20 mg</td>
<td>30 mg</td>
<td>35-55 mg</td>
<td>25-40 mg</td>
<td>30-40 mg</td>
<td>75 mg</td>
<td>60-80 mg</td>
<td>60-80 mg</td>
</tr>
</tbody>
</table>

*Approximate equivalent dose for bupropion formulations are 200mg IR, 150mg SR, and 150mg XL.

Psychostimulant General Information

- Common stimulant side effects: loss of appetite, headaches, insomnia
- Less common stimulant side effects: tics, agitation, severe rebound
- Growth suppression: Up to 1 inch loss of expected growth over 3-8 years. May be dose related and/or related to length of time on stimulant. Starting stimulants early in life may be a risk factor. Height loss may be permanent in some patients.

Atomoxetine General Information

If treatment with amphetamine or methylphenidate is not successful, a trial of atomoxetine may be considered. Atomoxetine may be effective first line therapy in patients with comorbid anxiety. In children and young adolescents, atomoxetine is initiated at a dose of 0.3 mg/kg/day and titrated over 1-3 weeks if needed. A therapeutic trial of atomoxetine is six weeks, if titrated to maximum tolerated doses within three weeks.

- Common side effects: sedation, mild appetite loss, GI upset
- Rare side effects: suicidal ideation (~2%), hepatitis (very rare), urinary retention
- Elevated blood pressure and heart rate: ~5-10% of children and adults experience clinically significant changes in heart rate (>20 bpm) or blood pressure (>15-20 mmHg). Caution should be used in patients with a history of or underlying mild to moderate cardiovascular conditions, and atomoxetine should be avoided in patients with severe cardiovascular disorders.
Bupropion General Information

The dosing strategy suggested for bupropion is 3mg/kg/day by the end of the first week and then titrated to 6mg/kg/day or 300mg/day by week 3, whichever is less. It may take as long as 4 weeks to observe maximum effectiveness with bupropion. Bupropion XL is recommended for convenience of use because it requires less frequent dosing.

Alpha Agonists General Information

The table below indicates the dosages of alpha agonists recommended (a weight-based approach). Vital signs should be obtained with the patient situated in both lying and standing positions. Treatment with alpha agonists should be initiated as a single bedtime dose and carefully titrated over a period of 2-4 weeks to minimize side effects, particularly sedation. Patients should take for 2-8 weeks at the maximum dose tolerated to evaluate effectiveness.

- Common side effects: sedation, dizziness, fainting (sign of low blood pressure).
- Avoid large (0.2-0.3 mg) doses of clonidine at bedtime.
- Do not combine alpha agonists and second generation antipsychotics due to combined effect on blood pressure.

Table 6

<table>
<thead>
<tr>
<th>Week</th>
<th>Dosage (mg) of alpha agonist (Weight &lt; 45kg)</th>
<th>Dosage (mg) of alpha agonist (Weight &gt; 45kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Clonidine 0.05 q HS</td>
<td>Guanfacine 0.5 q HS</td>
</tr>
<tr>
<td>1-2</td>
<td>0.05 BID</td>
<td>0.5 BID</td>
</tr>
<tr>
<td>2-4</td>
<td>0.05 q HS</td>
<td>0.5 q HS</td>
</tr>
<tr>
<td>3-6</td>
<td>0.05 TID</td>
<td>0.5 TID</td>
</tr>
<tr>
<td>4-8</td>
<td>0.05 QID</td>
<td>0.5 QID</td>
</tr>
</tbody>
</table>

Total daily dose range:
- Clonidine 0.05-0.6 mg/day
- Guanfacine 0.5-4 mg/day
### ADHD Rating Scale

Student Name:____________________  Student Number:_______________  DOB:______________  
Completed by:______________________   Date Completed:_______________  Facility:_____________

#### INATTENTION

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Just a little</th>
<th>Pretty Much</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td></td>
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<td>2.</td>
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<td>3.</td>
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<td>4.</td>
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<td>9.</td>
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</table>

**TOTAL**

#### IMPULSIVITY/HYPERACTIVITY

<table>
<thead>
<tr>
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<th>Very Much</th>
</tr>
</thead>
<tbody>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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<tr>
<td>9.</td>
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</tr>
</tbody>
</table>

**TOTAL**

#### OPPOSITIONAL BEHAVIOR

<table>
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<tr>
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<th>Not at all</th>
<th>Just a little</th>
<th>Pretty Much</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
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<td>3.</td>
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<tr>
<td>6.</td>
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<tr>
<td>7.</td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

### COMMENTS:___________________________________________________________________________________________
BIPOLAR DISORDER: ADOLESCENTS

2. Make DSM-IV diagnosis of bipolar disorder and rule out other causes for presentation such as medical causes, substance use, or psychosocial stressors.

Meets DSM-IV criteria for manic episode, hypomanic episode, or Bipolar NOS?

No

3. Is patient currently on an antidepressant?
Yes

Re-evaluate diagnosis and treat underlying causes.

Consider discontinuing the antidepressant. Go to box #8.

No

4. Is patient currently prescribed a mood stabilizer or antipsychotic?

• Obtain BPRS
• Maximize dose of mood stabilizer. Adjust dose per serum level. Lithium 0.9 – 1.2 mEq/L or Divalproex 75 – 115 mg/mL. Continue for 4-6 weeks at a therapeutic dose.

or

• Maximize dose of antipsychotic. Maximum recommended dose of Risperidone is 6mg/day. Continue for 4-6 weeks at a therapeutic dose.

• Go to box #11.

5. Obtain baseline BPRS.

• Initiate monotherapy* with mood stabilizer or antipsychotic and titrate to therapeutic level. Lithium, Divalproex, or Risperidone. Continue for 4-6 weeks at a therapeutic dose.

Consider combination therapy:

• Lithium plus Divalproex or 
• Lithium or Divalproex plus Risperidone

6. Discontinue current therapy and switch to alternative mood stabilizer Lithium or Divalproex or atypical antipsychotic Risperidone. Continue for 4-6 weeks at a therapeutic dose.

• Re-evaluate diagnosis
• Counsel regarding medication compliance
• Consider pharmacotherapy consult

7. Adequate response per clinical status and BPRS?

No    Assess compliance

Yes    Assess compliance

8. Follow clinical status and BPRS.

Adequate response per clinical status and BPRS?

No    Assess compliance

Yes    Discontinue treatment & monitor.

9. Follow clinical status and BPRS.

Adequate response per clinical status and BPRS?

No    Assess compliance

Yes    Discontinue treatment & monitor.

Prepared by: The Texas Juvenile Justice Department. Revised 10/18/10, 4/16/12.
Diagnosis

It is important to rule out other causes of behavior changes before diagnosing bipolar disorder.

- Adjustment disorder
- Drug-induced including drug and/or alcohol misuse
- General medical condition (e.g., stroke, hypothyroidism, Cushing’s syndrome)
- Other psychiatric disorder (e.g., depression, ADHD)
- Traumas such as sexual, emotional and physical abuse if the patient exhibits disinhibition, hypervigilance or hypersexuality.
- Bipolar disorder should not be diagnosed solely on the basis of a depressive episode in an adolescent with a history of depression or a family history of bipolar disorder.
- Bipolar disorder should be distinguished from a mood disorder due to a general medical condition, substance-induced mood disorder, major depression, and ADHD.

The DSM-IV criteria used to diagnose adults may be used when diagnosing adolescents:

- A distinct period of abnormally and persistently elevated, expansive or irritable mood.
- During the period of mood disturbance, 3 or more of the following symptoms have persisted and have been present to a significant degree (if the mood is only irritable):
  1. inflated self-esteem or grandiosity
  2. decreased need for sleep
  3. more talkative than usual or pressure to keep talking
  4. flight of ideas or subjective experience that thoughts are racing
  5. distractibility
  6. increase in goal-directed activity
  7. excessive involvement in pleasurable activities that have a high potential for painful consequences.

DSM-IV criteria should be used when making a diagnosis of bipolar in children and adolescents. The diagnosis should be updated as necessary with use of appropriate episode specifiers (e.g., most recent episode manic, depressed, mixed, etc.) including severity psychotic/mania specifier (e.g., mild, moderate, severe with psychotic features, partial manic, full mania).

- Bipolar I Disorder - Characterized by one or more manic or mixed episodes, usually accompanied by major depressive episodes.
- Bipolar II Disorder - Characterized by one or more major depressive episodes accompanied by at least one hypomanic episode.
- Bipolar Disorder NOS (not otherwise specified) - Characterized by bipolar features that do not meet criteria for any of the specific bipolar disorders or bipolar symptoms where there is inadequate or contradictory information.

**Medication Selection**

Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, comorbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

**Lithium General Information**

Therapeutic effects of lithium are seen 10-14 days after a therapeutic level has been achieved. It may take up to 6 weeks to see full effects of a given dosage. Laboratory measures and serum lithium levels should be reassessed every six months during maintenance treatment. Levels should be drawn 5-10 days after a dosage change, with the addition or deletion of drugs that increase or decrease lithium renal clearance (e.g., ACE inhibitors, calcium channel blockers, diuretics, NSAIDs, SSRIs, theophylline) or if there is a change in renal function. The lithium serum level should be obtained immediately before the next dose and at least 12 hours after the last dose. A therapeutic serum level is 0.9 to 1.2 mEq/L.

**Common side effects**

- Sedation, thirst, urinary frequency
- Other side effects: hypothyroid, confusion, toxicity, acne, increased WBC’s

**Table 1: Frequency of Lithium Monitoring**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>Every 6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>EKG*</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBC, SCr, BUN, Electrolytes, TSH</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Initial Lithium levels</td>
<td>5-10 days after each dose change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance Lithium levels</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

*Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease.
**Divalproex General Information**

Divalproex should be started at a dose of 20 mg/kg/day or 1,000mg/day, whichever is smaller. At baseline, CBC, liver function tests, and platelet counts should be obtained. Dose may be titrated on a weekly basis until 12-hour post-dose serum concentrations reach 75 to 115 mg/mL. After therapeutic serum levels have been achieved, it may take as long as 4 weeks for the drug to achieve maximum effectiveness. Obtain levels 1-3 weeks following initiation, change in dose, addition of other CNS agents to the patient’s regimen, or observed signs/symptoms of toxicity. Then obtain every 6 – 12 months thereafter. Warning (1 in 500) for suicidal ideation.

**Common side effects**: sedation, weight gain, hair loss, tremor, bowel changes

**Rare side effects**: liver problems, decreased thyroid function, decreased platelets

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>1 month</th>
<th>2 months</th>
<th>Every 6 Months</th>
<th>Every 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC with differential</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>LFTs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Platelets</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial divalproex levels</td>
<td>1-3 weeks after each dose change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance divalproex levels</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Risperidone General Information**

Risperidone may be started at 1mg daily for most adolescents. The dose may be titrated every two weeks up to a maximum of 6mg daily. It may take as long as 6 weeks for the drug to achieve maximum effectiveness. It is important to monitor for symptoms of EPS, elevated prolactin and breast discharge. Weight, BMI, glucose, and lipids should also be monitored periodically.

Titrination schedule may vary based on tolerability and response, with some patients stabilizing on lower doses or requiring slower titration.

<table>
<thead>
<tr>
<th>Risperidone</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Dose</td>
<td>0.5-1 mg</td>
<td>1.5-2 mg</td>
<td>3-4 mg</td>
</tr>
<tr>
<td>Divide:</td>
<td>Single Dose or 0.5/0.5</td>
<td>Single Dose or 0.5-1</td>
<td>Single Dose or 1-2/2</td>
</tr>
</tbody>
</table>

**Common side effects**: drowsiness, increased appetite, fatigue, abdominal pain, heartburn, bowel changes, weight gain

**Rare side effects**: abnormal movements, gynecomastia, galactorrhea

---

**Table 2: Frequency of Divalproex Monitoring**

**Table 3: Risperidone Titration**
Table 4: Antipsychotic Monitoring Parameters

<table>
<thead>
<tr>
<th>Parameter Frequency</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>8 weeks</th>
<th>12 weeks</th>
<th>6 Months</th>
<th>Annually</th>
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<tbody>
<tr>
<td>Personal Family History</td>
<td>X</td>
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<tr>
<td>Weight-Height-BMI (overweight 25.0-29.9, obese &gt;= 30.0)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure; Pulse</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
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<tr>
<td>Fasting Lipid Profile</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>CBC, LFT, AST, Electrolytes</td>
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<td>AIMS</td>
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<td>X</td>
<td>X</td>
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<td>TSH</td>
<td>As clinically indicated</td>
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<tr>
<td>Prolactin2</td>
<td>As clinically indicated</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.

1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia

Lamotrigine General Information

Lamotrigine is a third line agent that may be used if a patient fails to respond to an adequate trial of formulary agents or combination therapy. Its use is reserved for patients that are treatment resistant and requires non-formulary approval for use.

The dose of lamotrigine must be titrated to minimize the risk of severe rash. Serious skin reactions are more likely to occur when starting therapy or following an interruption in therapy within the first 2 to 8 weeks of therapy. Children between the ages of 2 to 16 have a higher risk of experiencing serious skin reactions. If an interruption in therapy for a period of 2 to 8 weeks (5 half-lives) occurs, it is recommended that the dose be titrated again. Therapy should be discontinued at the first sign of rash unless the rash has been clearly identified as not drug-related.

Starting Dose:
- 25mg daily for 2 weeks, then 50mg daily for 2 weeks, then 100mg daily for 1 week, then up to 200mg daily.
- Co-administration with enzyme-inducing medications (e.g., carbamazepine, phenytoin, primidone) - 50mg once daily for 2 weeks, then 100mg once daily for 2 weeks, then up to 100mg twice daily. Higher doses may be used to achieve levels of 4-10 mcg/mL.
- Co-administration with enzyme-inhibiting medications (e.g., divalproex) - 25mg every other day for 2 weeks, then 25mg once daily for 2 weeks, then 50mg once daily for 1 week, then up to 100mg daily.

Serious side effects: Rash and Stevens Johnson Syndrome

Extreme caution: Extreme caution should be taken in combination with disulfiram by using one half the starting dose and monitoring levels.
Formulary agents – Practitioners may prescribe any agent on the formulary without restrictions based on patient assessment and clinical judgment.

Table 5: Formulary Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiseizure</td>
<td>Lithium carbonate</td>
<td>Eskalith®</td>
<td>Capsule</td>
<td>300mg, 300mg/30ml</td>
</tr>
<tr>
<td>Anticonvulsant</td>
<td>Depakene Sodium</td>
<td>Depakene®</td>
<td>TC Tablet</td>
<td>250mg, 500mg</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>Carbamazepine</td>
<td>Tegretol®</td>
<td>Tablet</td>
<td>200mg</td>
</tr>
<tr>
<td>Antipsychotic</td>
<td>Risperidone</td>
<td>Risperdal®</td>
<td>Tablet</td>
<td>0.5mg, 1mg, 2mg, 3mg, 4mg</td>
</tr>
</tbody>
</table>

Prior Authorization Agents – Prior authorization agents are medications that may be prescribed if specific clinical criteria are met. The prior authorization criteria must be met and included in the special instructions field of the order when the medication is entered in the EMR. All other uses require non-formulary approval.

Table 6: Prior Authorization Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
</table>
| Antipsychotic | Aripiprazole | Abilify® | Tablet | 2mg, 5mg, 10mg, 15mg, 20mg, 30mg | - Intolerant to formulary 2nd generation AP
- Treatment failure on formulary 2nd generation AP
- Contraindication to formulary 2nd generation AP BMI >90% |
| Antipsychotic | Ziprasidone | Geodon® | Capsule | 20mg, 40mg, 80mg | - Intolerant to formulary 2nd generation AP
- Treatment failure on formulary 2nd generation AP
- Contraindication to formulary 2nd generation AP BMI >90% |
**Drug: Lithium**

**Dose Range:** Initially 900–1200 mg daily in 1 to 3 divided doses.

**Target Level:** 0.9 – 1.2 mEq/L

**Signs & Symptoms of Toxicity (dose-related):**
- Apathy
- Coarsening hand tremor that spreads to other parts of body while patient sitting still
- Confusion
- Drowsiness
- Dysarthria
- GI symptoms (diarrhea, N & V, etc.)
- Giddiness

**Signs & Symptoms of Toxicity (NOT dose-related):**
- Arrhythmias
- Bradycardia
- Coma
- Convulsions
- Drowsiness
- Dysphagia
- GI symptoms (diarrhea, N & V, etc.)
- Giddiness

**Contraindications:**
- Hypersensitivity to lithium
- Severe cardiovascular or renal disease
- Severe debilitation
- Dehydration
- Sodium depletion
- Pregnancy Category D

**Toxicity Seen Starting At Trough Serum Levels of:**
- > 1 – 1.2 mmol/L

**Note:** A rise in white blood cell count is to be expected.

**Lithium toxicity can be FATAL**

**Acute:**
- Apnea
- Congestive heart failure
- Convulsions
- Diarrhea
- Dystonia
- Fatigue
- Hypertension
- Hypothermia
- Impaired consciousness
- Increased intracranial pressure
- Intracranial hemorrhage
- Lethargy
- Mental status change
- Nausea
- Nystagmus
- Prolonged QT interval
- Rhabdomyolysis
- Seizures
- Shock
- Vertigo
- Vomiting

**Severe Intoxication:**
- Arrhythmias
- Bradycardia
- Coma
- Convulsions
- Decreased urine output
- Dehydration
- Drowsiness
- Dysautonomia
- Hyperactivity
- Impaired consciousness
- Impaired psychomotor function
- Intoxication
- Lethargy
- Loss of appetite
- Motor weakness
- Nystagmus
- Paralysis
- Prolonged QT interval
- Respiratory depression
- Seizures
- Shock
- Syncope
- Tachycardia
- Tinnitus
- Vertigo

**Lamotrigine:**

**Dosing:**
- 25mg/day for 1 week
- 100mg/day for 1 week
- 150mg/day for 1 week
- 200mg/day for 1 week
- 300mg/day for 1 week
- 400mg/day for 1 week

**Contraindications:**
- Hypersensitivity to lamotrigine
- Blood dyscrasias
- Fever
- Lymphadenopathy
- Multi-organ dysfunction
- Pregnancy Category C
- Stevens-Johnson Syndrome
- Toxic epidermal necrolysis

**Signs & Symptoms of Toxicity:**
- Rash, maculopapular and erythematous
- Tourette’s syndrome

**Therapeutic plasma concentration has not been established.**

**Divalproex Sodium:**

**Dose Range:**
- 20mg/kg/day or 1,000mg/day given in divided doses up to 60mg/kg/day

**Target Level:**
- 75–115mg/mL

**Contraindications:**
- Hypersensitivity to valproate
- Hepatic dysfunction
- Urea cycle disorder
- Pregnancy Category D

**Signs & Symptoms of Toxicity (dose-related):**
- Somnolence
- Lethargy
- Mental status change
- Coma
- Hyperbilirubinemia
- Hepatotoxicity
- Heart block
- Vomiting
- Thrombocytopenia
- Prolongation of bleeding time
- Alopecia

**Signs & Symptoms of Toxicity (NOT dose-related):**
- Fever
- Lymphadenopathy
- Stomatitis
- Stevens-Johnson Syndrome
- Toxic epidermal necrolysis

**Stevens-Johnson Syndrome:**

**Lamotrigine:**

**Dosing:**
- 25mg/day for 1 week
- 100mg/day for 1 week
- 150mg/day for 1 week
- 200mg/day for 1 week
- 300mg/day for 1 week

**Contraindications:**
- Hypersensitivity to lamotrigine
- Pregnancy Category C

**Signs & Symptoms of Toxicity:**
- Rash, maculopapular and erythematous
- Tourette’s syndrome

**Therapeutic plasma concentration has not been established.**

**Lamotrigine:**

**Dosing:**
- 25mg/day for 1 week
- 100mg/day for 1 week
- 150mg/day for 1 week
- 200mg/day for 1 week
- 300mg/day for 1 week

**Contraindications:**
- Hypersensitivity to lamotrigine
- Pregnancy Category C

**Signs & Symptoms of Toxicity:**
- Rash, maculopapular and erythematous
- Tourette’s syndrome

**Therapeutic plasma concentration has not been established.**

**Lamotrigine:**

**Dosing:**
- 25mg/day for 1 week
- 100mg/day for 1 week
- 150mg/day for 1 week
- 200mg/day for 1 week
- 300mg/day for 1 week

**Contraindications:**
- Hypersensitivity to lamotrigine
- Pregnancy Category C

**Signs & Symptoms of Toxicity:**
- Rash, maculopapular and erythematous
- Tourette’s syndrome

**Therapeutic plasma concentration has not been established.**
Background:

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
Brief Psychiatric Rating Scale (BPRS)

Patient Name ______________________ Patient Number __________   Date_______________
Facility ______________ Practitioner _______________

Enter the score for the term that best describes the patient’s condition.

0 = Not assessed, 1 = Not present, 2 = Very mild, 3 = Mild, 4 = Moderate, 5 = Moderately severe, 6 = Severe, 7 = Extremely severe

Score

1. SOMATIC CONCERN - Preoccupation with physical health, fear of physical illness, hypochondriasis.
2. ANXIETY - Worry, fear, over-concern for present or future, uneasiness
3. EMOTIONAL WITHDRAWAL - Lack of spontaneous interaction, isolation deficiency in relating to others.
4. CONCEPTUAL DISORGANIZATION - Thought processes confused, disconnected, disorganized, disrupted.
5. IMPULSIVENESS
6. MOTOR HYPERACTIVITY - Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.
7. MANNERISMS AND POSTURING - Peculiar, bizarre, unnatural motor behavior (not including tic).
8. GRANDIOSITY - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
9. DEPRESSIVE MOOD - Sorrow, sadness, despondency, pessimism.
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14. UNCOOPERATIVENESS - Resistance, guardedness, rejection of authority.
15. UNUSUAL THOUGHT CONTENT - Unusual, odd, strange, bizarre thought content.
16. BLUNTED AFFECT - Reduced emotional tone, reduction in formal intensity of feelings, flatness.
17. EXCITEMENT - Heightened emotional tone, agitation, increased reactivity.
18. DISORIENTATION - Confusion or lack of proper association for person, place or time.
19. ELEVATED MOOD - A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.
20. SUICIDALITY - Expressed desire, intent, or actions to harm or kill self.
21. BIZARRE BEHAVIOR - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.
22. SELF-NEGLECT - Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.
23. DISTRACTIBILITY - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractions is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual’s attention may be drawn to noise in adjoining room, books on a shelf, interviewer’s clothing, etc.

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DEPRESSIVE DISORDERS (Adolescents)

1. Meets DSM-IV criteria for Major Depressive Disorder or severe Dysthymia

2. Psychotherapy should be the initial treatment of choice and should be continued throughout treatment even if drug therapy is started.

3. Initiate fluoxetine 10 – 60 mg/day.
   Continue for 4-6 weeks at a therapeutic dose.*
   Adequate response per BPRS
   Continue treatment

4. Assess compliance

5. Switch to alternative formulary SSRI citalopram 10 – 40mg/day or sertraline 50 – 200mg/day.
   Continue for 4-6 weeks at a therapeutic dose.*
   Adequate response per BPRS
   Continue treatment

6. Assess compliance

7. Switch to alternative formulary antidepressant with different mechanism of action, venlafaxine 37.5 – 225mg/day.
   Continue for 4-6 weeks at a therapeutic dose.*
   Adequate response per BPRS
   Continue treatment

8. Assess compliance

9. Switch to alternative non-formulary antidepressant, bupropion XL.
   Continue for 4-6 weeks at a therapeutic dose.*
   Adequate response per BPRS
   Continue treatment

10. Assess compliance

11. Begin combination therapy: SSRI or venlafaxine plus bupropion XL.
    Continue for 4-6 weeks at a therapeutic dose.*
    Adequate response per BPRS
    Continue treatment

12. Assess compliance

13. Consider alternative combination therapy: SSRI or venlafaxine plus lithium or lamotrigine.
    Continue for 4-6 weeks at a therapeutic dose.*
    Adequate response per BPRS
    Continue treatment

14. Assess compliance

15. Consider therapy with antidepressant with best response plus formulary atypical antipsychotic.
    Continue for 4-6 weeks at a therapeutic dose.*
    Adequate response per BPRS
    Continue treatment

16. Assess compliance

17. Reconsider diagnosis and consider psychopharmacology consultation.

*Antidepressant trial of adequate dose/duration is 4-6 weeks at FDA approved maximum dosage or maximum tolerated dose with a minimum of 80% adherence.
Medication Selection

Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

Suicidality in Children and Adolescents

Antidepressants increase the risk of suicidal thinking and behavior (suicidality) in children and adolescents with major depressive disorder (MDD) and other psychiatric disorders. Anyone considering the use of any antidepressant in a child or adolescent must balance this risk with the clinical need. Patients who are started on therapy should be observed closely for clinical worsening, suicidality, or unusual changes in behavior.

Bupropion General Information

The dosing strategy suggested for bupropion is 3mg/kg/day by the end of the first week and then titrated to 6mg/kg/day or 300mg/day by week 3, whichever is less. It may take as long as 4 weeks to observe maximum effectiveness with bupropion. Bupropion XL is recommended for convenience of use because it requires less frequent dosing.

Lithium General Information

Therapeutic effects of lithium are seen 10-14 days after a therapeutic level has been achieved. It may take up to 6 weeks to see full effects of a given dosage. Laboratory measures and serum lithium levels should be reassessed every six months during maintenance treatment. Levels should be drawn 5-10 days (or more often if clinically indicated) after a dosage change, with the addition or deletion of drugs that increase or decrease lithium renal clearance (e.g., ACE inhibitors, calcium channel blockers, diuretics, NSAIDs, SSRIs, theophylline) or if there is a change in renal function. The lithium serum level should be obtained immediately before the next dose and at least 12 hours after the last dose. A therapeutic serum level is 0.9 to 1.3 mEq/L.

Common side effects: sedation, thirst, urinary frequency
Other side effects: hypothyroid, confusion, toxicity, acne, increased WBC’s

Table 1: Frequency of Lithium Monitoring

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>Every 6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>EKG</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBC, SCr, BUN, Electrolytes, TSH</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Lithium levels</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease*
Lamotrigine General Information

Lamotrigine is a third line agent that may be used if a patient fails to respond to an adequate trial of two formulary SSRIs, venlafaxine, bupropion XL, and a combination of antidepressants. Its use is reserved for patients with treatment resistant depression and requires non-formulary approval for use.

The dose of lamotrigine must be titrated to minimize the risk of severe rash. Serious skin reactions are more likely to occur when starting therapy or following an interruption in therapy within the first 2 to 8 weeks of therapy. Children between the ages of 2 to 16 have a higher risk of experiencing serious skin reactions. If an interruption in therapy for a period of ≤ 5 days (5 half-lives) occurs, it is recommended that the dose be titrated again. Therapy should be discontinued at the first sign of rash unless the rash has been clearly identified as not drug-related.

Starting Dose:
• 25mg daily for 2 weeks, then 50mg daily for 2 weeks, then 100mg daily for 1 week, then up to 200mg daily.
• Co-administration with enzyme-inducing medications (e.g., carbamazepine, phenytoin, primidon) - 50mg once daily for 2 weeks, then 100mg once daily for 2 weeks, then up to 100mg twice daily. Higher doses may be used to achieve levels of 4-18 mcg/mL.
• Co-administration with enzyme-inhibiting medications (e.g., divalproex) – 25mg every other day for 2 weeks, then 25mg once daily for 2 weeks, then 50mg once daily for 1 week, then up to 100mg daily.

Serious side effects: Rash and Stevens Johnson Syndrome

Extreme caution: Extreme caution should be taken in combination with Valproate by using one half the starting dose and monitoring levels.

Formulary agents – Practitioners may prescribe any agent on the formulary without restrictions based on patient assessment and clinical judgment.

Table 2: Formulary Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>Tablet</td>
<td>10mg, 20mg, 40mg</td>
</tr>
<tr>
<td></td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>Capsule</td>
<td>10mg, 20mg</td>
</tr>
<tr>
<td></td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>Tablet</td>
<td>50mg, 100mg</td>
</tr>
<tr>
<td>Serotonin/Norepinephrine Reuptake Inhibitor (SNRI)</td>
<td>Venlafaxine</td>
<td>Effexor®</td>
<td>Tablet</td>
<td>37.5mg, 75mg</td>
</tr>
<tr>
<td>Other*</td>
<td>Trazodone</td>
<td>Desyrel®</td>
<td>Tablet</td>
<td>50mg, 100mg</td>
</tr>
</tbody>
</table>

*Not recommended as first line or second line therapy for treatment of depression in children or adolescents
Table 3: Metabolic and Endocrine Monitoring Guidelines for Antipsychotic Agents in Children and Adolescents

<table>
<thead>
<tr>
<th>Parameter &amp; Frequency</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>8 weeks</th>
<th>12 weeks</th>
<th>6 Months</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Family History</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Weight, Height, BMI</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Overweight (25.0-29.9; obese &gt;= 30.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Pressure, Pulse</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>CBC, LFT, SCr, Electrolytes</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>EKG1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>Prolactin2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.

1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia.

Table 4: Adverse Effect Monitoring

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS (Abnormal Involuntary Movement Scale)</td>
<td>X</td>
<td>Baseline, at 3 months, then annually</td>
</tr>
</tbody>
</table>
Background:

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

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<td>12. HALLUCINATORY BEHAVIOR</td>
<td>Perceptions without normal external stimulus correspondence.</td>
</tr>
<tr>
<td>13. MOTOR RETARDATION</td>
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TYPE 1 DIABETES MELLITUS
(Children & Adolescents)

Institute Lifestyle Modifications & Group/Individual Education with Specific Patient Goals

1. Initiate baseline labs: Chem 10, fasting plasma glucose, A1C, UA, TSH. Consider screening for thyroid disease, vitamin B12 deficiency and celiac disease based on clinical symptoms.

2. Obtain fasting lipid profile at baseline after glycemic control achieved if 
   a. ≥ 10 years:
      • If normal (LDL <100mg/dl), repeat every 5 years.
      • If abnormal, initiate lifestyle modifications for 4 months. If goal LDL <100mg/dl is not met after 6 months, start statin therapy (pravastatin 10 to 80mg QD) if:
        • LDL ≥130mg/dl and patient has at least 1 cardiovascular risk factor.
        • LDL ≥160mg/dl and patient has no cardiovascular risk factors.
      Recheck lipid panel every 3 months until patient reaches goal (LDL <100mg/dl). Once at goal, recheck lipid profile annually.
   b. < 10 years only if family history is positive for cardiovascular disease: If normal (LDL <100mg/dl), repeat every 5 years. If abnormal, recheck annually. Statins not recommended in children < 10 years of age.

3. Determine if blood pressure at goal < 90th percentile for age, sex, and height. ACE inhibitor (enalapril 2.5 mg QD) preferred for initial treatment of hypertension in non-compliant patients (Refer to Table 8 for ACEI contraindications). Refer to Hypertension disease management guidelines for children & adolescents.

4. Start low dose ACE inhibitor* if microalbuminuria present (Enalapril 2.5mg QD) and obtain creatinine and estimate GFR annually.

