CORRECTATIONAL
MANAGED CARE

FORMULARY

18th Edition

2012

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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**PHARMACY CONTACTS AND PHONE NUMBERS**

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<td>Parole &amp; Discharge</td>
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<td>TYC (Fax 936-295-7012)</td>
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<td>Controlled Substances Vault</td>
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<td>Pharmacy Practice Resident</td>
<td>936-437-5371</td>
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<td>Emergency After Hours</td>
<td>936-436-2093</td>
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<td>Beaumont Clinical Office, Federal Bureau of Prisons</td>
<td>800-408-7442</td>
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<td>Don Craft, R.Ph.</td>
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<td></td>
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EMAIL CT00001
Sherry Laguardia, Pharm.D. 214-549-9325
EMAIL LS00014
Sherida Nelson, R.Ph. 806-236-3973
EMAIL SNE4397

STATEWIDE POISON CENTER 800-222-1222
UNIT RESTRICTION LIST FOR FLOOR STOCK PURPOSES

Dialysis Units: GC, E2, JM

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, 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


Hospital Galveston: No P-list restrictions. All medications administered from stock.
CONVERSIONS AND CALCULATIONS

<table>
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<th>WEIGHT MEASURE</th>
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<td>METRIC=APOTHECARY</td>
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<td>1 gm = 1000 mg (milligrams)</td>
<td>1 mL (milliliter) = 1 cc</td>
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<tr>
<td>1 mg = 1000 mcg or μg (micrograms)</td>
<td>30 mL = 1 oz</td>
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<tr>
<td></td>
<td>15 mL = 1/2 oz</td>
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<tr>
<td></td>
<td>15 mL = 1 tablespoon (tbsp.)</td>
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<td></td>
<td>5 mL = 1 teaspoon (tsp.)</td>
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<tr>
<td></td>
<td>2.5 mL = 1/2 tsp.</td>
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<tr>
<td></td>
<td>960 mL = 1 quart</td>
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<td></td>
<td>1 L (liter) = 1000 mL (milliliters)</td>
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<tr>
<td>METRIC=APOTHECARY</td>
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<tr>
<td>60 mg or 65 mg = 1 gr (grain)</td>
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<tr>
<td>125 mg = 2 gr</td>
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<tr>
<td>200 mg = 3 gr</td>
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</tr>
<tr>
<td>300 mg or 325 mg = 5 gr</td>
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<tr>
<td>600 mg or 650 mg = 10 gr</td>
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<tr>
<td>0.4 mg or 400 mcg = 1/150 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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<td>60 gm = 2 oz</td>
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<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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<tr>
<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:
\[
\text{total volume} = \frac{\text{mL/hr}}{\text{total hours}} \quad \text{Example: } \frac{1000 \text{ mL}}{8 \text{ hr}} = 125 \text{ mL/hr}
\]

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

7
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
will need to be continued at the unit level.

**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.
CLOZAPINE POLICY (§55.20)

PURPOSE: To provide information and procedural guidelines for the use of clozapine.

POLICY: Information regarding clozapine registry and laboratory monitoring must be monitored and maintained by facility medical personnel.

DEFINITIONS:
The Clozapine Patient Registry is a national patient registry for patients prescribed clozapine to monitor for serious adverse effects, specifically, agranulocytosis. The registry is a surveillance program mandated by the Food and Drug Administration.

PROCEDURE:
I. The practitioner, Pharmacy, and patient must be registered with the Clozapine Patient Registry before clozapine therapy may be initiated.

II. Registration Process
   A. Practitioner Registration – A practitioner who wishes to prescribe clozapine must register with the Clozapine Patient Registry either by completing the Physician Registration Form (Appendix A) or completing the physician registration information at www.clozapineregistry.com. The form must be mailed or faxed to Teva Pharmaceuticals, Inc.
   B. Pharmacy Registration – A pharmacy that wishes to purchase and dispense clozapine must register with the Clozapine Patient Registry either by completing the Pharmacy Registration Form (Appendix B) or completing the pharmacy registration information at www.clozapineregistry.com. The form must be mailed or faxed to Teva Pharmaceuticals, Inc.
   C. Patient Registration – The practitioner must register the patient with the Clozapine Patient Registry before a pharmacy may dispense clozapine by completing the Single Patient Registration Form (Appendix C) or the Multi-Patient Treatment Team Registration Form (Appendix D). The form must be mailed or faxed to Teva Pharmaceuticals, Inc.

III. Ordering Process
   A. Floor Stock Order
      1. Clozapine may be kept as floor stock at Skyview, Montford, Jester IV, and Estelle High Security.
      2. Use of floor stock should be limited to emergency situations or to prevent delays or breaks in therapy.
      3. Unit personnel should refer to CMC Pharmacy Policy and Procedure 10-30 for complete directions on how to order floor stock medication.
         a. Clozapine 100mg tablet order number is 270-20-32015-9
         b. Clozapine 25mg tablet order number is 270-20-32006-8
B. Individual Patient Order

1. The practitioner will submit a nonformulary medication request for clozapine per Pharmacy P&P 05-10. An initial nonformulary approval is required, but subsequent approvals are not necessary.

2. The practitioner must register the patient with the Clozapine Patient Registry before clozapine is dispensed. The practitioner can register the patient by completing the Single Patient Registration Form (Appendix C) or the Multi-Patient Treatment Team Registration Form (Appendix D). The form must be mailed or faxed to Teva Pharmaceuticals, Inc.

3. The practitioner must monitor the patient’s white blood cell (WBC) and absolute neutrophil count (ANC) at baseline and according to the frequency specified by Appendix E. Once the patient has been registered and the WBC and ANC are obtained, the practitioner may order clozapine. The Pharmacy cannot dispense clozapine unless the patient and prescriber have been registered and the WBC and ANC are obtained.
   a. First 6 months of therapy – The practitioner must monitor the WBC and ANC once a week and should enter an order on the computer for clozapine for 7 days with a maximum of 11 refills.
   b. After 6 months of continuous therapy with all WBC > 3500/mm³ and ANC > 2000/mm³, the WBC and ANC may be monitored every 2 weeks. The practitioner should enter an order on the computer for clozapine for 14 days with a maximum of 11 refills.
   c. After 12 months of continuous therapy with all results for WBC > 3500/mm³ and ANC > 2000/mm³, the WBC and ANC may be monitored every 4 weeks thereafter. The practitioner must complete the Monthly Monitoring Request Form and fax it to the Teva Clozapine Patient Registry to switch a patient to monthly monitoring (Appendix G). The practitioner should enter an order on the computer for clozapine for 28 days with a maximum of 11 refills.

4. A current and acceptable lab count is defined as WBC > 3500/mm³ and ANC > 2000/mm³ and no older than 7 days from the dispense date. Prior to each medication order the practitioner must provide current lab counts to the UTMB CMC Department of Pharmacy with a completed Single Patient WBC/ANC Reporting Form (Appendix H). The completed form should be faxed to the UTMB-CMC Pharmacy at 936-295-7012.

5. If at any time the WBC becomes less than 3500 and/or ANC becomes less than 2000, the practitioner must follow the monitoring schedule as outlined in Appendix E. If there is an interruption in therapy for any reason, Appendix F provides guidance regarding resuming monitoring frequency.

6. The possibility of myocarditis should be considered in patients receiving clozapine who present with unexplained fatigue, dyspnea, tachypnea,
fever, chest pain, palpitations, other signs or symptoms of heart failure, or electrocardiographic findings such as ST-T wave abnormalities or arrhythmias. It is not known whether eosinophilia is a reliable predictor of myocarditis. Tachycardia, which has been associated with clozapine treatment, has also been noted as a presenting sign in patients with myocarditis. Tachycardia during the first month of therapy warrants close monitoring for other signs of myocarditis, which include the appearance of flu-like symptoms, lethargy, weakness, sore throat, fever, malaise, mucous membrane ulceration or other possible signs of infection. FDA approved labeling recommends that clozapine therapy be interrupted and twice-weekly CBCs obtained until the eosinophil count falls below 3,000.

7. When restarting patients who have had even a brief interval off clozapine, i.e., 2 days or more since the last dose, it is recommended that treatment be reintiated with one-half of a 25 mg tablet (12.5 mg) once or twice daily. If that dose is well tolerated, it may be feasible to titrate patients back to a therapeutic dose more quickly than is recommended for initial treatment. However, any patient who has previously experienced respiratory or cardiac arrest with initial dosing, but was then able to be successfully titrated to a therapeutic dose, should be re-titrated with extreme caution after even 24 hours of discontinuation.

IV. Dispensing Process

A. The Pharmacy will maintain a record that contains a copy of the nonformulary medication approval, verification of registration with the Clozapine Patient Registry, along with WBC and ANC reports for each patient prescribed clozapine.

B. New Patient

1. When the Pharmacy receives a medication order for a new patient that has already received nonformulary approval, the Pharmacy must verify that the patient is registered with the Clozapine Patient Registry and must review the current WBC and ANC before dispensing clozapine. The WBC and ANC values must be drawn and dated according to the suggested monitoring frequency (i.e., weekly, every other week, or every 4 weeks). Pharmacy personnel should verify the current WBC and ANC value in the electronic medical record (EMR) if necessary. These values are usually found in the Hematology section of the Laboratory Results in the patient’s chart. ANC is denoted in our system by the term GRAN ABS (Granulocytes Absolute).

2. The Pharmacy must provide Teva Pharmaceuticals with a completed Clozapine Patient WBC/ANC Reporting Form (Appendix I). The completed form should be faxed to Teva Pharmaceuticals at 800-507-8339 or entered directly into the clozapine registry at www.clozapineregistry.com. Obtained lab values are reported to the clozapine registry by the pharmacy weekly.

3. After verifying registration and if the WBC and ANC are within
acceptable range, the UTMB CMC Department of Pharmacy may dispense a 7-day supply of clozapine.

4. A current and acceptable lab count is defined as WBC > 3500/mm³ and ANC > 2000/mm³ and no older than 7 days from the dispense date. Pharmacy personnel will not dispense clozapine for a new patient with baseline WBC < 3500 and/or ANC < 2000.

C. Existing Patient

1. When the Pharmacy receives a medication order for an existing patient, Pharmacy personnel must review the current WBC and ANC before dispensing clozapine. The WBC and ANC values must be drawn and dated according to the suggested monitoring frequency (i.e., weekly, every other week, or every 4 weeks). Pharmacy personnel should verify the current WBC and ANC value in the electronic medical record (EMR) if necessary. These values are usually found in the Hematology section of the Laboratory Results in the patient’s chart. ANC is denoted in our system by the term GRAN ABS (Granulocytes Absolute).

2. The Pharmacy must provide Teva Pharmaceuticals with a completed Clozapine Patient WBC/ANC Reporting Form (Appendix I). The completed form should be faxed to Teva Pharmaceuticals at 800-507-8339 or entered directly into the clozapine registry at www.clozapineregistry.com. Obtained lab values are reported to the clozapine registry by the pharmacy weekly.

3. A current and acceptable lab count is defined as WBC > 3500/mm³ and ANC > 2000/mm³ and no older than 7 days from the dispense date. If the WBC and ANC are within acceptable ranges, the UTMB CMC Department of Pharmacy may dispense clozapine.
   a. First 6 months of therapy – The UTMB CMC Department of Pharmacy may not dispense more than a 7-day supply of medication.
   b. After 6 months of continuous therapy with all WBC > 3500/mm³ and ANC > 2000/mm³ – The UTMB CMC Department of Pharmacy may not dispense more than a 14-day supply of medication.
   c. After 12 months of continuous therapy with all WBC > 3500/mm³ and ANC > 2000/mm³ – The UTMB CMC Department of Pharmacy may not dispense more than a 28-day supply of medication.