5. Institute lifestyle modifications (i.e., exercise, diet, smoking cessation and weight loss) (BMI) <95th percentile.

6. Administer annual influenza vaccine. If pneumococcal vaccine was not previously given in their lifetime, administer one time on ly.

7. Refer to Dental for oral/periodontal disease evaluation within 30 days from the initial chronic care visit if not completed at intake.

8. Refer for dilated eye exam evaluation if patient ≥ 10 years of age and has had diabetes for at least 3-5 years.

Type 1 Diabetes Care Plan

1. Begin multiple daily subcutaneous insulin injections. Dose insulin 0.5 units/kg/day. Use NPH insulin for basal insulin requirements, which should be 35% of total daily dose (TDD) of insulin. Administer 2/3 of the NPH dose in the morning and 1/3 in the evening. Remaining 65% of TDD is administered as regular insulin divided before meals (See Table 9).

2. Obtain fasting finger sticks 3 times a day before meals and at bedtime for 2 weeks.

3. Follow up in 2 weeks.

4. Reevaluate compliance with medications, exercise and diet.
   • Adjust regular and NPH doses by 10% of TDD until AM and PM finger sticks (FS) are at goal.
   • Maintain for hypoglycemia (Table 10).

5. Follow up every 2 weeks until FS at goal (Table 8).

6. If patient experiencing hypoglycemia (>5mg/dl) or if patient is not measuring regularly:
   • Obtain fasting finger sticks daily and return to clinic every month until euglycemic.
   • Once euglycemic, obtain fasting finger sticks weekly, A1C every 3 months and return to clinic every 3 months.
   • Obtain Chem 10, UA, eye and foot exam annually and TSH every 2 years.
   • Check for microalbuminuria using a random spot urine sample annually. If A1C not at goal, go to box #4.

7. If A1C not at goal, go to box #4.

8. Adjust insulin dosage to prevent hypoglycemia
   • Consider referral to specialist.

9. Reevaluate compliance with medications, exercise and diet.
   • Reevaluate at each visit.
   • Consider referral to specialist.

10. Obtain fasting finger sticks daily and return to clinic every month until euglycemic.
   • Change insulin if necessary (See Table 10).

11. Check A1C every 3 months, hA1C at goal.

12. Reevaluate compliance with medications, exercise and diet.

13. Consider referral to specialist.

Table 8: Chronic Care Goals

<table>
<thead>
<tr>
<th>Age</th>
<th>Insulin</th>
<th>Finger Over Night</th>
<th>Metformin</th>
<th>LipoL</th>
<th>Statin</th>
<th>A1C</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12 yrs</td>
<td>0B-100</td>
<td>100-150</td>
<td>0B-90</td>
<td>0B-150</td>
<td>0B-80</td>
<td>0B-80</td>
<td>Consider Action</td>
</tr>
<tr>
<td>13-19 yrs</td>
<td>0B-100</td>
<td>100-150</td>
<td>0B-90</td>
<td>0B-150</td>
<td>0B-80</td>
<td>0B-80</td>
<td>Consider Action</td>
</tr>
</tbody>
</table>

Prepared by The Correctional Managed Care Pharmacy & Therapeutics Committee. November 2006, Revised 11/11 and 4/11

*Equivalent to ACE-inhibitor, obtain microalbumin yearly. If microalbumin > 30, consider nondihydropyridine CCB (verapamil or diltiazem)
TYPE 2 DIABETES MELLITUS (Children & Adolescents)

Institute Lifestyle Modifications & Group/Individual Education with Specific Patient Goals
1. Obtain fasting lipid profile at baseline after glycemic control achieved if
   a. ≥10 yrs
      • FPG < 100mg/dl or A1c < 5.7%
         - If normal (LDL < 100mg/dl), repeat every 5 yrs.
         - If abnormal, recheck annually. Institute lifestyle modifications for 6 mos.
   b. < 10 yrs only if family history is positive for cardiovascular disease
      • FPG < 100mg/dl or A1c < 5.7%
         - Recheck lipid panel every 12 months until patient reaches goal (LDL < 100mg/dl).

2. Obtain fasting plasma glucose, A1c, SG, and TSH.

3. Determine if blood pressure is ≥ 10th percentile for age, sex, and height.
   Veterinary ACE inhibitor (enalapril 2.5 mg QD) preferred if no contraindications (see Table 8).
   Refer to Hypertension disease management guidelines for children & adolescents.

4. Institute lifestyle modifications for 6 months. If goal LDL of <100mg/dl is not met after 6 months, start statin therapy (see Table 8).

5. Start metformin 500mg daily if no contraindications (see Table 8). Titrate up to a 1500mg/day in 500mg increments over 2-4 weeks. Maximum dose is 2500mg/day.


7. Refer to Ophthalmology for a dilated eye exam.

8. Recheck A1c in 3 months. Is A1c at goal?
   a. Yes
      - Continue current therapy. Follow up in clinic in 3 months.
      - Recheck A1c every 6 months.
      - Recheck Chem10, UA, eye and foot exam annually.
      - Check for microalbuminuria by using a random spot urine sample annually.
   b. No
      - Reevaluate compliance to medications, diet and exercise plan.
      - Add glipizide if no contraindications (Table 8). Starting dose is 5mg qd. Titrate as needed up to 20mg bid in 5mg increments over 2-4 weeks.
      - Check AM and PM finger stick FBG response for 2 weeks.
      - Monitor for hypoglycemia (Table 10).

9. Recheck A1c in 3 months. Is A1c at goal?
   a. Yes
      - Go to box #7
   b. No
      - Go to box #15

10. If fasting plasma glucose ≥ 200mg/dl, fasting plasma glucose (FPG) ≥ 126 mg/dl or A1c ≥ 6.5% on 2 occasions:
    a. Yes
       - Go to box #15
    b. No
       - Go to box #7

Diabetes Page 2

IF FPG 100 to 125 mg/dl or A1c 5.7-6.4%
(I increased risk for Diabetes – see Table 3)
• Counsel on exercise, diet, and weight loss
• Provide diabetes education
• Treat HTN and hyperlipidemia
• Check FPG
• Check for microalbuminuria

11. Table 1: Glycemic Control Goals

<table>
<thead>
<tr>
<th>Age</th>
<th>Prediabetes/BMI</th>
<th>A1c</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12y</td>
<td>&lt;90-150</td>
<td>&lt;6%</td>
<td>Glucose &lt; 90 or &gt; 150 and A1c &lt;6%</td>
</tr>
<tr>
<td>12-19y</td>
<td>&lt;90-150</td>
<td>&lt;7.5%</td>
<td>Glucose &gt; 150 and A1c &lt; 8%</td>
</tr>
</tbody>
</table>

Note: The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.
Continued from box #14

Are PM FS at goal?

Yes

Recheck A1C in 3 months. Is A1C at goal?

Yes

Go to box #7

No

19

Recheck A1C in 3 months. Is A1C at goal?

Yes

Go to box #7

18

No

17

Recheck A1C in 3 months. Is A1C at goal?

Yes

Go to box #7

16

Are PM FS at goal?

No

15

Yes

14

Prepared by The Correctional Managed Care Pharmacy and Therapeutics Committee, November 2006. Revised 11/07 and 4/11.

Diabetes Page 3
I. Classification
A. Type 1 diabetes: Diabetes that results in ß-cell destruction that usually leads to an absolute deficiency in insulin.
B. Type 2 diabetes: Diabetes that results in a progressive insulin secretory defect with the background of insulin resistance.

II. Screening for type 1 diabetes
A. Type 1 diabetes presents with acute symptoms and markedly elevated blood sugar levels. Most cases identified after the onset of hyperglycemia.
B. Screening is recommended for children and adolescents who are at increased risk for developing type 1 diabetes. Measurement of islet autoantibodies is suggested in individuals with:
   1. Prior transient hyperglycemia
   2. Patient has a relative with type 1 diabetes

III. Screening for type 2 diabetes
A. Screening is only recommended for children and adolescents that are at increased risk for type 2 diabetes – refer to Table 2.
B. Screening should begin at age 10 or at onset of puberty if puberty occurs at a younger age
C. Screen for diabetes every 2 years

IV. Categories of Increased Risk for Diabetes (Pre-diabetes)
A. Some individuals may not meet the criteria for diabetes, but have values that are too high to be considered normal. These individuals have a relatively high risk for the future development of diabetes.
B. This group is defined as having impaired fasting glucose (IFG) levels of 100mg/dl or impaired glucose tolerance (IGT/ 2-h OGTT) values of 140 – 199 mg/dl (see Table 3). IFG and IGT are risk factors for diabetes and for cardiovascular disease (CVD).
C. Individuals with a hemoglobin A1c of 5.7 – 6.4% are considered to be at increased risk for diabetes and CVD.
   1. Counsel patients about strategies to lower their risk such as weight loss of 5-10% of body weight and an increase in physical activity of at least 150 min/week of moderate activity such as walking.
   2. Interventions and follow-up should be the most intensive for very high-risk individuals with an AIC > 6.0%.
      a) In addition to lifestyle counseling, metformin may be considered for very high risk individuals that have a combined IFG and IGT plus other risk factors.
      b) Additional risk factors: hypertension, low HDL <35mg/dl, elevated triglycerides, family history in first-degree relative, obesity, and under 60 years of age
   3. Monitoring of pre-diabetes patients should be performed every year.
   4. Like glucose measurements, the continuum of risk is curvilinear, so that as AIC rises, the risk of diabetes rises disproportionately. See Table 11 for association of AIC and average glucose.

---

Table 2: Screening Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>BMI &gt; 85th percentile for age and sex, &gt; 85th percentile weight for height, or weight &gt; 120% of ideal for height</td>
</tr>
</tbody>
</table>
| Plus any two of the following risk factors | • Family history of type 2 diabetes in first or second-degree relative  
• Race/ethnicity – Native American, African American, Latino, Asian-American, Pacific Islander  
• Signs of insulin resistance or conditions associated with insulin resistance (e.g., acanthosis nigricans, hypertension, dyslipidemia, polycystic ovarian syndrome)  
• Maternal history of diabetes or gestational diabetes |

---
Criteria Findings
Symptoms of diabetes Symptoms of diabetes and plasma glucose $\geq 200\text{mg/dl}$
Fasting plasma glucose (FPG) $\geq 126\text{mg/dl}$ with no caloric intake within last 8 hours
Oral glucose tolerance test (OGTT) 2-hr plasma glucose $\geq 200\text{mg/dl}$ during OGTT.
Hemoglobin A1C $\geq 6.5\%$

V. Diagnosis
A. Most children with type 1 diabetes present with a short duration of symptoms (several weeks) such as polyuria, polydipsia, polyphagia, weight loss, hyperglycemia, glycosuria, ketonuria, and/or ketonemia.
B. Most children with type 2 diabetes are overweight or obese and present with glycosuria without ketonuria, absent or mild polyuria and polydipsia, and little or no weight loss. They are usually diagnosed after the age of 10 and in middle to late puberty with a family history of diabetes. Acanthosis nigricans and polycystic ovarian syndrome are common.
C. Diagnostic criteria (Table 4)
1. If the patient is asymptomatic and if random plasma glucose is $\geq 200\text{mg/dl}$, FPG is $\geq 126\text{mg/dl}$, or 2-hr plasma glucose $\geq 200\text{mg/dl}$, results should be confirmed with a second test on a different day for confirmation.
2. If the patient is symptomatic and random plasma glucose is $\geq 200\text{mg/dl}$, diagnosis does not require a repeat value on another day.
3. A1C $\geq 6.5\%$. Confirmation by repeat testing preferred. A1C may not be an effective test in special patient populations with affected hemoglobin disorders.

VI. Evaluation
A. Medical history
1. Age and characteristics of diabetes onset (e.g. DKA, asymptomatic lab findings)
2. Symptoms of diabetes
3. Recent or current infection or illnesses
4. Growth records & weight history
5. Eating, diet, and exercise patterns
6. Family history of diabetes
7. Risk factors for atherosclerosis such as smoking, hypertension, obesity, dyslipidemia, and family history
8. Previous management of diabetes
9. Previous episodes of ketoacidosis and hypoglycemia
10. Previous testing or treatment of chronic diabetes complications
11. Medications that may affect glucose levels (e.g. atypical antipsychotics, steroids)
12. Social history - alcohol, tobacco, and recreational drug use
13. Review of systems should include gastrointestinal function (including symptoms of celiac disease) and symptoms of other endocrine disorders such as hypothyroidism and Addison’s disease

Table 3: Categories of Increased Risk for Diabetes

<table>
<thead>
<tr>
<th>FPG</th>
<th>100 – 125mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-hr plasma glucose on the 75g OGTT</td>
<td>140-199mg/dl</td>
</tr>
<tr>
<td>A1c</td>
<td>$5.7-6.4%$</td>
</tr>
</tbody>
</table>

Table 4: Diagnostic Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms of diabetes</td>
<td>Symptoms of diabetes and plasma glucose $\geq 200\text{mg/dl}$</td>
</tr>
<tr>
<td>Fasting plasma glucose (FPG)</td>
<td>FPG $\geq 126\text{mg/dl}$ with no caloric intake within last 8 hours</td>
</tr>
<tr>
<td>Oral glucose tolerance test (OGTT) 2-hr plasma glucose</td>
<td>2-hr plasma glucose $\geq 200\text{mg/dl}$ during OGTT.</td>
</tr>
<tr>
<td>Hemoglobin A1C</td>
<td>A1C $\geq 6.5%$</td>
</tr>
</tbody>
</table>
B. Physical examination
1. Height, weight, and BMI calculations in comparison to age and sex-specific norms
2. Sexual maturation staging during prepubertal period
3. Blood pressure in comparison to age and sex-specific norms
4. Dilated fundoscopic and comprehensive eye examination
5. Oral examination
6. Thyroid palpation
7. Cardiac examination
8. Abdominal examination
9. Evaluation of pulses
10. Hand examination & foot examination – educational opportunity on basic foot care
11. Skin examination for acanthosis nigricans and insulin injection sites
12. Neurological examination.

C. Laboratory tests – refer to table 5 for frequency of monitoring.

<table>
<thead>
<tr>
<th>Test</th>
<th>Frequency of Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting plasma glucose</td>
<td>• Baseline</td>
</tr>
<tr>
<td></td>
<td>• As clinically indicated to monitor/adjust medications</td>
</tr>
<tr>
<td>A1C*</td>
<td>• Baseline</td>
</tr>
<tr>
<td></td>
<td>• Every 6 months if stable and meeting treatment goals</td>
</tr>
<tr>
<td></td>
<td>• Every 3 months if not meeting treatment goals</td>
</tr>
<tr>
<td>Fasting lipid profile</td>
<td>• At baseline, after glycemic control is achieved</td>
</tr>
<tr>
<td></td>
<td>• Type 1 diabetes</td>
</tr>
<tr>
<td></td>
<td>o ≥ 10 years: repeat every 5 years if initial screen is normal (LDL &lt; 100mg/dl)</td>
</tr>
<tr>
<td></td>
<td>o If abnormal, initiate lifestyle modifications for 6 months. If goal LDL of &lt;100mg/dl is not met after 6 months, restart statin therapy (pravastatin 10 mg)</td>
</tr>
<tr>
<td></td>
<td>• LDL ≥150mg/dl and patient has 0 cardiovascular risk factors</td>
</tr>
<tr>
<td></td>
<td>• LDL ≥150mg/dl and patient has 1 cardiovascular risk factor</td>
</tr>
<tr>
<td></td>
<td>• Recheck lipid panel every 3 months until patient reaches goal (LDL &lt;100mg/dl)</td>
</tr>
<tr>
<td></td>
<td>• Once at goal, recheck lipid panel annually</td>
</tr>
<tr>
<td></td>
<td>o &lt; 10 years: Only begin ≥2 yo and has positive family history (FH) of hypercholesterolemia (TC &gt; 240 mg/dl), family CV event before age 55, or if family history unknown. If FH is not a concern, first lipid screening at puberty (&lt; 10 years). Repeat every 5 years if initial screen is normal. If abnormal, annual monitoring. Statins not recommended in children &lt; 10 years of age.</td>
</tr>
<tr>
<td>TSH</td>
<td>Baseline (every 2 years in type 1 diabetes). Measure Free T4 if TSH abnormal.</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>Baseline &amp; annual to screen or as clinically indicated.</td>
</tr>
<tr>
<td>Random spot urine sample</td>
<td>Baseline &amp; annual to screen for microalbuminuria. Screening should be initiated once the child is 10 years of age and has had diabetes for 5 years.</td>
</tr>
<tr>
<td>CHEM 10 (i.e. creatinine)</td>
<td>Baseline &amp; annual or as clinically indicated.</td>
</tr>
</tbody>
</table>

Table 5: Laboratory Monitoring

*Specific A1c tests may not be recommended in special populations such as patients with hemoglobinopathy, abnormal red cell turnover (including pregnancy), anemia, hemolysis and/or iron deficiency.
F. Type 1 diabetes

1. All patients should be encouraged to begin lifestyle modifications.
   a) Diet including the importance of consistent food intake
   b) Exercise
   c) Decreasing time spent in sedentary activities (e.g., watching television)
   d) Weight loss if overweight
   e) Smoking cessation counseling

2. Celiac disease screening
   a) Recommended soon after diagnosis of diabetes if clinically indicated by measuring tissue transglutaminase or antiendomysial antibodies, with documentation of normal serum IgA levels.
   b) Repeat testing if growth failure occurs, failure to gain weight, weight loss, or gastrointestinal symptoms occur.
   c) Gastroenterology consult should be considered in children with positive antibodies.
   d) Patients with confirmed celiac disease should be placed on a gluten-free diet.

3. Insulin
   a) Initial dose 0.5 units/kg/day for total daily dose (TDD). Designate 50% of the TDD to NPH insulin. Two thirds of the NPH dose should be administered in the am before breakfast and 1/3 of the NPH dose should be administered in the pm before dinner. The remaining 50% of the TDD is for Regular insulin. Divide Regular insulin between the three meals as required by the patient.

   Example:
   Patient: 40 kg x 0.5 u/kg/day = 20 total units for TDD
   NPH insulin: 10 units ⇒ 7 units QAM, 3 units QPM
   Reg insulin: 10 units ⇒ 3 units TID (May adjust depending on specific patient)
   b) May need to initiate regular sliding scale as a temporary measure to stabilize blood glucose and to establish dose of regular insulin (refer to Table 12).
   c) Regimen usually consists of a short-acting insulin (Regular) and intermediate-acting insulin (NPH) (refer to Table 9 for pharmacokinetics of insulin).
   d) Honeymoon phase – May occur within weeks of diagnosis and lasting up to several months. It is a period when insulin requirements may fall to 0.1-0.3 units/kg/day and the patient is at increased risk for hypoglycemic episodes. As the honeymoon phase ends, insulin requirements gradually increase over several months.
   e) Prepubertal children generally require between 0.5 to 0.8 units/kg/day.
   f) During puberty, insulin requirements generally increase due to increased caloric intake, growth spurts, and hormone changes. Insulin requirements may be as high as 1.5 units/kg/day.
   g) After puberty, insulin requirements generally decrease to less than 1 unit/kg/day.
G. Type 2 diabetes

1. All patients should be encouraged to begin lifestyle modifications.
   a) Diet including the importance of consistent food intake
   b) Exercise
   c) Decreasing time spent in sedentary activities (e.g., watching television)
   d) Weight loss if overweight
   e) Smoking cessation counseling

2. Symptomatic patients:
   a) Patients with more serious symptoms such as dehydration, ketosis, and acidosis may require insulin for initial treatment. Tapering of insulin and introduction of oral agents can be attempted once symptoms resolve and glycemic control improves.
   b) Patients with less severe symptoms may be treated with oral therapy.

3. Asymptomatic patients: Patients can be given an initial trial of lifestyle modification. If glycemic control is not achieved, therapy with oral agents should be started.
   a) Metformin – Good choice as first line therapy since it does not generally cause hypoglycemia and weight gain.
   b) Routine use of thiazolidinediones (e.g., rosiglitazone, pioglitazone) is not recommended in children.
   c) Insulin is usually preferred during pregnancy.
### Drug Dose Comments

**Metformin** 500mg qd-bid
- Max 2500mg/day
- Contraindications: Impaired renal function, radiographic media, hypoxemic conditions, hepatic disease, malabsorption, hypersensitivity to metformin
- Pregnancy category B

**Glipizide** 5mg qd
- Max 20mg bid
- Contraindications: Diabetic ketoadidosis, hypersensitivity to glipizide
- Pregnancy category C

**Insulin** 0.5 to 1 units/kg/day
- Contraindication: Hyperinsulinemia to insulin
- Insulin requirements may decrease in newly diagnosed patients during the honeymoon phase
- Insulin requirements may increase during puberty to as much as 1.5 units/kg/day
- Pregnancy category B

**Enalapril** 2.5mg qd
- Max 40mg/day
- Contraindications: ACE-inhibitor induced angioedema, hereditary or idiopathic angioedema, pregnancy, hypersensitivity to enalapril or other ACE inhibitors
- Pregnancy category D

**Pravastatin** Max 80mg/day
- 10-13 years – 20mg/day
- 14-18 years – 40mg/day
- Contraindications: Active liver disease, unexplained persistent elevations of serum transaminases, pregnancy, hypersensitivity to statins or any component of the formulation
- Pregnancy category X

### Table 8: Antidiabetic Agents

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>500mg qd-bid Max 2500mg/day</td>
<td>Contraindications: Impaired renal function, radiographic media, hypoxemic conditions, hepatic disease, malabsorption, hypersensitivity to metformin, Pregnancy category B</td>
</tr>
<tr>
<td>Glipizide</td>
<td>5mg qd Max 20mg bid</td>
<td>Contraindications: Diabetic ketoacidosis, hypersensitivity to glipizide, Pregnancy category C</td>
</tr>
<tr>
<td>Insulin</td>
<td>0.5 to 1 units/kg/day</td>
<td>Contraindication: Hyperinsulinemia to insulin, Insulin requirements may decrease in newly diagnosed patients during the honeymoon phase, Insulin requirements may increase during puberty to as much as 1.5 units/kg/day, Pregnancy category B</td>
</tr>
<tr>
<td>Enalapril</td>
<td>2.5mg qd Max 40mg/day</td>
<td>Contraindications: ACE-inhibitor induced angioedema, hereditary or idiopathic angioedema, pregnancy, hypersensitivity to enalapril or other ACE inhibitors, Pregnancy category D</td>
</tr>
<tr>
<td>Pravastatin</td>
<td>Max 80mg/day 10-13 years – 20mg/day 14-18 years – 40mg/day</td>
<td>Contraindications: Active liver disease, unexplained persistent elevations of serum transaminases, pregnancy, hypersensitivity to statins or any component of the formulation, Pregnancy category X</td>
</tr>
</tbody>
</table>

### Table 9: Pharmacokinetics of Insulin

<table>
<thead>
<tr>
<th>Insulin Type</th>
<th>Onset of Action</th>
<th>Peak Action</th>
<th>Effective Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Insulin</td>
<td>30 to 60 min</td>
<td>2 to 3 hours</td>
<td>8 to 10 hours</td>
</tr>
<tr>
<td>NPH Insulin</td>
<td>2 to 4 hours</td>
<td>4 to 10 hours</td>
<td>12 to 18 hours</td>
</tr>
<tr>
<td>70/30 Insulin</td>
<td>30 to 60 min</td>
<td>3 to 12 hours</td>
<td>8 to 18 hours</td>
</tr>
</tbody>
</table>

*The pharmacokinetics of insulin preparations may be used to determine which insulin to adjust when a patient is experiencing symptoms of low or high blood glucose.

Examples:
1. If patient is symptomatic of hypoglycemia around 9am and he or she injected NPH and Regular insulin at 4am, most likely it is the NPH that needs to be adjusted as it is peaking 5 hours after injection.
2. If patient is symptomatic of hyperglycemia after dinner, the Regular insulin will need to be adjusted as its onset of action is faster than the NPH.

### Table 10: Hypoglycemia Management

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose 15-20g</td>
<td>Preferred treatment for conscious individual with hypoglycemia, but any form of carbohydrate may be used. If blood sugar 15 mins after treatment shows continued hypoglycemia, repeat treatment. Once blood sugar normal, have the individual consume a meal or snack to prevent recurrence.</td>
</tr>
<tr>
<td>Glucagon</td>
<td>Treat individual at significant risk of severe hypoglycemia</td>
</tr>
<tr>
<td>Hypoglycemia Unawareness</td>
<td>Individuals who are unaware of hypoglycemia and suffer from one or more episodes of severe hypoglycemia should have their glycemic targets raised for at least several weeks.</td>
</tr>
</tbody>
</table>
Table 11: Correlation of A1C with average glucose

<table>
<thead>
<tr>
<th>A1C (%)</th>
<th>Mean plasma glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mg/dL</td>
</tr>
<tr>
<td>6</td>
<td>126</td>
</tr>
<tr>
<td>7</td>
<td>154</td>
</tr>
<tr>
<td>8</td>
<td>183</td>
</tr>
<tr>
<td>9</td>
<td>212</td>
</tr>
<tr>
<td>10</td>
<td>240</td>
</tr>
<tr>
<td>11</td>
<td>269</td>
</tr>
<tr>
<td>12</td>
<td>298</td>
</tr>
</tbody>
</table>

Table 12: Sample Regular Insulin Sliding Scale

<table>
<thead>
<tr>
<th>Blood glucose range (mg/dl)</th>
<th>Units of regular insulin to be administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-200</td>
<td>2</td>
</tr>
<tr>
<td>201-250</td>
<td>4</td>
</tr>
<tr>
<td>251-300</td>
<td>6</td>
</tr>
<tr>
<td>301-350</td>
<td>8</td>
</tr>
<tr>
<td>351-400</td>
<td>10</td>
</tr>
<tr>
<td>401-451</td>
<td>12</td>
</tr>
<tr>
<td>&gt;500</td>
<td>Check for ketones. Contact unit provider.</td>
</tr>
</tbody>
</table>
EDUCATION FOR PATIENTS AND PRACTITIONERS

I. Who is educated?
A. The Unit Team - updated on diabetes so accurate and easy to understand information is provided to patients.
B. All diabetic patients

II. Who educates?
A. The Unit Team will delegate educational responsibility
   1. Educator must document date and time of education in the patient’s medical record.
   2. Physician and mid-level providers have final responsibility to ensure education occurs (if not documented on chart as completed by some other designated education provider, must provide diabetes education at clinic visit).
   3. Units with available dieticians will provide counseling on diet and how to choose the correct foods from the meal line, otherwise, diet counseling will be completed by the diabetes educator.

III. When does education take place?
A. Within the patient’s first week of stay on unit assignment OR at the initial visit to clinic, whichever is sooner.
B. Education will be reinforced at each clinic visit.

IV. What is included in diabetes education? (to include health services personnel and diabetic patients)
A. Pathophysiology of Type 1 versus Type 2 diabetes
B. Non-pharmacologic treatment plan & importance of lifestyle modifications
   Physical activity:
   1. Recommend at least 150 min/week of moderate-intensity aerobic physical activity (50-70% of maximum heart rate)
   2. In the absence of contraindications, people with type 2 diabetes should be encouraged to perform resistance training three times per week.
C. Signs, symptoms, and treatment for acute and chronic complications (i.e. hypoglycemia, hyperglycemia, and DKA if type 1)
D. Monitoring parameters – frequency and importance
E. Complications of diabetes (i.e. retinopathy, neuropathy, nephropathy, cardiovascular, cerebrovascular, and peripheral vascular disease)
F. Proper techniques of administering insulin for all patients on insulin (i.e. proper self-administration, insulin preparation, mixing, and administration sites)
G. Patient self-monitoring to include feet, skin, and wound care
   Foot/skin care tips:
   1. Watch for pain, numbness, and/or wounds that will not heal.
   2. Keep skin supple by drinking plenty of water. Never put lotion or moisturizers between the toes.
   3. Wash feet daily with lukewarm water and soap.
   4. Dry feet well, especially between the toes.
   5. Check feet daily (including bottoms and between toes) for sores, redness, and swelling.
   6. Change into clean socks daily.
   7. Keep feet warm and dry.
   8. Never walk barefoot.
   10. Examine shoes daily for things that could hurt your feet such as rocks or debris.
H. Dental hygiene to include daily brushing in the morning and evening and flossing once daily.
I. Dietary Modifications (i.e. control of carbohydrate intake)
EXPLOSIVE/REACTIVE AGGRESSION
(Adolescents)

Prominent reactive, impulsive aggression during explosive outbursts not better accounted for by Bipolar Disorder, depression, psychosis, ADHD, or ODD. May meet DSM-IV criteria for Conduct Disorder, Intermittent Explosive Disorder or Impulse Control Disorder NOS. Individuals often display low frustration tolerance, <3 second impulse control, poor coping skills, lack of regard for consequences, and little awareness of behavior until arousal abates. May have history of developmental disorders, low cognitive functioning, exposure to neurotoxic substances (or other CNS insults) or display subtle congenital anomalies.

1. Treat co-morbid ADHD, affective disorders or psychosis if present.
2. Psychotherapy should be the initial treatment of choice and should be continued throughout treatment even if drug therapy is started.
3. Initiate monotherapy with formulary atypical antipsychotic risperidone and continue for 4-6 weeks at a therapeutic dose.
4. Initiate monotherapy with alternative formulary antipsychotic not tried above (aripiprazole or ziprasidone) and continue for 4-6 weeks at a therapeutic dose.
5. Initiate adjunctive therapy with mood stabilizer lithium or divalproex and continue for 4-6 weeks at therapeutic doses.
6. Consider alternative agents (e.g., propranolol, SSRI) and/or psychopharmacology consultation.

Prepared By The Texas Juvenile Justice Department and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. October 2001, revised 5/12/02, 2/25/04, 3/1/06, 1/30/12.
## Table 1: Metabolic and Endocrine Monitoring Guidelines for Antipsychotic Agents in Children and Adolescents

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>8 weeks</th>
<th>12 weeks</th>
<th>6 Months</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Family History</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Weight-Height-BMI (overweight 25.0-29.9; obese &gt;= 30.0)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure, Pulse</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBC, LFT, SCr, Electrolytes</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>EKG&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>Prolactin&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.

1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia.

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Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.
### Table 2: Outcomes and Adverse Effect Monitoring \(^{6,7,8,9}\)

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS (Abnormal Involuntary Movement Scale) • Acute EPS - Akathisia • Tardive Dyskinesia</td>
<td>X</td>
<td>Baseline, at 3 months, then annually</td>
</tr>
<tr>
<td>BPRS (Brief Psychiatric Rating Scale)</td>
<td>X</td>
<td>Baseline and at each visit to assess response to treatment when a medication is started, changed or discontinued.</td>
</tr>
</tbody>
</table>

### Table 3: Occurrence of Adverse Effects of Antipsychotic Agents in Children and Adolescents \(^{10,11}\)

<table>
<thead>
<tr>
<th>Drug</th>
<th>EPS</th>
<th>Hyperprolactinemia</th>
<th>Weight Gain</th>
<th>Sedation</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloperidol</td>
<td>+++</td>
<td>++</td>
<td>+/-</td>
<td>+</td>
<td>TD, NMS</td>
</tr>
<tr>
<td>Risperidone</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>Depression</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>+/-</td>
<td>+/-</td>
<td>+++</td>
<td>++</td>
<td>Lipid-glucose dysregulation</td>
</tr>
<tr>
<td>Clozapine</td>
<td>-</td>
<td></td>
<td>+++</td>
<td>+++</td>
<td>Agranulocytosis, Seizures, lipid and Glucose dysregulation</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>-</td>
<td></td>
<td>-</td>
<td>+</td>
<td>+++</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>+/-</td>
<td>+/-</td>
<td>-</td>
<td>++</td>
<td>QTc prolongation</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>+/-</td>
<td>+/-</td>
<td>-</td>
<td>+/-</td>
<td>EPS is typically akathisia</td>
</tr>
</tbody>
</table>

**EPS** = extrapyramidal symptoms  
**NMS** = neuroleptic malignant syndrome  
**QTc** = corrected  
**TD** = tardive dyskinesia  
- = absent  
+/− = most probably rare  
+ = rare  
++ = low frequency  
+++ = high frequency

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Medication Selection

Newly diagnosed patients should receive a therapeutic trial of risperidone unless it is clearly not indicated.
1. If the patient has had a documented significant side effect to risperidone in the past.
2. If the patient has already failed risperidone after a therapeutic trial of adequate dose and duration (6mg/day for 4-6 weeks).
3. If the patient has a contraindication to risperidone therapy.
4. If the patient’s BMI is greater than or equal to the 90th percentile.

Switching stable patients to another antipsychotic agent is best done by cross-titration. The patient should be titrated to a comparable therapeutic dose of risperidone and then tapered off the initial antipsychotic agent by one-third to one-fourth of the initial daily dosage at weekly intervals (beginning one week after the goal dose of risperidone is achieved) until discontinued. Alternatively, Table 4 below outlines strategies for switching patients by a structured cross-titration schedule that is agent specific.

Notes:
1. Lower doses of antipsychotic medications are generally adequate in controlling aggressive symptoms compared to doses used to treat psychotic disorders.
2. Patients diagnosed with intellectual disabilities tend to have a higher frequency of side effects and may require greater monitoring, lower dosages of medications, and slower dosage titration and tapering.
3. If patient is on more than the maximum dose, taper down to that dose before beginning the cross titration.
4. Practitioners should be sure to complete cross-titration to ensure that the patient is not left on two antipsychotic agents indefinitely.

Table 4: Approximate Chlorpromazine Equivalent Dosage for Antipsychotic Agents

<table>
<thead>
<tr>
<th>Antipsychotic Agent</th>
<th>Dose (mg) Equivalent to 100mg of Chlorpromazine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine</td>
<td>100mg</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>2mg</td>
</tr>
<tr>
<td>Perphenazine</td>
<td>10mg</td>
</tr>
<tr>
<td>Risperidone</td>
<td>2mg</td>
</tr>
<tr>
<td>Clozapine</td>
<td>5mg</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>75mg</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>50mg</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>7.5mg</td>
</tr>
<tr>
<td>Paliperidone</td>
<td>4mg</td>
</tr>
<tr>
<td>Clozapine</td>
<td>50mg</td>
</tr>
</tbody>
</table>

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Titration schedule may vary based on tolerability and response, with some patients stabilizing on lower doses or requiring slower titration.

Table 5: Cross titration for switching patients from other atypical antipsychotics

<table>
<thead>
<tr>
<th>Antipsychotic</th>
<th>Max Dose</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
<th>Day 13-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quetiapine</td>
<td>800 mg</td>
<td>600 mg</td>
<td>400 mg</td>
<td>300 mg</td>
<td>200 mg</td>
</tr>
<tr>
<td>Divide</td>
<td>200/200/200</td>
<td>100/100/200</td>
<td>100/100/100</td>
<td>100/100</td>
<td>50/50</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>160 mg</td>
<td>120 mg</td>
<td>80 mg</td>
<td>40 mg</td>
<td></td>
</tr>
<tr>
<td>Divide</td>
<td>80/80</td>
<td>60/60</td>
<td>40/40</td>
<td>20/20</td>
<td></td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>30 mg</td>
<td>20 mg</td>
<td>10 mg</td>
<td>5 mg</td>
<td></td>
</tr>
<tr>
<td>Divide</td>
<td>Single Dose</td>
<td>Single Dose</td>
<td>Single Dose</td>
<td>Single Dose</td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td>0.5-1 mg</td>
<td>1.5-2 mg</td>
<td>3-4 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide</td>
<td>Single Dose or 0.5/0.5</td>
<td>Single Dose or 0.5-1/1</td>
<td>Single Dose or 1-2/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tapering and discontinuing medications

It is recommended that providers consider tapering medications in patients who have experienced remission in aggressive symptoms for 6 months or longer.

- Consider reducing dose by 25% every 2 – 4 weeks
- If patient tolerates the tapering of dose, the medication should be discontinued
### Table 6: Formulary Antipsychotics

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Medication &amp; Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Generation Antipsychotic</td>
<td>Chlorpromazine, Fluphenazine, Haloperidol, Perphenazine, Thiothixene, Trilafoperazine</td>
<td>10mg, 25mg, 50mg, 100mg, 200mg tablet, 25mg/ml injection, 2.5mg, 5mg, 10mg tablet, 2.5mg/ml inj, 2.5mg/ml decanoate inj, 1mg, 5mg tablet, 2mg/ml oral concentrate, 5mg/ml inj, 10mg/ml decanoate inj, 4mg, 8mg tablet, 2mg, 5mg, 10mg capsule, 2mg, 5mg, 10mg tablet</td>
</tr>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Aripiprazole (Abilify®)</td>
<td>2mg, 5mg, 10mg, 15mg, 20mg &amp; 30mg tablet</td>
</tr>
<tr>
<td></td>
<td>Ziprasidone (Geodon®)</td>
<td>0.5mg, 1mg, 2mg, 3mg &amp; 4mg tablet, 20mg/ml injection</td>
</tr>
</tbody>
</table>

#### Prior Authorization Agents

Prior authorization agents are medications that may be prescribed if specific clinical criteria are met. The prior authorization criteria must be met and included in the special instructions field of the order when the medication is ordered in the EMR. All other uses require non-formulary approval.

Prior authorization criteria include:
1. If the patient has had a documented significant side effect to risperidone in the past.
2. If the patient has already failed risperidone after a therapeutic trial of adequate dose and duration (6mg/day for 4-6 weeks).
3. If the patient has a contraindication to risperidone therapy.
4. If the patient’s BMI is greater than or equal to the 90th percentile.

### Table 7: Prior Authorization Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Medication &amp; Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Aripiprazole (Abilify®)</td>
<td>2mg, 5mg, 10mg, 15mg, 20mg &amp; 30mg tablet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Treatment failure on formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contraindication to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BMI ≥ 90th percentile</td>
</tr>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Ziprasidone (Geodon®)</td>
<td>20mg, 40mg, 60mg, &amp; 80mg capsule</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Treatment failure on formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contraindication to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BMI ≥ 90th percentile</td>
</tr>
</tbody>
</table>
Lithium General Information

Therapeutic effects of lithium are seen 10-14 days after a therapeutic level has been achieved. It may take up to 6 weeks to see full effects of a given dosage. Laboratory measures and serum lithium levels should be reassessed every six months during maintenance treatment. Levels should be drawn 5-10 days (or more often if clinically indicated) after a dosage change, with the addition or deletion of drugs that increase or decrease lithium renal clearance (e.g., ACE inhibitors, calcium channel blockers, diuretics, NSAIDs, SSRIs, theophylline) or if there is a change in renal function. The lithium serum level should be obtained immediately before the next dose and at least 12 hours after the last dose. A therapeutic serum level is 0.9 to 1.3 mEq/L.

Common side effects: sedation, thirst, urinary frequency
Other side effects: hypothyroid, confusion, toxicity, acne, increased WBC’s

<table>
<thead>
<tr>
<th>Table 8: Frequency of Lithium Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>EKG</td>
</tr>
<tr>
<td>CBC, SCr, Electrolytes, TSH</td>
</tr>
<tr>
<td>Lithium levels</td>
</tr>
</tbody>
</table>

Divalproex General Information

Divalproex should be started at a dose of 15 mg/kg/day or 1250mg/day (whichever is smaller). At baseline, CBC, liver function tests, and platelet counts should be obtained. Dose may be titrated on a weekly basis until 12-hour post-doses serum concentrations reach 75 to 115 mg/mL. After therapeutic serum levels have been achieved, it may take as long as 4 weeks for the drug to achieve maximum effectiveness. Obtain levels 1-3 weeks following initiation, change in dose, addition of other CNS agents to the patient’s regimen, or observed signs/symptoms of toxicity. Then obtain every 6 – 12 months thereafter. Warning (1 in 500) for suicidal ideation.

Common side effects: sedation, weight gain, hair loss, tremor, bowel changes
Rare side effects: liver problems, decreased thyroid function, decreased platelets

<table>
<thead>
<tr>
<th>Table 9: Frequency of Divalproex Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>CBC with differential</td>
</tr>
<tr>
<td>LFTs</td>
</tr>
<tr>
<td>Platelets</td>
</tr>
<tr>
<td>Divalproex levels</td>
</tr>
</tbody>
</table>

Table 10: Formulary Mood Stabilizers

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Form</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticonvulsant</td>
<td>Carbamazepine</td>
<td>Tegretol® Tablet</td>
<td>200mg</td>
<td></td>
</tr>
<tr>
<td>Anticonvulsant</td>
<td>Divalproex Sodium</td>
<td>Depakote® EC Tablet</td>
<td>250mg, 500mg</td>
<td></td>
</tr>
<tr>
<td>Antimanic</td>
<td>Lithium carbonate</td>
<td>Eskalith® Capsule, Syrup</td>
<td>300mg, 300mg/5ml</td>
<td></td>
</tr>
</tbody>
</table>

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**Table 11**

<table>
<thead>
<tr>
<th>Drug/ Daily Dose Range</th>
<th>Contraindications</th>
<th>Toxicity Seen Starting At Trough Serum Levels of:</th>
<th>Signs &amp; Symptoms of Toxicity (dose-related)</th>
<th>Signs &amp; Symptoms of Toxicity (NOT dose-related)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium: Initially 900 – 1200mg/day in 1 to 3 divided doses. Target level: 0.9 – 1.3 mEq/L. Doses should not generally exceed 1200mg/day.</td>
<td>Hypersensitivity to lithium.</td>
<td>Trough serum levels of:</td>
<td>Lithium toxicity can be FATAL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 1 mmol/L. Patients who are sensitive to lithium may manifest toxicity at serum levels &lt; 1 mmol/L. Note: A rise in white blood cell count is to be expected.</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 1 – 1.2 mmol/L. Patients who are sensitive to lithium may manifest toxicity at serum levels &lt; 1 mmol/L.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valproate: Sodium: 15mg/kg/day or 1,000mg/day given in divided doses up to 60mg/kg/day. Target level: 75-115mg/mL.</td>
<td>Hypersensitivity to valproate.</td>
<td>100 – 125 mg/mL.</td>
<td>Somnolence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 100 – 125 mg/mL.</td>
<td>Lethargy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental status change.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypertension.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypotension.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypothyroidism.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypercalcemia.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nausea.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vomiting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thrombocytopenia.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Proptosis of bleating tissue.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alopecia.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parasthesia – Do not rechallenge.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypertrophic cardiomyopathy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hypersensitivity, severe or fatal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stevens-Johnson Syndrome.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Toxic epidermal necrolysis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Polycystic ovarian syndrome.</td>
<td></td>
</tr>
</tbody>
</table>
EXPLOSIVE/REACTIVE AGGRESSION
(Adolescents)

BRIEF PSYCHIATRIC RATING SCALE (BPRS) - Instructions for the Clinician

Background:
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology, and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:
Each item is rated on a seven-point scale (1 = not present to 7 = extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>SOMATIC CONCERN</td>
<td>Preoccupation with physical health, fear of physical illness, hypochondriasis</td>
</tr>
<tr>
<td>1</td>
<td>ANXIETY</td>
<td>Worry, fear, over-concern for present or future, uneasiness</td>
</tr>
<tr>
<td>2</td>
<td>EMOTIONAL WITHDRAWAL</td>
<td>Lack of spontaneous interaction, isolation deficiency in relating to others.</td>
</tr>
<tr>
<td>2-4</td>
<td>CONCEPTUAL DISORGANIZATION</td>
<td>Thought processes confused, disorganized, disjointed, disrupted.</td>
</tr>
<tr>
<td>5</td>
<td>IMPULSIONNESS</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>MOTOR ACTIVITY</td>
<td>Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.</td>
</tr>
<tr>
<td>7</td>
<td>MANNERISMS AND POSTURING</td>
<td>Peculiar, bizarre, unnatural motor behavior (not including tic).</td>
</tr>
<tr>
<td>8</td>
<td>GRANDIOSITY</td>
<td>Exaggerated self-opinion, arrogance, conviction of unusual rank or abilities.</td>
</tr>
<tr>
<td>9</td>
<td>DEPRESSIVE MOOD</td>
<td>Sorrow, sadness, despondency, pessimism.</td>
</tr>
<tr>
<td>10</td>
<td>HOSTILITY</td>
<td>Anonymity, contempt, bitterness, disdain for others.</td>
</tr>
<tr>
<td>11</td>
<td>SUSPICIONALITY</td>
<td>Mistrust, belief others harbor malicious or discriminatory intent.</td>
</tr>
<tr>
<td>12</td>
<td>HALLUCINATORY BEHAVIOR</td>
<td>Perceptions without normal external stimulus correspondence.</td>
</tr>
<tr>
<td>13</td>
<td>MOTOR RETARDATION</td>
<td>Slowed, weakened movements or speech, reduced body tone.</td>
</tr>
<tr>
<td>14</td>
<td>UNCOOPERATIVENESS</td>
<td>Resistance, guardedness, rejection of authority.</td>
</tr>
<tr>
<td>15</td>
<td>UNUSUAL THOUGHT CONTENT</td>
<td>Unusual, odd, strange, bizarre thought content.</td>
</tr>
<tr>
<td>16</td>
<td>BLUNTED AFFECT</td>
<td>Reduced emotional tone, reduction in intensity of feelings, flatness</td>
</tr>
<tr>
<td>17</td>
<td>EXCITEMENT</td>
<td>Heightened emotional tone, agitation, increased reactivity.</td>
</tr>
<tr>
<td>18</td>
<td>DISORIENTATION</td>
<td>Confusion or lack of proper association for person, place or time.</td>
</tr>
<tr>
<td>19</td>
<td>ELEVATED MOOD</td>
<td>A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, or euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.</td>
</tr>
<tr>
<td>20</td>
<td>SUICIDALITY</td>
<td>Expressions, thoughts, or actions to harm or kill self.</td>
</tr>
<tr>
<td>21</td>
<td>BIZARRE BEHAVIOR</td>
<td>Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.</td>
</tr>
<tr>
<td>22</td>
<td>SELF-NEGLECT</td>
<td>Hygiene, appearance, or eating behavior below usual expectations, below socially acceptable standards or life threatening.</td>
</tr>
<tr>
<td>23</td>
<td>DISTRACTIBILITY</td>
<td>Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
Hypertension
(Children & Adolescents)

Table 1: Classification and Management of Hypertension

<table>
<thead>
<tr>
<th>Blood Pressure Classification</th>
<th>SBP or DBP Percentile</th>
<th>Therapeutic Lifestyle Changes</th>
<th>Drug Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;90&lt;sup&gt;th&lt;/sup&gt; percentile</td>
<td>Encourage healthy diet, sleep &amp; exercise</td>
<td>None</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>90&lt;sup&gt;th&lt;/sup&gt; to 94&lt;sup&gt;th&lt;/sup&gt; percentile or BP &gt; 120/80mmHg even if &lt;90&lt;sup&gt;th&lt;/sup&gt; percentile&lt;sup&gt;3&lt;/sup&gt;</td>
<td>• Weight loss if overweight • Exercise program • Diet plan</td>
<td>None unless compelling indications&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Stage 1 Hypertension</td>
<td>&gt;95&lt;sup&gt;th&lt;/sup&gt; percentile plus 5mmHg</td>
<td>•Weight loss if overweight •Exercise program •Diet plan</td>
<td>Initiate therapy with ACEI, BB, CCB, or diuretic if 1. Persistent HTN with lifestyle changes 2. Compelling indication 3. Symptomatic HTN 4. Target organ damage 5. Secondary HTN</td>
</tr>
<tr>
<td>Stage 2 Hypertension</td>
<td>&gt;99&lt;sup&gt;th&lt;/sup&gt; percentile plus 5mmHg</td>
<td>•Weight loss if overweight •Exercise program •Diet plan</td>
<td>Initiate therapy with ACEI, BB, CCB, or diuretic. More than 1 drug may be required.</td>
</tr>
</tbody>
</table>

Table 1: Classification and Management of Hypertension<sup>1</sup>

1Adapted from 4th Report of the Diagnosis, Evaluation and Treatment of High Blood Pressure in Children & Adolescents

2For gender, age, and height (centimeters) measured on 3 separate occasions. Categorize based on the highest value if SBP and DBP differ

3Compelling indications include diabetes, chronic kidney disease, and heart failure

4This BP level typically occurs for SBP at 12 years old and for DBP at 16 years old

5Prehypertension

<90<sup>th</sup> percentile

Normal

<90<sup>th</sup> percentile

<120/80 (normal?)

Follow-up as needed and recheck blood pressure at next regularly scheduled visit.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. November 2006. Revised 4/09.
Continued from box 7, page 1

Does the patient have compelling indications (diabetes, kidney disease, heart failure)?

Treat with lifestyle modifications & start drug therapy for compelling indication (table 8).

Go to box 26.

Does the patient have compelling indications (diabetes, kidney disease, heart failure)?

Determine blood pressure classification.

Treat with lifestyle modifications & start drug therapy per table 8.

Continued from box 8, page 1

Stage 1 HTN

Is the patient symptomatic, have target organ damage or secondary HTN?

Yes

Stage 2 HTN

• Treat with lifestyle modifications
• Initiate drug therapy ACEI, BB, CCB, or diuretic.

No

Treat with lifestyle modifications.

• Treat with lifestyle modifications
• Initiate drug therapy ACEI, BB, CCB, or diuretic.

Stage 1 HTN or compelling indication: Obtain BP readings weekly, follow up 1-2 months

Stage II HTN: Obtain BP readings twice weekly, follow up in 2-4 weeks.

Is blood pressure at goal <95th percentile?

Continue lifestyle modifications. Follow up as needed at least every 12 months.

Yes

Goal BP achieved?

Increase dose as tolerated. Follow up based on box #26.

No

Continue current treatment. Follow up as needed at least every 12 months.

Is the patient adherent?

Continue current treatment. Follow up as needed at least every 12 months.

Change drug class or add drug from another class and reduce dose of offending agent. Follow up based on box #26.

Is the patient experiencing adverse effects?

Counsel patient regarding importance of compliance.

Goal BP achieved?

Consider intensive counseling, DOT, stabilization in infirmary, or consultation.
Detection and Confirmation

A. Appropriate cuff size must be used to ensure accurate readings. The cuff bladder length should cover 80% of the circumference of the arm. BP measurements can be overestimated with a cuff that is too small.

B. Elevated BP must be confirmed on repeated visits. At least an average of 3 BP measurements.

C. Preferred method of BP measurement is auscultation. If using an electronic device, all measurements that exceed the 90th percentile should be confirmed by auscultation.

D. Patients should be seated in a chair with their backs supported, feet on the floor, and their arms supported at heart level.

E. BP measurements should be obtained after the patient has been at rest for at least 5 minutes.

F. Blood pressure is determined by gender, age, and height in children and adolescents. Directions are listed below.

1. Use the standard CDC growth charts (page 6 or 8) to determine height percentile.
2. Obtain the patient’s blood pressure.
3. Use the correct gender blood pressure table (page 5 or 7) to determine the blood pressure percentile.
4. Find the patient’s age on the left hand side of the table and follow the age row horizontally until it intersects the line for the height percentile.
5. BP < 90th percentile is normal.
6. BP between 90th and 94th percentile is prehypertension. In adolescents, BP ≥ 120/80 mmHg is prehypertension even if it is less than the 90th percentile.
7. Any BP > 90th percentile, should be repeated twice during the visit and an average SBP and DBP should be used to determine blood pressure.
8. Any BP > 95th percentile, should be staged to determine treatment.

G. Follow-up based on initial blood pressure reading

<table>
<thead>
<tr>
<th>Blood Pressure (SBP or DBP)</th>
<th>Frequency of Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 90th percentile</td>
<td>Recheck at next regularly scheduled visit.</td>
</tr>
<tr>
<td>90th to 94th percentile or BP &gt; 120/80mmHg even if &lt;90th percentile up to 94th percentile</td>
<td>Recheck in 6 months</td>
</tr>
<tr>
<td>95th to 99th percentile plus 5mmHg</td>
<td>Recheck in 1-2 weeks. Recheck sooner if the patient is symptomatic. If elevated BP is confirmed on repeated visits (at least 3), begin treatment for stage 1 hypertension.</td>
</tr>
<tr>
<td>&gt; 99th percentile plus 5mmHg</td>
<td>Recheck within 1 week or evaluate immediately if patient is symptomatic. If elevated BP is confirmed on repeated visits (at least 3), begin treatment for stage 2 hypertension.</td>
</tr>
</tbody>
</table>
II. Patient Evaluation

A. Cardiovascular risk factors
1. Hypertension
2. Overweight/obesity
3. Low HDL cholesterol
4. Elevated triglycerides
5. Abnormal glucose tolerance/diabetes
6. Sleep problems/disorders
7. Family history of hypertension or cardiovascular disease

B. History
1. Sleep history
2. Family history
3. Medication history
4. Social history
5. History of weight and physical activity
6. Known duration and levels of elevated blood pressure
7. Symptoms suggestive of hypertension (headache, nose bleeds, dizziness, abnormal physical exam)
8. Dietary assessment including intake of sodium, alcohol, saturated fat and caffeine

C. Laboratory/Diagnostic Evaluation – Recommended at baseline and annually.
1. Urinalysis
2. CBC
3. BUN, creatinine
4. Electrolytes
5. Fasting lipid panel (baseline only)
6. Fasting glucose (baseline only)
7. Renal ultrasound (baseline only as clinically indicated)
8. TSH (baseline only)
9. Drug screen (baseline only if have suggestive history)

D. Physical exam
1. Height & weight - BMI (body mass index)
2. Blood pressure & other vitals
3. Fundoscopic examination for retinal changes (i.e., arteriolar narrowing, focal arteriolar constrictions, arteriovenous crossing changes, hemorrhages and exudates, disc edema)
4. Examination for the neck for carotid bruits, distended veins, or enlarged thyroid gland
5. Examinations of the heart for abnormalities in the rate and rhythm, increase size, precordial heave, clicks, murmurs and third and fourth heart sounds
6. Examination of the lungs for rales and evidence for bronchospasm
7. Examination of the abdomen for bruits, enlarged kidney, masses and abnormal aortic pulsation
8. Examinations of the extremities for diminished or absent peripheral arterial pulsations, bruits, and edema

E. Evaluate patient for secondary causes – Secondary hypertension is more common in children than adults. The majority of children with secondary hypertension will have renal or renovascular causes for blood pressure elevation.
1. Drug-induced
2. Mineralocorticoid excess states
3. Renovascular disease
4. Cushing syndrome
5. Pheochromocytoma
6. Thyroid or parathyroid disease
7. Coarctation of the aorta
8. Pregnancy
9. Sleep disorder

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<table>
<thead>
<tr>
<th>Age</th>
<th>BP %</th>
<th>SBP (mmHg) Percentile of Height</th>
<th>DBP (mmHg) Percentile of Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10-10</td>
<td>111 111 111 111 111 111 111 111 111 111 111 111 111 111 111</td>
<td>111 111 111 111 111 111 111 111 111 111 111 111 111 111 111</td>
</tr>
<tr>
<td>11</td>
<td>11-11</td>
<td>121 121 121 121 121 121 121 121 121 121 121 121 121 121 121</td>
<td>121 121 121 121 121 121 121 121 121 121 121 121 121 121 121</td>
</tr>
<tr>
<td>12</td>
<td>12-12</td>
<td>131 131 131 131 131 131 131 131 131 131 131 131 131 131 131</td>
<td>131 131 131 131 131 131 131 131 131 131 131 131 131 131 131</td>
</tr>
<tr>
<td>13</td>
<td>13-13</td>
<td>141 141 141 141 141 141 141 141 141 141 141 141 141 141 141</td>
<td>141 141 141 141 141 141 141 141 141 141 141 141 141 141 141</td>
</tr>
<tr>
<td>14</td>
<td>14-14</td>
<td>151 151 151 151 151 151 151 151 151 151 151 151 151 151 151</td>
<td>151 151 151 151 151 151 151 151 151 151 151 151 151 151 151</td>
</tr>
</tbody>
</table>

Table 3: BP Level For Males by Age and Height
Table 4

GDC Growth Charts: United States

Stature-for-age percentiles: Boy, 2 to 20 years

Published May 30, 2020;
WONCA developed by the National Center for Health Statistics in cooperation with
the National Center for Chronic Disease Prevention and Health Promotion (2000).

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<table>
<thead>
<tr>
<th>Age</th>
<th>BP %</th>
<th>SBP (mmHg)</th>
<th>Percentile of Height</th>
<th>DBP (mmHg)</th>
<th>Percentile of Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>90th</td>
<td>100</td>
<td>113</td>
<td>71</td>
<td>114</td>
</tr>
<tr>
<td>9</td>
<td>90th</td>
<td>110</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>10</td>
<td>90th</td>
<td>120</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>11</td>
<td>90th</td>
<td>130</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>12</td>
<td>90th</td>
<td>140</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>13</td>
<td>90th</td>
<td>150</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>14</td>
<td>90th</td>
<td>160</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>15</td>
<td>90th</td>
<td>170</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
<tr>
<td>16</td>
<td>90th</td>
<td>180</td>
<td>113</td>
<td>72</td>
<td>114</td>
</tr>
</tbody>
</table>

Table 5: BP Level For Females by Age and Height
III. Treatment

A. Therapeutic lifestyle changes

1. Weight reduction for overweight patients
2. Regular physical activity – aerobic activity 30 to 60 minutes per day
3. Dietary modification – increased vegetable and fruit consumption, low-fat dairy products, reduction in dietary sodium, reduction in sugar-containing beverages, portion-size control with regular meals
4. Smoking cessation

B. Drug therapy

1. Goal of therapy
   a. BP < 95th percentile
   b. BP < 90th percentile diabetes, chronic kidney disease, target organ damage
2. Indications for therapy
   a. Secondary hypertension
   b. Persistent hypertension despite lifestyle modifications
   c. Symptomatic hypertension
   d. Presence of target-organ damage
   e. Compelling indication (e.g., diabetes, chronic renal disease)

Table 7: Formulary Antihypertensive Agents For Children and Adolescents*

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enalapril (Vasotec®)</td>
<td>2.5, 5, 10, &amp; 20mg</td>
<td>• Initial: 0.08mg/kg/day up to 5mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 0.3mg/kg/day up to 40mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Qd or bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ACE inhibitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contraindicated in pregnancy</td>
</tr>
<tr>
<td>Atenolol (Tenormin®)</td>
<td>25, 50mg</td>
<td>• Initial: 0.5-1 mg/kg/day given qd or bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 2mg/kg/day up to 100mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Metoprolol (Lopressor®)</td>
<td>25, 50, &amp; 100mg</td>
<td>• Initial: 1mg/kg/day given once daily (Initial dose should not exceed 50mg/day)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 6mg/kg/day up to 200mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• children ≥ 6 years old</td>
</tr>
<tr>
<td>Propranolol (Inderal®)</td>
<td>10, 20, &amp; 40mg</td>
<td>• Initial: 1-2mg/kg/day given bid or tid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 4mg/kg/day up to 64mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td>Amlodipine (Norvasc®)</td>
<td>5 &amp; 10mg</td>
<td>• Initial: 2.5mg/day given qd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 5mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Calcium channel blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Children ≥ 6 years old</td>
</tr>
<tr>
<td>Hydrochlorothiazide/HCTZ</td>
<td>12.5, 25 &amp; 50mg</td>
<td>• Initial: 1mg/kg/day given qd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 3mg/kg/day up to 50mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Diuretic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td>Furosemide (Lasix®)</td>
<td>20 &amp; 40mg</td>
<td>• Initial: 0.5-2 mg/kg/day given qd or bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 5mg/kg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Diuretic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Spironolactone (Aldactone®)</td>
<td>25mg</td>
<td>• Initial: 0.5mg/kg/day given qd or bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 3mg/kg/day up to 100mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Diuretic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Doxazosin (Cardura®)</td>
<td>1, 2, &amp; 4mg</td>
<td>• Initial: 1mg/day given qd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Max: 4mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Alpha-blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Minoxidil (Loniten®)</td>
<td>≥2 years initial: 5mg/day given qd-tid</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥12 years max: 100mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vasodilator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reserved for resistant HTN</td>
</tr>
</tbody>
</table>

*Drugs with FDA approval or have pediatric data available
C. Drug selection

1. May consider ACE inhibitors, beta-blockers, calcium channel blockers, or diuretics as first-line therapy. However, choice should be directed by co-morbidities.

Table 8: Drug Therapy For Co-morbidities Or Compelling Indications

<table>
<thead>
<tr>
<th>Co-morbidity</th>
<th>Drug Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>ACE inhibitor</td>
</tr>
<tr>
<td>Heart failure or LVH</td>
<td>ACE inhibitor</td>
</tr>
<tr>
<td>Renal Insufficiency</td>
<td>Loop diuretic (Furosemide) or beta-blocker</td>
</tr>
<tr>
<td></td>
<td>ACE inhibitor use is a relative contraindication in ACE inhibitor naïve patient</td>
</tr>
<tr>
<td>Microalbuminuria or proteinuria</td>
<td>ACE inhibitor</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>Beta-blocker or calcium channel blocker</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>• Methylxanthine, beta blockers, vasodilators preferred.</td>
</tr>
<tr>
<td></td>
<td>• ACE inhibitor and Angiotensin II receptor antagonist (ARB) contraindicated</td>
</tr>
</tbody>
</table>

2. May consider step-down therapy in patients that have good blood pressure control with eventual discontinuation. The best candidates are patients that lose weight.

D. Hypertensive Emergencies and Urgencies—Severe, symptomatic hypertension with blood pressure well above the 99th percentile may occur in some children and requires prompt attention. These children usually have underlying renal disease.

1. Hypertensive Emergencies are usually accompanied by signs of hypertensive encephalopathy, typically causing seizures. These patients should be transferred to the nearest emergency center.