4. If the patient does not have a current WBC and ANC, the Pharmacy may dispense up to a 1-week supply of clozapine to prevent a break in therapy. The Pharmacy will not dispense more than a 1-week supply of medication. If the practitioner does not obtain current labs after dispensation of a supplemental 1-week supply, alternate therapy should be considered.

5. If at any time the WBC becomes less than 3500 and/or ANC becomes less than 2000, the practitioner must follow the monitoring schedule as outlined in Appendix E. Pharmacy personnel may not dispense clozapine if an
interruption in clozapine therapy is clinically indicated. See Appendix E for suggested clinical management of abnormal WBC and/or ANC. If there is an interruption in therapy for any reason, Appendix F provides guidance regarding resuming monitoring frequency.

6. Upon discontinuation of clozapine for any reason, the practitioner must notify the UTMB CMC Department of Pharmacy and Teva Clozapine Patient Registry. Along with providing the reason and notification of discontinuation, the practitioner must also monitor the WBC and ANC weekly for at least 4 weeks from the day of discontinuation or until WBC > 3500/mm$^3$ and ANC > 2000/mm$^3$.

Table 1: Suggested Clinical Management of Abnormal WBC or ANC Results

<table>
<thead>
<tr>
<th>Situation</th>
<th>Hematological Values for Monitoring</th>
<th>Frequency of WBC and ANC Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation of therapy</td>
<td>WBC ≥ 3500/mm$^3$ and ANC ≥ 2000/mm$^3$</td>
<td>Weekly for 6 months</td>
</tr>
</tbody>
</table>
|                               | Note: Do not initiate in patients with  
|                               | 1) History of myeloproliferative disorder  
|                               | 2) clozapine induced agranulocytosis or granulocytopenia |
| 6 months – 12 months of therapy | All results for WBC ≥ 3500/mm$^3$ and ANC ≥ 2000/mm$^3$ | Every 2 weeks for 6 months |
| 12 months of therapy          | All results for WBC ≥ 3500/mm$^3$ and ANC ≥ 2000/mm$^3$ | Every 4 weeks ad infinitum         |
| Immature forms present        | N/A                                 | Repeat WBC and ANC                 |
| Discontinuation of Therapy    | N/A                                 | Weekly for at least 4 weeks from day of discontinuation or until WBC ≥ 3500/mm$^3$ and ANC > 2000/mm$^3$ |
| Substantial drop in WBC or ANC| Single Drop or cumulative drop within 3 weeks of WBC ≥ 3000/mm$^3$ or ANC ≥ 1500/mm$^3$ | 1. Repeat WBC and ANC  
|                               |                                     | 2. If repeat values are 3000/mm$^3$ ≤ WBC ≤ 3500/mm$^3$ and ANC < 2000/mm$^3$, then monitor twice weekly |
| Mild Leukopenia/Mild Granulocytopenia | 3500/mm$^3$ ≥ WBC ≥ 3000/mm$^3$ and/or 2000/mm$^3$ ≥ ANC ≥ 1500/mm$^3$ | Twice-weekly until WBC > 3500/mm$^3$ and ANC > 2000/mm$^3$, then return to previous monitoring frequency |
### Situation

**Hematological Values for Monitoring**

- **Moderate Leukopenia**
  - $3000/mm^3 > WBC \geq 2000/mm^3$
  - $1500/mm^3 > ANC \geq 1000/mm^3$

#### Frequency of WBC and ANC Monitoring

1. **Interrupt therapy**
2. **Daily** until $WBC > 3000/mm^3$ and $ANC > 1500/mm^3$
3. **Twice-weekly** until $WBC > 3500/mm^3$ and $ANC > 2000/mm^3$
4. **May rechallenge** when $WBC > 3500/mm^3$ and $ANC > 2000/mm^3$
5. **If rechallenged**, monitor weekly for 1 year before returning to the usual monitoring schedule of every 2 weeks for 6 months and then every 4 weeks ad infinitum.

- **Severe Leukopenia**
  - $WBC < 2000/mm^3$
  - $ANC < 1000/mm^3$

#### Frequency of WBC and ANC Monitoring

1. **Discontinue treatment** and do not rechallenge patient
2. **Monitor** until normal and for at least four weeks from day of discontinuation as follows:
   - **Daily** until $WBC > 3000/mm^3$ and $ANC > 1500/mm^3$
   - **Twice weekly** until $WBC > 3500/mm^3$ and $ANC > 2000/mm^3$
   - **Weekly** after $WBC > 3500/mm^3$

- **Agranulocytosis**
  - $ANC \leq 500/mm^3$

#### Frequency of WBC and ANC Monitoring

1. **Discontinue treatment** and do not rechallenge patient
2. **Monitor** until normal and for at least four weeks from day of discontinuation as follows:
   - **Daily** until $WBC > 3000/mm^3$ and $ANC > 1500/mm^3$
   - **Twice weekly** until $WBC > 3500/mm^3$ and $ANC > 2000/mm^3$
   - **Weekly** after $WBC > 3500/mm^3$

Questions? Call the Registry at 800-507-8334 or send us an email: Clozapine.Registry@TevaUSA.com. Go to ClozapineRegistry.com to manage your patients electronically.
<table>
<thead>
<tr>
<th>If Treatment Duration is:</th>
<th>History of Abnormal Event</th>
<th>Interruption in Therapy</th>
<th>Reset Clock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>No</td>
<td>Break greater than 3 days but less than or equal to 1 month</td>
<td>No</td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>No</td>
<td>Break greater than 1 month</td>
<td>Weekly for 6 months</td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>Yes</td>
<td>See table #1</td>
<td>See table #1</td>
</tr>
<tr>
<td>6 to 12 months</td>
<td>No</td>
<td>Break greater than 3 days but less than or equal to 1 month</td>
<td>Weekly for 6 weeks then return to every 2 weeks for 6 months*</td>
</tr>
<tr>
<td>6 to 12 months</td>
<td>No</td>
<td>Break greater than 1 month</td>
<td>Weekly for 6 months; then return to every 2 weeks for 6 months*</td>
</tr>
<tr>
<td>6 to 12 months</td>
<td>Yes</td>
<td>See table #1</td>
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</tr>
<tr>
<td>Greater than 12 months</td>
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</tr>
<tr>
<td>Greater than 12 months</td>
<td>Yes</td>
<td>See table #1</td>
<td>See table #1</td>
</tr>
</tbody>
</table>

* Transitions to reduce frequency of monitoring only permitted if all WBC ≥ 3500/mm³ and ANC ≥ 2000/mm³.

Abnormal event: Any WBC less than 3500/mm³ or ANC less than 2000/mm³.
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 Inquiries
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.
CRUSHING OF MEDICATIONS  
(§35.05)

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.
### Attachment A: Solid Dosage Forms that Cannot be Crushed, Opened, or Chewed*

<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(^1)</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Aspirin (Ecotrin®, Enseals®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Aspirin/Dipyridamole (Aggrenox®)</td>
<td>Capsule</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Bisacodyl (Dulcolax®, Correctol®)</td>
<td>Tablet(^2)</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, Carbaltrol®, Equetro®)</td>
<td>Tablet, Capsule(^1)</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Ciprofloxacin (Cipro XR®, Ciprofaxin®)</td>
<td>Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Clotrimazole (Mycelex® Troches)</td>
<td>Troches(^6), Capsule</td>
<td>Troche</td>
</tr>
<tr>
<td>Darifenacin (Enablex®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Dextroamphetamine (Dexedrine Sustained Release, Spansule®)</td>
<td>Capsule(^1), Capsule</td>
<td>Slow Release</td>
</tr>
<tr>
<td>Didanosine EC (Videx® EC)</td>
<td>Capsule</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Diltiazem (Dilacor® XR, Cardizem CD®, Diltiazem ER®)</td>
<td>Capsule(^1), Capsule</td>
<td>Enteric Coated, Extended Release</td>
</tr>
<tr>
<td>Divalproex Sodium (Depakote®, Depakote ER®, Depakote Sprinkle®)</td>
<td>Capsule(^1), Capsule</td>
<td>Enteric Coated Pellet</td>
</tr>
<tr>
<td>Duloxetine (Cymbalta®)</td>
<td>Capsule</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Erythromycin (E-Mycin®, Ery-Tab®, E.E.S.®, Eryc®)</td>
<td>Capsule, Tablet</td>
<td>Enteric Coated</td>
</tr>
<tr>
<td>Esomeprazole (Nexium®)</td>
<td>Capsule(^1)</td>
<td>Delayed Release</td>
</tr>
<tr>
<td>Felodipine (Plendil®)</td>
<td>Tablet</td>
<td>Extended Release</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>Guaiifenesin (Mucinex®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Hyoscyamine (Levsinex®, Levbid®, E.S.E.®, Elyser®)</td>
<td>Capsule, Tablet</td>
<td>Slow Release</td>
</tr>
<tr>
<td>Isosorbide Mononitrate (Imdur®)</td>
<td>Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Lansoprazole (Prevacid®)</td>
<td>Capsule(^1)</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>
</tr>
<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(^1), Tablet</td>
<td>Extended Release</td>
</tr>
<tr>
<td>Metoprolol Succinate (Toprol XL®)</td>
<td>Tablet(^7)</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, Tablet</td>
<td>Mucous Membrane Irritant, Teratogenic, Tablet is film coated</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.
**Attachment B: Solid Dosage Forms that Should not be Crushed, Opened or Chewed**

<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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irritant</td>
</tr>
<tr>
<td>Atomoxetine (Strattera®)</td>
<td>Capsule</td>
<td>Ocular Irritant</td>
</tr>
<tr>
<td>Calcitriol (Rocaltril®)</td>
<td>Capsule</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>Capsule</td>
<td>Liquid Filled</td>
</tr>
<tr>
<td>Etravirine (Intelence®)</td>
<td>Tablet</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>Capsule</td>
<td>Bad Taste</td>
</tr>
<tr>
<td>Isotretinoin (Accutane®, Amnesteem®, Claravis®)</td>
<td>Capsule</td>
<td>Mucous Membrane</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irritant, Liquid Filled</td>
</tr>
<tr>
<td>Levetiracetam (Keppra®)</td>
<td>Tablet</td>
<td>Bitter Taste</td>
</tr>
<tr>
<td>Nifedipine (Procardia®)</td>
<td>Capsule</td>
<td>Liquid Filled</td>
</tr>
<tr>
<td>Piroxicam (Feldene®)</td>
<td>Capsule</td>
<td>Mucous Membrane</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>
<tr>
<td></td>
<td>Capsule</td>
<td></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

Medication order is written for non-formulary medication
(Note: Do not enter order into computer until medication has been approved)

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

Contact clinical pharmacist via TDCJ mainframe email:
1. From main computer screen type EMS, then enter.
2. Type "4.4", then enter
3. A list of E-Forms appears. Tab down and select the E-Form "HS_NF_REQ" Nonformulary consult.
4. Fill in all requested information.
5. Press F3 key to route EMAIL to appropriate clinical pharmacist.
6. Tab down & type EMAIL address.
7. Press enter to return to command line. Then type “S” to send.

Retrieve e-mail notification of non-formulary approval or deferral.
1. From main computer screen type EMS
2. Type “2” for kwickread at the enter command line
3. Press enter key to scroll through messages
4. Type “p” to print at the enter command prompt
5. Retain a copy of the email for your records

Approval Obtained?

Prescribing clinician agrees with pharmacist?

No

Yes

Forward copy of email deferral to District Medical Director (TT-Regional) or Director of Mental Health (MH) Services

No

Yes

Clinicin writes order for formulary medication or determines that the patient does not need medication at this time.