2. Hypertensive Urgencies are accompanied by less serious symptoms, such as severe headache or vomiting. Hypertensive urgencies may be treated by either intravenous or oral antihypertensives, depending on the child’s symptomatology.
   a. Oral Treatment
      i. If prescribed an oral immediate-release antihypertensive agent, administer an extra dose or
      ii. Clonidine 0.05-0.1mg/dose and may be repeated hourly up to 0.6mg total dose or
      iii. Minoxidil 0.1-0.2mg/kg/dose.
   b. Multiple doses of medication may be needed over time to adequately reduce blood pressure. Observe for at least 3-6 hours and discharge from medical department when patient is clinically stable. Follow up next day to obtain blood pressure reading. Follow up in Chronic Care Clinic per ITP. Counsel patients with poor compliance.
Insomnia Adolescents

Rule out other cause for presentation such as medical or psychiatric causes, substance use, medications, or psychosocial stressors.

Evaluate Patient (see Evaluation page 3)
- Physical Exam including BMI, waist circumference, weight, and evaluation of respiratory, cardiovascular, and neurologic systems.
- Obtain comprehensive sleep history
- Refer to Depression pathway if patient has depression
- Refer to ADHD pathway if patient has ADHD

Circadian Rhythm Disorder as outlined by the DSM-IV? Parasomnia Suspected?

Sleep-Related Movement Disorder (SRMD) Suspected?

Sleep-Related Breathing Disorder (SRBD) Suspected?

Go to Box 17 Go to Box 18

Go to Box 32

Pediatric Insomnia Suspected?

Initiate behavioral interventions See Table 1

Adequate response

Continue behavioral interventions Adequate response

Continue treatment
- Use lowest effective dose
- Re-evaluate need for continued treatment at least every 6 months

Adequate response

Inadequate response

Reconsider diagnosis and consider psychopharmacology consultation

Inadequate response

Rule-out underlying seizure disorder

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

Table 1. Behavioral Interventions

- Education regarding adequate sleep hygiene
- Enforcement of strict bedtime and wake-up times 7 days/week
- Decrease environmental stimulation prior to and at bedtime
- Relaxation exercises
- Imagery rehearsal
- Scheduled awakenings

Psychotropic or other medications may not be prescribed as a sleep aid. They may only be prescribed as second line therapy for a sleep disturbance related to a primary mental health or medical diagnosis and should be used in conjunction with behavioral interventions.

Prepared by the Youth Services Pharmacy and Therapeutics Committee. Approved April 2011.
Sleep-Related Breathing Disorder (SRBD) Suspected?

SRMD Suspected?

Consider referral to sleep clinic for sleep study

SRBD Confirmed?

Initiate behavioral interventions

SRMD Confirmed?

Consider use of Cognitive Behavioral Therapy

Inadequate response

Reconsider diagnosis and consider psychopharmacology consultation

Adequate response

SRBD Confirmed?

Initiate behavioral interventions

Adequate response

Refer to ENT

Inadequate response

Continue behavioral interventions

Parasomnia Disorder as outlined by the DSM-IV?

Adequate response

Refer to ENT

Inadequate response

Continue behavioral interventions

Evaluate serum ferritin levels

Does patient have low serum ferritin?

Yes

Evaluate response to therapy

Adequate response

Go to Box 1

No

Adequate response

Go to Box 29

Inadequate response

Adequate response

Consider iron supplementation of 1 - 2 mg/kg to achieve ferritin level of more than 50 ng/dL

Continued treatment

Continued behavioral interventions

Inadequate response

Reconsider diagnosis and consider psychopharmacology consultation

Adequate response

Consider use of Cognitive Behavioral Therapy

Adequate response

Refer to ENT

Inadequate response

Continue behavioral interventions

Psychotropic or other medications may only be prescribed as second line therapy for a sleep disturbance related to a primary mental health or medical diagnosis and should be used in conjunction with behavioral interventions.
Background
Sleep-related problems in children and adolescents can lead to problems in cognitive functioning. The prevalence of pediatric insomnia that goes beyond bedtime refusal and night wakings ranges from 1% to 6% in the general population; however, in children with neurodevelopmental or psychiatric comorbidities the prevalence is as high as 50% to 75%. Sleep disorders in the youth population not only have clear associations with neurocognitive and psychosocial impairments but also increase caregiver burden.

Behavioral interventions for pediatric sleep disorders have shown clinical benefit which is of particular importance given the relative lack of data regarding use of pharmacological interventions in this population. Pharmacologic interventions may be considered for patients with chronic insomnia and generally are not recommended for patients with short-term or intermittent difficulty sleeping.

Evaluation
- Physical Exam including BMI, waist circumference, weight, and evaluation of respiratory, cardiovascular, and neurologic systems.
- Assess for concurrent medical, psychiatric, and developmental disorders.
- Rule out and treat underlying causes
  - Psychiatric disorders such as depression, anxiety, bipolar disorder, or ADHD (if psychiatric disorder is identified, refer to the appropriate DMG)
  - Medical conditions such as sleep apnea or restless leg syndrome
  - Medications such as stimulants, SSRIs, bronchodilators, decongestants, and steroids.
  - Substance abuse
- Obtain comprehensive sleep history
  - Specific sleep complaints
  - Number of hours of sleep per day
  - Bedtime and awakening time
  - Number and duration of naps
  - Number and duration of awakenings during the night
  - Bedtime routine
  - Daytime routine
  - Daytime fatigue
  - Sleep quality
  - Onset and duration of symptoms
  - Behavior and school problems
  - Consequences of sleep problems
  - Medical history
  - Bedwetting
  - Psychiatric history
  - Request a copy of the Daily Dormitory Shift Log (INS 110) for the 3rd shift for 1-2 weeks to look for evidence of sleep disturbances
- Laboratory sleep studies may be indicated if a physiological sleep disorder, such as sleep apnea or narcolepsy, is suspected.

Diagnosis
- Primary Insomnia (DSM-IV)
  - Predominant complaint is difficulty initiating or maintaining sleep or non-restorative sleep for at least 1 month
  - Sleep disturbance or daytime fatigue causes significant distress or impairment in social, occupational or other important areas of functioning.
  - Sleep disturbance does not occur exclusively during course of narcolepsy, breathing-related sleep disorder, circadian rhythm sleep disorder, or parasomnia.
  - Sleep disturbance does not occur exclusively during the course of another mental disorder.
  - Sleep disturbance is not due to drug abuse, medication, or general medical condition.
- Breathing-related Sleep Disorder (DSM-IV)
  - Sleep disturbance leading to excessive sleepiness or insomnia, that is due to sleep-related breathing condition (e.g., sleep apnea).
  - Sleep disturbance is not better accounted for by another mental disorder, drug abuse, a medication, or general medical condition.
• **Circadian Rhythm Sleep Disorder (DSM-IV)**
  - Persistent or recurrent pattern of sleep disruption leading to excessive sleepiness or insomnia that is due to a mismatch between the sleep-wake schedule required by a person’s environment and circadian sleep-wake pattern.
  - Sleep disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - Sleep disturbance does not occur exclusively during the course of another sleep disorder or mental disorder.
  - Sleep disturbance is not due to the direct effect of drug abuse, medication, or general medical condition.

• **Parasomnias (DSM-IV)**

  **Nightmare Disorder**
  - Repeated awakenings from the major sleep period or naps with detailed recall of extended and extremely frightening dreams, usually involving threats to survival, security, or self-esteem. The awakenings generally occur during the second half of the sleep period.
  - On awakening from the frightening dreams, the person rapidly becomes oriented and alert (in contrast to the confusion and disorientation seen in Sleep Terror Disorder and some forms of epilepsy).
  - The dream experience, or the sleep disturbance resulting from the awakening, causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - The nightmares do not occur exclusively during the course of another mental disorder (e.g., delirium, Posttraumatic Stress Disorder) and are not the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

  **Sleep Terror Disorder**
  - Recurrent episodes of abrupt awakening from sleep, usually occurring during the first third of the major sleep episode and beginning with a panicky scream.
  - Intense fear and signs of autonomic arousal, such as tachycardia, rapid breathing, and sweating, during each episode.
  - Relative unresponsiveness to efforts of others to comfort the person during the episode.
  - No detailed dream is recalled and there is amnesia for the episode.
  - The episodes cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - The disturbances is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

  **Sleepwalking Disorder**
  - Repeated episodes of rising from bed during sleep and walking about, usually occurring during the first third of the major sleep episode.
  - While sleepwalking, the person has a blank, staring face, is relatively unresponsive to the efforts of others to communicate with him or her, and can be awakened only with great difficulty.
  - On awakening (either from the sleepwalking episode or the next morning), the person has amnesia for the episode.
  - Within several minutes after awakening from the sleepwalking episode, there is no impairment of mental activity or behavior (although there may initially be a short period of confusion or disorientation).
  - The sleepwalking causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.
Parasomnia Not Otherwise Specified

- REM sleep behavior disorder: motor activity, often of a violent nature, that arises during rapid eye movement (REM) sleep. Unlike sleepwalking, these episodes tend to occur later in the night and are associated with vivid dream recall.
- Sleep paralysis: an inability to perform voluntary movement during the transition between wakefulness and sleep. The episodes may occur at sleep onset (hypnagogic) or with awakening (hypnopompic). The episodes are usually associated with extreme anxiety and, in some cases, fear of impending death. Sleep paralysis occurs commonly as an ancillary symptom of Narcolepsy and, in such cases, should not be coded separately.
- Situation in which the clinician has concluded that a Parasomnia is present but is unable to determine whether it is primary, due to a general medical condition, or substance induced.

Non-pharmacological treatments are considered first line therapy.

Sleep Hygiene
- Avoid napping during the day
- Do not read or study on the bed
- Establish a regular bedtime routine
- Get up about the same time every day
- Avoid heavy, spicy and sugary meals close to bedtime
- Exercise regularly. Vigorous exercise should be done in the morning or afternoon
- Avoid stimulants such as caffeine and certain medications too close to bedtime

Cognitive Behavioral Therapy (CBT) includes but is not limited to:
- Imagery
- Keeping a worry journal
- Deep-breathing exercises
- Progressive muscle relaxation
- Cognitive techniques to decrease negative thoughts at bedtime

Pharmacological treatments are not considered first line therapy. In accordance with TYC general administrative policy and health services policy, psychotropics or other medications may not be prescribed as a sleep aid. They may only be prescribed as second line therapy for a sleep disturbance related to a primary mental health or medical diagnosis and should be used in conjunction with behavioral interventions.

In general medications should only be used short term at the lowest effective dose and tapered whenever possible. When used long term, use should be re-evaluated at least every six months to monitor for efficacy, adverse effects, and problems such as tolerance or abuse. Medication should always be used in combination with non-pharmacologic strategies.

Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.

Pharmacological agents used in adolescent sleep disorders are listed below:

1. Melatonin
   - Dose: 3 – 10 mg/day administered 2 – 3 hours before sleep onset
   - Useful in circadian rhythm sleep disorders
   - May be used to target sleep onset delay in children with ADHD and developmental disorders
   - Monitoring: sleep pattern, seizures, sedation, drowsiness, and fatigue

2. Antihistamines
   - Dose: Diphenhydramine 25 – 50 mg/day or Hydroxyzine Pamoate 25 – 100 mg/day
   - Sedative effects are obtained through antihistaminic properties
   - Monitoring: daytime drowsiness, dry mouth, urinary retention, paradoxical hyperactivity, development of tolerance, potentiation of substance abuse due to anxiolytic and anticholinergic properties
3. Guanfacine
- Dose: 0.5 – 4 mg/day
- Useful in sleep onset delay in children with ADHD
- Less sedating and has less anticholinergic and cardiovascular side effects compared to clonidine
- Monitoring: cardiovascular risk with higher doses, blood pressure, heart rate

4. Trazodone
- Dose: 12.5 – 50 mg/day
- Use cautiously
- Should be used at the lowest possible doses
- Monitoring: priapism, suicidal ideation, dizziness
- Priapism is rare 1%, but a serious adverse effect and medical emergency. Patients should be counseled and male patients taking trazodone who experience an uncontrolled erection persisting longer than 1 hour should seek immediate medical attention. If not treated promptly, priapism may result in permanent impotence due to damage of vascular structures in the penis.
PSYCHOSIS
(Adolescents)

Meets DSM-IV criteria for psychotic diagnosis. Care should be taken to assess cognitive impairment and distress associated with psychosis; also consider differential diagnosis seen in youth with Conduct Disorder who voice psychotic complaints. The algorithm assumes treatment of co-morbid medical disorders, the appropriate use of non-pharmacologic therapies, and reconsideration of diagnosis with poor response to treatment.

Obtain baseline laboratories as indicated in tables 1-2. Medication selection is covered on page 5.

Initiate monotherapy with formulary atypical antipsychotic risperidone up to 6mg/day (4-6 weeks).

Initiate monotherapy with alternative formulary prior authorization atypical antipsychotic not tried above (antipsychole up to 30mg/day or ziprasidone 100mg/day for 4-6 weeks).

Initiate monotherapy with non-formulary atypical antipsychotic not tried above or typical antipsychotic (4-6 weeks).

Initiate adjunctive therapy with mood stabilizer lithium or divalproex and titrate to therapeutic level (4-6 weeks).

Initiate adjunctive therapy with alternative mood stabilizer not tried above and titrate to therapeutic levels (4-6 weeks).

Initiate adjunctive therapy with lithium and divalproex and titrate to therapeutic levels (4-6 weeks).

Reconsider diagnosis and consider psychopharmacology consultation.

Continue treatment and monitor per recommendations in tables 1-3.

Continue treatment and monitor per recommendations in tables 1-3.

Continue treatment and monitor per recommendations in tables 1-3.

Continue treatment and monitor per recommendations in tables 1-3.

Continue treatment and monitor per recommendations in tables 1-3.

Initiate monotherapy with non-formulary atypical antipsychotic not trialed above or typical antipsychotic (4-6 weeks).

Initiate adjunctive therapy with mood stabilizer lithium or divalproex and titrate to therapeutic level (4-6 weeks).

Adequate response per BPRS

Assess Compliance

Obtain baseline laboratories as indicated in tables 1-2. Medication selection is covered on page 5.

Continue treatment and monitor per recommendations in tables 1-3.

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Initiate monotherapy with non-formulary atypical antipsychotic not tried above or typical antipsychotic (4-6 weeks).

Assess Compliance

Initiate adjunctive therapy with mood stabilizer lithium or divalproex and titrate to therapeutic levels (4-6 weeks).

Initiate adjunctive therapy with alternative mood stabilizer not tried above and titrate to therapeutic levels (4-6 weeks).

Adequate response per BPRS

Assess Compliance

Adequate response per BPRS

Assess Compliance

Adequate response per BPRS

Assess Compliance

Adequate response per BPRS

Assess Compliance

Adequate response per BPRS

Assess Compliance

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Initiate adjunctive therapy with alternative mood stabilizer not tried above and titrate to therapeutic levels (4-6 weeks).

Initiate adjunctive therapy with lithium and divalproex and titrate to therapeutic levels (4-6 weeks).

Reconsider diagnosis and consider psychopharmacology consultation.

Prepared By The Texas Youth Commission and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. October 2001, revised 3/30/04.
Antipsychotic Monitoring Parameters in Children and Adolescents Receiving Antipsychotic Pharmacotherapy

Table 1: Metabolic and Endocrine Monitoring Guidelines for Antipsychotic Agents in Children and Adolescents

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>4 weeks</th>
<th>8 weeks</th>
<th>12 weeks</th>
<th>6 Months</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Family History</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Weight-Height-BMI</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>(overweight 25.0-29.9; obese &gt;= 30.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Pressure, Pulse</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fasting Plasma Glucose</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CBC, LFT, SCr, Electrolytes</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TSH</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>EKG¹</td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin²</td>
<td></td>
<td></td>
<td></td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Providers should consider obtaining any of the laboratories listed above more frequently if clinically indicated.

1. Providers should consider obtaining an EKG at baseline and periodically when there is a personal or family history of cardiovascular disease.
2. Providers should consider obtaining Prolactin at baseline and periodically when there is a history of galactorrhea, amenorrhea, or gynecomastia
Table 2: Outcomes and Adverse Effect Monitoring 6,7,8

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS (Abnormal Involuntary Movement Scale)</td>
<td>X</td>
<td>Baseline, at 3 months, then annually</td>
</tr>
<tr>
<td>• Acute EPS - Akathisia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tardive Dyskinesia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPRS (Brief Psychiatric Rating Scale)</td>
<td>X</td>
<td>Baseline and at each visit to assess response to treatment when a medication is started, changed or discontinued.</td>
</tr>
</tbody>
</table>

Table 3: Occurrence of Adverse Effects of Antipsychotic Agents in Children and Adolescents 10,11

<table>
<thead>
<tr>
<th>Drug</th>
<th>EPS</th>
<th>Hyperprolactinemia</th>
<th>Weight Gain</th>
<th>Sedation</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloperidol</td>
<td>+++</td>
<td>++</td>
<td>+/-</td>
<td>-</td>
<td>TD, NMS</td>
</tr>
<tr>
<td>Risperidone</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>Depression</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>+/-</td>
<td>+/ -</td>
<td>+++</td>
<td>++</td>
<td>Lipid-glucose dysregulation</td>
</tr>
<tr>
<td>Clozapine</td>
<td>-</td>
<td>-</td>
<td>+++</td>
<td>+++</td>
<td>Agranulocytosis, Seizures, lipid and Glucose dysregulation</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+/ -</td>
<td></td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>+/-</td>
<td>+/-</td>
<td>+</td>
<td>++</td>
<td>QTc prolongation</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>+/-</td>
<td>+/-</td>
<td>-</td>
<td>+/ -</td>
<td>EPS is typically akathisia</td>
</tr>
</tbody>
</table>

EPS = extrapyramidal symptoms
NMS = neuroleptic malignant syndrome
QTc = corrected QT interval
TD = tardive dyskinesia
-= absent
+/- = most probably rare
+ = rare
++ = low frequency
+++ = high frequency
Medication Selection

Newly diagnosed patients should receive a therapeutic trial of risperidone unless it is clearly not indicated.
1. If the patient has had a documented significant side effect to risperidone in the past.
2. If the patient has already failed risperidone after a therapeutic trial of adequate dose and duration (6mg/day for 4-6 weeks).
3. If the patient has a contraindication to risperidone therapy.
4. If the patient’s BMI is greater than the 90th percentile.

Switching stable patients to another antipsychotic agent is best done by cross-titration. The patient should be titrated to a comparable therapeutic dose of risperidone and then tapered off the initial antipsychotic agent by one-third to one-fourth of the initial daily dosage at weekly intervals (beginning one week after the goal dose of risperidone is achieved) until discontinued.

Alternatively, table 4 below outlines strategies for switching patients by a structured cross-titration schedule that is agent specific.

Notes:
1. If patient is on more than the maximum dose, taper down to that dose before beginning the cross-titration.
2. Practitioners should be sure to complete cross-titration to ensure that the patient is not left on two antipsychotic agents indefinitely.

Table 4: Approximate Chlorpromazine Equivalent Dosage for Antipsychotic Agents

<table>
<thead>
<tr>
<th>Antipsychotic Agent</th>
<th>Dose (mg) Equivalent to 100mg of Chlorpromazine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine</td>
<td>100mg</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>20mg</td>
</tr>
<tr>
<td>Perphenazine</td>
<td>10mg</td>
</tr>
<tr>
<td>Risperidone</td>
<td>2mg</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>5mg</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>75mg</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>60mg</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>7.5mg</td>
</tr>
<tr>
<td>Paliperidone</td>
<td>4mg</td>
</tr>
<tr>
<td>Clozapine</td>
<td>50mg</td>
</tr>
</tbody>
</table>
Titration schedule may vary based on tolerability and response, with some patients stabilizing on lower doses or requiring slower titration.

Table 5: Cross titration for switching patients from other atypical antipsychotics

<table>
<thead>
<tr>
<th>Quetiapine</th>
<th>Max Dose</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
<th>Day 13-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Dose</td>
<td>800 mg</td>
<td>400 mg</td>
<td>300 mg</td>
<td>200 mg</td>
<td>100 mg</td>
</tr>
<tr>
<td>Divide:</td>
<td>200/200/200</td>
<td>100/100/200</td>
<td>100/100/100</td>
<td>100/100/100</td>
<td>50/50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ziprasidone</th>
<th>Max Dose</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Dose</td>
<td>160 mg</td>
<td>120 mg</td>
<td>80 mg</td>
<td>40 mg</td>
</tr>
<tr>
<td>Divide:</td>
<td>80/80</td>
<td>60/60</td>
<td>40/40</td>
<td>20/20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aripiprazole</th>
<th>Max Dose</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Dose</td>
<td>30 mg</td>
<td>20 mg</td>
<td>10 mg</td>
<td>5 mg</td>
</tr>
<tr>
<td>Divide:</td>
<td>Single Dose</td>
<td>Single Dose</td>
<td>Single Dose</td>
<td>Single Dose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risperidone</th>
<th>Upward Titration</th>
<th>Day 1-4</th>
<th>Day 5-8</th>
<th>Day 9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Dose</td>
<td>0.5-1 mg</td>
<td>1.5-2 mg</td>
<td>3-4 mg</td>
<td></td>
</tr>
<tr>
<td>Divide:</td>
<td>Single Dose or 0.5/0.5</td>
<td>Single Dose or 0.5-1/1</td>
<td>Single Dose or 1-2/2</td>
<td></td>
</tr>
</tbody>
</table>
### Formulary Medications

**Formulary agents** – Practitioners may prescribe any agent on the formulary without restrictions based on patient assessment and clinical judgment.

#### Table 6: Formulary Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Medication &amp; Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Generation Antipsychotic</td>
<td>Chlorpromazine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluphenazine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haloperidol</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perphenazine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thiothixine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trifluoperazine</td>
<td></td>
</tr>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Risperidone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ziprasidone</td>
<td></td>
</tr>
</tbody>
</table>

**Prior Authorization Criteria**

Prior authorization criteria include:
1. If the patient has had a documented significant side effect to risperidone in the past.
2. If the patient has already failed risperidone after a therapeutic trial of adequate dose and duration (6mg/day for 4-6 weeks).
3. If the patient has a contraindication to risperidone therapy.
4. If the patient’s BMI is greater than or equal to the 90th percentile.

#### Table 7: Prior Authorization Agents

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Medication &amp; Strength</th>
<th>Prior Authorization Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Aripiprazole (Abilify®)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2mg, 5mg, 10mg, 15mg, 20mg &amp; 30mg tablet</td>
<td>Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment failure on formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contraindication to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BMI ≥ 90th percentile</td>
</tr>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Ziprasidone (Geodon®)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20mg, 40mg, 60mg, &amp; 80mg capsule</td>
<td>Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment failure on formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contraindication to formulary 2nd generation antipsychotic</td>
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<tr>
<td></td>
<td></td>
<td>BMI ≥ 90th percentile</td>
</tr>
</tbody>
</table>
Background:

The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual's behavior over the previous 2-3 days should also be considered and can be reported by the patient's caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed an antipsychotic.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

Instructions for Use and Scoring:

Each item is rated on a seven-point scale (1=not present to 7=extremely severe). Zero (0) is entered if the item is not assessed. The scores of the 23 items should be summed and recorded. The total score should be compared to the total score from one evaluation to the next as a measure of response to treatment. In addition, a single subscale (symptom) or cluster of subscales (e.g., grandiosity, elevated mood, excitement, distractibility) can be followed over time.
Brief Psychiatric Rating Scale (BPRS)

Patient Name ______________________ Patient Number __________ Date_______________
Facility ______________ Practitioner _______________

Enter the score for the term that best describes the patient’s condition.
0 = Not assessed, 1 = Not present, 2 = Very mild, 3 = Mild, 4 = Moderate, 5 = Moderately severe, 6 = Severe, 7 = Extremely severe

Score

1. SOMATIC CONCERN - Preoccupation with physical health, fear of physical illness, hypochondriasis.
2. ANXIETY - Worry, fear, over-concern for present or future, anxiety.
3. EMOTIONAL WITHDRAWAL - Lack of spontaneous interaction, isolation, deficiency in relating to others.
4. CONCEPTUAL DISORGANIZATION - Thought processes confused, disoriented, disorganized, disorganized.
5. IMPULSIVENESS
6. MOTOR HYPERACTIVITY - Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.
7. MANIFESTATIONS AND POSTURING - Peculiar, bizarre, unusual motor behavior (not including tic).
8. GRANDIOSITY - Exaggerated self-opinion, arrogance, conviction of unusual power or ability.
9. DEPRESSIVE MOOD - Sorrow, sadness, despondency, pessimism.
10. HOSTILITY - Animosity, contempt, belligerence, disdain for others.
11. SUSPICIOUSNESS - Mistrust, belief others harbor malicious or discriminatory intent.
12. BELLACULATORY BEHAVIOR - Perceptions without normal external stimulus correspondence.
13. MOTOR RETARDATION - Slowed, weakened movements or speech, reduced body tone.
14. UNCOOPERATIVENESS - Resistance, guardedness, rejection of authority.
15. UNUSUAL THOUGHT CONTENT - Unusual, odd, strange, bizarre thought content.
16. BLUNTED AFFECT - Reduced emotional tone, reduction in formal intensity of feelings, flatness.
17. EXCITEMENT - Heightened emotional tone, agitation, increased reactivity.
18. DISORIENTATION - Confusion or lack of proper association for person, place or time.
19. ELEVATED MOOD - A pervasive, sustained and exaggerated feeling of well-being, elation, euphoria implying a pathological mood. Optimism that is out of proportion to the circumstances.
20. SUICIDALITY - Expressed desire, intent, or actions to harm or kill self.
21. BIZARRE BEHAVIOR - Reports of behaviors which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behavior and inappropriate affect.
22. SELF-NEGLECT - Hygiene, appearance, or living behavior below usual expectations, below socially acceptable standards or life-threatening.
23. DISTRACTIBILITY - Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterized by a pause in speech or a marked shift in gaze. Individual’s attention may be drawn to noises in adjoining rooms, books on a shelf, interviewer’s clothing, etc.
POST TRAUMATIC STRESS DISORDER in ADOLESCENTS

1. Routinely screen for PTSD symptoms and/or trauma. Rule out medical or other psychiatric causes of presentation.

2. Perform BPRS and Determine if Meets DSM-IV Criteria for Post-Traumatic Stress Disorder?

3. Traumatic underlying disorder?

4. Comorbid depression, bipolar disorder, or other anxiety disorder?

5. Referral to psychotherapy and initiate medication per appropriate co-morbid treatment pathway?

6. Initiate trauma focused psychotherapy.

   - Consider one of the following formulary antidepressants for at least 6-12 weeks. SSRIs are considered first line therapy.
     - Fluoxetine 10-60mg
     - Citalopram 10-40mg
     - Sertraline 50-200mg
   
   - See page 2 for recommended monitoring parameters

7. Perform BPRS and follow for specific symptom resolution.

8. Antidepressant therapy effective with documented symptom improvement with >80% compliance?

9. Perform BPRS and follow for specific symptom resolution.

10. Antidepressant therapy effective with documented symptom improvement with >80% compliance?

11. Continue maintenance treatment for 12 months, reassessing as determined by unit mental health provider.

12. Continue maintenance treatment for 12 months, reassessing as determined by unit mental health provider.

Prepared By The Youth Services Pharmacy & Therapeutics Committee Approved 10/2011.
<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Initial Dose (Dose Range) mg/day</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRI</td>
<td>Citalopram</td>
<td>Celexa®</td>
<td>10mg – 40mg</td>
<td>• Pregnancy Test – as clinically indicated • Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>10mg – 60mg</td>
<td></td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>50mg – 200mg</td>
<td></td>
</tr>
<tr>
<td>Alpha antagonist</td>
<td>Guanfacine</td>
<td>Tenex®</td>
<td>1mg – 4mg</td>
<td>• Pregnancy Test – as clinically indicated • Monitor supine, standing, and sitting BP especially at initiation or change in dose • Monitor for orthostatic hypotension • Taper over 1 week or more when discontinuing</td>
</tr>
<tr>
<td>Beta antagonist</td>
<td>Propranolol</td>
<td>Inderal®</td>
<td>10mg – 160mg</td>
<td>• Pregnancy Test – as clinically indicated • Monitor supine, standing, and sitting BP especially at initiation or change in dose • Monitor for orthostatic hypotension • Taper over 1 week or more when discontinuing</td>
</tr>
</tbody>
</table>

Medication Selection
Patients should be evaluated for use of formulary agents whenever possible. Practitioners should consider past history of response, contraindications, co-morbidities, medication compliance, and potential for adverse effects and/or drug-drug interactions when making treatment decisions. When medications are changed, patients should be monitored more closely for signs of worsening symptoms and adverse effects.
BRIEF PSYCHIATRIC RATING SCALE (BPRS): Instructions for the Clinician

Background:
The Brief Psychiatric Rating Scale (BPRS) is a widely used instrument for assessing psychopathology at baseline and longitudinally as an outcome measurement when treatment is introduced. The BPRS is a scale measuring positive symptoms, general psychopathology, and affective symptoms. It has proven particularly valuable for documenting the efficacy of treatment in patients who have moderate to severe psychopathology. The BPRS has been well validated in the clinical literature and is reportedly the most studied psychometric instrument currently in use.

The BPRS should be administered by a clinician who is knowledgeable concerning psychiatric disorders and is able to interpret the constructs used in the assessment. The individual’s behavior over the previous 2-3 days should also be considered and can be reported by the patient’s caregivers or teachers. It should be utilized at baseline and then at each visit as long as the patient is prescribed a psychotropic medication.

The BPRS utilized in the electronic medical record (EMR) consists of a range of 23 symptom constructs covering a broad array of potential psychopathology. The assessment typically takes 10-20 minutes or less for the interview and scoring.

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<td>7. MANNERISMS AND POSTURING - Peculiar, bizarre, unnatural motor behavior (not including tics).</td>
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<td></td>
</tr>
</tbody>
</table>
Acute Seizures
(Children & Adolescents)

Seizure Activity for 0-5 Minutes
Establish diagnosis by observing continuous seizure activity or one additional seizure. Rule out suspected symptom amplification. Treat underlying medical condition as appropriate.

Seizure activity suspected?
Observe and follow-up as indicated. Discharge from medical department.

• Administer oxygen by nasal cannula or mask, position head for unobstructed airway, or transfer to higher level of care for advanced respiratory support.
• Obtain and record vital signs.
• Establish an I.V. (normal saline).
• Obtain glucose finger stick.
• Determine oxygenation with oximetry.

Seizure activity continuing for 6-9 minutes?
• If patient is hypoglycemic or blood glucose is not available, inject 2ml/kg Dextrose 25% by direct push into the I.V. (Glucagon if IV access can not be established).
• Obtain ECG.
• Draw venous samples for glucose, chemistries to include Mg, PO4, and Ca, CBC, toxicology screens, and antiepileptic drug levels (if available).
• Consider administering extra dose of currently ordered oral antiepileptic drug (AED).
• Observe for a minimum of two hours and discharge from medical department following full recovery.
• Confirm medication adherence and reinforce education.
• Follow up / Initiate Chronic Care Clinic.

Seizure activity continuing for > 10 minutes?
The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.

Transfer to nearest Emergency room
• Call 911 and follow unit protocol.
• For UTMB facilities, if ambulance is not immediately available call 911.