Yes

District Medical Director (TT-Regional) or Director of Mental Health Services forwards e-mail approval to unit, clinical pharmacist and CMC Pharmacy (CMC Pharmacy e-mail EPOTP04)

No

Retrieve e-mail and retain a copy for your records. Approvals should be scanned into the patient’s medical record.

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 AGENTS

<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorbase (Eucerin®)</td>
<td>RMF</td>
</tr>
<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>
</tbody>
</table>
| Aripiprazole (Abilify®)                     | TYC only. Prior authorization criteria must be met and include:  
  - Intolerance to 2<sup>nd</sup> generation anti-psychotics  
  - Treatment failure on 2<sup>nd</sup> generation anti-psychotics  
  - Contraindication to 2<sup>nd</sup> generation anti-psychotics  
  - BMI ≥ 90<sup>th</sup> percentile |
| Atomoxetine (Strattera®)                    | TYC only. Prior authorization criteria must be met and include:  
  - ADHD plus  
  - Treatment failure on adequate dose and trial of both formulary stimulants  
  - Intolerance to both formulary stimulants  
  - Contraindication to both formulary stimulants  
  - Significant history of substance abuse  
  - Co-morbid anxiety disorder |
| Azithromycin (Zithromax®)                   | HIV+ dosed 1200 milligrams q week for MAC primary prophylaxis when CD4 < 50  
  - Pregnant patients  
    - Treatment of GC & chlamydia dosed 2400 milligrams x 1 dose  
    - Treatment of chlamydia dosed 1200 milligrams x 1 dose |
| Baclofen (Lioresal®)                        | Spinal cord injury  
  - Multiple Sclerosis  
  - Muscular dystrophy  
  - Spastic hemiplegia  
  - Amyotrophic lateral sclerosis  
  - Cerebral palsy |
| Birth control (Low-Ogestrel®, Norinyl®, Zovia®) | Females |
| Body Lotion (Lubrisoft®)                    | Eczema  
  - Dermatitis  
  - Psoriasis  
  - Chronic stasis dermatitis  
  - Ichthyosis  
  - Hyperkeratosis  
  - Dialysis |
<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcitriol injection (Calcijex®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Calcium carbonate, chewable (Tums®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Carvedilol (Coreg®)</td>
<td>Heart failure</td>
</tr>
<tr>
<td>Ceftazidime (Fortaz®)</td>
<td>Infirmary patient</td>
</tr>
<tr>
<td>Ceftriaxone (Rocephin®)</td>
<td>• 250mg - 125mg IM x 1 dose for GC (gonorrhea)</td>
</tr>
<tr>
<td></td>
<td>• 1 gram – Infirmary unit</td>
</tr>
<tr>
<td>Chlordiazepoxide (Librium®)</td>
<td>Restricted to detoxification</td>
</tr>
<tr>
<td>Clonidine (Catapres®)</td>
<td>• Hypertensive emergency</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>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>Diptheria-Tetanus (Decavac®)</td>
<td>• ≤ 18 years old without documentation of completion</td>
</tr>
<tr>
<td></td>
<td>• No history of prior immunization within the last 10 years</td>
</tr>
<tr>
<td></td>
<td>• Prophylaxis for wound management</td>
</tr>
<tr>
<td>Doxercalciferol (Hectoral®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Entecavir (Baraclude®)</td>
<td>• Approval requests should be sent to Dr. LaTanya Armstead at LAR3211</td>
</tr>
<tr>
<td></td>
<td>• Approval required by Utilization Management at (806)356-5350 for TTUHSC units</td>
</tr>
<tr>
<td>Enteral feeding (Osmolite®)</td>
<td>RMF and Dialysis</td>
</tr>
</tbody>
</table>
## Prior Authorization Agent / Restricted Agent

<table>
<thead>
<tr>
<th>Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoetin Alpha (Procrit®)</td>
<td>Dialysis</td>
</tr>
<tr>
<td>Estrogens (Premarin®, Cenestin®)</td>
<td>Females</td>
</tr>
</tbody>
</table>
| 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  
   • Chronic hepatitis C patients who are not immune  
   • Chronic hepatitis B patients who are not immune                                                                                                               |
| 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                                                                                                     |
| Hexachlorophene (Phisohex®)                | RMF                                                                                                           |
| Influenza vaccine (Flulaval®)              | Infection Control P&P B-14.51  
   • ≥ 50 years old  
   • Certain chronic diseases (heart disease, asthma, COPD, diabetes, renal disease, hepatic disease, neurologic disease, and hematologic disease)  
   • Immunocompromising diseases (HIV, most cancers, ESRD, sickle cell, medications)  
   • Pregnancy during the influenza season  
   • < 18 years old and on chronic aspirin therapy  
   • American Indian or Alaska Native  
   • Morbidly obese BMI ≥ 40                                                                                                                                          |
<p>| Iron sucrose (Venofer®)                    | Dialysis                                                                                                      |</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>Labetalol</td>
<td>EMS use only for treatment of HTN emergencies per protocol</td>
</tr>
</tbody>
</table>
| Levetiracetam (Keppra®)                     | • Advanced liver disease (LFTs > 3x ULN cirrhosis)  
    • Concomitant antiretroviral therapy(HAART)  
    • Documented intolerance to other formulary anticonvulsants  
    • Treatment failure on at least three formulary agents (carbamazepine, phenytoin, divalproex sodium) |
| Lidocaine                                   | • 2% jelly – EMS and emergency use only  
    • 5% ointment – OB/GYN services at GC or GV |
| MMR vaccine (M-M-R®-II)                     | • ≤18 years old without documentation of series completion  
    • Immigrants that have not completed the series  
    • Born after 1956 & did not attend public school |
| Medroxyprogesterone (Provera®, Depo-Provera®) | Females |
| Meningococcal Vaccine (Menomune®)           | Anatomic or functional asplenic patients who have no history of prior immunization |
| Meropenem (Merrem®)                         | RMF |
| Miconazole vaginal suppositories (Monistat®) | Females |
| Morphine sulfate (MS Contin®)               | Elixir and extended release tablets – RMF or Hospice (may not exceed 21 day supply) |
| Multivitamin                                | HIV-positive + CD4 count < 100 + not on enteral feeding |
| Nephro-Vite®                                | Dialysis |
| Paricalcitol (Zemplar®)                     | Dialysis |
| Peginterferon alfa-2A (Pegasys®)            | • Approval requests should be sent to Dr. LaTanya Armstead at LAR3211.  
    • 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
<table>
<thead>
<tr>
<th>Prior Authorization Agent / Restricted Agent</th>
<th>Criteria (Should be typed in Special Instructions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio vaccine (Ipol&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>Patients under 18 years old</td>
</tr>
<tr>
<td>Potassium Chloride injection</td>
<td>Infirmary or RMF</td>
</tr>
<tr>
<td>Prenatal vitamins</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>Prochlorperazine (Compazine&lt;sup&gt;®&lt;/sup&gt;) injection</td>
<td>Post-chemotherapy use at GC</td>
</tr>
<tr>
<td>Ranitidine (Zantac&lt;sup&gt;®&lt;/sup&gt;) injection</td>
<td>RMF</td>
</tr>
<tr>
<td>Ribavirin (Ribasphere&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>Approval requests should be sent to Dr. LaTanya Armstead at LAR3211. Approval required by Utilization Management at (806)356-5350 for TTUHSC units</td>
</tr>
<tr>
<td>Sevelamer (Renagel&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>Chronic kidney disease</td>
</tr>
<tr>
<td></td>
<td>Dialysis</td>
</tr>
<tr>
<td>Stavudine (Zerit&lt;sup&gt;®&lt;/sup&gt;) 20mg</td>
<td>HIV-positive + dialysis patient</td>
</tr>
<tr>
<td>Surgical lubricant (Surgilube&lt;sup&gt;®&lt;/sup&gt;) 4.24 oz tube</td>
<td>RMF</td>
</tr>
<tr>
<td>Tetanus-Diphtheria-Acellular Pertussis TdaP (Boostrix&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>Post-partum and accepted into BAMBI (Baby and Mother Infant Bonding Initiative)</td>
</tr>
<tr>
<td>Tiotropium 18mcg (Spiriva&lt;sup&gt;®&lt;/sup&gt;)</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&lt;sup&gt;®&lt;/sup&gt;)</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>Ziprasidone (Geodon&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>TYC only. Prior authorization criteria must be met and include:</td>
</tr>
<tr>
<td></td>
<td>Intolerance to 2&lt;sup&gt;nd&lt;/sup&gt; generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>Treatment failure on 2&lt;sup&gt;nd&lt;/sup&gt; generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>Contraindication to 2&lt;sup&gt;nd&lt;/sup&gt; generation anti-psychotics</td>
</tr>
<tr>
<td></td>
<td>BMI ≥ 90&lt;sup&gt;th&lt;/sup&gt; percentile</td>
</tr>
</tbody>
</table>
IV SOLUTION ADMIXTURE SYSTEMS

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).

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

NS=normal saline

Antibiotics that cannot be used with the admixture systems include amphotericin, 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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Disease Management Guidelines for Youth

The youth psychiatric disease management guidelines were prepared by the Youth Services Pharmacy and Therapeutics Committee.

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<th>Page</th>
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<td>234-238</td>
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<tr>
<td>Bipolar Disorder</td>
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<td>Depressive Disorders</td>
<td>248-253</td>
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<td>254-264</td>
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<td>Insomnia</td>
<td>276-281</td>
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<td>282-289</td>
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<tr>
<td>PTSD</td>
<td>290-293</td>
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<tr>
<td>Seizures, Acute</td>
<td>294</td>
</tr>
<tr>
<td>Seizures, Chronic</td>
<td>295-300</td>
</tr>
</tbody>
</table>

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Anemia in Pre-Dialysis Chronic Renal Failure
Erythropoietin Dosing and Monitoring

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 = serum iron/iron binding capacity)
- 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

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

Check Hgb at 2 weeks

Maintenance Dose

- Titrate dose as needed to maintain Hgb sufficient to:
  - Not exceed 11 g/dL or
  - Not increase Hgb > 2 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. Occult blood loss
4. Underlying hematologic diseases (ie 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>
<thead>
<tr>
<th>Possible Causes</th>
<th>Absorption Assisted Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron deficiency</td>
<td>– supplement if transferrin saturation (Tsat) &lt; 20%</td>
</tr>
<tr>
<td>Underlying infectious, inflammatory, or malignant processes</td>
<td></td>
</tr>
<tr>
<td>Occult blood loss</td>
<td></td>
</tr>
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<td>Underlying hematologic diseases (ie thalassemia, refractory anemia or other myelodysplastic disorders)</td>
<td></td>
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<td>Vitamin deficiencies (folic acid, vitamin B12)</td>
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<tr>
<td>Hemolysis</td>
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<tr>
<td>Aluminum intoxication</td>
<td></td>
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<tr>
<td>Osteitis fibrosa cystica</td>
<td></td>
</tr>
<tr>
<td>Pure Red Cell Aplasia (PRCA) or anti-erythropoietin antibody-associated anemia (test for presence of antibodies to erythropoietin)</td>
<td></td>
</tr>
</tbody>
</table>

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

Table 3: Contraindications

<table>
<thead>
<tr>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Uncontrolled hypertension</td>
</tr>
<tr>
<td>2. Known hypersensitivity to mammalian cell-derived products</td>
</tr>
<tr>
<td>3. Known hypersensitivity to albumin (Human)</td>
</tr>
</tbody>
</table>

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.