Follow up with patient within 1 week upon return from emergency room/hospital.
• Confirm medication adherence and reinforce education.
• Obtain AED serum levels and adjust treatment plan if indicated.
• Follow up in chronic care clinic per ITP.

Seizure Disorder
(Children & Adolescents)

1. Seizure diagnosis and classification documented?**
   - Yes
   - No

   - Yes
   - No

3. Is patient on AED therapy?
   - Yes
   - No

4. If seizure disorder is confirmed, initiate AED therapy based on seizure classification (see Appendix A&B).
   - Go to box #7
   - or
   - If seizure disorder is ruled out, discontinue from Chronic Care Clinic.
   - or
   - If history of seizures but has not been on therapy and has had no seizure activity for > 2 years, may consider D/C from Chronic Care Clinic.

5. Is AED therapy appropriate for diagnosis?
   - Yes
   - No

6. Initiate rational AED regimen (see Appendix A).
   - Once new AED is at therapeutic dose taper the old agent slowly and discontinue.
   - Go to box #7

7. Assess Medication Regimen
   - Check medication compliance.
   - Obtain AED level if indicated.
   - Obtain baseline lab appropriate for AED (see Appendix C)

8. In AED therapy effective and tolerable?
   - Yes
   - No

9. Follow up in Chronic Care Clinic or as clinically indicated.
   - Monitor & obtain laboratories appropriate to AED utilized (Appendix C).
   - Consider discontinuation of AED if patient has normal EEG and has been seizure free for > 2 years. AED should be slowly tapered over 3-6 months and then discontinued.

10. **One seizure event is not necessarily diagnostic for seizure disorder and may not require long-term AED therapy.

Prepared By The South Services Pharmacy & Therapeutics Committee. March 2007. Revised 10/11.
I. Initial Assessment

A. Medical History

1. Verify any existing seizure diagnoses.
2. Identify exact seizure type by obtaining a detailed seizure history.
   a. Age at onset and frequency of seizure
   b. Symptoms during ictal and post-ictal phase (patient & observer)
3. Identify all co-morbidities.
4. Identify possible causes including family history of epilepsy, history of head trauma, birth complications, febrile convulsions, alcohol/drug abuse, cancer, vascular abnormalities.

B. Medication History

1. Identify all current and prior medication regimens including response and adverse events.
2. Rule out alcohol or other drug withdrawal seizures as these do not generally require AED therapy.
3. Rule out drugs which may cause or exacerbate seizures (e.g. psychotropics, antimicrobials, stimulants, narcotics, lidocaine, metoclopramide, theophylline, antiarrhythmics, antiepileptics, baclofen).

C. Physical Exam

1. Identify disorders associated with seizures such as head trauma, infections which could spread to the brain, congenital abnormality, neurological disorder, alcohol or drug abuse, metabolic disorders or cancer.
2. A complete neurologic and mental status exam should be performed.

D. Electroencephalographic (EEG) Studies – Should be performed on all new onset cases.

- Approximately 50% of patients show no abnormality on a single EEG.
- Approximately 10% with true seizures show no abnormality on multiple EEG studies.
- EEG should be used to support the diagnosis of epilepsy and cannot rule out seizure disorder.
- There are three important benefits of the EEG, 1) Confirm the presence of abnormal electrical activity, 2) provide information about the seizure type and syndrome, and 3) locate the seizure focus.

E. Other Labs & Neuroimaging

- Electrolytes
- Blood Glucose
- Liver & kidney function
- Toxicology screen
- MRI (CT if unavailable or contraindicated)
- Lumbar puncture if infection suspected

F. Drug Treatment Plan

1. Treatment with AED therapy is generally recommended after a second epileptic seizure.
   Selection of an appropriate AED should be based on the following:
   a. Age & child bearing potential
   b. Seizure type & syndrome
   c. Co-medications
   d. Co-morbidities
   e. AED adverse effect profile
2. AED initiation after the first seizure may be warranted in patients with a high risk of recurrence (e.g. unequivocal epileptic activity on EEG, neurologic deficit, structural abnormality, family history).

F. Principals of Treatment

1. Goals of Therapy
   a. Seizure free with minimal adverse effects
   b. Maintain normal lifestyle
   c. Use lowest effective AED dose
2. Assessment of disease control
   a. Good control – seizure free since last visit or last 6 months
   b. Fair control – 1 seizure since last visit or in last 6 months
   c. Poor control – > 2 seizures since last visit or last 6 months

### III. Withdrawal

#### A. Risk

1. **Approximately 3%**

#### B. Considerations

1. **Relapse**

2. **Normal**

3. **Potential**

#### C. Drug

1. **EEG**

2. **Step**

3. **of**

4. **Anticonvulsants**

#### D. Discontinuation

- Phenobarbital,
- Valproic acid,
- Lamotrigine,
- Gabapentin,
- Oxcarbazepine,
- Tiagabine,
- Levetiracetam

- Phenytoin,
- Phenytoin,
- Phenobarbital

#### Use of newer AEDs

- **Recommended** for those who have failed traditional or first generation AEDs or when traditional AEDs are unsuitable (contraindications, drug interactions, intolerance, pregnancy, etc).

- **Traditional AEDs** have the advantage of broad familiarity, lower cost, known efficacy and long-term experience.

#### Pregnancy Considerations

- **Category C** – levetiracetam, gabapentin, lamotrigine, tiagabine, oxcarbazepine
- **Category D** – phenytoin, Phenobarbital, primidone, carbamazepine, valproic acid
- **General recommendations** – if possible avoid valproic acid, phenytoin, Phenytoin and AED polytherapy. Use the lowest effective dose to control seizures.

### III. Withdrawal of Anticonvulsants

#### A. Risk of Seizure Relapse

1. Relapse rates are highest in the 1st 12 months (especially in the 1st 6 months) after AED withdrawal.

2. Risk of relapse continues to decrease with time.

3. Approximately 50% of patients with childhood-onset epilepsy have complete remission and no longer require drug therapy.

#### B. Considerations for AED Discontinuation

1. Seizure-free for a minimum of two years on AED treatment

2. Single type of partial seizure or a single type of generalized tonic-clonic seizure

3. Normal neurological examination and normal intelligence quotient (IQ)

4. EEG normalized with treatment

#### C. Drug Discontinuation

1. Risks and consequences of seizure recurrence versus continued treatment should be weighed.

2. Discontinue by slow taper (over 6 months) and tailor to the specific drug, dosage, and serum concentrations for each patient.

<table>
<thead>
<tr>
<th>Factors Against Drug Withdrawal</th>
<th>Factors in Favor of Drug Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult-onset epilepsy</td>
<td>Childhood-onset epilepsy</td>
</tr>
<tr>
<td>Adult-onset epilepsy</td>
<td>Childhood-onset epilepsy</td>
</tr>
<tr>
<td>Partial epilepsy</td>
<td>Childhood-onset epilepsy</td>
</tr>
<tr>
<td>Lennox-Gastaut epilepsy</td>
<td>Lennox-Gastaut epilepsy</td>
</tr>
<tr>
<td>Presence of multiple seizure types</td>
<td>Location of seizure type</td>
</tr>
<tr>
<td>Presence of underlying neurological condition</td>
<td>Presence of underlying neurological condition</td>
</tr>
<tr>
<td>Abnormal EEG</td>
<td>Normal EEG</td>
</tr>
<tr>
<td>Co-morbidity with concurrent treatments</td>
<td>Seizure-free for a minimum of two years on AED treatment</td>
</tr>
</tbody>
</table>

Appendix B: Antiepileptic Drugs For Specific Seizures

Begin treatment with single AED using recommended initial daily dosing. Up to 80% of patients can be managed with monotherapy. Ensure proper medication adherence prior to modifying regimen.

<table>
<thead>
<tr>
<th>Type of Seizure</th>
<th>Formulary Medications</th>
<th>Nonformulary Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Partial</td>
<td>Carbamazepine, Lamotrigine</td>
<td>Phenobarbital, Topiramate</td>
</tr>
<tr>
<td>Complex Partial</td>
<td>Carbamazepine, Lamotrigine</td>
<td>Phenobarbital, Topiramate</td>
</tr>
<tr>
<td>Generalized Tonic-Clonic</td>
<td>Carbamazepine, Lamotrigine</td>
<td>Phenobarbital, Topiramate</td>
</tr>
<tr>
<td>Absence</td>
<td>Ethosuximide, Dipgparaxone</td>
<td>Lamotrigine</td>
</tr>
</tbody>
</table>

**Prior Authorization: Adjunctive agent.**

### Appendix D: Antiepileptic Drugs (AEDs)

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Usual Children, Adolescent and Adult Dose</th>
<th>Adverse Effects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>12-16: 200mg bid up to 100mg/kg/day</td>
<td>Sodium sensitivity, dizziness, nausea, GI upset.</td>
</tr>
<tr>
<td>Sodium valproate</td>
<td>2-12: 400-800mg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Tegretol®</td>
<td>2-300mg/day in 1-2 divided doses up to 400mg/day</td>
<td>Drowsiness, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Dilantin®</td>
<td>2-24mg/kg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>3-15mg/kg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Primidone</td>
<td>2-20mg/kg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Lamictal®</td>
<td>25-50mg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>12-24mg/day</td>
<td>Somnolence, dizziness, nausea, vomiting, tremor, rash.</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>900-2500mg/day 2-3 divided doses</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Neurontin®</td>
<td>1800-4800mg/day 2-3 divided doses</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Valproate</td>
<td>1000-2500mg/day 2-3 divided doses</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Depakote®</td>
<td>4-32mg/kg/day divided bid-qid</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Oxcarbazepine</td>
<td>200-800mg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Zonisamide</td>
<td>100-400mg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Topiramate</td>
<td>2-6mg/kg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Tiagabine</td>
<td>15mg/kg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Zonarelix</td>
<td>40-160mg/kg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Zonegran</td>
<td>400mg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
<tr>
<td>Zonegran</td>
<td>600mg/day</td>
<td>Rash, renal calculi, and hypohidrosis especially in children</td>
</tr>
</tbody>
</table>

*Not a complete list

### Dosing:

- **Carbamazepine**:
  - Children: 12-16: 200mg bid up to 100mg/kg/day
  - Adults: 200mg qid

- **Sodium valproate**: 2-12: 400-800mg/day

- **Tegretol**: 2-12: 200mg bid up to 400mg/day

- **Dilantin**: 2-12: 400-800mg/day

- **Phenytoin**: 2-12: 400-800mg/day

- **Primidone**: 2-12: 400-800mg/day

- **Lamictal**: 2-12: 400-800mg/day

- **Lamotrigine**: 2-12: 400-800mg/day

- **Gabapentin**: 1800-4800mg/day

- **Neurontin**: 1800-4800mg/day

- **Valproate**: 1000-2500mg/day

- **Depakote**: 4-32mg/kg/day

- **Oxcarbazepine**: 200-800mg/day

- **Zonisamide**: 100-400mg/day

- **Topiramate**: 40-160mg/kg/day

- **Tiagabine**: 40-160mg/kg/day

- **Zonarelix**: 40-160mg/kg/day
<table>
<thead>
<tr>
<th>Drug</th>
<th>Drug Interactions (DI) &amp; Comments*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine (CBZ)</td>
<td>• DI – levels increased by VPA, phenytoin, estrogens, thiazide, isoniazid, propoxyphene, digoxin, levels decreased by phenobarbital &amp; primidone</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>• No known drug interactions with other antiepileptic medications</td>
</tr>
<tr>
<td></td>
<td>• Weight gain, peripheral edema</td>
</tr>
<tr>
<td></td>
<td>• Dose adjustment required when CBZ &lt; 50% of label dose</td>
</tr>
</tbody>
</table>
| Lacosamide         | • DI – levels increased by VPA, phenytoin, estrogens, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, levomepromazine, 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PRODUCT INFORMATION

3TC see LAMIVUDINE

ABACAVIR (Max 11 refills)
  ZIAGEN®
    300MG TABLET ($8.85)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ABILIFY® see ARIPIPRAZOLE

ABSORBASE
  EUCERIN®
    4OZ ($2.89), 16OZ ($5.90) CREAM
    (Note: Restricted to regional medical facilities and dialysis centers.)

ACETAMINOPHEN
  APAP, TYLENOL®
    325MG TABLET ($0.01)
    650MG SUPPOSITORY – 50 SUPP/BOX ($8.57/BOX)
    650MG/20.3ML UD SOLUTION ($0.43)
    (Note: Take from stock.  No refills allowed.)

ACETAMINOPHEN/CODEINE - CII, CV
  TYLENOL® #3
    APAP 300MG/CODEINE 30MG TABLET – CIII ($0.08)
    APAP 300MG/CODEINE 30MG/12.5ML UD SOLUTION - CV ($1.12)
    (Note: May not be given KOP.  Non-formulary approval required for use > 21 days. A minimum 30 day period between orders is required for use beyond 21 days without a nonformulary approval. Take from stock.  May only be ordered by a physician or DEA/DPS registered midlevel provider.)

ACETAZOLAMIDE (Max 11 refills)
  DIAMOX®
    250MG TABLET ($0.44)

ACETIC ACID/AL ACET OTIC SOLN
  DOMEBORO® OTIC
    2% OTIC SOLUTION - 60ML ($23.44)

ACHROMYCIN V® see TETRACYCLINE

ACTIDOSE® see CHARCOAL, ACTIVATED
ACYCLOVIR
   ZOVIRAX®
   400MG TABLET ($0.05) (Max 11 refills)
   800MG TABLET ($0.10) (No refills)

ADENOCARD® see ADENOSINE

ADENOSINE
   ADENOCARD®
   6MG/2ML VIAL ($4.58)
   (Note: May not be given KOP. Restricted to EMS and RMFs only.)

ADDERALL® see AMPHETAMINE SALTS

ADDERALL XR® see AMPHETAMINE SALTS

ADRENALIN see EPINEPHRINE

ALAMAG PLUS® see ALUMINUM/MAGNESIUM HYDROXIDE/SIMETHICONE

ALBUMIN, HUMAN
   PLASBUMIN-25®
   25% INJECTION - 100ML ($70.04) (No refills)
   (Note: Restricted to regional medical facilities as floorstock for use in paracentesis. Clinic use only. All other uses require nonform approval. May not be given KOP.)

ALBUTEROL
   VENTOLIN® (No refills)
   0.083% NEBULIZER SOLUTION - 3ML UD 25/BOX ($3.75/BOX)
   (Note: Restricted to acute asthma management. Orders should not exceed 72 hours. Clinic use only. Take from stock. May not be given KOP.)
   PROVENTIL-HFA® (Max 3 refills)
   METERED DOSE INHALER 90MCG/ACTUATION
   200 ACTUATIONS ($27.97)

ALCAINE® OPHTH SOLN see PROPARACAINE OPH SOL

ALCOHOL
   LAVACOL®
   ETHYL 70% - 16OZ ($1.47)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

ALDACTONE® see SPIRONOLACTONE
ALDOMET® see METHYLDOPA

ALLOPURINOL (Max 11 refills)
ZYLOPRIM®
100MG ($0.04), 300MG ($0.05) TABLET

ALPHAGAN® see BRIMONIDINE

ALTEPLASE
(t-PA, CATHFLO ACTIVASE®)
1MG/1ML - 2ML VIAL ($88.89)
(Note: Clinic use only. Take from stock. May not be given KOP. Use and floor stock
restricted to dialysis centers for catheter restoration.)

ALUMINUM HYDROXIDE/MAGNESIUM HYDROXIDE/SIMETHICONE
ALAMAG PLUS®
200MG/200MG/25MG TABLET ($0.03)
(Note: Clinic use only. Take from stock. Use restricted to nursing protocols.)

AMANTADINE HCL (Max 11 refills)
SYMMEtREL®
100MG CAPSULE ($0.47)
(Note: Nonformulary approval required for TJJD facilities.)

AMIODARONE (Max 11 refills, tablet only)
CORDARONE®
200MG TABLET ($0.14)
50MG/ML INJECTION – 3ML VIAL ($0.72)
(Note: Injection for clinic use only, should be taken from stock, may not be given KOP,
and restricted to regional medical facilities.)

AMLODIPINE (Max 11 refills)
NORVASC®
5MG ($0.02), 10MG ($0.03) TABLET

AMMONIA
AROMATIC INHALANT - 0.33ML ($1.80/BOX)
(35% ALCOHOL, 15% AMMONIA) 12 INHALANTS/BOX
(Note: Clinic use only. Take from stock. May not be given KOP.)

AMOXICILLIN
AMOXIL®
250MG ($0.08), 500MG ($0.12) CAPSULE
AMOXIL® see AMOXICILLIN

AMPHETAMINE/DEXTROAMPHETAMINE see AMPHETAMINE SALTS

AMPHETAMINE SALTS - CII

ADDERALL®
5MG ($0.89), 10MG ($0.89) TABLET
ADDERALL XR®
10MG ($6.77), 20MG ($6.77), 30MG ($6.77) EXTENDED RELEASE
CAPSULE
(Note: May not be given KOP. Restricted to TJJD only. Take from stock TJJD institutions only. May only be ordered by a physician.)

AMPICILLIN

OMNIPEN-N®
500MG INJECTION, IM OR IV ($1.43)
IV Preparation Standard:
< 3gm in 100mL NS ONLY over 40 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)

ANALGESIC BALM see METHYL SALICYLATE/MENTHOL

ANCEF® see CEFAZOLIN

ANTACID PLUS see ALUMINUM/MAGNESIUM HYDROXIDE/SIMETHICONE

ANTILIRIUM® see PHYSOSTIGMINE

ANTIPYRINE/BENZOCAINE OTIC

AURALGAN®
OTIC DROPS - 15ML ($4.60)

ANTIVERT® see MECLIZINE HCL

ANUSOL® OINTMENT see HEMORRHOIDAL OINTMENT

ANUSOL® SUPPOSITORY see HEMORRHOIDAL SUPPOSITORY

ANUSOL-HC® CREAM see HYDROCORTISONE RECTAL CREAM

APRESOLINE® see HYDRAZINE

ANUSOL-HC SUPP® see HYDROCORTISONE HEMORRHOIDAL SUPPOSITORY

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AQUAMEPHYTON® see PHYTONADIONE

ARIPIPRAZOLE (Max 11 refills)
   ABILIFY®
      2MG ($18.19), 5MG ($18.19), 10MG ($18.19), 15MG ($16.18)
      20MG ($25.73), 30MG ($25.73) TABLET
   (Note: May not be given KOP. Restricted to TJJD. Prior authorization criteria must be met and noted in the special instructions field for use without nonformulary approval.
   Criteria include:
   a. Intolerance to second generation antipsychotics.
   b. Treatment failure on second generation antipsychotics.
   c. Contraindication to second generation antipsychotics.
   d. BMI ≥ to 90th percentile.)

ARTIFICIAL TEARS SOLUTION see POLYVINYL ALCOHOL

ARZOL® see SILVER NITRATE

ASPIRIN (Max 11 refills)
   BAYER® ASPIRIN
      325MG TABLET ($0.01)
   ECOTRIN®
      81MG ($0.01), 325MG ($0.01) ENTERIC-COATED TABLET

ATAZANAVIR (Max 11 refills)
   REYATAZ®
      200MG ($16.13), 300MG ($31.95) CAPSULE
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ATENOLOL (Max 11 refills)
   TENORMIN®
      25MG ($0.01), 50MG ($0.01) TABLET

ATIVAN® see LORAZEPAM
<table>
<thead>
<tr>
<th>ATOMOXETINE (Max 11 refills)</th>
<th>STRATTERA®</th>
</tr>
</thead>
<tbody>
<tr>
<td>25MG ($5.93), 40MG ($6.43), 60MG ($6.43), 80MG ($6.95), 100MG ($6.95) CAPSULE</td>
<td>(Note: May not be given KOP. Restricted to TJJD. Prior authorization must be met and noted in the special instructions field for use without nonformulary approval. Criteria include:</td>
</tr>
<tr>
<td>a. ADHD and failure on adequate dose and trial of both formulary stimulants.</td>
<td>b. ADHD and intolerance to both formulary stimulants.</td>
</tr>
<tr>
<td>c. ADHD and contraindication to use of both formulary stimulants.</td>
<td>d. ADHD and significant history of substance abuse.</td>
</tr>
<tr>
<td>e. ADHD and co-morbid anxiety disorder.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATROPINE SULFATE</th>
<th>ATROPINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1MG/ML INJECTION - 10ML SYRINGE ($3.30) (No refills)</td>
<td>(Note: Clinic use only. Take from stock. May not be given KOP.)</td>
</tr>
<tr>
<td>ISOPTO ATROPINE®</td>
<td>1% OPHTH SOLUTION - 15ML ($10.77) (Max 11 refills)</td>
</tr>
<tr>
<td>(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)</td>
<td></td>
</tr>
</tbody>
</table>

| ATROVENT HFA® see IPRATROPIUM BROMIDE |
| AURALGAN® see ANTIPYRINE/BENZOCAINE OTIC |
| AVLOSOULFON® see DAPSONE |

<table>
<thead>
<tr>
<th>AZATHIOPRINE (Max 11 refills)</th>
<th>IMURAN®</th>
</tr>
</thead>
<tbody>
<tr>
<td>50MG TABLET ($0.11)</td>
<td>(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AZITHROMYCIN (Max 11 refills)</th>
<th>ZITHROMAX®</th>
</tr>
</thead>
<tbody>
<tr>
<td>600MG TABLET ($2.70)</td>
<td>(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior authorization criteria must be met and noted in the special instructions field for use without a non-formulary approval. Criteria include:</td>
</tr>
<tr>
<td>a. HIV patients dosed 1200 milligrams q week for MAC primary prophylaxis when CD4 count &lt; 50.</td>
<td>b. Pregnancy</td>
</tr>
<tr>
<td>- 2400 milligrams x 1 dose for GC &amp; chlamydia</td>
<td>- 1200 milligrams x 1 dose for chlamydia)</td>
</tr>
</tbody>
</table>

| AZT see ZIDOVUDINE |

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AZULFIDINE® see SULFASALAZINE

B-1, VITAMIN see THIAMINE HCL

B-6, VITAMIN see PYRIDOXINE HCL

B-12, VITAMIN see CYANOCOBALAMIN

BACITRACIN/POLYMYXIN
   POLYSPORIN®, DOUBLE ANTIBIOTIC OINTMENT
   TOPICAL OINTMENT - 15GM TUBE ($2.96)
   POLYSPORIN®
   OPHTHALMIC OINTMENT - 3.5GM TUBE ($3.04)

BACLOFEN (Max 11 refills)
   LIORESAL®
   10MG ($0.05), 20MG ($0.07) TABLET
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior
   Authorization criteria must be met and noted in the special instructions field for use
   without non-formulary approval. Criteria include:
   a. Spinal cord injury
   b. Multiple sclerosis
   c. Muscular dystrophy
   d. Spastic hemiplegia
   e. Amyotrophic lateral sclerosis
   f. Cerebral palsy)

BACTRIM® see SULFAMETHOXAZOLE/TRIMETHOPRIM

BARACLUDE® see ENTECAVIR

BAYER® ASPIRIN see ASPIRIN

BECLOMETHASONE HFA (Max 11 refills)
   QVAR®
   HFA ORAL INHALER 120 ACTUATIONS/80MCG EACH ($142.20)
   (Note: 1 inhaler will last 60 days at 1 puff BID (maximum 5 refills), 30 days at 2 puffs
   BID, 20 days at 3 puffs BID, and 16 days at 4 puffs BID. Inhaler should be ordered
   accordingly.)

BENADRYL® see DIPHENHYDRAMINE

BENEMID® see PROBENECID
BENZAC® see BENZOYL PEROXIDE

BENZOYL PEROXIDE (Max 3 refills)
BENZAC®
10% GEL - 1.5 OZ ($1.67)
(Note: Orders are to be given a 90 day expiration date.)

BENZTROPINE MESYLATE (Max 11 refills)
COGENTIN®
1MG ($0.04), 2MG ($0.06) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

BETAPACE® see SOTALOL

BETHANECHOL (Max 11 refills)
URECHOLINE®
25MG TABLET ($0.16)

BICILLIN-LA® see PENICILLIN G BENZATHINE

BISACODYL
DULCOLAX®
5MG TABLET ($0.02)
10MG SUPPOSITORY ($0.05)
(Note: Take from stock.)

BISMUTH SUBSALICYLATE
PEPTO BISMOL®
262MG CHEWABLE TABLET ($0.04)
(Note: Take from stock.)
BODY LOTION
LUBRISOFT® (No refills)
19OZ LOTION - ($1.72)
(Note: Prior Authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. One bottle must last 90 days. Criteria include:
  a. Eczema
  b. Dermatitis
  c. Psoriasis
  d. Chronic stasis dermatitis
  e. Ichthyosis
  f. Hyperkeratosis
  g. Dialysis
  h. Burn scars)

BOOSTRIX® see TETANUS/DIPHTHERIA/ACELLULAR PERTUSSIS (TdP)

BRETHINE® see TERBUTALINE SULFATE

BRIMONIDINE (Max 11 refills)
ALPHAGAN®
0.2% OPHTHALMIC SOLUTION -10ML ($3.62)

BROMOCRIPTINE MESYLATE (Max 11 refills)
PARLODEL®
  2.5MG TABLET ($1.52)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. May not be used post-partum to inhibit lactation.)

BUPIVACAINE HCL
MARCAINE®
  0.5% INJECTION - 10ML VIAL ($1.54)
  0.25% INJECTION - 10ML VIAL ($1.26)
(Note: Clinic use only. Take from stock. May not be given KOP.)

BUTORPHANOL TARTRATE - CIV
STADOL®
  2MG/ML IM INJECTION - 1ML VIAL ($2.82)
(Note: Clinic use only. Take from stock. May not be given KOP. May only be ordered by a physician or a DEA/DPS registered midlevel provider.)

CALAMINE LOTION
LOTION - 120ML ($0.92)
(Note: Take from stock.)
CALAN® SR see VERAPAMIL HCL
CALAN® see VERAPAMIL HCL

CALCITRIOL (Max 11 refills)
   ROCALTRIOL®
       0.25MCG CAPSULE ($0.65)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

CALCIUM CARBONATE (Max 11 refills)
   OS-CAL®
       500MG ELEMENTAL CALCIUM/1.25GM CARBONATE SALT TAB ($0.01)
   (Note: Take from stock.)
   TUMS®
       500MG CHEW TABLET – 150/BOTTLE ($1.99/BOTTLE)
   (Note: Chewable tablet restricted to dialysis patients.)

CALCIUM CARBONATE/VITAMIN D (Max 11 refills)
   OSCAL 250 + VITAMIN D®
       250MG ELEMENTAL CALCIUM/125 IU VITAMIN D TABLET ($0.01)
   (Note: Take from stock.)

CALCIUM GLUCONATE
   10% INJECTION - 10ML VIAL ($1.83)
   (94MG CALCIUM GLUCONATE EACH VIAL)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

CALCIUM POLYCARBOPHIL (Max 5 refills)
   FIBERCAL®
       625MG TABLET ($0.04)
   (Note: Not allowed as floor stock except cards of 14 for nursing protocol orders only. No refills allowed on nursing protocol orders.)

CAMPHO-PHENIQUE® see CAMPHOR/PHENOL LIQUID

CAMPHOR-PHENOL
   CAMPHO-PHENIQUE®
       LIQUID - 1.5OZ ($1.93)

CARBAMAZEPINE (Max 11 refills)
   TEGRETOL®
       200MG TABLET ($0.03)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Use cautiously in patients of Asian descent. See seizure pathway for complete details.)
CARBAMIDE PEROXIDE
DEBROX®
6.5% OTIC SOLUTION – 15ML ($0.87)
(Note: Clinic use only, should be taken from stock, and may not be given KOP.)

CARBIDOPA/LEVODOPA (Max 11 refills)
SINEMET® 25-250
CARBIDOPA 25MG/LEVODOPA 250MG TABLET ($0.14)

CARDIZEM® see DILTIAZEM HCL

CARVEDILOL (Max 11 refills)
COREG®
3.125MG ($0.03), 6.25MG ($0.03), 12.5MG ($0.03), 25MG ($0.03) TAB

CASTOR OIL
CASTOR OIL - 120ML ($1.22)
(Note: Take from stock.)

CATAPRES® see CLONIDINE HCL

CATHFLO ACTIVASE® see ALTEPLASE

CEFAZOLIN SODIUM
ANCEF®
1GM INJECTION – 10ML VIAL ($0.89)
Preparation Standard:
< 2gm in 100mL D5W over 30-60 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)

CEFTAZIDIME
FORTAZ®
500MG INJECTION ($4.51)
1GM INJECTION ($3.49)
IV Preparation Standard:
< 2gm in 100mL D5W over 40 minutes
> 2gm in 150mL D5W over 60 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional medical facilities and TJJD. Should not be used as single injectable dose followed by oral therapy.)
CEFTRIAXONE
ROCEPHIN®
  250MG INJECTION ($0.78)
  (Note: Clinic use only. Take from stock. May not be given KOP. Use restricted to
  treatment of GC)
  1 GM INJECTION ($1.21)
  (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional
  medical facilities infirmary units and TJJD.)

CELEXA® see CITALOPRAM HBR

CELLCEPT® see MYCOPHENOLATE MOFETIL

CENESTIN® see ESTROGENS, SYNTHETIC CONJUGATED

CEFALEXIN
  KEFLEX®
    500MG CAPSULE ($0.08)

CHARCOAL
ACTIDOSE® WITH SORBITOL
  50GM ACTIVATED CHARCOAL / 54GM
  SORBITOL LIQUID - 8OZ ($17.93)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

CHLORDIAZEPOXIDE - CIV
LIBRIUM®
  10MG ($0.12), 25MG ($0.13) CAPSULE
  (Note: May not be given KOP. Restricted to facilities for detoxification. Take from
  stock. May only be ordered by a physician or a DEA/DPS registered midlevel
  provider.)

CHLORHEXIDINE GLUCONATE
PERIDEX®
  0.12% ORAL RINSE - 16OZ ($2.21)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Restricted
to floor stock.)

CHLORPHENIRAMINE MALEATE
CTM, CHLOR-TRIMETON®
  4MG TABLET ($0.02)
  (Note: Take from stock.)
CHLORPROMAZINE HCL (Max 11 refills)
THORAZINE®
  50MG ($1.01), 100MG ($1.44), 200MG ($2.06) TABLET
  25MG/ML INJECTION - 2ML AMPULE ($11.96)
  (Note: May not be given KOP. Injection for clinic use only and should be taken from stock.)

CHLOR-TRIMETON® see CHLORPHENIRAMINE

CHLORZOXAZONE
PARAFON FORTE DSC®
  500MG TABLET ($0.06)
  (Note: Restricted to one 7-day supply per injury. Allowed KOP at 8-hour units, may not be given KOP at all other units.)

CHOLESTYRAMINE (Max 11 refills)
QUESTRAN® LIGHT
  4GM POWDER PKT W/ASPARTAME - 60/BOX ($0.67 each)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

CIBALITH-S® see LITHIUM CITRATE

CIPRO® see CIPROFLOXACIN

CIPROFLOXACIN
CIPRO®
  500MG TABLET ($0.15)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Use restricted to regional medical facilities. Available as floor stock to prevent delays in therapy. Not recommended for GC or gram positive infections including S. aureus. Non-formulary approval still required for use at facilities other than RMFs.)

CITALOPRAM HBR (Max 11 refills)
CELEXA®
  10MG ($0.02), 20MG ($0.03), 40MG ($0.04) TABLET
  (Note: May not be given KOP. 10mg restricted to TJJD only.)

CLARITIN® see LORATADINE

CLEAR EYES® see NAPHAZOLINE

CLEOCIN®, CLEOCIN-T® see CLINDAMYCIN
CLINDAMYCIN HCL
CLEOCIN®
150MG CAPSULE ($0.07)

CLINDAMYCIN PHOSPHATE
CLEOCIN®, CLEOCIN-T®
1% TOPICAL SOLUTION – 60ML ($)
(Note: Topical solution is restricted to TJJD facilities and may not be given KOP.)
150MG/ML - 6ML VIAL ($2.83)
IV Preparation Standard:
> 600mg in 150mL D5W over 60 minutes. Maximum rate of infusion 30mg/minute.
900MG/50ML D5W PREMIX ($13.50)
(Note: Injection is clinic use only. Take from stock. May not be given KOP.)

CLOBETASOL
TEMOVATE®
0.05% OINTMENT - 15GM ($4.80)

CLONIDINE HCL
CATAPRES®
0.1MG TABLET ($0.02)
(Note: Clinic use only for hypertensive urgency or management of withdrawal symptoms from opioid discontinuation. Take from stock. May not be given KOP. A 30-day supply may be ordered for intake patients without a non-formulary approval to facilitate tapering off the medication and conversion to a formulary agent. Providers must type “intake” in the special instructions field. All other uses require non-formulary approval.)

CLOPIDOGREL
PLAVIX®
75MG TABLET ($0.12)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria includes:
  a. Intolerant or allergic to aspirin and needs cardioprotection or prevention
  b. Failed aspirin therapy [e.g., event while on aspirin such as MI, stroke, TIA]
  c. Acute Coronary Syndrome [e.g., MI, unstable angina, or PCI with or without stent placement] and treatment is in combination with aspirin
  d. Brachytherapy
  e. Intermittent claudication and failed trial or remained symptomatic while on aspirin plus dipyridamole
  f. Dialysis vascular graft.
Available in stock to prevent delays in therapy. Non-formulary approval is still required for all other uses.)
CLOTRIMAZOLE
LOTRIMIN®
  1% TOPICAL SOLUTION - 10ML ($2.40)
  1% CREAM - 15GM TUBE ($0.92)

CLOZAPINE
CLOZARIL®
  25MG ($0.46), 100MG ($1.08) TABLET
  (Note: May not be given KOP. Floor stock restricted to E2 High Security, JM, J4 and
  SV. Nonformulary approval is still required for use and recommended monitoring must
  be followed (Pharmacy Policy 55-20).)

CLOZARIL® see CLOZAPINE

COAL TAR
PC-TAR®
  1% SHAMPOO - 6OZ ($3.70)
  (Note: Should be ordered for 1 bottle to last 90 days.)

COGENTIN® see BENZTROPINE MESYLATE

COLACE® see DOCUSATE SODIUM

COLLAGENASE
SANTYL®
  250UNITS/GM - 30GM OINTMENT ($81.05)
  (Note: Clinic use only. Take from stock. May not be given KOP. Use is restricted to
  wound care facilities.)

COMPAZINE® see PROCHLORPERAZINE

COMPOUND W® see SALICYLIC ACID

CONDYLOX® see PODOFILOX
<table>
<thead>
<tr>
<th>CONTACT TYPE</th>
<th>CLASS</th>
<th>PRODUCT (DAYS SUPPLY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGP</td>
<td>SOAKING/DISINFECTING/PROTEIN REMOVER/CLEANER SOLUTION ($7.78)</td>
<td>BOSTON SIMPLUS MULTI-ACTION SOLUTION® 3.5OZ (30)</td>
</tr>
<tr>
<td>RGP, S</td>
<td>CONTACT REWETTING &amp; LUBRICANT SOLUTION ($2.74)</td>
<td>CLERZ PLUS® - 5ML (30)</td>
</tr>
<tr>
<td>S</td>
<td>SOFT CONTACT LENS MULTIPURPOSE SOLUTION ($2.93)</td>
<td>OPTI-ONE MULTIPURPOSE SOLUTION® 12OZ (30) : ONE SOLUTION FOR RINSING, DISINFECTING, STORAGE, &amp; REWETTING</td>
</tr>
<tr>
<td>RGP, S</td>
<td>CONTACT LENS CASE ($0.19)</td>
<td></td>
</tr>
</tbody>
</table>

RGP = RIGID GAS PERMEABLE  
S = SOFT LENSES
ORDERING CONTACT LENS PRODUCTS

Option 1 (soft lenses) – Contact lens case must be ordered separately if needed*.

Option 2 (rigid gas permeable lenses) – Contact lens case must be ordered separately if needed*.

<table>
<thead>
<tr>
<th>OPTIONS FOR PROVIDING A 12 MONTH SUPPLY OF PRODUCTS</th>
<th>DAYS SUPPLY</th>
<th>ORDER QTY</th>
<th>REFILLS</th>
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</thead>
<tbody>
<tr>
<td><strong>OPTION 1 (SOFT LENSES)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>OPTI-ONE MULTIPURPOSE SOLUTION®</td>
<td>30</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CLERZ-PLUS 5ML®</td>
<td>30</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CONTACT LENS CASE*</td>
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<tr>
<td><strong>OPTION 2 (RIGID GAS PERMEABLE LENSES)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>BOSTON SIMPLUS MULTI-ACTION SOLUTION®</td>
<td>30</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CLERZ-PLUS 5ML®</td>
<td>30</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CONTACT LENS CASE*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Contact lens case may be ordered from the pharmacy warehouse if needed. Stat orders are not available.

CONTACT LENS REWETTING SOLUTION see CONTACT LENS CARE PRODUCTS

CONTACT LENS CLEANER see CONTACT LENS CARE PRODUCTS

CORDARONE® see AMIODARONE

COREG® see CARVEDILOL

CORTISPORIN® see NEOMYCIN/POLYMIXIN/BACITRacin/HYDROCORTISONE

CORTISPORIN® OTIC see NEOMYCIN/POLYMIXIN/HYDROCORTISONE

COUMADIN® see WARFARIN SODIUM

CREON 12® see PANCRELIPASE

CRIXIVAN® see INDINAVIR

CRYSELLE® see NORGESTREL/ETHINYL ESTRADIOL

CTM see CHLORPHENIRAMINE MALEATE
CYANOCOBALAMIN, VITAMIN B-12
1000MCG/ML INJECTION - 1ML VIAL ($0.86)
(Note: Clinic use only. Take from stock. May not be given KOP.)

CYCLOGYL® see CYCLOPENTOLATE HCL

CYCLOPENTOLATE HCL
CYCLOGYL®
1% OPHTHALMIC SOLUTION - 15ML ($6.91)

CYCLOSPORINE (Max 11 refills)
NEORAL®
25MG ($0.74), 100MG ($2.96) CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

CYPROHEPTADINE
PERIACTIN®
4MG TABLET ($0.09)

D-T TOXOIDS see TETANUS & DIPHTHERIA TOXOIDS

D4T see STAVUDINE

DACRIOSE® see OPHTHALMIC IRRIGATING SOLUTION

DAPSONE (Max 11 refills)
AVLOSULFON®
100MG TABLET ($1.03)

DARAPRIM® see PYRIMETHAMINE

DARUNAVIR (Max 11 refills)
PREZISTA®
400MG ($16.23), 600MG ($16.23) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

DDAVP see DESMOPRESSIN

DDI see DIDANOSINE

DEBROX® see CARBAMIDE PEROXIDE

DECADRON® see DEXAMETHASONE
DELTASONE® see PREDNISONE

DEPAKOTE® see DIVALPROEX SODIUM

DEPO-PROVERA® see MEDROXYPROGESTERONE

DESMOPRESSIN (Max 5 refills)
  DDAVP®
    2MG TABLET ($1.16)
    (Note: May not be given KOP. Restricted to TJJD use only)

DESYREL® see TRAZODONE HCL

DEXAMETHASONE
  DECADRON®
    4MG/ML – 1ML VIAL ($0.64)
    (Note: Clinic use only. Take from stock. May not be given KOP).
    4MG TABLET ($0.09)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Tablet restricted to Carol Young Medical Facility as floor stock only. Non-formulary approval still required for use.)

DEXTROAMPHETAMINE/AMPHETAMINE see AMPHETAMINE SALTS

DEXTROSE
  DEXTROSE 5% in WATER INJECTION
    100ML ($1.04), 250ML, ($0.67), 500ML ($0.73),1000ML ($0.90)
  DEXTROSE 5% in WATER INJECTION MINI-BAG – 50ML ($2.16)
  DEXTROSE 5% in NS INJECTION - 500ML ($0.80), 1000ML ($0.91)
  DEXTROSE 5% in 1/4 NS INJECTION - 1000ML ($0.95)
  DEXTROSE 5% in 1/2 NS INJECTION - 1000ML ($0.91)
  DEXTROSE 10% in WATER INJECTION - 1000ML ($1.33)
  DEXTROSE 50% INJECTION SYRINGE - 50ML ($4.85)
  DEXTROSE 40% GEL 37.5GM TUBE – 3 TUBES/BOX
    GLUTOSE 15® ($2.84/TUBE)
    (Note: Clinic use only. Take from stock. May not be given KOP. D10W 1000ml restricted to Estelle, Michael and Young facilities.)

DIAMOX® see ACETAZOLAMIDE
DIAZEPAM - CIV (Max 5 refills)

VALIUM®

5MG TABLET ($0.05)
(Note: May not be given KOP. May only be ordered by a physician or DEA/DPS registered midlevel provider. Prior authorization must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:

a. Spinal cord injury
b. Multiple sclerosis
c. Muscular dystrophy
d. Spastic hemiplegia
e. Amyotrophic lateral sclerosis
f. Cerebral palsy)

DICLOxacillin sodium

DYNAPEN®

250MG ($0.17), 500MG ($0.35) CAPSULE

DIDANOSINE EC (DDI) (Max 11 refills)

VIDEX-EC®

250MG ($4.48) 400MG ($12.62) ENTERIC COATED CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Best if taken on an empty stomach in the evening.)

DIFlUCAN® see FLUCONAZOLE

DIGOXIN (Max 11 refills)

LANOXIN®

0.125MG ($0.26), 0.25MG ($0.26) TABLET

DILACOR® XR see DILTAZEM HCL

DILANTIN® see PHENyTOIN SODIUM

DILTAZEM (Max 11 refills)

CARDIZEM®

60MG ($0.05), 90MG ($0.07) TABLET
DILACOR® XR (extended release once-daily dosage form)
180MG ($0.53), 240MG ($0.59) CAPSULE
DIPHENDRAMINE HCL (Max 11 refills, capsule only)
  BENADRYL®
    25MG ($0.01), 50MG CAPSULE ($0.01)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
  ELIXIR 12.5MG/5ML - 480ML ($1.78)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
  50MG/ML INJECTION - 1ML VIAL ($0.62) (no refills)
    (Note: May not be given KOP. Clinic use only. Take from stock.)

DIPHTHERIA/TETANUS TOXOIDS see TETANUS & DIPHTHERIA TOXOIDS

DIPYRIDAMOLE (Max 11 refills)
  PERSANTINE®
    75MG TABLET ($0.11)
    (Note: Use should be limited to combination therapy with ASA for intermittent claudication.)

DITROPAN® see OXYBUTYNIN

DIVALPROEX SODIUM (Max 11 refills)
  DEPAKOTE®
    250MG ($0.07), 500MG ($0.13) TABLET
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

DOCUSATE SODIUM (Max 5 refills)
  COLACE®
    100MG CAPSULE ($0.01)

DOMEBORO OTIC® see ACETIC ACID/ALUMINUM ACETATE

DOPAMINE
  DOPAMINE 400MG IN 5% DEXTROSE 250ML ($5.74)
    (Note: Clinic use only. Take from stock. May not be given KOP.)

DORZOLAMIDE
  TRUSOPT®
    2% OPHTHALMIC SOLUTION – 10ML ($10.16)

DOUBLE ANTIMICOTIC OINTMENT see BACITRACIN/POLYMYXIN B
**DOXERCALIFEROL** (Max 11 refills)
HECTORAL®
  2.5MCG CAPSULE ($20.47)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Restricted to dialysis units.)

**DOXYCYCLINE** (Max 2 refills for acne)
VIBRA-TAB®
  100MG TABLET ($0.06)

D-T TOXOIDS see TETANUS & DIPHTHERIA TOXOIDS

DULCOLAX® see BISACODYL

DUOFILM® see SALICYLIC ACID

DURAGESIC® see FENTANYL

DYAZIDE® see TRIAMTERENE/HCTZ

DYNAPEN® see DICLOXACILLIN SODIUM

ECOTRIN® see ASPIRIN, ENTERIC-COATED

**EFAVIRENZ** (Max 11 refills)
SUSTIVA®
  600MG TABLET ($18.91)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

EFFEXOR® see VENLAFAXINE HCL

**ELECTROLYTE ORAL SOLUTION**
GOLYTELY®
  PEG 3350 & ELECTROLYTE SOLUTION
  - 4 LITER BOTTLE ($7.22)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

ELIMITE® see PERMETHRIN

**ENALAPRIL** (Max 11 refills)
VASOTEC®
  2.5MG ($0.02), 5MG ($0.02), 10MG ($0.02), 20MG ($0.02) TABLET

ENGERRX B see HEPATITIS B VACCINE, RECOMBINANT
ENTECAVIR
BARACLUDE®
0.5MG ($29.04), 1MG ($29.04) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior
authorization required by HCV group from pharmacy at
utmbcmcp.hospital@utmb.edu for UTMB units and Utilization Management at
(806)356-5350 for TLUHSC units.)

ENTERAL FEEDING
OSMOLITE® 1 CAL
8 OZ RTU CAN ($0.74)
(Note: May not be given KOP. Take from stock. Restricted to regional medical
facilities and dialysis units. Enteral feeding formulation may be therapeutically
interchanged if unavailable.)

ENULOSE® see LACTULOSE

EPINEPHRINE HCL
ADRENALIN®
1:1000 (1MG) INJECTION - 1ML AMPULE($0.99)
1:10,000 (0.1MG) INJECTION - 10ML SYRINGE ($4.33)
EPIPEN®
1:1000 (0.3MG/0.3ML) INJECTION – 2 SYRINGES/PK ($104.01/SYR)
(Note: Clinic use only. Take from stock. May not be given KOP. Epipen restricted to
TJJD for emergency boxes only.)

EPIPEN® see EPINEPHRINE

EPIVIR® see LAMIVUDINE

EPOGEN® see EPOETIN ALFA

EPOETIN ALFA (Max 2 refills)
EPOGEN®
10,000 UNIT/ML INJECTION - 2ML VIAL ($249.38)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to dialysis
units as floor stock. Prior authorization criteria must be met and noted in the special
instructions field for use without nonformulary approval. Criteria include: Dialysis.
Requires Medication Guide be given to the patient every month as part of FDA REMS
program.

ERYTHROCIN® see ERYTHROMYCIN BASE, ERYTHROMYCIN STEARATE

348
ERYTHROMYCIN BASE
ERYTHROCIN®
500MG TABLET ($2.43)

ERYTHROMYCIN STEARATE
ERYTHROCIN®
250MG TABLET ($1.74)

ERYTHROMYCIN
ILOTYCIN®
0.5% OPHTHALMIC OINTMENT - 3.5GM ($3.53)

ERYTHROPOIETIN see EPOETIN ALFA

ESKALITH® see LITHIUM CARBONATE

ESTROGENS, CONJUGATED
PREMARIN®
25MG/5ML INJECTION – 5ML VIAL ($124.98)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to use in female patients only.)

ESTROGENS, CONJUGATED, VAGINAL (Max 11 refills)
PREMARIN VAGINAL CREAM®
0.625MG/GRAM – 30 GRAM TUBE ($149.82)
(Note: Restricted to use in female patients only.)

ESTROGENS, SYNTHETIC CONJUGATED (Max 11 refills)
CENESTIN®
0.625MG ($3.03), 1.25MG ($3.03) TABLET
(Note: Restricted to use in female patients only.)

ETHAMBUTOL HCL (Max 11 refills)
MYAMBUTOL®
400MG TABLET ($1.38)
(Note: May not be given KOP.)

ETHANOL see ALCOHOL, ETHYL

ETHOSUXIMIDE (Max 11 refills)
ZARONTIN®
250MG CAPSULE ($0.90)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
ETHYNO DIACETATE/ETHINYL ESTRADIOL (Max 11 refills)
ZOVIA – 1/50E®
1/50-28 TABLET ($18.48/pack)
(Note: Restricted to female patients.)

EUCERIN® see ABSORBASE

FENTANYL
DURAGESIC®
25MCG/HR ($), 100MCG/HR ($) PATCH
(Floor stock restricted to hospice facilities. May not be given KOP. May only be ordered by a physician. Nonformulary approval is required prior to use.)

FEOSOL® see FERROUS SULFATE

FERROUS SULFATE (Max 11 refills)
FEOSOL®
325MG TABLET ($0.01)

FIBERCON® see CALCIUM POLYCARBOPHIL

FLEETS PHOSPHO SODA® see SODIUM PHOSPHATE ORAL SOLUTION

FLAGYL® see METRONIDAZOLE

FLUCONAZOLE (Max 11 refills)
DIFLUCAN®
100MG ($0.10), 150MG ($0.37), 200MG ($0.22) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior authorization must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:
   a. 100mg and 200mg tablets restricted to treatment of HIV-related opportunistic infections.
   b. 150mg tablets restricted to single dose therapy for vaginal candidiasis.)

FLUMAZENIL
ROMAZICON®
0.1MG/ML IV INJECTION - 5ML VIAL ($2.92)
(Note: Restricted to emergency use only. Clinic use only. Take from stock. May not be given KOP.)

FLUCINOLONE ACETONIDE
SYNALAR®
0.01% TOPICAL SOLUTION – 60ML ($67.69)

350
FLUCINONIDE (Max 2 refills 60gm cream only)
LIDEX®
  0.05% OINTMENT - 15GM ($12.08)
  0.05% CREAM - 15GM ($7.76), 60GM ($16.41)

FLUORETS® see FLUORESCIN SODIUM STRIPS

FLUORESCIN SODIUM STRIPS
FLUORETS®
  1MG OPHTHALMIC STRIPS – 100/BOX ($0.09 each strip)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

FLUOXETINE (Max 11 refills)
PROZAC®
  10MG ($0.02), 20MG ($0.02) CAPSULE
  (Note: May not be given KOP. 10mg restricted to TJJD only.)

FLUPHENAZINE HCL (Max 11 refills)
PROLIXIN®
  2.5MG ($0.07), 5MG ($0.08), 10MG ($0.09) TABLET
  2.5MG/ML INJECTION - 10ML VIAL ($78.09)
  (Note: Injection for clinic use only, should be taken from stock and may not be given KOP.)
PROLIXIN D®
  25MG/ML DECANOATE INJECTION - 5ML VIAL ($66.44)
  (Note: Injection for clinic use only, should be taken from stock and may not be given KOP.)

FLURBIPROFEN
OCUFEN®
  0.03% OPHTHALMIC SOLUTION - 2.5ML ($1.41)

FLUZONE® see INFLUENZA VACCINE

FOLIC ACID (Max 11 refills)
FOLVITE®
  1MG TABLET ($0.01)

FOLINIC ACID see LEUCOVORIN CALCIUM
FOLVITE® see FOLIC ACID
FORTAZ® see CEFTAZIDIME
FOSAMPRENIVIR (Max 11 refills)
LEXIVA®
  700MG TABLET ($13.12)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

FUROSEMIDE (Max 11 refills, tablet)
LASIX®
  20MG ($0.03), 40MG ($0.03) TABLET
  10MG/ML INJECTION - 4ML VIAL ($0.56)
(Note: Injection for clinic use only, should be taken from stock and may not be given KOP.)

GEL-KAM® see STANNOUS FLUORIDE

GEMFIBROZIL (Max 11 refills)
LOPID®
  600MG TABLET ($0.18)

GENOPTIC® see GENTAMICIN

GENTAMICIN
  GARAMYCIN®, GENOPTIC®, GENTAK®
    0.3% OPHTHALMIC OINTMENT - 3.5GM ($8.60)
    0.3% OPHTHALMIC SOLUTION - 5ML ($1.50)
  GENTAMICIN
    40MG/ML INJECTION - 2ML VIAL ($1.53)
  IV Preparation Standard:
  < 100mg in 100mL D2W over 60 minutes
  >100mg in 150mL D2W over 60 minutes.
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

GENTIAN VIOLET
  2% SOLUTION - 60ML ($8.98)
(Note: Clinic use only. Take from stock. May not be given KOP.)

GEODON® see ZIPRASIDONE

GLIPIZIDE (Max 11 refills)
GLUCOTROL®
  5MG ($0.02), 10MG ($0.05) TABLET

GLUCAGEN® see GLUCAGON

352
GLUCAGON

GLUCAGEN®
1MG HYPKIT ($132.03)
(Note: Clinic use only. Take from stock. May not be given KOP.)

GLUCOTROL® see GLIPIZIDE

GLUCOLA® see GLUCOSE TOLERANCE TEST

GLUCOPHAGE® see METFORMIN

GLUCOSE TOLERANCE TEST

GLUCOLA®
100GM GLUCOSE - 10 OZ BOTTLE ($0.97)
(Note: Clinic use only. Take from stock. May not be given KOP. For diagnostic use in female facilities only.)

GLUTOSE 15® see DEXTROSE 40% GEL

GOLYTELY® see ELECTROLYTE ORAL SOLUTION

GRANULEX® see TRYPsin/BALSAM PERU/CASTOR OIL

GUANFACINE (Max 11 refills)

TENEX®
1MG ($0.06), 2MG ($0.09) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

HALDOL® see HALOPERIDOL

HALOPERIDOL (Max 11 refills)

HALDOL®
1MG ($0.07), 5MG ($0.09) TABLET
2MG/ML ORAL CONCENTRATE - 120ML ($3.34)
5MG/ML LACTATE INJECTION - 1ML VIAL ($0.87)
(Note: May not be given KOP. Injection for clinic use only and should be taken from stock.)

HALDOL D®
100MG/ML DEcanoATE INJECTION - 1ML VIAL ($42.87)
(Note: May not be given KOP. Injection for clinic use only and should be taken from stock.)

HAVRIX® see HEPATITIS A VACCINE
HC RECTAL CREAM see HYDROCORTISONE CREAM

HECTORAL® see DOXERCALCIFEROL

HEMORROIDAL-HC® see HYDROCORTISONE

HEMORROIDAL (Max 11 refills)
ANUSOL®, TUCKS®
OINTMENT - 30GM ($3.24)
SUPPOSITORIY - 12/BOX ($1.33 each)
(Note: Take from stock. Ointment contains pramoxine HCL 1% and zinc oxide 12.5%. Suppositories contain phenylephrine HCL 0.25% as active ingredients.)

HEP-LOCK® see HEPARIN SODIUM

HEPARIN SODIUM
HEP-LOCK®
100U/ML - 3ML SYRINGE ($0.42)
HEPARIN
1,000U/ML - 30ML VIAL ($4.62)
5,000U/ML - 1ML VIAL ($1.28), 10ML VIAL ($6.32)
(Note: Clinic use only. Take from stock. May not be given KOP. 1,000U/ML-30ML & 5,000U/ML-10ML restricted to dialysis centers.)

HEPATITIS A VACCINE, INACTIVATED (Max 1 refill)
HAVRIX®
1440 EL.U/ML - 1ML VIAL ($59.94)
(Note: May not be given KOP. Restricted from floor stock. Order for 180 days to be given at 0 and 6 months. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:
a. HIV-positive patients who are not immune (P&P B-14.07)
b. Chronic hepatitis C patients who are not immune (P&P B-14.07)
c. Chronic hepatitis B patients who are not immune (P&P B-14.07)
HEPATITIS B VACCINE, RECOMBINANT (Max 2 refills)

ENGERIX B®

20MCG/ML - 1ML VIAL ($45.48)
(Note: Clinic use only. Restricted from floor stock. May not be given KOP. Order for 60 days with 2 refills to be given at 0, 2, & 4 months. The Pharmacy will send each dose as an individual patient medication order. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include: patient is not immune (P&P B-14.07) plus one of the following
a. Chronic hepatitis C
b. HIV
c. Dialysis (Dialysis patients should be given 2 doses [40mcg] per administration)
d. Offenders who are subject to an occupational exposure as outlined in Infection Control Policy B-14.06
e. Offender workers in job classifications that have potential for occupational exposure as outlined in Correctional Managed Healthcare Policy B-14.4
f. ≤ 18 year old without documentation of series completion)

HYDRAZINE (Max 11 refills)
APRESOLINE®

25MG ($0.04), 50MG ($0.05) TABLET

HYDROCHLOROTHIAZIDE (Max 11 refills)
HYDRODIURIL®

12.5MG CAPSULE ($0.03)
25MG ($0.01), 50MG ($0.02) TABLET

HYDROCORTISONE
ANUSOL-HC®

1% HEMORRHOIDAL-HC RECTAL CREAM – 30GM ($5.07)
25MG HEMORRHOIDAL-HC RECTAL SUPPOSITORY–12/BOX ($0.40 EACH)
(Note: Max 11 refills on hemorrhoidal cream & suppositories.)

HYTONE®
1% CREAM – 30GM ($0.78), U/D PACKET ($0.06)

HYDROCORTISONE SODIUM SUCCINATE
SOLU-CORTEF®

100MG INJECTION - 2ML VIAL ($2.76)
250MG INJECTION - 2ML VIAL ($8.03)

IV Preparation Standard:
50-100mg in 100mL D5W over 40 minutes
>100mg in 250mL D5W over 60 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)
HYDRODIURIL® see HYDROCHLOROTHIAZIDE

HYDROGEN PEROXIDE
3% SOLUTION - 473ML ($0.59)
(Note: Clinic use only. Take from stock. May not be given KOP.)

HYDROXYZINE PAMOATE (Max 2 refills)
VISTARIL®
25MG ($0.13), 50MG ($0.16) CAPSULE
(Note: May not be given KOP. Restricted to TJJD only.)

HYTONE® see HYDROCORTISONE CREAM

HYTRIN® see TERAZOSIN

IBUPROFEN (Max 2 refills)
MOTRIN®
200MG ($0.02), 400MG ($0.03), 600MG ($0.03), 800MG ($0.04) TABLET
(Note: The 200mg tablets should be taken from stock, no refills allowed and restricted to Texas Tech TDCJ facilities and TJJD facilities; restricted to dental use only for UTMB TDCJ facilities.)

ILOTYCIN® see ERYTHROMYCIN

IMDUR® see ISOSORBIDE MONONITRATE

IMIPRAMINE HCL (Max 11 refills)
TOFRANIL®
25MG ($0.21), 50MG ($0.20) TABLET
(Note: May not be given KOP. Restricted to TJJD for treatment of enuresis.)

IMODIUM® see LOPERAMIDE HCL

IMURAN® see AZATHIOPRINE

INDERAL® see PROPRANOLOL

INDINAVIR (Max 11 refills)
CRIXIVAN®
400MG ($2.41) CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
INFLIXIMAB

REMICADE®

100MG IV INJECTION ($735.27)
(Note: Floor stock restricted to GC and E2 facilities. Designated as a Local Control and therefore must be kept and inventoried as a controlled substance (Pharmacy Policies 20-05, 20-10, 20-15). Non-formulary approval is still required prior to use. May not be given KOP.)

INFLUENZA VIRUS VACCINE, WHOLE VIRUS

FLULAVAL®

5ML MULTI-DOSE VIAL - 10 DOSES/VIAL ($91.97)
(Note: Clinic use only. Take from stock. May not be given KOP. Seasonally available. Follow Infection Control P&P B-14.51 when selecting patients. Criteria include:

a. ≥ 50 years old
b. Certain chronic diseases (heart disease, asthma, COPD, diabetes, renal disease, hepatic disease, neurologic disease, and hematologic disease)
c. Immunocompromising diseases (HIV, most cancers, ESRD, sickle cell, medications)
d. Pregnancy during the influenza season
e. < 18 years old and on chronic aspirin therapy
f. American Indian or Alaska Native
g. Morbidly obese BMI ≥ 40)

INFUVITE® see MULTIVITAMIN

INH see ISONIAZID

INSULIN, HUMAN (Max 11 refills)

NOVOLIN®

NPH 100 UNITS/ML - 10ML VIAL ($63.25)
REGULAR 100 UNITS/ML - 10ML VIAL ($63.25)
70/30 (70% NPH/30% REG) 100 UNITS/ML - 10ML VIAL ($63.25)
(Note: Clinic use only. Take from stock. May not be given KOP. Once opened, must be discarded after 30 days if stored refrigerated or at room temperature.)

INVIRASE® see SAQUINAVIR

IPRATROPIUM BROMIDE HFA (Max 11 refills)

ATROVENT HFA®

HFA ORAL INHALER 200 ACTUATIONS/17MCG EACH ($189.28)
0.02% NEBULIZER SOLUTION - 2.5ML ($0.14) (No refills)
(Note: Nebulizer for clinic use only, should be taken from stock, and may not be given KOP. Nebulizer restricted to acute asthma management. Orders for nebulizer should not exceed 72 hours.)
IRON SUCROSE
VENOFER®
20MG/ML – 5ML SINGLE DOSE VIAL ($31.35)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to dialysis centers.)

ISENTRESS® see Raltegravir

ISONIAZID (Max 11 refills)
NYDRAZID®, INH
300MG TABLET ($0.07)
(Note: May not be given KOP.)

ISOPTO ATROPINE® see Atropine Sulfate

ISOPTOTEARS® see Methylcellulose

ISOSORBIDE MONONITRATE (Max 11 refills)
ISMN, IMDUR®
30MG ($0.20), 60MG ($0.21) EXTENDED RELEASE TABLET

KALETRA® see Lopinavir/Ritonavir

KAYEXALATE® see Polystyrene Sodium Sulfonate

K-DUR® see Potassium Chloride

KCL see Potassium Chloride

KEFLEX® see Cephalexin

KENALOG® see Triamcinolone

KENALOG IN ORABASE® see Triamcinolone Dental Paste

KEPPRA® see Levetiracetam

LABETALOL
NORMODYNE®
5MG/ML – 40ML MDV ($2.59)
(Note: Restricted to EMS for treatment of HTN emergencies per protocol.)
LACTATED RINGERS
INJECTION 1000ML ($0.97)
(Note: Clinic use only. Take from stock. May not be given KOP.)

LACTULOSE (Max 11 refills)
ENULOSE®
10GM/15ML SYRUP - 473ML ($4.76)
(Note: Take from floor stock.)