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

1. Patient Presents to Medical Department with Chest Pain

2. Clinical Assessment
   - Chest Pain Is Substernal
   - Chest Pain Radiates
   - Patient Is Experiencing Nausea, Shortness of Breath, Diaphoresis, or Palpitations
   - Patient Has Cardiac Risk Factors
     (If Patient has Diabetes Mellitus observe for nausea as chest pain may be masked)
   - Consider other life threatening causes of chest pain, like aneurysm, pneumonia, pneumothorax, or pulmonary embolism.

3. Calculate Cardiac Risk Factors
   Positive Cardiac Risk Factors:
   - Family history premature CHD (CHD in first degree male relative < 55 or female relative < 65);
   - Age ≥ 45 Males, 55 Females;
   - HTN ≥ 140/90 mm Hg or on an antihypertensive medication;
   - Smoker within the last 2 years;
   - HDL < 40 mg/dl.
   Negative Cardiac Risk Factors:
   - HDL ≥ 60 mg/dl (subtract 1 risk factor).

4. 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

5. 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?

6. If CAD equivalent OR 2 or more cardiac risk factors* present, repeat EKG in 2 hours, maintain in observation for 6 hours, and repeat troponin level.
   If less than 2 cardiac risk factors and atypical presentation of chest pain that is not suspected to be cardiac in origin, then ascertain and treat etiology.

7. Changes in parameters?
   - Yes
   - No

8. Discharge from Medical Department. Follow up next morning with provider with instructions to return prn for chest pain.

Transfer to nearest Emergency Room
Call 911 and follow unit protocol
For UTMB, if ambulance is not immediately available call 911
Start Normal Saline Intravenous Infusion
Consider Morphine Sulfate Intravenous if pain is not relieved after 3 doses of sublingual nitroglycerin

Prepared 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.
Angina, Chronic Stable

1. Meets criteria for Chronic Stable Angina? [Angina that is not unstable and that has a new onset of more than two months ago, does not occur at rest, and has not distinctly changed in frequency, duration, or threshold within the last 2 months.]

   - Yes: Sublingual NTG effective?
   - No: See Angina, Acute Pathway

   Sublingual NTG effective?

   - Yes: Start Calcium Channel Antagonist (CCA) and ASA EC 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.
   - No: Start Beta-Blocker (BB) and ASA EC 81-325 mg qd. Titrate BB to maximum tolerated dose.

2. Consider cardiology referral if not previously evaluated by cardiology

3. History of Vasospastic Angina?

   - Yes: Still experiencing intermittent chest pain relieved with SL NTG?
   - No: See Angina, Acute Pathway

   Still experiencing intermittent chest pain relieved with SL NTG?

   - Yes: Start or Add Calcium Channel Antagonist (CCA) and ASA EC 81-325 mg qd. Titrate CCA to maximum tolerated dose.
   - No: Refer to Checklist for Secondary Prevention of Coronary Artery Disease DMG to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.

4. Serious contraindication to Beta-Blocker?

   - Yes: Start Isosorbide Mononitrate XR 30-60mg qd or Stop CCA and add Isosorbide Mononitrate XR 30-60mg qd. Titrate prn per symptoms up to maximum 240mg/day.
   - No: Refer to Checklist for Secondary Prevention of Coronary Artery Disease DMG to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.

5. Serious contraindication to Calcium Channel Antagonist?

   - Yes: Effective?
   - No: Continued therapy. Follow up in 30 days, then 90 days if chest pain is stable.

6. Sublingual NTG effective?

   - Yes: History of Vasospastic Angina?
   - No: See Angina, Acute Pathway

7. Serious contraindication to Beta-Blocker?

   - Yes: Start Calcium Channel Antagonist (CCA) and ASA EC 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.
   - No: Start Beta-Blocker (BB) and ASA EC 81-325 mg qd. Titrate BB to maximum tolerated dose.

8. History of Vasospastic Angina?

   - Yes: Still experiencing intermittent chest pain relieved with SL NTG?
   - No: See Angina, Acute Pathway

9. Serious contraindication to Calcium Channel Antagonist?

   - Yes: Still experiencing intermittent chest pain relieved with SL NTG?
   - No: Start or Add Calcium Channel Antagonist (CCA) and ASA EC 81-325 mg qd. Titrate CCA to maximum tolerated dose.

10. Start Isosorbide Mononitrate XR 30-60mg qd or Stop CCA and add Isosorbide Mononitrate XR 30-60mg qd. Titrate prn per symptoms up to maximum 240mg/day.

11. Effective?

12. Still experiencing intermittent chest pain relieved with SL NTG?

13. Refer to Checklist for Secondary Prevention of Coronary Artery Disease DMG to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.

14. Consider Cardiology Consult

15. Refer to Checklist for Secondary Prevention of Coronary Artery Disease DMG to ensure risk reduction measures are being followed. Aggressively treat the underlying disease.

16. Effective?

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. Approved February 2003; 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 100-450mg/day in 2-3 divided doses
• Calcium channel antagonists (CCA)- 3rd line if BB’s are not tolerated, contraindicated, or if symptoms are not alleviated with BB’s alone.
  - Verapamil and diltiazem should not be used in combination with beta-blockers (see drug interaction alert).
  - Amlodipine 5-10mg/day
  - Diltiazem XR 180-360mg/day
  - Verapamil 240-480mg/day in 3-4 divided doses
• 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 30-240mg/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
  - Overt cardiac failure
  - Hypersensitivity to BB’s
• Calcium channel antagonists
  - Sick sinus syndrome
  - Second or third degree heart block
  - 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

Drug interaction alert:
Concomitant use of non-dihydropyridine calcium channel antagonists with beta blockers can possibly potentiate hypotension, bradycardia, heart failure, and conduction abnormalities. These effects are most prevalent in patients with impaired left ventricular function, cardiac arrhythmias, or aortic stenosis.

Counseling on the use of nitrates
• Patients 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 taken.
• 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 mucosa 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.
• Warn patients about the potential of hypotension when first taking the nitrate and the potential for headaches and flushing.
• 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 Guideline):

- 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 Angina ACC/AHA guidelines:

- ACE inhibitors are recommended for patients with chronic 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.
ANXIETY and PANIC DISORDER

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. Meets DSM-IV Criteria for Anxiety Disorder?
   - Yes
   - No

5. Treat any underlying disorder
   - No
   - Yes

6. Perform BPRS. Meets DSM-IV Criteria for Panic Disorder?
   - Yes
   - No

7. • Initiate Psychotherapy and
   • Initiate 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

8. 1. Perform BPRS
    2. SSRI therapy effective with ≥ 80% medication compliance?
       - Yes
       - No

9. 1. Continue maintenance treatment for 6 – 12 months, reassessing as determined by unit mental health provider
    2. After 12 – 18 months may consider discontinuation of pharmacotherapy
    3. In case of relapse, see box 7 and resume treatment that had proven effective

10. 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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, Approved 1/99, revised 5/02, 2/03, 4/03, 9/05, 7/08, 7/11, 9/11.
Therapeutic Monitoring

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>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram 20mg, 40mg tablet</td>
<td>Celexa®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 40)</td>
<td>Pregnancy Test – as clinically indicated</td>
</tr>
<tr>
<td></td>
<td>Fluoxetine 20mg capsule</td>
<td>Prozac®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 60)</td>
<td>Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline 50mg, 100mg tablet</td>
<td>Zoloft®</td>
<td>Significant anxiety</td>
<td>50 (50 – 200)</td>
<td></td>
</tr>
<tr>
<td>Triyclic Antidepressant* (TCA)</td>
<td>Nortriptyline 25mg, 50mg, 75mg capsule 10mg/5ml liquid</td>
<td>Pamelor®</td>
<td>Melancholic features</td>
<td>25 – 50 (75 – 150)</td>
<td>Pregnancy Test – as clinically indicated</td>
</tr>
<tr>
<td></td>
<td>Trazodone 50mg, 100mg tablet</td>
<td>Desyrel®</td>
<td>Atypical features or dysthymia</td>
<td>100 – 150 (300 – 600)</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>Priapism</td>
</tr>
</tbody>
</table>

Table 2. Monitoring Nortriptyline Drug Levels

<table>
<thead>
<tr>
<th>Therapeutic Drug Level</th>
<th>50 – 150 ng/mL</th>
<th>Consider drawing if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>- Daily dose near upper limit of range (≥ 100mg/day)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Potential for drug interaction (e.g., fosamprenavir, thioridazine, valproic acid, verapamil, use with other antidepressants)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Concern regarding adherence</td>
</tr>
<tr>
<td>Toxicity Likely</td>
<td>&gt; 500 ng/mL</td>
<td></td>
</tr>
<tr>
<td>Signs of Toxicity</td>
<td>Agitation, tachycardia confusion, hypothermia, hypotension, seizures, cardiac arrhythmias, CNS depression, heart block leading to death</td>
<td></td>
</tr>
<tr>
<td>Management of Toxicity</td>
<td>Hold medication until patient has had a medical evaluation with vital signs and EKG. Transfer patient to acute care setting if clinically necessary.</td>
<td></td>
</tr>
<tr>
<td>Timing of Drug Levels</td>
<td>• Steady state concentration generally reached within 4-11 days. Draw within 2 weeks of dose change.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Draw 12-14 hours after last dose for patients taking once daily or 4-6 hours after last dose if on divided dose regimen.</td>
<td></td>
</tr>
</tbody>
</table>
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</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>20mg, 50mg, 75mg</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>Trazadone</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 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>
</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>

**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.
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. 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. 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.
Asthma – Acute: Unit Level Management

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).

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

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

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

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) Mild to moderate symptoms
Management
1) Individualize decision to discharge as per good response or transfer to higher level of care.

Repeat Assessment in 20-60 minutes: Evaluation of symptoms, chest examination, vital signs, PEF, and oxygen saturation (if PEF is <50% of personal best).

Good Response (Mild Episode)
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) Mild to moderate symptoms
Management
1) Individualize decision to discharge as per good response or transfer to higher level of care.

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

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. Reviewed 4/02, 4/03, 3/05, 9/09, 01/11. Revised 10/03.

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Asthma (Adults and Children ≥ 12 years)

Note: Does not include allergen & exercise-induced disease.

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.
7. If patient has a history of intubation, consider transfer to a 24 hour unit.

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.

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
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><strong>Primary Treatment</strong></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</td>
</tr>
<tr>
<td><strong>Formulary Agents</strong></td>
<td>Albuterol HFA</td>
<td>Beclomethasone low dose: 1 puff bid x 50 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 High dose: 4 puffs bid x 12 days</td>
</tr>
<tr>
<td><strong>Nonformulary Agents</strong></td>
<td>Lutokrine Modifier Or Singular 10mg qhs</td>
<td>Low dose inhaled corticosteroid plus Salmeterol 2 puffs bid Or Fluticasone: Medium Dose: 110mcg 2 puffs bid High Dose: 220mcg 2 puffs bid Or Low dose inhaled corticosteroid plus sustained release Theophylline Fluticasone: High Dose: 220 mcg 2 puffs bid Or Salmeterol: Long acting beta 2 agonist: 2 puffs bid Or Primary treatment plus Theophylline sustained release Fluticasone: High Dose: 220 mcg 2 puffs bid Or</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nonformulary Combination Products</strong></td>
<td>Combination: Advair Diskus (fluticasone/salmeterol) 100/50 1 inhalation bid</td>
<td>Combination: Advair Diskus (fluticasone/salmeterol) 250/50 1 puff bid 500/50 1 puff bid</td>
<td>Combination: Advair Diskus (fluticasone/salmeterol) 250/50 1 puff bid 500/50 1 puff bid</td>
<td></td>
</tr>
</tbody>
</table>

Each step:
- Assess control.
- Prescribe short-acting quick relief medication (e.g., short acting beta₂ against = 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. Continual, 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 exacerbations
   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.
H. Signs of poorly controlled disease
1. Waking up at night with symptoms > twice a month
2. Increased use of short-acting beta₂-agonists (e.g., > 2 times/week or 1 canister per month)
3. Poor adherence to medication regimen
4. Failure to achieve quick and sustained response (improvement within 10-20 minutes and lasting > 4 hours) to short-acting beta₂-agonist during an acute exacerbation.
5. Poor tolerance to physical activity
6. Unable to perform daily activities (e.g., go to work, school)
7. Hospitalization or emergency treatment of asthma
8. Use of nebulized medications

Table 2: Commonly Prescribed Quick Relief Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Type of Medication</th>
<th>Adult Dose</th>
<th>Child ≤ 12 Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol (Proventil HFA®)</td>
<td>Quick relief, Short-acting beta₂-agonist</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 Oral corticosteroid</td>
<td>40-60mg/day x 3-10 days</td>
<td>1-2mg/kg/day maximum 60mg/day/day x 3-10 days</td>
</tr>
</tbody>
</table>

Table 3: Commonly Prescribed Long-Term Control

<table>
<thead>
<tr>
<th>Drug</th>
<th>Type of Medication</th>
<th>Adult Dose</th>
<th>Child ≤ 12 Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluticasone HFA (Flovent®) 44mcg, 110mcg or 220mcg/puff (nonformulary)</td>
<td>Long-term control Inhaled corticosteroid</td>
<td>Low dose – 2 puffs (44mcg) bid</td>
<td>Low dose – 2 puffs (44mcg) bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium dose – 2 puffs (110mcg) bid</td>
<td>Medium dose – 2 puffs (110mcg) bid</td>
</tr>
<tr>
<td></td>
<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®) 100/50mcg, 250/50mcg, or 500/50mcg (nonformulary)</td>
<td>Long-term control Combo inhaled corticosteroid &amp; long-acting beta₂-agonist</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>
<td>0.25-2mg/kg daily or qod</td>
</tr>
<tr>
<td>Salmeterol (Serevent®) Diskus (nonformulary)</td>
<td>Long-term control Long-acting beta₂-agonist</td>
<td>1 puff bid</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>
<td>10mg/kg/day; usual max 16mg/kg/day</td>
</tr>
<tr>
<td>Beclomethasone (Qvar®) 80mcg/puff</td>
<td>Long-term control Inhaled corticosteroid</td>
<td>Low dose – 1 puff bid</td>
<td>Low dose – 1 puff (40mcg or 80mcg) bid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium dose – 2 puffs bid or 3 puffs bid</td>
<td>Medium dose – 2 (40mcg or 80mcg) puffs bid</td>
</tr>
<tr>
<td></td>
<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
Figure 1: Inhaler Use

**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 One requires 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. Moderate Supervision/Monitoring Required
   - Begin detox program with 24/7 licensed nursing for BZW data collection. Dosing & data collection Q 12 hours

8. Intense Supervision/Monitoring Required
   - Begin detox program with 24/7 licensed nursing for BZW data collection. Dosing & data collection 3-4 X daily

9. 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? Sedation? (see Table 2)

11. No
   - Continue Taper

12. Yes
   - 1. Consider modification of dose to alleviate symptoms
      - 2. Consider transfer to an acute inpatient hospital facility

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

Table 1 – Risk Factors for Complicated Benzodiazepine Withdrawal

- 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
- Concomitant dependence to barbiturates, opioids, or alcohol
- Long duration of daily benzodiazepine use (≥ 3 months)
- Higher dose/frequency (> 1.25x’s FDA approved daily maximum)
- Use of benzodiazepine with short half-life

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>Convulsions</td>
</tr>
<tr>
<td>Blood Pressure lability</td>
</tr>
<tr>
<td>Tremor</td>
</tr>
<tr>
<td>Delirium</td>
</tr>
<tr>
<td>Tachycardia</td>
</tr>
<tr>
<td>Hallucinations</td>
</tr>
<tr>
<td>Perspiration</td>
</tr>
</tbody>
</table>

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>Elimination 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>Chloridiazepoxide</td>
<td>Librium</td>
<td>10</td>
<td>100mg/day</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Klonopin</td>
<td>0.25</td>
<td>20mg/day</td>
</tr>
<tr>
<td>Clorazepate</td>
<td>Tranxene</td>
<td>7.5</td>
<td>60mg/day</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Valium</td>
<td>5</td>
<td>40mg/day</td>
</tr>
<tr>
<td>Estazolam*</td>
<td>ProSom</td>
<td>0.3</td>
<td>2mg/day</td>
</tr>
<tr>
<td>Flurazepam</td>
<td>Dalmane</td>
<td>30</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>30</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 agent with 24H or less half-life

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

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 x 5 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>

*Dose reductions are approximate to 25%.

<table>
<thead>
<tr>
<th>Perpiration (monitor in AC setting)</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 no sweating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 palms moist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 palms/forehead moist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 sweat beads on face</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 drenching sweats</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tremor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mild visible tremor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 moderate tremor-arms out</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 severe-arms at side</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restlessness/ agitation</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 uneasy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 restless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 excitable-purposeless activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 pacing-unable to sit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Consciousness</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 unimpaired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 alert-obey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 responds to speech</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 stuporous-responds to pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 semi-comatose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 comatose</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Benzodiazepine Withdrawal (BZW)

#### Data Collection Form Page 2

<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)

<table>
<thead>
<tr>
<th>Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pulse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</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 or 20 BPM or greater than 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.
BIPOLAR DISORDER: DEPRESSION

1. Rule out medical causes for presentation.

2. Is patient currently depressed?
   - Yes
   - No

3. History of at least 1 hypomanic or manic episode?
   - Yes
   - No

4. Reevaluate Diagnosis

5. Follow Bipolar Mania Pathway

6. History of at least 1 hypomanic or manic episode?
   - Yes
   - No

7. Follow Major Depressive Disorder Pathway

8. Is patient on Lithium or Divalproex sodium?
   - Yes
   - No

   - Adjust dose per serum level.
   - 0.6-1.2 mmol/L Lithium
   - 50–125 mcg/mL Divalproex
   - Go to Box #11.

10. Add Lithium or Divalproex Titrate to therapeutic level

11. Does the patient have concomitant psychotic symptoms?
   - Yes
   - No

12. Patients with concomitant psychotic symptoms
    1. Initiate antipsychotic per psychosis pathway
    2. Taper antipsychotic upon resolution of psychotic symptoms
    3. If psychotic symptoms continue, reassess diagnosis of bipolar disorder

13. Monitor medication adherence & evaluate with BPRS.

14. Depression responding to Mood Stabilizer?
   - Yes
   - No

15. Continue maintenance treatment and reassess as clinically indicated.

16. Depression responding to Mood Stabilizer?
   - Yes
   - No

17. 1. Reevaluate Diagnosis
    2. Counsel regarding medication adherence
    3. Consider switch to alternate formulary Mood Stabilizer (Go to Box 10)
    4. Consider addition of formulary SSRI (sertraline, citalopram, or fluoxetine)

18. Continue maintenance treatment and reassess as clinically indicated.

19. Depression responding to Mood Stabilizer?
   - Yes
   - No

   1. Reevaluate Diagnosis
   2. Counsel regarding medication adherence
   3. If already failed trial of formulary SSRI listed in Box 16,
      Consider nonformulary request for lamotrigine
   4. Consider pharmacotherapy consult

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/99, revised 5/02, 2/03, 4/03, 8/05, 5/09, 7/09.
BIPOLAR DISORDER: DEPRESSION

Monitoring Parameters

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.
      3. Standard draw time is 12 hours after the last dose.

III. Lamotrigine (Requires Nonformulary Approval for Use)
   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,
         lopinavir/ritonavir)
         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.

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.
## Lithium

**Drug:** Lithium  
**Daily Dose Range:** Initially 900 – 1200 mg daily in 1 to 3 divided doses.  
**Dose to stay between:** 0.6 mEq/L and 1.2 mEq/L.  
**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  
  - 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.  
**Signs/symptoms of toxicity (dose-related):**  
- Lithium toxicity can be FATAL.  
  - **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  
**Signs/symptoms of toxicity (NOT dose-related):**  
- Not applicable  

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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.
<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>
</table>
| Divalproex: 750 – 60mg/kg/day, given in divided doses | • Hypersensitivity to VPA  
• Hepatic dysfunction  
• Urea cycle disorder  
• Pregnancy Category D | > 100-125 mcg/mL | **Acute**  
• Somnolence  
• Heart block  
• Deep coma  
• Hyperbilirubinemia  
• Lethargy  
• Vomiting  
• Changes in mental status  
• Thrombocytopenia  
• Prolongation of bleeding time  
• Hepatotoxicity | • Pancreatitis - DO NOT RECHALLENGE  
• Pancreatitis, hemorrhagic – DO NOT RECHALLENGE  
• Hyperammonemic encephalopathy  
• Hepatotoxicity, severe or fatal  
• Stevens-Johnson Syndrome  
• Toxic Epidermal Necrolysis  
• Polycystic ovarian syndrome (PCOS) |
| Lamotrigine: 25 – 400 mg/day (Dosing depends on concomitant drug therapy due to significant drug interactions) | • Hypersensitivity to Lamotrigine  
• Pregnancy Category C | Therapeutic plasma concentration has not been established. | • Rash (maculopapular and erythematous)  
• Tourette’s Syndrome in children  
• Blood dyscrasias | • Fever  
• Lymphadenopathy  
• Multiorgan dysfunction  
• Stevens-Johnson Syndrome  
• Toxic Epidermal Necrolysis |
**BIPOLAR DISORDER: MANIA**

1. Rule out medical causes for presentation.

2. Meets criteria for Manic or Hypomanic Episode as defined in DSM-IV?
   - No: Reevaluate Diagnosis and Treat underlying disorder.
   - Yes: Continue current therapy.

3. Effective? (Yes/No)
   - Yes: Continue current therapy.
   - No: Consider antidepressant discontinuation or tapering dose.

4. Is patient currently on an antidepressant?
   - Yes: Consider antidepressant discontinuation or tapering dose.
   - No: Is patient on Lithium or Divalproex?
     - Yes: Maximize Mood Stabilizer. Adjust dose per serum level. Lithium 0.6 – 1.2 mmol/L or Divalproex 50 – 125 mcg/mL for 4 – 6 weeks for Divalproex.
     - No: Initiate treatment with Lithium or Divalproex and titrate to therapeutic level. Lithium 0.6 – 1.2 mmol/L and Divalproex 50 – 125 mcg/mL for 4 – 6 weeks.

5. Consider antidepressant discontinuation or tapering dose.

6. Is patient on Lithium or Divalproex?
   - Yes: Maximize Mood Stabilizer. Adjust dose per serum level. Lithium 0.6 – 1.2 mmol/L or Divalproex 50 – 125 mcg/mL for 4 – 6 weeks for Divalproex.
   - No: Initiate treatment with Lithium or Divalproex and titrate to therapeutic level. Lithium 0.6 – 1.2 mmol/L and Divalproex 50 – 125 mcg/mL for 4 – 6 weeks.

7. Maximize Mood Stabilizer. Adjust dose per serum level. Lithium 0.6 – 1.2 mmol/L or Divalproex 50 – 125 mcg/mL for 4 – 6 weeks for Divalproex.

8. Initiate treatment with Lithium or Divalproex and titrate to therapeutic level. Lithium 0.6 – 1.2 mmol/L and Divalproex 50 – 125 mcg/mL for 4 – 6 weeks.