LAMIVUDINE (3TC) (Max 11 refills)
EPIVIR®
150MG ($4.07), 300MG ($8.14) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

LANOXIN® see DIGOXIN
LASIX® see FUROSEMIDE

LATANOPROST (Max 11 refills)
XALATAN®
0.005% OPHTHALMIC SOLUTION - 2.5ML ($9.99)
(Note: Requires refrigeration prior to administration. It may be stored outside of the
refrigerator for up to 30 days once given to the patient KOP.)

LAVACOL® see ALCOHOL, ETHYL 70%

LEUCOVORIN CALCIUM (Max 11 refills)
WELLCOVORIN®, FOLINIC ACID
5MG TABLET ($0.81)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

LEVETIRACETAM (Max 11 refills)
KEPPRA®
500MG ($0.12), 1000MG ($0.24) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

LEVODOPA/CARBI DOPA see CARBIDOPA/LEVODOPA

LEVOTHYROXINE SODIUM (Max 11 refills)
SYNTHROID®
0.025MG ($0.08), 0.05MG ($0.09), 0.1MG ($0.10), 0.15MG ($0.13)
TABLET

LEXIVA® see FOSAMPRENAVIR
LIBRIUM® see CHLORDIAZEPoxide

LIDEX® see FLUOCINONIDE

LIDOCAINE HCL
XYLOCAINE®
  2% VISCOUS ORAL SOLUTION - 100ML ($1.87)
  2% JELLY - 30ML ($5.28)
  5% OINTMENT – 1.25OZ ($54.15)
  1% LOCAL INJECTION (10MG/ML) - 20ML VIAL ($1.18)
  2% LOCAL INJECTION (20MG/ML) - 20ML VIAL ($1.44)
  1% WITH EPINEPHRINE 1:100,000 – 30ML VIAL ($2.50)
(Note: Injection and 2% jelly for clinic use only and should be taken from stock. The 2% jelly restricted to EMS and emergency use only. Viscous solution may not be given KOP. The 5% ointment is restricted as floor stock to GC and GV for clinic use only by OBGYN services and may not be given KOP.)

LIORESAL® see BACLOFEN

LITHIUM CARBONATE (Max 11 refills)
ESKALITH®
  300MG CAPSULE ($0.03)
(Note: May not be given KOP.)

LITHIUM CITRATE (Max 11 refills)
CIBALITH-S®
  300MG/5ML SYRUP - 500ML ($15.00)
(Note: May not be given KOP.)

LO/OVRAL-28® see NORGESTREL/ETHINYL ESTRADIOL

LONITEN® see MINOXIDIL

LOPERAMIDE HCL (Max 2 refills)
IMODIUM®
  2MG CAPSULE ($0.07)

LOPID® see GEMFIBROZIL

LOPINAVIR/RTONAVIR (Max 11 refills)
KALETRA®
  200MG/50MG FILM-COATED TABLET ($5.75)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
LOPRESSOR® see METOPROLOL TARTRATE

LORATADINE (Max 2 refills)
CLARITIN®
10MG TABLET ($0.05)

LORAZEPAM - CIV
ATIVAN®
2MG/ML INJECTION - 1ML VIAL ($0.54)
(Note: Clinic use only. Take from stock. May not be given KOP. May only be ordered by a physician or DEA/DPS registered midlevel provider. Requires refrigeration. Use restricted to treatment of acute seizures uncontrolled by other measures, short-term treatment of agitation at inpatient psychiatric facilities. All other uses require nonformulary approval.)

LOTROMIN® see CLOTRIMAZOLE

LOW-OGESTREL® see NORGESTREL/ETHINYL ESTRADIOL

LUBRICANT EYE OINTMENT
LUBRIFRESH PM®
OPHTHALMIC OINTMENT - 3.5GM ($1.85)

LUBRICANT, SURGICAL
SURGILUBE®
4.24 OZ TUBE ($28.69)
3GM FOILPACK ($0.10)
(Note: Clinic use only. Take from stock. May not be given KOP. Tube restricted to regional medical facilities.)

LUBRIFRESH PM® see LUBRICANT EYE OINTMENT

LUBRISOFT® see BODY LOTION

MACRODANTIN® see NITROFURANTOIN

MAGNESIUM CITRATE
SOLUTION - 300ML ($1.03)
(Note: Clinic use only. Take from stock. May not be given KOP.)

MAGNESIUM HYDROXIDE
MILK OF MAGNESIA®
2400MG/30ML SUSPENSION - 30ML UNIT DOSE ($0.40)
(Note: Take from stock.)
MAGNESIUM SULFATE
50% INJECTION (500MG/ML) - 2ML VIAL ($0.80)
(Note: Clinic use only. Take from stock. May not be given KOP.)

MARCAINE® see BUPIVACAINE

MAXITROL® see NEOMYCIN/POLYMIXIN/DEXAMETHASONE

MEASLES/MUMPS/RUBELLA VACCINE, LIVE
M-M-R VACCINE
0.5ML SC INJECTION ($51.36)
(Note: Restricted form stock. May not be given KOP. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:
a. ≤ 18 years old without documentation of completion
b. Immigrants that have not completed the series
c. Born after 1956 and did not attend public school.)

MEBENDAZOLE
VERMOX®
100MG CHEWABLE TABLET ($3.68)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

MECLIZINE HCL (Max 2 refills)
ANTIVERT®
25MG TABLET ($0.28)

MEDROXYPROGESTERONE
DEPO-PROVERA®
150MG/ML INJECTION - 1ML VIAL ($39.19) (Max 3 refills)
PROVERA®
2.5MG ($0.05), 10MG ($0.07) TABLET (Max 11 refills)
(Note: Injection for clinic use only, should be taken from stock and may not be given KOP. All dosage forms restricted to use in female patients only.)

MEGACE® see MEGESTROL ACETATE

MEGESTROL ACETATE (Max 11 refills)
MEGACE®
20MG ($0.15), 40MG ($0.17) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
MELATONIN (Max 2 refills)
3MG TABLET ($0.05)
(Note: May not be given KOP. Restricted to TJJD only.)

MELODICAM (Max 2 refills)
MOBIC®
7.5 MG ($0.02), 15MG ($0.03) TABLET

MENINGOCOCCAL VACCINE, POLYSACCHARIDE
MENOMUNE®
50MCG/0.5ML SDV ($108.24)
(Note: Restricted from stock. May not be given KOP. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include: anatomic or functional asplenic patients who have no history of prior immunization.)

MENTHOLATUM RUB
VICKS VAPORUB®
OINTMENT – 50GM ($2.80)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to TJJD facilities.)

MENOMUNE® see MENINGOCOCCAL VACCINE
METHYLTON® see PHYTONADIONE

MEROGENEM see MEROGENEM

MERREM®
MERREM®
1GM IV INJECTION – 30ML VIAL ($12.23)
IV Preparation Standard:
1gm in NS or D5W 100ML over 30 minutes
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional medical facilities.)

METFORMIN (Max 11 refills)
GLUCOPHAGE®
500MG ($0.02), 1000MG ($0.04) TABLET

METHIMAZOLE (Max 11 refills)
TAPAZOLE®
5MG TABLET ($0.22)
METHOCARBAMOL
ROBAXIN®
750MG TABLET ($0.09)
(Note: Tablets restricted to one 7-day supply per injury. Allowed KOP at 8-hour units, may not be given KOP at all other units.)

METHYLCELLULOSE
ISOPTOTEARS®
0.5% OPHTHALMIC SOLUTION - 15ML ($20.24)

METHYLDOPA
ALDOMET®
250MG TABLET ($0.10)
(Note: Floor stock restricted to Carol Young Medical Facility. Non-formulary approval is still required for use.)

METHYLPHENIDATE- CII
RITALIN®
5MG ($0.13), 10MG ($0.22) TABLET
RITALIN LR®
10MG ($4.34), 20MG ($4.34), 30MG ($4.44), 40MG ($4.57) EXTENDED RELEASE CAPSULE
(Note: May not be given KOP. Restricted to TJJD use only. Take from stock TJJD institutions only. May only be ordered by a physician.)

METHYLPREDNISOLONE SODIUM SUCCINATE
SOLU-MEDROL®
125MG INJECTION – 2ML VIAL ($2.28)
IV Preparation Standard:
3gm in 100mL D5W over 40 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)

METHYLSALICYLATE/MENTHOL BALM
ANALGESIC BALM
30GM TUBE ($0.91)
(Note: May not be given KOP. Restricted to TJJD.)

METOCLOPRAMIDE HCL (Max 2 refills)
REGLAN®
10MG TABLET ($0.03)

METOLAZONE (Max 11 refills)
ZAROXOLYN®
5MG TABLET ($0.41)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
METOPROLOL TARTRATE (Max 11 refills)
LOPRESSOR®
25MG ($0.03), 50MG ($0.03), 100MG ($0.04) TABLET
5MG/5ML INJECTION - 5ML VIAL ($0.60)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

METRONIDAZOLE HCL
FLAGYL®
250MG ($0.22), 500MG ($0.40) TABLET
500MG in NS READY-TO-USE 100ML BAG ($0.92)
IV Preparation Standard: over 75 minutes, DO NOT REFRIGERATE, PROTECT FROM LIGHT.
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

MICONAZOLE
MONISTAT-7®
100MG VAGINAL SUPPOSITORY - 7 SUPP/BOX ($2.80/BOX)
(Note: Restricted to female patients. Generally dosed 1 suppository inserted vaginally q hs x 7 days.)

MICROSULFON® see SULFADIAZINE

MILK OF MAGNESIA see MAGNESIUM HYDROXIDE

MINOXIDIL (Max 11 refills)
LONITEN®
2.5MG ($0.13), 10MG ($0.20) TABLET

M-M-R VACCINE see MEASLES/MUMPS/RUBELLA VACCINE, LIVE

MOBIC® see MELOXICAM

MONISTAT® see MICONAZOLE
MORPHINE SULFATE - CII
10MG/ML INJECTION - 1ML VIAL ($0.59)
10MG/5ML ELIXIR – 5ML UNIT DOSE ($0.58)
MS CONTIN®
15MG ($0.26), 30MG ($0.27) EXTENDED RELEASE TABLET
(Note: Take from stock. May not be given KOP. May only be ordered by a physician. Elixir and extended release tablets restricted to regional medical facilities and hospices. Non-formulary approval required for use > 21 days. A minimum 30 day period between orders is required for use beyond 21 days without a nonformulary approval. Injection is restricted to one time orders for pain associated with acute trauma or severe medical condition. All other uses require nonformulary approval.)

MOTRIN® see IBUPROFEN

MS-CONTIN® see MORPHINE SULFATE

MULTIVITAMIN (Max 11 refills, tablet)
M.V.I. ADULT™, INFUVITE®
INJECTION - 10ML VIAL ($6.59)
(Note: Clinic use only. Take from stock. May not be given KOP.)
TABLET ($0.01)
(Note: Prior authorization required for use of tablets. The following prior authorization criteria must be met and noted in the special instructions field of the order: HIV positive, CD4 count < 100 cells/mm³ and not prescribed a nutritional supplement/enteral feeding.)

MUNO® 128 see SODIUM CHLORIDE OPHTHALMIC OINTMENT

M.V.I. ADULT™ see MULTIVITAMIN

MYAMBUOTOL® see ETHAMBUTOL HCL

MYCOBUTIN® see RIFABUTIN

MYCOPHENOLATE MOFETIL (Max 11 refills)
CELLCEPT®
250MG CAPSULE ($0.45)
500MG TABLET ($0.89)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

MYCOSTATIN® see NYSTATIN

MYLICON® see SIMETHICONE
MYSOLINE® see PRIMIDONE

NAFCILL® see NAFCILLIN SODIUM

NAFCILLIN

NAFCILL®
1GM INJECTION VIAL ($12.64)
IV Preparation Standard:
< 1gm in 100mL D2W over 30 minutes
> 1gm in 100mL D2W over 40 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)

NALOXONE HCL

NARCAN®
0.4MG/ML INJECTION - 1ML VIAL ($6.28)
(Note: Clinic use only. Take from stock. May not be given KOP)

NAPHAZOLINE HCL

NAPHCON®, CLEAR EYES®
0.012% OPHTHALMIC SOLUTION - 15ML ($2.61)

NAPHAZOLINE/PHENIRAMINE

NAPHCON-A®, OPCON-A®
NAPHAZOLINE 0.025%/PHENIRAMINE 0.3%
OPHTHALMIC SOLUTION - 15ML ($4.35)

NAPHCON® see NAPHAZOLINE HCL
NAPHCON-A® see NAPHAZOLINE/PHENIRAMINE
NAPROSYN® see NAPROXEN

NAPROXEN (Max 2 refills)

NAPROSYN®
250MG ($0.04), 500MG ($0.04) TABLET

NARCAN® see NALOXONE HCL
NATALINS® FA see PRENATAL-FOLIC ACID
NAVANE® see THIOTHIXENE HCL
NELFINAVIR (Max 11 refills)
VIRACEPT®
   625MG TABLET ($6.37)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

NEOMYCIN/BACITRACIN/POLYMYXIN
   NEOSPORIN®
   OPHTHALMIC OINTMENT - 3.5GM ($12.73)
   TOPICAL OINTMENT 1GM PACKET ($0.08)
   (Note: 1gm packet for clinic use only, should be taken from stock and may not be given KOP.)

NEOMYCIN/BACITRACIN/POLYMYXIN/HYDROCORTISONE
   CORTISPORIN®
   OPHTHALMIC OINTMENT - 3.5GM ($8.94)

NEOMYCIN/POLYMYXIN/DEXAMETHASONE
   MAXITROL®
   OPHTHALMIC SUSPENSION - 5ML ($5.10)
   OPHTHALMIC OINTMENT - 3.5GM ($4.95)

NEOMYCIN/POLYMYXIN/HYDROCORTISONE
   CORTISPORIN®
   OTIC SUSPENSION - 10ML ($4.79)

NEOMYCIN/GRAMICIDIN/POLYMYXIN
   NEOSPORIN®
   OPHTHALMIC SOLUTION - 10ML ($6.43)

NEORAL® see CYCLOSPORINE

NEOSPORIN® see NEOMYCIN/GRAMICIDIN/POLYMYXIN
   see also NEOMYCIN/BACITRACIN/POLYMYXIN

NEPHRO-VITE® see VITAMIN B COMPLEX & VITAMIN C WITH FOLIC ACID

NEVIRAPINE (Max 11 refills)
VIRAMUNE®
   200MG TABLET ($0.12)
   (Note: May not be given KOP.)
Niacin (Max 11 refills)
NIASPAN ER®
500MG ($2.81), 1000MG ($4.97) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

NIASPAN ER® see Niacin

Nitro-Dur® see nitroglycerin

Nitro-Bid® see nitroglycerin

NITROFURANTOIN
MACRODANTIN®
50MG CAPSULE ($0.64)

NITROGLYCERIN (Max 1 refill SL tablets, 11 refills ointment & patches)
NITROSTAT®
0.4MG SUBLINGUAL TABLET - 25 PER BOTTLE ($8.20 PER BOTTLE)
NITROBID®
2% TOPICAL OINTMENT - 60GM ($37.70)
NITRO-DUR®
0.2MG/HR ($0.41), 0.4MG/HR ($0.43) PATCH – 30 PATCHES PER BOX
(Note: Sublingual tablets should be ordered as 1 bottle to last 6 months. The Pharmacy will add standardized directions to patches to allow for a nitrate-free interval to minimize tolerance that states "Apply in the morning for 12 hours and then remove in the evening for 30 days KOP.")

NITROSTAT® see nitroglycerin

Nix® see permethrin

norethindrone/ethinyl estradiol (Max 11 refills)
ORTHO NOVUM®, NORINYL®
1/35-28 TABLET ($59.05)
(Note: Restricted to female patients)

Norgestrel/ethinyl estradiol (Max 11 refills)
LO/OVRAL®, LOW-OGESTREL®, CRYSELLE®
0.3/30-28 TABLET ($13.44)
(Note: Restricted to female patients)

NORINYL® see norethindrone/ethinyl estradiol

NORMAL SALINE see sodium chloride 0.9%
NORMODYNE® see LABETALOL

NORTRIPTYLINE HCL (Max 11 refills)
PAMELOR®
25MG ($0.10), 50MG ($0.12), 75MG ($0.24) CAPSULE
(Note: May not be given KOP. Restricted to TDCJ, nonformulary approval required for use at TJJD facilities.)

NORVASC® see AMLODIPINE

NORVIR® see RITONAVIR

NOVOLIN® see INSULIN, HUMAN

NYDRAZID® see ISONIAZID

NYSTATIN
MYCOSTATIN®
100,000UNITS/ML ORAL SUSPENSION - 60ML ($11.12)

OCEAN NASAL MIST® see SODIUM CHLORIDE

OCUFEN® see FLURBIPROFEN

OMEPRAZOLE (Max 11 refills)
PRILOSEC®
20MG CAPSULE ($0.10)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

OMNIPEN-N® see AMPICILLIN

OPCON-A® see NAPHAZOLINE/PHENIRAMINE

OPHTHALMIC IRRIGATING SOLUTION
DACRIOSE®
IRRIGATING EYE WASH - 120ML ($1.31)

OPTI-FREE SUPRA CLENS® see CONTACT LENS CARE PRODUCTS

OPTI-ONE MULTIPURPOSE SOLUTION® see CONTACT LENS CARE PRODUCTS

ORABASE/BENZOCAINE
ORABASE® WITH BENZOCAINE
PASTE - 12GM ($3.93)
ORTHO-NOVUM® see NORETHINDRONE/ETHINYL ESTRADIOL

OS-CAL® see CALCIUM CARBONATE

OS-CAL 250 + VITAMIN D® see CALCIUM CARBONATE/VITAMIN D

OSMOLITE® 1 CAL see ENTERAL FEEDING

OXYBUTYNIN (Max 11 refills)
  DITROPA®
    5MG TABLET ($0.07)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PAMELOR® see NORTRIPTYLINE HCL

PANCRELIPASE (Max 11 refills)
  CREON 12®
    LIPASE 12,000U/AMYLASE 38,000U/PROTEASE 60,000U PER CAPSULE ($167.43 per 100 count bottle)

PARAFON FORTE® DSC see CHLORZOXAZONE

PARICALCITOL
  ZEMPLAR®
    5MCG/ML - 1ML VIAL ($14.39)
    (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to dialysis centers.)

PARLODEL® see BROMOCRIPTINE MALEATE

PC-TAR® see COAL TAR

PEGASYS® see PEGINTERFERON

PEGINTERFERON ALFA-2A (Max 11 refills)
  PEGASYS®
    180MCG/0.5ML – 0.5ML SYRINGE ($166.34)
    (Note: May not be given KOP. Prior authorization required by HCV group from pharmacy at utmbmc.pharmacyID@utmb.edu for UTMB units and Utilization Management at (806)356-5350 for TTUHSC units.)
PENICILLIN VK
VEETIDS®
500MG TABLET ($0.12)
250MG/5ML ORAL SUSPENSION - 100ML ($3.24)
(Note: Suspension may not be given KOP, requires refrigeration once mixed and should be discarded after 14 days.)

PENICILLIN G PROCaine
WYCILLIN®
1.2MU/2ML SYRINGE ($22.55)
(Note: Clinic use only. Take from stock. May not be given KOP.)

PENICILLIN G BENZATHINE
BICILLIN LA®
1.2MU/2ML SYRINGE ($48.79)
(Note: Clinic use only. Take from stock. May not be given KOP. Prior authorization must be met and noted in the special instructions field for use without non-formulary approval. Criteria include: syphilis.)

PENICILLIN G POTASSIUM
PFIZERPEN®
5MU INJECTION VIAL ($2.49)
IV Preparation Standard:
2MU in 100mL D5W over 20 minutes
>2MU in 100mL D5W over 40 minutes.
(Note: Clinic use only. Take from stock. May not be given KOP.)

PEPTO-BISMOL® see BISMUTH SUBSALICYLATE
PERIACTIN® see CYPROHEPTADINE
PERIDEX® see CHLORHEXIDINE GLUCONATE ORAL RINSE

PERMETHRIN
NIX®
1% LOTION – 2OZ ($5.56)
ELIMITE®
5% CREAM – 60GM ($38.15)

PERPHENAZINE (Max 11 refills)
TRILAFON®
4MG ($0.69), 8MG ($0.83), 16MG ($1.41) TABLET
(Note: May not be given KOP.)
PERSANTINE® see DIPYRIDAMOLE

PETROLATUM
  VASELINE®
  JELLY - 13OZ ($2.94)
  (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to use at phototherapy centers.)

PFIZERPEN® see PENICILLIN G POTASSIUM

PHENAZOPYRIDINE HCL
  PYRIDIUM®
  200MG TABLET ($0.07)

PHENERGAN® see PROMETHAZINE HCL

PHENYLEPHRINE HCL
  SUDAFED-PE®
  10MG TABLET ($0.01)

PHENYTOIN (Max 11 refills)
  DILANTIN®
    125MG/5ML SUSPENSION - 8OZ ($17.88)
    (Note: Restricted to regional medical facilities. Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PHENYTOIN SODIUM (Max 11 refills, capsule)
  DILANTIN®
    100MG CAPSULE ($0.06)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

    50MG/ML INJECTION – 5ML VIAL ($1.35)
    (Note: May not be given KOP. Restricted to EMS use only.)

PHOSPHATE ENEMA see SODIUM PHOSPHATE/SODIUM SALT

PHYSOSTIGMINE SALICYLATE
  ANTILIRIUM®
    1MG/ML INJECTION - 2ML AMPULE ($4.00)
    (Note: Clinic use only. Take from stock. May not be given KOP.)
PHYTONADIONE (VITAMIN K-1)
AQUAMEPHYTON®
10MG/ML INJECTION - 1ML AMPULE ($7.21)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)
MEPHYTON®
5MG TABLET ($7.80)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PITRESSIN® see VASOPRESSIN
PLASBUMIN-25® see ALBUMIN, HUMAN
PLAVIX® see CLOPIDOGREL

PNEUMOCOCCAL VACCINE (POLYVALENT)
PNEUMOVAX 23®
25MCG/0.5ML INJECTION - 2.5ML MDV - 5 DOSES/VIAL ($274.06), 0.5ML SINGLE DOSE VIAL ($58.85)
(Note: Clinic use only. Take from stock. May not be given KOP. Follow Infection Control P&P for selecting patients. Criteria include:
  a. ≥ 65 years old
  b. Patients with disease associated with increased risk (splenic dysfunction, anatomic asplenia, Hodgkin’s disease, multiple myeloma, cirrhosis, alcoholism, renal failure, CSF leaks, sickle cell, diabetes mellitus, COPD, emphysema, CHF, Cardiomyopathies)
  c. Immunosuppressed patients (HIV positive, most cancers)
PNEUMOVAX 23® see PNEUMOCOCCAL VACCINE
PODOCON-25® see PODOPHYLLUM RESIN

PODOFILOX
CONDYLOX®
0.5% TOPICAL SOLUTION - 3.5ML ($41.51)
(Note: Clinic use only. Take from stock. May not be given KOP.)

PODOPHYLLUM RESIN
PODOCON-25®
25% RESIN -15ML ($94.67)
(Note: Clinic use only. Take from stock. May not be given KOP.)
POLIO VIRUS VACCINE, INACTIVATED

IPOL®
0.5ML INJECTION – 5ML MDV – 10 DOSES/VIAL ($253.28)
(Note: May not be given KOP. Prior authorization required for use. Criteria: patients < 18 years old.)

POLYSPORIN® see BACITRACIN/ POLYMYXIN B

POLYSTYRENE SODIUM SULFONATE

KAYEXALATE®
SUSPENSION 15G/60ML - 16OZ ($27.55)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Contains 65mEq Na, 15 mEq of potassium exchange capacity per 60mL.)

POLYTRIM® see TRIMETHOPRIM/ POLYMYXIN B

POLYVINYL ALCOHOL (Max 11 refills)
ARTIFICIAL TEARS
1.4% OPHTHALMIC SOLUTION - 15ML ($1.38)

POTASSIUM CHLORIDE (Tablets max 11 refills)
K-DUR®
10MEQ ($0.33), 20MEQ ($0.29) EXTENDED RELEASE TABLET
20MEQ/1000ML D5W INJECTION ($1.90)
20MEQ/1000ML 1/2NS D5W INJECTION ($1.64)
(Note: Injection for clinic use only, should be taken from stock, may not be given KOP, and restricted to infirmaries & regional medical facilities.)

PRAVACHOL® see PRAVASTATIN

PRAVASTATIN (Max 11 refills)
PRAVACHOL®
10MG ($0.07), 20MG ($0.07), 40MG ($0.10) TABLET

PRED FORTE® see PREDNISOLONE ACETATE

PREDNISOLONE ACETATE
PRED FORTE®
1% OPHTHALMIC SUSPENSION - 5ML ($6.89)
PRED MILD®
0.12% OPHTHALMIC SUSPENSION - 5ML ($20.85)
PREDNISONE (Max 11 refills 5mg tablets only)
   DELTASONE®
   5MG ($0.02), 10MG ($0.04), 20MG ($0.06) TABLET

PRENATAL-FOLIC ACID (Max 11 refills)
   NATALINS FA®
       TABLET ($0.07)
   (Note: Contains 1mg folic acid. Prior authorization criteria must be met and noted in the special instructions field to use without non-formulary approval. Criteria: pregnancy.)

PREMARIN® see ESTROGENS, CONJUGATED

PREZISTA® see DARUNAVIR

PRILOSEC® see OMEPRAZOLE

PRIMIDONE (Max 11 refills)
   MYSOLINE®
       250MG TABLET ($0.24)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PROBENECID (Max 11 refills)
   BENEMID®
       500MG TABLET ($0.50)

PROCHLORPERAZINE
   COMPZINE®
       10MG TABLET ($0.04)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PROGRAF® see TACROLIMUS

PROLIXIN® see FLUPHENAZINE HCL

PROLIXIN D® see FLUPHENAZINE DECANOATE
PROMETHAZINE HCL
PHENERGAN®
25MG TABLET ($0.05)
25MG SUPPOSITORY - 12/BOX ($5.15/BOX)
25MG/ML INJECTION - 1ML VIAL ($0.68)
(Note: Tablets allowed KOP at 8-hour units, may not be given KOP at all other units. Suppositories may be given KOP. Injection for clinic use only, should be taken from stock, and may not be given KOP.)

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QUESTRAN LIGHT® see CHOLESTYRAMINE

QVAR® see BECLOMETHASONE

RALTEGRAVIR (Max 11 refills)
  ISENTRESS®
  400MG TABLET ($16.21)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

RAPAMUNE® see SIROLIMUS

RANITIDINE HCL (Max 11 refills)
  ZANTAC®
  150MG TABLET ($0.02)

REGLAN® see METOCLOPRAMIDE HCL

REMICADE® see INFLIXIMAB

RENAGEL® see SEVELAMER

RETROVIR® see ZIDOVUDINE

REYATAZ® see ATAZANAVIR

RIBASPHERE® see RIBAVIRIN

RIBAVIRIN (Max 11 refills)
  RIBASPHERE®
  200MG CAPSULE ($1.13)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Prior
  authorization required by HCV group from pharmacy at
  utmbcmc.pharmacyID@utmb.edu for UTMB units and Utilization Management at
  (806)356-5350 for TTUHSC units.)

RIFABUTIN (Max 11 refills)
  MYCOBUTIN®
  150MG CAPSULE ($12.80)
  (Note: May not be given KOP.)

RIFADIN® see RIFAMPIN
RIFAMPIN  (Max 11 refills)
    RIFADIN®
        300MG CAPSULE ($0.48)
    (Note: May not be given KOP.)

RINGERS INJECTION, LACTATED see LACTATED RINGERS

RISPERDAL® see RISPERIDONE

RISPERIDONE  (Max 11 refills)
    RISPERDAL®
        0.5MG TABLET ($0.14)
    (Note: May not be given KOP. Restricted to TJD.)
        1MG ($0.08), 2MG ($0.09), 3MG ($0.10), 4MG ($0.12) TABLET
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

RITALIN® see METHYLPHENIDATE

RITALIN LA® see METHYLPHENIDATE

RITONAVIR  (Max 11 refills)
    NORVIR®
        100MG TABLET ($8.14)
    (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ROBAXIN® see METHOCARBAMOL

ROCALTROL® see CALCITRIOL

ROCEPHIN® see CEFTRIAXONE

ROMAZICON® see FLUMAZENIL

SALICYLIC ACID
    COMPOUND W®, DUOFILM®
        17% TOPICAL SOLUTION - 0.3 OZ ($4.81)
    (Note: Clinic use only. Take from stock. May not be given KOP.)

SALINE SOLUTION - SEE SOFT CONTACTS SALINE SOLUTION

SALINE see SODIUM CHLORIDE

SALT WATER GARGLE see SODIUM CHLORIDE GARGLE
SANTYL® see COLLAGENASE

SAQUINAVIR (Max 11 refills)
   INVIRASE®
   500MG TABLET ($7.18)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

SELENIUM SULFIDE
   SELSUN®
   2.5% SUSPENSION - 120ML ($6.67)
   (Note: Orders should be written for 1 bottle to last 90 days.)

SELSUN® see SELENIUM SULFIDE

SERTRALINE (Max 11 refills)
   ZOLOFT®
   50MG ($0.03), 100MG TABLET ($0.04)
   (Note: May not be given KOP.)

SEVELAMER (Max 11 refills)
   RENAGEL®
   800MG TABLET ($2.93)
   (Note: Prior authorization required and must be noted in the special instructions field for use without nonformulary approval. Criteria include:
   a. chronic kidney disease
   b. dialysis)

SILVADENE® see SILVER SULFADIAZINE

SILVER NITRATE
   ARZOL®
   75% APPLICATOR STICK, 100/BOX ($33.81/BOX)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

SILVER SULFADIAZINE
   SILVADENE®
   1% CREAM - 50GM ($9.31), 400GM ($39.17)
   (Note: 50gm may be given KOP. 400gm for clinic use only, should be taken from stock and may not be given KOP.)
SIMETHICONE (Max 3 refills)
MYLICON®
   80MG CHEWABLE TABLET, 100/BOTTLE ($1.69/BOTTLE)
   (Note: May be ordered PRN with a limit of one bottle of 100 to be dispensed with a 90-
day expiration.)

SINEMET® see CARBIDOPA/LEVODOPA

SIROLIMUS (Max 11 refills)
RAPAMUNE®
   1MG ($11.09), 2MG ($22.18) TABLET
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

SMZ/TMP see SULFAMETHOXAZOLE/TRIMETHOPRIM

SOAKING SOLUTION see CONTACT LENS CARE PRODUCTS

SODIUM BICARBONATE
   SODIUM BICARBONATE
      1mEq/ML INJECTION (8.4%) - 50ML SYRINGE ($4.23)
      (Note: Clinic use only. Take from stock. May not be given KOP.)