9. In patients with concomitant psychotic symptoms:
   1. Initiate antipsychotic per psychosis pathway
   2. Taper antipsychotic upon resolution of psychotic symptoms
   3. If psychotic symptoms continue, reassess diagnosis of bipolar disorder

10. Monitor medication adherence & evaluate BPRS.

11. Effective? (Yes/No)
   - Yes: Continue current therapy.
   - No: Discontinue current mood stabilizer and switch to the alternative mood stabilizer for 4 – 6 weeks at therapeutic concentration.

12. Continue current therapy.

13. Consider addition of second mood stabilizer, either Lithium or Divalproex for augmentation. (See Box 8)

14. Partially Effective?

15. Effective? (Yes/No)
   - Yes: Continue current therapy.
   - No: Consider Carbamazepine at levels between 4 – 12 mcg/mL for 4- 6 weeks.

16. Continue current therapy.

17. Effective? (Yes/No)
   - Yes: Continue current therapy.
   - No: Reevaluate diagnosis.

18. Effective? (Yes/No)
   - Yes: Consider Carbamazepine at levels between 4 – 12 mcg/mL for 4- 6 weeks.
   - No: 1. Reevaluate diagnosis
      2. Counsel regarding medication adherence
      3. Consider use of 2 drug combination therapy with lithium, divalproex, or carbamazepine
      4. Consider Pharmacotherapy consult

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/99, revised 3/02, 1/10, reviewed 4/03, 9/05.
BIPOLAR DISORDER: MANIA

Recommended Laboratory Monitoring

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 – 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. 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.

**For Daily Dosing and Drug Levels Associated with Toxicity, please refer to page 4 of Impulse Control Disorder Pathway.
CATHETER RESTORATION FOR HEMODIALYSIS PATIENTS

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

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)

Is catheter occluded?

No

Continue catheter use

Yes

Notify provider and obtain order for Cathflo®.

Explain procedure to patient.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wash hands thoroughly. Put on PPE.</td>
<td>Hand washing protects the patient and health care staff from cross contamination. PPE is worn for health care staff protection.</td>
</tr>
<tr>
<td>2. Aseptically withdraw 2.2 mL of Sterile Water for injection, USP.</td>
<td>Do not use Bacteriostatic Water for injection.</td>
</tr>
<tr>
<td>3. Inject the 2.2 mL of Sterile Water for injection into the Cathflo® vial. The diluent stream should be directed into the powder.</td>
<td>Slight foaming may occur.</td>
</tr>
<tr>
<td>4. Let the vial stand undisturbed until foaming dissipates.</td>
<td>Allows large bubbles to dissipate prior to administration.</td>
</tr>
<tr>
<td>5. Mix by gently swirling the vial until the contents are completely dissolved. Complete dissolution should occur within 3 minutes. Do not shake.</td>
<td>The reconstituted solution is colorless to pale yellow transparent solution. The final concentration is 1mg/1mL. pH is approximately 7.3.</td>
</tr>
<tr>
<td>6. Inspect the reconstituted solution prior to administration for foreign matter or discoloration. If any seen, discard the vial. Do not use.</td>
<td>Should be reconstituted immediately prior to use or used within 8 hours after being reconstituted and stored at 2-30°C or 36-86°F.</td>
</tr>
<tr>
<td>7. No other medications should be added to the solution containing Cathflo®</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. January 2005. Reviewed 1/08, 01/11.
Catheter Restoration for Hemodialysis Patients

Page 2

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

<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 health care 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>
<tr>
<td>5. Assess catheter function by attempting to aspirate blood after 60 minutes of catheter dwell time. <em>If the catheter is functional, go to step 8</em> <em>If the catheter is not functional, go to step 6</em></td>
<td>Vigorous suction should not be applied during attempts to assess catheter function, because of the risk of damage or collapse.</td>
</tr>
<tr>
<td>6. Wait an additional 60 minutes for a total of 120 minutes dwell time. Assess catheter function by attempting to aspirate blood. <em>If the catheter is functional, go to step 8</em> <em>If the catheter is not functional, go to step 7</em></td>
<td></td>
</tr>
<tr>
<td>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 in box 6 on page 1.</td>
<td>An order <strong>must</strong> be obtained from the provider to administer a second dose.</td>
</tr>
<tr>
<td>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).</td>
<td></td>
</tr>
<tr>
<td>10. Document administration in the patient medical record.</td>
<td>Documentation should include drug, dose, route, time administered, patient response, &amp; signature and title of person administering the drug.</td>
</tr>
</tbody>
</table>

**RESUME CATHETER USE**

Yes

**CATHETER FUNCTION RESTORED?**

No

**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. Sluggish 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

Symptoms of COPD exacerbation are present such as:
- Increased breathlessness
- Increased cough
- Increased sputum production
- Change of color and/or tenacity of sputum
- Wheezing
- Chest tightness

1. Nebulized albuterol with or without ipratropium prn. May repeat q 20 minutes x 2.
2. Prednisone 30-40mg

Patient has severe dyspnea and did not respond adequately to initial therapy. **Consider higher level of care.**

3. Consider higher level of care if
   - Onset of new physical signs (e.g. cyanosis, peripheral edema)
   - Arrhythmia present
   - Patient is confused, lethargic, comatos
   - Persistent or worsening hypoxemia despite supplemental oxygen
   - Fever
   - Leukocytosis

4. Signs of bacterial infection present? (At least 2 of the following symptoms: increased dyspnea, sputum volume, and sputum purulence or Low grade fever)
   - Yes
   - No

5. Patient Responding?
   - Yes
   - No

6. Patient has severe dyspnea and did not respond adequately to initial therapy. **Consider higher level of care.**

7. 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)
   - Yes
   - No

8. Continue treatment and monitor the patient closely
   - Give pass to return to clinic for evaluation at least twice daily for 3 days then for evaluation as needed for 10 days.
   - Nebulized albuterol with or without ipratropium prn up to 3 days
   - Prednisone 30-40mg/day for 10-14 days
   - Antibiotic
     - Amoxicillin 500mg tid x 10 days
     - Bactrim DS 1 tab bid x 10 days
     - Doxycycline 100mg bid x 10 days

9. Follow up as needed and refer patient to respiratory therapy within 30 days if not already following the patient.
   - Yes
   - No

10. Patient improved after 3 days?
    - Yes
    - No

11. Monitor the patient closely
    - Nebulized albuterol with or without ipratropium prn up to 3 days
    - Prednisone 30-40mg/day for 10-14 days
    - Obtain nonformulary approval for antibiotic
      - Augmentin 500mg tid x 10 days or
      - LevoFloxacin 500mg qd x 10 days

12. Go to page 2 box # 15

13. Follow up as needed and refer patient to respiratory therapy within 30 days if not already following the patient.
    - Yes
    - No

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

15 Patient improved after 3 days?
   No
   17 Consider higher level of care.
   Yes
   16 Follow up as needed and refer patient to respiratory therapy within 30 days if not already following the patient.

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, January 2007, reviewed 1/09.
CHRONIC COPD

1. Obtain spirometry
2. Obtain complete medical history
3. Classify severity of disease to determine treatment plan

Mild
- FEV1/FVC < 70%
- FEV1 < 80% of predicted value
- With or without chronic symptoms

Moderate
- FEV1/FVC < 70%
- 50% ≤ FEV1 < 80% of predicted value
- With or without chronic symptoms

Severe
- FEV1/FVC < 70%
- 30% ≤ FEV1 < 50% of predicted value
- With or without chronic symptoms

Very Severe
- FEV1/FVC < 70%
- FEV1 < 30% of predicted value or chronic respiratory failure

Patient Stable?

No

B2-Agonist Inhaler. Albuterol 2 puffs PRN up to QID duration (30-90 days) determined by patient use.

Patient Stable?

No

B2-Agonist Inhaler. Albuterol 2 puffs PRN up to QID duration (30-90 days) determined by patient use.

Anticholinergic Inhaler. Ipratropium HFA 2 puffs QID (1 inhaler=30days)

Patient Stable?

Yes

Continue regimen. Follow up at least every 12 months with peak flow and spirometry every 1-2 years.

Yes

Continue regimen. Follow up at least every 6 months with peak flow and spirometry every 1-2 years.

Add Inhaled Corticosteroid. Beclomethasone HFA 1 puff BID (1 inhaler lasts 50 days. Reassess if it does not last 50 days.)

Patient Stable?

No

B2-Agonist Inhaler. Albuterol 2 puffs PRN up to QID duration (30-90 days) determined by patient use.

Long-acting Anticholinergic Inhaler. Tiotropium 1 puff QD (1 inhaler=30days)

Patient Stable?

No

Continue regimen. Follow up at least every 6 months with peak flow and spirometry every 1-2 years.

Yes

Continue regimen. Follow up at least every 6 months with peak flow and spirometry every 1-2 years.

**CHRONIC COPD**

- **Increase dose of inhaled corticosteroid.**
  - Beclomethasone HFA 2 puffs BID (1 inhaler lasts 25 days).
- **Reinforce Patient Education.** Proper use of inhaler, importance of scheduled dosing of anticholinergic and corticosteroid inhalers, and risk factor avoidance.

---

22. **Patient Stable?**
   - Yes: Continue regimen. Follow up at least every 6 months with peak flow and spirometry every 1-2 years.
   - No: Consider referral to specialist.

---

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

---

Figure 1: Inhaler Technique

Demonstrate proper inhaler technique and verify patient understanding by observing the patient performing the technique.

1. Remove cap and hold upright.
2. Shake inhaler.
3. Tilt head back slightly and breath 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 breath in slowly.
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 (β agonist, Albuterol) should be administered before other inhalers to allow best response.
10. Corticosteroid (Triamcinolone) 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

Figure 1: Open Mouth Technique

Figure 2: Closed Mouth Technique
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. Breathe 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

Inhaler parts:
1. Dust cap
2. Mouthpiece
3. Base
4. Piercing button
5. Center chamber
6. Air intake vents
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 (worsens 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. Postbronchodilator FEV₁ < 80% of predicted value
   2. FEV₁/FVC < 70%
C. Peak flow – Low peak flow is consistent with COPD but has poor 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 a family history.

III. Classification

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – At risk</td>
<td>• Normal spirometry</td>
</tr>
<tr>
<td></td>
<td>• Chronic symptoms (e.g., cough, sputum production)</td>
</tr>
<tr>
<td>I – Mild COPD</td>
<td>• FEV₁/FVC &lt; 70%</td>
</tr>
<tr>
<td></td>
<td>• FEV₁ &lt; 80% of predicted value</td>
</tr>
<tr>
<td></td>
<td>• With or without chronic symptoms (e.g., cough, sputum production)</td>
</tr>
<tr>
<td></td>
<td>• Patient may not be aware of lung function abnormality</td>
</tr>
<tr>
<td>II – Moderate COPD</td>
<td>• FEV₁/FVC &lt; 70%</td>
</tr>
<tr>
<td></td>
<td>• 50% ≤ FEV₁ &lt; 80% of predicted value</td>
</tr>
<tr>
<td></td>
<td>• With or without chronic symptoms (e.g., cough, sputum production, shortness of breath with exertion)</td>
</tr>
<tr>
<td>III – Severe COPD</td>
<td>• FEV₁/FVC &lt; 70%</td>
</tr>
<tr>
<td></td>
<td>• 30% ≤ FEV₁ &lt; 50% of predicted value</td>
</tr>
<tr>
<td></td>
<td>• With or without chronic symptoms (e.g., cough, sputum production, shortness of breath, exacerbations)</td>
</tr>
<tr>
<td>IV – Very Severe COPD</td>
<td>• FEV₁/FVC &lt; 70%</td>
</tr>
<tr>
<td></td>
<td>• FEV₁ &lt; 30% predicted to FEV₁ &lt; 50% of predicted plus chronic respiratory failure</td>
</tr>
</tbody>
</table>

*Classification based on postbronchodilator FEV₁
**Adapted from GOLD guidelines

IV. Risk Factors
A. Tobacco smoke
B. Occupational dusts 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 tolerance
   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 IV COPD with chronic respiratory failure
         • PaO2 ≤ 7.3 kPa (55mmHg) or SaO2 ≤ 88% with or without hypercapnia or
         • PaO2 between 7.3 kPa – 8 kPa (60mmHg) or SaO2 89% if has evidence of pulmonary hypertension, peripheral edema suggesting heart failure or polycythemia (HCT > 55%).
   B. Pharmacologic Treatment – Approach to therapy is stepwise depending on disease severity.
      1. Bronchodilators – Mainstay of therapy for COPD. Short-acting B2-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 in lung function. Has been shown to reduce frequency of exacerbations.