SODIUM CHLORIDE
   0.45% INJECTION - 1000ML ($0.96)
   0.9% INJECTION - 100ML ($1.05), 250ML ($0.65)
      500ML ($0.76), 1000ML ($0.69)
   0.9% MINI-BAG - 100ML ($2.27)
   0.9% IRRIGATION SOLUTION - 250ML ($0.95)
   0.9% BACTERIOSTATIC INJECTION - 30ML VIAL ($0.57)
   0.9% BACTERIOSTATIC FREE INJ - 10ML VIAL ($0.40)
   0.9% INHALANT SOLUTION - 3ML VIAL ($0.10)
   OCEAN® (Max 2 refills)
      NASAL SPRAY - 45ML ($0.60)
   MURO 128® (Max 11 refills)
      2% OPHTHALMIC SOLUTION - 15ML ($11.37)
      5% OPHTHALMIC SOLUTION - 15ML ($4.75)
      5% OPHTHALMIC OINTMENT - 3.5GM ($4.98)

GARGLE
   PACKETS - 1000/BOX ($0.95/box)
   (Note: Injection, irrigating solution, bags, and inhalation are for clinic use only, should
be taken from stock, and may not be given KOP. Gargle should be taken from stock.)
SODIUM PHOSPHATE
FLEET'S® ENEMA
ENEMA - 133ML ($0.80)
(Note: Take from stock.)

SOFT CONTACT PRODUCTS see CONTACT LENS CARE PRODUCTS

SOLU-CORTEF® see HYDROCORTISONE SODIUM SUCCINATE

SOLU-MEDROL® see METHYLPREDNISOLONE SODIUM SUCCINATE

SOTALOL (Max 11 refills)
BETAPACE®
80MG ($0.08), 120MG ($0.14), 160MG ($0.16) TABLET

SPIRIVA® HANDIHALER see TIOTROPIUM

SPIRONOLACTONE (Max 11 refills)
ALDACTONE®
25MG TABLET ($0.06)

STADOL® see BUTORPHANOL TARTRATE

STANNOUS FLUORIDE
GEL-KAM®
0.4% GEL – 4.3OZ ($9.29)

STAVUDINE (D4T) (Max 11 refills)
ZERIT®
20MG ($1.40), 30MG ($1.49), 40MG ($1.56) CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. 20mg dose usually reserved for dialysis patients or patients with renal impairment.)

STELAZINE® see TRIFLUOPERAZINE HCL

STERILE WATER
IRRIGATION - 250ML ($0.97)

STRATTERA see ATOMOXETINE

SUDAFED-PE® see PHENYLEPHRINE

SULAMYD® see SULFACETAMIDE SODIUM
SULFADIAZINE (Max 11 refills)  
MICROSULFON®  
500MG TABLET ($2.55)  
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

SULFAMETHOXAZOLE/TRIMETHOPRIM (Max 11 refills, tablets only)  
BACTRIM® DS  
SMZ 800MG/TMP 160MG DOUBLE STRENGTH TABLET ($0.06)  
SMZ 400MG/TMP 80MG per 5ML INJECTION - 5ML VIAL ($3.80)  
IV Preparation Standard:  
5mL in 150mL D5W ONLY over 60-90 minutes.  
(Note: Orders for IV Bactrim should be based on trimethoprim dosage. Injection for  
clinic use only, should be taken from stock, and may not be given KOP.)

SULFASALAZINE (Max 11 refills)  
AZULFIDINE®  
500MG TABLET ($0.08)

SUNSCREEN  
SPF 15 LOTION - 240ML ($2.35)  
(Note: One bottle must last 90 days. May be supplied as a different size depending on  
product availability.)

SURGILUBE® see LUBRICANT, SURGICAL

SUSTIVA ® see EFAVIRENZ

SYMMETREL® see AMANTADINE HCL

SYNALAR® see FLUOCINOLONE ACETONIDE

SYNTHROID® see LEVOHYROXINE SODIUM

TACROLIMUS (Max 11 refills)  
PROGRAF®  
0.5 MG ($1.09), 1MG ($2.18), 5MG ($10.59) CAPSULE  
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

TAPAZOLE® see METHIMAZOLE

383
TDaP see TETANUS/DIPHTHERIA/ACELLULAR PERTUSSIS

TDF see TENOFOVIR

TEGRETOL® see CARBAMAZEPINE

TEMOVATE® see CLOBETASOL

TENEX® see GAUNFACINE

TENIVAC™ see TETANUS & DIPHTHERIA TOXOIDS

TENOFOVIR (TDF) (Max 11 Refills)
  VIREAD®
  300MG TABLET ($24.87)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

TENORMIN® see ATENOLOL

TERAZOSIN HCL (Max 11 refills)
  HYTRIN®
  1MG ($0.06), 2MG ($0.06), 5MG ($0.06), 10MG ($0.06) CAPSULE

TERBUTALINE SULFATE
  BRETHINE®
  1MG/ML INJECTION - 1ML VIAL ($1.60)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

TETANUS/DIPHTHERIA TOXOIDS

  D-T TOXOIDS, TENIVAC™
  0.5ML SINGLE DOSE VIAL ($17.69)
  (Note: Clinic use only. Take from stock. May not be given KOP. Follow Infection Control P&P for selecting patients. Criteria include:
  a. ≤ 18 years old without documentation of completion
  b. No history of prior immunization within the last 10 years
  c. Prophylaxis for wound management.)
TETANUS/DIPHTHERIA/ACELLULAR PERTUSSIS (TdaP)
BOOSTRIX®
0.5ML SINGLE DOSE VIAL ($35.34)
(Note: May not be given KOP. Clinic use only. Floor stock restricted to the Carol Young facility. Prior authorization criteria must be met and noted in the special instructions field for use without nonformulary approval. Criteria include: Post-partum female who has been accepted into the Baby and Mother Infant Bonding Initiative (BAMBI) program).

TETRACYCLINE HCL (Max 2 refills for acne)
ACHROMYCIN® V
250MG ($0.03), 500MG ($0.04) CAPSULE

TETRAHYDROZOLINE HCL
VISINE®
0.05% OPHTHALMIC SOLUTION - 15ML ($1.15)

THIAMINE HCL (VITAMIN B-1) (Max 11 refills, tablet only)
100MG TABLET ($0.01)
100MG/ML - 2ML VIAL ($5.62)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

THIOTHIXENE (Max 11 refills)
NAVANE®
2MG ($0.19), 5MG ($0.28), 10MG ($0.46) CAPSULE
(Note: May not be given KOP.)

THORAZINE® see CHLORPROMAZINE HCL

TIMOLOL MALEATE (Max 11 refills)
TIMOPTIC®
0.5% OPHTHALMIC SOLUTION - 5ML ($4.85)

TINACTIN® see TOLNAFTATE
TIOTROPIUM (Max 11 refills)
SPIRIVA® HANDIHALER
18MCG CAPSULE, 30/BOX ($228.83/BOX)
(Note: May not be given KOP. Prior authorization required. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:
a. Inadequate response to ipratropium HFA 2 puffs QID
b. Classified as Severe COPD
c. Classified as Very severe COPD)

TOBRAMYCIN
TOBREX®
0.3% OPHTHALMIC SOLUTION - 5ML ($1.43)
40MG/ML INJECTION – 2ML VIAL ($1.29)
(Note: Injection for clinic use only, should be taken from stock and may not be given KOP. The ophthalmic solution may be given KOP.)

TOFRANIL® see IMIPRAMINE HCL

TOLNAFTATE
TINACTIN®
1% SOLUTION - 10ML ($1.45)
1% CREAM - 15GM ($1.13)

t-PA (TISSUE-TYPE PLASMINOGEN ACTIVATOR) see ALTEPLASE

TRAZODONE HCL (Max 11 refills)
DESYREL®
50MG ($0.02), 100MG ($0.04) TABLET
(Note: May not be given KOP.)

TRI-CHLOR® see TRICHLOROACETIC ACID

TRIAMCINOLONE
KENALOG®
0.025% OINTMENT - 15GM ($3.60)
0.025% CREAM - 15GM ($2.19)
0.1% CREAM - 15GM ($3.12)
10MG/ML INJECTION - 5ML VIAL ($10.66)
40MG/ML INJECTION - 1ML VIAL ($8.12)
KENALOG IN ORABASE®
0.1% DENTAL PASTE – 5GM ($33.20)
(Note: Injection is for clinic use only, should be taken from stock and may not be given KOP.)
TRIAMTERENE/HYDROCHLOROTHIAZIDE (Max 11 refills)
   DYAZIDE®
   TRIAMTERENE 37.5MG/HCTZ 25MG CAPSULE ($0.03)

TRICHLOROACETIC ACID
   TRI-CHLOR®
   80% SOLUTION – 15ML ($46.51)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

TRIFLUORAZINE HCL (Max 11 refills)
   STELAZINE®
   2MG ($0.29), 5MG ($0.35), 10MG ($0.20) TABLET
   (Note: May not be given KOP.)

TRIFLURIDINE
   VIROPTIC®
   1% OPHTHALMIC SOLUTION - 7.5ML ($110.95)

TRILAFON® see PERPHENAZINE

TRIMETHOPRIM/POLYMYXIN B
   POLYTRIM®
   1MG/10,000U OPHTHALMIC SOLUTION - 10ML ($1.80)

TRUSOPT® see DORZOLAMIDE

TRYPSIN/BALSAM PERU/CASTOR OIL
   GRANULEX®
   4OZ SPRAY ($8.39)
   (Note: Clinic use only. Take from stock. May not be given KOP. Recommended for stage 1 and 2 wounds only.)

TUBERCULIN INJECTION (PURIFIED PROTEIN DERIVATIVE)
   PPD, APLISOL®
   10TESTS/1ML INJECTION - 1ML VIAL ($27.76)
   50TESTS/5ML INJECTION - 5ML VIAL ($101.95)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

TUCKS® OINTMENT see HEMORRHOIDAL OINTMENT

TUMS® see CALCIUM CARBONATE

TYLENOL® see ACETAMINOPHEN

387
TYLENOL® W/CODEINE see ACETAMINOPHEN/CODEINE

TYLENOL #3® see ACETAMINOPHEN WITH CODEINE

URECHOLINE® see BETHANECHOL

VALIUM® see DIAZEPAM

VANCOCIN® see VANCOMYCIN HCL

VANCOMYCIN HCL

VANCOCIN®

1 G INJECTION VIAL ($3.00)

IV Preparation Standard:

<500mg in 100mL D5W over 60-90 minutes

>500mg in 150mL D5W over 90-120 minutes.

(Note: Recommended dosage is 1gm Q12 Hours in patients with normal renal function.

Clinic use only. Take from stock. May not be given KOP.)

VARICELLA VACCINE (Max 1 refill)

VARIVAX®

1350 PFU/0.5ML – VIAL ($90.55)

(Note: May not be given KOP. Restricted from floor stock. Order for 30 days with 1 refill to be administered at 0 and 1 month. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:

a. Post-exposure prophylaxis with approval from the Office of Preventive Medicine
b. ≤ 18 years old without documentation of previous disease or immunization)

VASELINE® JELLY see PETROLATUM

VASOPRESSIN

PITRESSIN®

20U/ML – 1ML VIAL ($1.12)

(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional medical facilities.)

VASOTEC® see ENALAPRIL

VEETIDS® see PENICILLIN VK

388
VLENFAXINE HCL (Max 11 refills)
   EFFEXOR®
   37.5MG ($0.23), 75MG ($0.33) TABLET
   (Note: May not be given KOP. Restricted to TJJD only.)

VENOFER® see IRON SUCROSE

VENTOLIN® see ALBUTEROL SULFATE

VERAPAMIL HCL (Max 11 refills, tablet & caplet)
   CALAN®
   80MG ($0.05), 120MG ($0.07) IMMEDIATE RELEASE TABLET
   2.5MG/ML INJECTION - 2ML VIAL ($6.16)
   CALAN SR®
   180MG ($0.17), 240MG ($0.16) SUSTAINED RELEASE CAPLET
   (Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

VERMOX® see MEBENDAZOLE

VIBRA-TAB® see DOXYCYCLINE HYCLATE

VICKS VAPORUB® see CAMPHOR/EUCALYPTUS/MENTHOL

VIDEX-EC® see DIDANOSINE

VIRACEPT® see NELFINAVIR

VIRAMUNE® see NEVIRAPINE

VIREAD® see TENOFOVIR

VICOPTIC® see TRIFLURIDINE

VISINE® see TETRAHYDROZOLINE HCL

VISTARIL® see HYDROXYZINE PAMOATE

VITAMIN B-1 see THIAMINE HCL

VITAMIN B-6 see PYRIDOXINE HCL

VITAMIN B-12 see CYANOCOBALAMIN
VITAMIN B COMPLEX & VITAMIN C WITH FOLIC ACID (Max 11 refills)
NEPHRO-VITE®
TABLET ($0.07)
(Note: Prior authorization required. The following prior authorization criteria must be met and noted in the special instructions field on the label: “dialysis.”)

VITAMIN K-1 see PHYTONADIONE

VITAMIN, I.V. INFUSION see MULTIVITAMIN

WARFARIN SODIUM (Max 11 refills)
COUMADIN®
2.5MG TABLET ($0.09)
(Note: May not be given KOP.)

WATER FOR INJECTION
WATER FOR INJECTION, STERILE - 10ML ($0.45)
WATER FOR INJECTION, BACTERIOSTATIC - 30ML ($0.47)
(Note: Clinic use only. Take from stock. May not be given KOP.)

WELLCOCORIN® see LEUCOVORIN CALCIUM

WETTING & SOAKING SOLUTION® see CONTACT LENS PRODUCTS

WYCILLIN® see PENICILLIN G PROCAINE

XALATAN® see LATANOPROST

XYLOCAINE® see LIDOCAINE HCL

ZANTAC® see RANITIDINE

ZARONTIN® see ETHOSUXIMIDE

ZAROXOLYN® see METOLAZONE

ZDV see ZIDOVUDINE

ZEMPLAR® see PARICALCITOL

ZERIT® see STAVUDINE

ZIAGEN® see ABACAVIR
ZIDOVUDINE (AZT, ZDV) (Max 11 refills)
RETROVIR®
300MG TABLET ($0.28)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ZIPRASIDONE HCL (Max 11 refills, capsule)
GEODON®
20MG ($7.89), 40MG ($7.89), 60MG ($9.57), 80MG ($9.57) CAPSULE
(Note: May not be given KOP. Restricted to TJJD. Prior authorization criteria must be met and noted in the special instructions field for use without nonformulary approval. Criteria include:
   a. Intolerance to second generation antipsychotics.
   b. Treatment failure on second generation antipsychotics.
   c. Contraindication to second generation antipsychotics.
   d. BMI ≥ to 90th percentile.)

ZIPRASIDONE MESYLATE
GEODON®
20MG/ML – 1ML VIAL ($16.02)
(Note: Clinic use only. Take from stock. May not be given KOP. See the Acute Psychosis pathway for injection dosing recommendations.)

ZITHROMAX® see AZITHROMYCIN
ZOVI® see ETHYNODIOL DIACETATE/ETHINYL ESTRADIOL
ZOVI® see ACYCLOVIR
ZYLOPRIM® see ALLOPURINOL
THERAPEUTIC CATEGORY INDEX

The following index provides a list of Formulary items grouped by therapeutic category according to the American Hospital Formulary Service (AHFS) classification system. The major drug classification appears in all capital letters followed by subclassification when indicated. Major drug classes are listed below with the corresponding page number(s). Drugs may be listed in more than one therapeutic category.

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</table>
04:00 ANTI-HISTAMINES
04:04 First Generation Antihistamines
04:04.04 Ethanolamine Derivatives
diphenhydramine

04:04.12 Phenothiazine Derivatives
promethazine

04:04.20 Propylamine Derivatives
chlorpheniramine

04:04.92 Miscellaneous Derivatives
cyproheptadine

04:08 Second Generation Antihistamines
loratadine

08:00 ANTI-INFECTIVES
08:08 Anthelmintics
mebendazole

08:12 Antibacterials
08:12.02 Aminoglycosides
gentamicin
tobramycin

08:12.06 Cephalosporins
1st Generation
cefazolin
cephalexin

3rd Generation
ceftazidime
ceftriaxone

08:12.07 Miscellaneous β-Lactams
meropenem

08:12.12 Macrolides
azithromycin
erthromycin
08:12.16 Penicillins
   Natural Penicillins
   penicillin G benzathine
   penicillin G potassium
   penicillin G procaine
   penicillin VK

   Penicillinase-Resistant Penicillins
   dicloxacillin
   nafcillin

   Aminopenicillins Penicillins
   amoxicillin
   ampicillin

08:12.18 Quinolones
   ciprofloxacin

08:12.20 Sulfonamides
   sulfadiazine
   sulfamethoxazole/trimethoprim
   sulfasalazine

08:12.24 Tetracyclines
   doxycycline
   tetracycline

08:12.28 Miscellaneous Antibacterials
   clindamycin
   vancomycin

08:14 Antifungals
08:14.08 Azoles
   fluconazole

08:14.28 Polyenes
   nystatin
08:16 Antimycobacterial Agents
08:16.04 Antituberculosis Agents
   ethambutol
   isoniazid
   pyrazinamide
   rifabutin
   rifampin

08:16.92 Miscellaneous Antimycobacterials
   dapsone

08:18 Antivirals
08:18.04 Adamantanes
   amantadine

08:18.08 Antiretroviral Agents
   Integrate Inhibitor
   raltegravir

   Nucleoside reverse transcriptase inhibitors
   abacavir
   didanosine
   lamivudine
   stavudine
   zidovudine

   Nucleotide reverse transcriptase inhibitors
   tenofovir

   Non-nucleoside reverse transcriptase inhibitors
   efavirenz
   nevirapine

   Protease Inhibitors
   atazanavir
   darunavir
   fosamprenavir
   indinavir
   lopinavir/ritonavir
   nefavir
   ritonavir
   saquinavir
08:18.20 Interferons
   peginterferon alfa-2a

08:18.32 Nucleosides and Nucleotides
   acyclovir
   entecavir
   ribavirin

08:30 Antiprotozoals
08:30.08 Antimalarials
   pyrimethamine

08:30.92 Miscellaneous
   metronidazole

08:36 Urinary Anti-Infectives
   nitrofurantoin

10:00 ANTINEOPLASTIC AGENTS
   megestrol

12:00 AUTONOMIC DRUGS
12:04 Parasympathomimetic Agents
   bethanecol
   physostigmine

12:08 Anticholinergic Agents
12:08.04 Antiparkinson Agents
   benztropine

12:08.08 Antimuscarinic / Antispasmodics
   atropine
   ipratropium
   tiotropium

12:12 Sympathomimetic Agents
   albuterol
   dopamine
   epinephrine
   phenylephrine
   terbutaline
12:20  Skeletal Muscle Relaxants
    baclofen
    chlorzoxazone
    methocarbamol

16:00  BLOOD DERIVATIVES
    albumin, human

20:00  BLOOD FORMATION AND COAGULATION
    20:04  Antianemia Drugs
          20:04.04  Iron Preparations
                    ferrous sulfate
                    iron sucrose

          20:12  Antithrombotic Agents
                    20:12.04  Anticoagulants
                                      heparin
                                      warfarin

    20:12.18  Platelet-aggregation Inhibitors
               clopidogrel

          20:12.20  Thrombolytic Agents
                           alteplase

    20:16  Hematopoietic Agents
          epoetin alfa

    20:28  Antihemorrhagic Agents
          20:28.08  Antiheparin Agents
                            protamine

24:00  CARDIOVASCULAR DRUGS
    24:04  Cardiac Drugs
          24:04.04  Antiarrhythmic Agents
                                adenosine
                                amiodarone

                  24:04.08  Cardiotonic Agents
                                      digoxin

          24:06  Antilipemic Agents
                  24:06.04  Bile Acid Sequestrant
                                      cholestyramine
24:06.06  Fibric Acid Derivative
gemfibrozil

24:06.08  HMG-CoA Reductase Inhibitor (Statin)
pravastatin

24:06.92  Miscellaneous
Niacin

24:08  Hypotensive Agents
24:08.16  Central Alpha Agonists
clonidine
guanfacine
methyldopa

24:08.20  Direct Vasodilators
hydralazine
minoxidil

24:12  Vasodilating Agents
24:12.08  Nitrates and Nitrites
isosorbide mononitrate
nitroglycerin

24:12.92  Miscellaneous Vasodilating Agents
dipyridamole

24:20  Alpha-Adrenergic Blocking Agents
terasozin

24:24  Beta-Adrenergic Blocking Agents
atenolol
carvedilol
labetalol
metoprolol
propranolol
sotalol

24:28  Calcium-Channel Blocking Agents
24:28.08  Dihydropyridines
amlodipine
24:28.92 Miscellaneous Calcium-Channel Blocking Agents
diltiazem
verapamil

24:32 Renin-Angiotensin-Aldosterone System Inhibitors
24:32.04 Angiotensin-Converting Enzyme Inhibitors
enalapril

24:32.20 Mineralcorticoid (Aldosterone) Receptor Antagonists
spironolactone

28:00 CENTRAL NERVOUS SYSTEM AGENTS
28:08 Analgesics and Antipyretics
28:08.04 Nonsteroidal Anti-Inflammatory Agents
Acetylated salicylates
aspirin

Propionic Acids
ibuprofen
naproxen

Oxicams
meloxicam

28:08.08 Opiate Agonists
acetaminophen / codeine
fentanyl
morphine

28:08.12 Opiate Partial Agonists
butorphanol

28:08.92 Miscellaneous Analgesics & Antipyretics
acetaminophen

28:10 Opiate Antagonists
naloxone

28:12 Anticonvulsants
28:12.04 Barbiturates
primidone

28:12.12 Hydantoins
phenytoin
28:12.20 Succinimides
ethosuximide

28:12.92 Miscellaneous Anticonvulsants
carbamazepine
divalproex sodium
levetiracetam
magnesium sulfate

28:16 Psychotherapeutic Agents
28:16.04 Antidepressants
Selective Serotonin & Norepinephrine Reuptake Inhibitors
venlafaxine

Selective Serotonin Reuptake Inhibitors
citalopram
fluoxetine
sertraline

Serotonin Modulators
trazodone

Tricyclics and Other Norepinephrine Reuptake Inhibitors
imipramine
nortriptyline

28:16.08 Antipsychotics
Atypical Antipsychotics
aripiprazole
clozapine
risperidone
ziprasidone

Typical Antipsychotics
chlorpromazine
fluphenazine
haloperidol
perphenazine
thiothixene
trifluoperazine
28:20  Anorexigenic Agents and Respiratory & Cerebral Stimulants
  28:20.04  Amphetamines
    amphetamine salts
    methylphenidate

  28:20.92  Miscellaneous
    ammonia

28:24  Anxiolytics, Sedatives, and Hypnotics
  28:24.08  Benzodiazepines
    chlordiazepoxide
    diazepam
    lorazepam

  28:24.92  Misc Anxiolytics, Sedatives, & Hypnotics
    hydroxyzine

28:28  Anti manic Agents
  lithium

28:36  Antiparkinsonian Agents
  28:36.04  Adamantines
    amantadine

  28:36.16  Dopamine Precursors
    carbidopa/levodopa

  28:36.20  Dopamine Receptor Agonists
    bromocriptine

28:92  Central Nervous System Agents, Miscellaneous
  atomoxetine
  flumazenil

36:00  DIAGNOSTIC AGENTS
  36:58  Ocular
    fluorescein strips

  36:84  Tuberculosis
    tuberculin PPD
ELECTROLYTIC, CALORIC & WATER BALANCE

Alkalizing Agents
sodium bicarbonate

Ammonia Detoxicants
lactulose

Replacement Preparations
calcium carbonate
calcium gluconate
dextrose / lactated ringers
potassium chloride
ringers-lactated
sodium chloride

Ion-removing Agents
Potassium-Removing Agents
polystyrene sodium sulfonate
Phosphate-Removing Agents
sevelamer

Caloric Agents
dextrose
enteral feeding

Diuretics
Loop Diuretics
furosemide
Potassium-sparing diuretics
triamterene / hydrochlorothiazide
Thiazide Diuretics
hydrochlorothiazide
Thiazide-like Diuretics
metolazone

Irrigating Solutions
sodium chloride
sterile water
40:40 Uricosuric Agents
probenecid

52:00 EYE, EAR, NOSE, & THROAT (EENT) PREPARATIONS
52:04 Anti-Infectives
52:04.04 Antibacterials
bacitracin / polymyxin ophth
erthythromycin ophth
gentamicin ophth
neomycin / polymyxin / bacitracin ophth
neomycin / polymyxin / bacitracin / hydrocortisone ophth
neomycin / polymyxin / dexamethasone ophth
neomycin / polymyxin / gramicidin ophth
neomycin / polymyxin / hydrocortisone otic
sulfacetamide ophth
tobramycin ophth
trimethoprim / polymyxin ophth

52:04.20 Antivirals
trifluridine ophth

52:04.92 Miscellaneous Anti-Infectives
acetic acid / aluminum acetate otic
carbamide peroxide otic
chlorhexidine

52:08 Anti-Inflammatory Agents
52:08.03 Corticosteroids
prednisolone ophth

52:08.20 Nonsteroidal Anti-inflammatory Agents
flurbiprofen ophth

52:12 Contact Lens Solutions
contact lens enzymatic solution
contact rewetting and lubricant solution
gas permeable lens multi-action solution
soft contact lens multi-purpose solution

52:16 Local Anesthetics
antipyrine / benzocaine otic
benzocaine (orabase)
lidocaine viscous
proparacaine ophth
52:24 Mydriatics
atropine ophth
cyclopentolate ophth

52:28 Mouth Washes & Gargles
hydrogen peroxide

52:32 Vasoconstrictors
naphazoline / pheniramine ophth
naphazoline ophth
tetrahydrozoline ophth

52:40 Antiglaucoma agents
52:40.04 Alpha-Adrenergic Agonists
brimonidine ophth

52:40.08 Beta-Adrenergic Agents
timolol ophth

52:40.12 Carbonic Anhydrase Inhibitors
acetazolamide
dorzolamide ophth

52:40.28 Prostaglandin Analogs
latanoprost

52:92 Miscellaneous EENT Drugs
lubricant ophth oint
methylcellulose ophth
ophthalmic irrigating solution
polyvinyl alcohol ophth (artificial tears)
sodium chloride nasal
sodium chloride ophth

56:00 GASTROINTESTINAL DRUGS
56:04 Antacids & Adsorbents
aluminum hydroxide / magnesium hydroxide / simethicone
calcium carbonate
charcoal, activated

56:08 Antidiarrheal Agents
bismuth subsalicylate
loperamide
56:10 Antiflatulents
simethicone

56:12 Cathartics & Laxatives
Bowel Evacuants
PEG-3350 / electrolytes

Bulk-Forming Laxatives
calcium polycarbophil

Saline Laxatives
magnesium citrate
magnesium hydroxide
sodium phosphate

Stimulant Laxatives
bisacodyl
castor oil

Stool Softeners
docusate sodium

56:16 Digestants
lipase / protease / amylase (pancrelipase)

56:22 Antiemetics
56:22.08 Antihistamines
meclizine
prochlorperazine

56:28 Antiulcer Agents and Acid Suppressants
56:28.12 Histamine H2-Antagonists
ranitidine

56:28.36 Proton-pump Inhibitors
omeprazole

56:32 Prokinetic Agents
metoclopramide
### HORMONES & SYNTHETIC SUBSTITUTES

#### 68:04 Adrenals
- dexamethasone
- hydrocortisone
- prednisone
- triamcinolone

#### 68:12 Contraceptives
- ethynodiol diacetate / ethinyl estradiol
- norethindrone / ethinyl estradiol
- norgestrel / ethinyl estradiol

#### 68:16 Estrogen
- **68:16.04 Estrogens**
  - conjugated estrogens
  - conjugated estrogens, synthetic

#### 68:20 Antidiabetic Agents
- **68:29.04 Biguanides**
  - metformin

- **68:20.08 Insulins**
  - insulin, human - NPH
  - insulin, human – regular
  - insulin, human – 70/30

- **68:20.20 Sulfonylureas**
  - glipizide

#### 68:22 Antihypoglycemic Agents
- **68:22.12 Glycogenolytic Agents**
  - glucagon

#### 68:28 Pituitary
- desmopressin
- vasopressin

#### 68:32 Progestins
- medroxyprogesterone
**68:36** Thyroid & Antithyroid Agents

- **68:36.04** Thyroid Agents
  - levothyroxine

- **68:36.08** Antithyroid Agents
  - methimazole

**72:00** LOCAL ANESTHETICS

- bupivacaine
- lidocaine

**80:00** SERUMS, TOXOIDS, & VACCINES

- **80:08** Toxoids
  - tetanus-diphtheria
  - tetanus-diphtheria-acelluar pertussis

- **80:12** Vaccines
  - hepatitis A vaccine
  - hepatitis B vaccine
  - influenza virus vaccine
  - measles-mumps-rubella vaccine
  - meningococcal polysaccharide vaccine
  - pneumococcal polyvalent vaccine
  - poliovirus vaccine, inactivated
  - varicella vaccine

**84:00** SKIN & MUCOUS MEMBRANE AGENTS

- **84:04** Anti-Infectives
  - **84:04.04** Antibacterials
    - bacitracin / polymyxin
    - clindamycin
    - neomycin / polymyxin / bacitracin
  - **84:04.08** Antifungals
    - clotrimazole
    - gentian violet
    - miconazole
tolnaftate

- **84:04.12** Scabicides & Pediculicides
  - permethrin

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84:04.92 Miscellaneous Local Anti-Infectives
alcohol, ethyl
selenium sulfide
silver sulfadiazine

84:06 Anti-Inflammatory Agents
clobetasol propionate
fluocinolone acetonide
fluocinonide
hydrocortisone
triamcinolone
triamcinolone / orabase

84:08 Antipruritics & Local Anesthetics
lidocaine
phenazopyridine
pramoxine / zinc oxide (hemorrhoidal)

84:24 Emollients, Demulcients and Protectants
84:24.04 Basic Lotions and Liniments
calamine
body lotion
mentholatum rub

84:24.12 Basic Ointments and Protectants
absorbase

84:28 Keratolytic Agents
benzoyl peroxide
podophyllum resin
salicylic acid

84:32 Keratoplastic Agents
coil tar

84:80 Sunscreen Agents
sunscreen, SPF 15

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Miscellaneous
- camphor / phenol
- collagenase
- lubricant, surgical
- podofilox
- phenylephrine suppos (hemorrhoidal)
- trichloroacetic acid
- trypsin / balsam peru / castor oil

SMOOTH MUSCLE RELAXANTS
Genitourinary Smooth Muscle Relaxants
- oxybutynin

VITAMINS
Vitamin B Complex
- cyanocobalamin
- folic acid
- nephro-vite
- pyridoxine
- thiamine

Vitamin D
- calcitriol
- doxercalciferol
- paricalcitol

Vitamin K
- phytanadione

Multivitamin Preparations
- multivitamin, I.V. infusion
- multivitamin
- prenatal-folic acid

MISCELLANEOUS THERAPEUTIC AGENTS
Antidotes
- leucovorin

Antigout Agents
- allopurinol

Cariostatic Agents
- stannous fluoride
Disease-modifying Antirheumatic Drugs
infliximab

Immunosuppressive Agents
azathioprine
cyclosporine
mycophenolate mofetil
sirolimus
tacrolimus

Other
melatonin

PHARMACEUTICAL AIDS
glucose tolerance test
petrolatum jelly