<table>
<thead>
<tr>
<th>0 – At risk</th>
<th>I – Mild COPD</th>
<th>II – Moderate COPD</th>
<th>III – Severe COPD</th>
<th>IV – Very Severe COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Avoid risk factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Annual influenza vaccination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-acting B2-agonist (albuterol) prescribed as needed for intermittent symptoms</td>
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</tr>
<tr>
<td>Add short-acting anticholinergic (Ipratropium HFA) prescribed daily</td>
<td></td>
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</tr>
<tr>
<td>• Discontinue short-acting anticholinergic if on it</td>
<td></td>
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</tr>
<tr>
<td>• Add long-acting anticholinergic (Tiotropium) prescribed daily</td>
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<tr>
<td>• Consider inhaled glucocorticosteroid</td>
<td></td>
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</tr>
<tr>
<td>Add oxygen (&gt;15 hours day) if patient has chronic respiratory failure</td>
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<td></td>
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</tr>
</tbody>
</table>

*Adapted from GOLD guidelines
**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>
</table>
| □ Yes □ No | Blood pressure goal achieved?  
  < 140/90 mm Hg  
  < 130/80 mm Hg if patient has diabetes or  
  chronic kidney disease |
| □ Yes □ No | Lipid goal achieved (for pre-existing CAD patients only)?  
  •LDL <100 mg/dL for pre-existing CAD patients or  
  •LDL < 70 mg/dL if patient also has diabetes |
| □ Yes □ No | Diabetes goal achieved?  
  •A1C < 7% |
| □ Yes □ No | Exhibiting heart failure symptoms or is diagnosed  
  with heart failure? |

| □ Yes □ No | If not, Refer to Hypertension algorithm |
| □ Yes □ No | If not, Refer to Hyperlipidemia algorithm |
| □ Yes □ No | If not, Refer to Diabetes algorithm |
| □ Yes □ No | If so, Refer to Heart Failure algorithm |

### LIFESTYLE MODIFICATIONS

<table>
<thead>
<tr>
<th>ACHIEVED?</th>
<th>GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes □ No</td>
<td>Smoking cessation achieved?</td>
</tr>
</tbody>
</table>
| □ Yes □ No | Weight management achieved?  
  •BMI: 18.5 to 24.9 kg/m²  
  •Waist circumference: < 40 inches in men  
  < 30 inches in women |
| □ Yes □ No | Physical activity achieved?  
  •Minimum of 30 minutes 5 days per week |
| □ Yes □ No | Diet for health initiated (or other diet as clinically indicated)?  
  •Encourage low salt and low fat |
| □ Yes □ No | Dental evaluation annually? |

*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.*

**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.*
## CHECKLIST FOR SECONDARY PREVENTION OF CORONARY ARTERY DISEASE

### MEDICATION MANAGEMENT

<table>
<thead>
<tr>
<th>INITIATED?</th>
<th>DRUG THERAPY</th>
</tr>
</thead>
</table>
| Yes        | Antiplatelet therapy initiated?¹  
              • Start aspirin (unless contraindicated)  
              • Low dose of 81 mg daily  
              • Higher dose of 325 mg daily if stent placed  
              • Continue indefinitely  
              • Start clopidogrel 75 mg daily (unless contraindicated)  
              • In combination with aspirin for at least 12 months in patients after acute coronary syndrome or percutaneous coronary intervention with stent placement  
              • Start warfarin in atrial fibrillation or atrial flutter if present and in post-MI when indicated (LV thrombus)  
              • INR goal 2-3 |
| No         |              |

| Yes        | ACE inhibitor initiated (unless contraindicated)?²  
              • Initiate at least 2.5 mg of enalapril daily  
              • Titrate to a maximum tolerated dose or to a maximum dose of enalapril 40 mg daily  
              • If ACE inhibitor intolerant consider a non-formulary angiotensin receptor blocker (ARB) |
| No         |              |

| Yes        | β-blocker initiated (unless contraindicated)?³  
              • Titrate to a maximum tolerated dose or to a maximum recommended dose |
| No         |              |

| Yes        | Aldosterone blockade initiated (unless contraindicated)?⁴  
              • Initiate spironolactone at 25 mg daily in patients with Ejection Fraction ≤ 40% and diabetes or heart failure  
              • Titrate to a maximum tolerated dose or to a maximum dose of spironolactone 100 mg daily |
| No         |              |

| Yes        | Influenza vaccine annually (unless contraindicated)?⁵ |
| No         |              |

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

*Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, May 2008. Revised 9/09.*
**MAJOR DEPRESSIVE DISORDER**

1. Rule out other cause for presentation.

2. Meets 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

6. • Formulary SSRI antidepressant plus antipsychotic (follow Psychosis Disease Management Guideline).
   • Taper and discontinue antipsychotic once psychotic symptoms resolve.
   • Monitor & follow BPRS
   • Assess medication compliance
   • Go to box # 8

7. • Formulary SSRI Antidepressant for ≥ 6 weeks (Table 1)
   • Monitor & follow BPRS
   • Assess medication compliance

8. Adequate response per BPRS?
   - Yes
   - No

9. • Continue therapy (See Remission box 14)
   • Monitor & follow BPRS

10. 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)

11. Adequate response per BPRS?
    - Yes
    - No

12. • Continue therapy (See Remission box 14)
    • Monitor & follow BPRS

13. 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

14. Remission

15. • Continue treatment dose for 6 to 12 months
    • Consider decreased frequency of psychotherapy visits

16. First episode?
   - Yes
   - No

17. Reassess annually for compliance, and continued need for medication

18. Consider tapering off antidepressant

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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

*Antidepressant trial of adequate dose/duration is 4-6 weeks at FDA approved maximum dosage or maximum tolerated dose with minimum 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.

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 (Dose Range)</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®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 40)</td>
<td></td>
<td>Pregnancy Test – as clinically indicated; Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine 20mg capsule</td>
<td>Prozac®</td>
<td>Atypical features or dysthymia</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>Significant anxiety</td>
<td>50 (50 – 200)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tricyclic Antidepressant* (TCA)</td>
<td>Nortriptyline 25mg, 50mg, 75mg capsule 10mg/5ml liquid</td>
<td>Pamelor®</td>
<td>Melancholic features</td>
<td>25 – 50 (75 – 150)</td>
<td>50 - 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>Other*</td>
<td>Trazodone 50mg, 100mg tablet</td>
<td>Desyrel®</td>
<td>Atypical features or dysthymia</td>
<td>100 – 150 (300 – 600)</td>
<td></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

BRIEF PSYCHIATRIC RATINGS 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)

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</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 - Mistrust, 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, guardedness, 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 adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
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, ECG, fasting & 2 hour postprandial serum glucose 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 contraindications (see Table 1).
- 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.
- Weight loss (>10% above IBW), exercise plan, diet plan.
- Refer to Dental for oral периодodontal disease evaluation within 30 days from the initial chronic care visit.

**If intolerant to Ace-Inhibitor, microalbumin annually. If microalbumin > 30, consider non-diisopropylamine CCB (verapamil or diltiazem). Ace-inhibitor or CCB usage precludes necessity for annual microalbumin.

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

If hypoglycemia ≥ twice a week? (FS <60mg/dl)
5. Yes
   - Reevaluate compliance with medications, exercise and diet.
   - Adjust am and pm NPH dose by 10% of total daily dose (TDD) until AM and PM FS are at goal, while monitoring for hypoglycemia.
   - Follow up every 2 weeks until FS are at goal.
6. No
7. Controlled?
   - Yes
   - Estimate 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
8. No
9. Controlled?
   - Yes
   - Reevaluate compliance with medications, exercise and diet.
   - Reevaluate regular sliding scale and NPH doses.
   - Consider referral to specialist.

GLYCEMIC CONTROL INDEX*

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

**TYPE 2 DIABETES MELLITUS**

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

   2. **Categories of increased risk for diabetes:**
      1. FPG 100 to 125 mg/dL;
      2. A1C 5.7 to 6.4 %;
      3. 2hPG following OGGT 140 to 199 mg/dL.

         • Counsel on exercise, diet and weight loss.
         • Provide diabetes education
         • Treat HTN and hyperlipidemia
         • Rescreen FPG annually

3. IF FPG <100mg/dl
   Rescreen every 3 years at the most

4. Yes

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

   6. **Yes**
      - 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 fingersticks (FS) for blood glucose (BG) response.
      - Monitor for hypoglycemia.

7. No

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

9. **No**
   - Continue current therapy. Follow up in CCC 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.

10. **Yes**
    - Continue current therapy. Follow up in CCC 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.

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**GLYCEMIC CONTROL INDEX**
* See Glycemic Control Statement on page #1.

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

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Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, 03/1997, Revised 9/97, 6/01, 4/03, 3/04, 9/06, 9/07, 7/08, 3/10.
12. Continued from box #11

13. Are PM fingersticks at goal?
   Yes → 14. Recheck A1c at 3 months. Is A1c at goal of <7%?
   No → 15. Continue metformin and glyburide

14. Recheck A1c at 3 months. Is A1c at goal of <7%?
   No → 16. Go to box #7
   Yes

15. • 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 to the PM regimen started above in box #9. Titrate 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

16. Go to box #7

17. Are AM and PM fingersticks at goal?
   Yes → 18. Recheck A1c at 3 months. Is A1c at goal of <7%?
   No → 19. Continue metformin

18. Recheck A1c at 3 months. Is A1c at goal of <7%?
   No → 20. Go to box #7
   Yes

19. • Continue metformin
      • 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

20. Go to box #7

21. Are AM and PM fingersticks at goal?
   Yes → 22. Recheck A1c at 3 months. Is A1c at goal of <7%?
   No → 23. Titrate NPH and/or Regular Insulin am or pm by 10% of TDD. If TDD is >200u/day, consider referral to specialist

22. Recheck A1c at 3 months. Is A1c at goal of <7%?
   Yes → 23. Titrate NPH and/or Regular Insulin am or pm by 10% of TDD. If TDD is >200u/day, consider referral to specialist
   No → 24. Go to box #7

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

1. 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.

2. A1c above goal but <8.5%
   - 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

3. A1c ≥ 8.5%
   - Has patient been diabetic for ≥ 10 years?
     - Yes
       - Start Semi-Intensive 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 AM and 1/3 of dose in the PM. Titrate by 10% of TDD until AM and PM fingersticks are at goal.
       - May need to reduce glyburide to 10mg QD or 5mg BID to prevent hypoglycemia.
       - Check AM and PM fingersticks
       - Monitor for hypoglycemia.
     - No
       - Start Multi-dose Insulin Regimen
       - Discontinue metformin only if patient has contraindications (see Table 1)
       - 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.

4. A1c ≥ 8.5%
   - 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
       - 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.

5. Are PM FS at goal?
   - Yes
     - No
       - Check A1c q 3 months. Is A1c at goal <7%?
         - Yes
           - 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.
           - Check A1c q 3 months. Is A1c at goal <7%?
             - Yes
               - Continue current therapy and follow up in CCC
             - No
               - 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
           - Yes
             - Reevaluate compliance with medications, exercise and diet.
             - Titrate NPH and/or Regular Insulin am or pm by 10% of TDD. If TDD is >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 Nigricans

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 (C & 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 caffeine intake for a minimum of 3 hours).
B. OGGT: Use is reserved for pregnant patients. It may be used as an alternative to FPG.
C. A1C: This test should be performed in a laboratory using a method that is HPLC verified and traceable to the WHO assay.

<table>
<thead>
<tr>
<th>Criteria for Diabetes Mellitus Diagnosis</th>
<th>Value</th>
<th>Category of increased risk for diabetes</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Plasma Glucose (FPG)*</td>
<td>≤ 100 mg/dL</td>
<td>100 to 125 mg/dL</td>
<td>≥ 126 mg/dL</td>
</tr>
<tr>
<td>2-Hour Postprandial Glucose (2PG)**</td>
<td>≤ 140 mg/dL</td>
<td>140 to 199 mg/dL</td>
<td>≥ 200 mg/dL</td>
</tr>
<tr>
<td>HbA1C (A1C)*</td>
<td>≤ 5.7%</td>
<td>≥ 6.0%</td>
<td>≥ 6.5%</td>
</tr>
</tbody>
</table>

*In the absence of complications, hyperglycemia by urine should be confirmed by repeat testing.
**HbA1C = Hemoglobin A1C level.

III. Plan/Treatment: Treatment should begin with nonpharmacological interventions (see algorithm, page 2), weight loss, dietary restrictions (A.D.A. 1995) and exercise.

A. Diet: 15-20% total energy from carbohydrates, 30-45% from fat, 30-45% from protein and 20-30g of fiber (fiber).
B. Exercise: A level of exercise is needed to maintain cardiovascular health, at least 30 min/week of moderate-intensity physical activity (≥50% of maximum heart rate) at least 30 min/week of vigorous-intensity exercise (≥70% of maximum heart rate) is recommended.
C. Weight loss: Goal is to approach ideal body weight.
D. Pharmacological Therapy:
   1. Use of antihyperglycemic agents (NPH, Lente, Lispro, Glargine) and insulin.
   2. Use of metformin (Glucose Control Stabilizer) and sulfonylureas (Glucose Control Stabilizer).

IV. Classification

A. Type 1 Diabetes: Should be a self-identified patient with insulin-dependent diabetes.

1. Definition: A patient with a history of Type 1 Diabetes, for example, due to autoimmune or genetic factors.
2. Management: Treatment involves insulin replacement therapy. Patients with Type 1 Diabetes may require insulin injections in addition to dietary and exercise management.
3. Precautions: Patients with Type 1 Diabetes should monitor blood glucose levels regularly and adjust insulin dosages accordingly.

B. Type 2 Diabetes: A patient with a history of Type 2 Diabetes, for example, due to insulin resistance or genetic factors.

1. Definition: A patient with a history of Type 2 Diabetes, for example, due to insulin resistance or genetic factors.
2. Management: Treatment involves lifestyle modifications and the use of antihyperglycemic agents. Patients with Type 2 Diabetes may require medication to control blood glucose levels.
3. Precautions: Patients with Type 2 Diabetes should maintain a healthy lifestyle, including regular exercise and a balanced diet.
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 – dizziness, lightheadedness, shakiness, blurry vision
      b. Treatment - Counsel patient to ingest 15 grams of carbohydrates (i.e. 1 slice of bread, 4-5 small pieces of candy, ¼ 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, blurry 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 sticks – Ordered at the provider’s discretion. This depicts a snapshot of patients’ 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 should be encouraged to self record his or her fingersticks and bring the log to his or her clinic appointments.
E. The importance of insulin – Patients should be counseled that diabetes is a progressive disease and that eventually he or she may be started 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 before 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/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.
I. Dental hygiene to include daily brushing in the morning and evening and flossing once daily.
Pharmacologic Therapy

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>•Inclined contrast media, intravascular use in radiologic studies</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>•ACE-inhibitor induced angioedema</td>
</tr>
<tr>
<td></td>
<td>•Hereditary or idiopathic angioedema</td>
</tr>
<tr>
<td></td>
<td>•Pregnancy</td>
</tr>
<tr>
<td></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>•Children (&lt;16 years of age) for use in viral infections</td>
</tr>
<tr>
<td></td>
<td>•Pregnancy</td>
</tr>
<tr>
<td></td>
<td>•Hypersensitivity to salicylates, other NSAIDs, or any component of the formulation</td>
</tr>
<tr>
<td>Statins (e.g., Pravastatin, Atorvastatin and Rosuvastatin)</td>
<td>•Active liver disease</td>
</tr>
<tr>
<td></td>
<td>•Unexplained persistent elevations of serum transaminases</td>
</tr>
<tr>
<td></td>
<td>•Pregnancy</td>
</tr>
<tr>
<td></td>
<td>•Hypersensitivity to statins or any component of the formulation</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>No dose limit, improved lipid profile, inexpensive</td>
<td>Injections, monitoring, hypoglycemia, weight gain</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.

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>6-10 hours</td>
</tr>
<tr>
<td>70/30 Insulin</td>
<td>30 to 60 min</td>
<td>9 to 12 hours</td>
<td>2 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 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>
Table 5. Indications for Daily Aspirin 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 print 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?
      - Yes
        - Consider patient medical history and exposure to other poisons. If patient is symptomatic transfer to ER.
      - No
        - Stabilize patient and provide general and supportive care, provide airway management if indicated. Transfer to ER.
  - No

---

**Does the suspected overdose exceed the maximum daily dose?**

- 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.
- No
  - 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.
## Therapeutic and Toxic Doses

### 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>Diphenhydramine</td>
<td>25-50 mg q 4-8h</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>

### Divalproex 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 mcg/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;1600 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>Present?</th>
<th>Symptom / Disease</th>
<th>Refer to</th>
<th>Algorithm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes No</td>
<td>Heartburn</td>
<td>Dyspepsia</td>
<td>algorithm</td>
</tr>
<tr>
<td>Yes No</td>
<td>Ulcer</td>
<td>Peptic</td>
<td>Ulcer Disease algorithm</td>
</tr>
<tr>
<td>Yes No</td>
<td>Reflux</td>
<td>GERD</td>
<td>algorithm</td>
</tr>
<tr>
<td>Yes No</td>
<td>H. Pylori Positive</td>
<td>H. Pylori</td>
<td>algorithm</td>
</tr>
</tbody>
</table>

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, September 2010.
DYSPESIA

1. Dyspeptic symptoms defined as chronic or recurrent pain or discomfort centered in the upper abdomen. Discomfort is defined as a subjective negative feeling that is non-painful, and can include early satiety or upper abdominal fullness.

2. Heartburn and/or regurgitation are presenting complaint, predominant or frequent (more than once a week)?
   - Yes
   - No

3a. Manage as GERD
3b. NSAID/Cox-2 inhibitor use?
   - Yes
   - No

4. Yes
   - Discontinue NSAID if possible. If not, consider lower dose and/or change to PRN.
   - No

5. No

6. Age > 55 or alarm features present?
   - Yes
   - No

   If Yes:
   - Bleeding
   - Anemia
   - Early satiety
   - Unexplained weight loss (> 10% body weight)
   - Progressive dysphagia
   - Odynophagia
   - Persistent vomiting
   - Family history of gastrointestinal cancer
   - Previous esophagogastric malignancy
   - Previous documented peptic ulcer
   - Lymphadenopathy
   - Abdominal mass

7. Consider specialty referral

8. See H. Pylori Algorithm

9. Continued on Page 2

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee,
The pathways do not replace sound clinical judgement nor are they intended to strictly apply to all patients.

Yes

No

Page 2, Dypepsia

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 esophagogastric malignancy, previous documented peptic ulcer, lymphadenopathy, or an abdominal mass)

3. NSAID use?
   - Yes
     - Discontinue NSAID if possible. If not, consider lower dose and/or change to PRN.
   - No
     - Go to box #8

4. Resolution?
   - Yes
     - No further treatment
   - No
     - Previous H. pylori treatment?
       - Yes
         - See H. Pylori Algorithm
       - No
         - Resolution?
           - 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 #15

5. Resolution?
   - 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 #14

6. NSAID use?
   - Yes
     - Discontinue NSAID if possible. If not, consider lower dose and/or change to PRN.
   - No
     - Go to box #8

7. Resolution?
   - Yes
     - No further treatment
   - No
     - Go to box #8

8. Previous H. pylori treatment?
   - 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 #14

9. Resolution?
   - 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 #13

10. Resolution?
    - 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
        - Consider specialty referral.

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

GASTROESOPHAGEAL REFLUX DISEASE

1. Alarm symptoms present (i.e., dysphagia, odynophagia, bleeding, unexplained weight loss, or anemia)?
   - Yes
   - No

   Consider specialty referral.

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

3. IMPLEMENT LIFESTYLE MODIFICATIONS AND ELIMINATE MODIFIABLE RISK FACTORS WHEN POSSIBLE

   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 PRN.
   7. Smaller meal size especially the last meal of the day.

4. 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.

5. Continue lifestyle modifications

   6. Symptoms resolved with lifestyle modifications?
      - Yes
      - No

         Go to Box #7, Page 2

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee.
Ranitidine 300 mg BID X 60 days. Consider compliance assessment prior to proceeding.

Symptoms resolved?

Continue with lowest effective dose of H2 antagonist that controls symptoms

Yes

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?

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

Yes

No

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

Symptoms resolved?

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

Yes

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?

Continue therapy.

Yes

No

Consider specialty referral.

*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.
H. Pylori Treatment

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

2. H. pylori positive?
   - Yes
     - Consider Helicobacter pylori Infection treatment with combination therapy for 15 days including:
       a. Bismuth Subsalicylate 2 tabs QID
       b. Metronidazole 250mg QID
       c. Tetracycline 500mg QID
       d. Omeprazole 20 mg BID
   - No
     - Consider other diagnosis (e.g., GERD, nonulcer dyspepsia)

3. Yes
   - Consider Helicobacter pylori Infection treatment with combination therapy for 15 days including:
     a. Amoxicillin 1000 mg TID
     b. Rifabutin 150 mg QD
     c. Omeprazole 20 mg BID

4. Alternative combination regimen for 15 days including:
   a. Bismuth Subsalicylate 2 tabs QID
   b. Metronidazole 250mg QID
   c. Tetracycline 500mg QID
   d. Omeprazole 20 mg BID

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, September 2010.
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.

NYHA Classification
Class I - No symptoms at rest; ordinary activity does not cause undue fatigue, dyspnea, or palpitation.
Class II - Comfortable at rest; ordinary activity causes fatigue, dyspnea, or angina; slight limitation on physical activity.
Class III - Comfortable at rest, marked limitations with physical activity.
Class IV - Symptoms at rest, inability to carry on ordinary activity without discomfort.

Criteria
A. Simple heart failure
   - diagnosis code on problem list
B. Left Ventricular Dysfunction
   - ejection fraction < 40%
   - documented

Class I
- No symptoms at rest; ordinary activity does not cause undue fatigue, dyspnea, or palpitation.

Criteria:
- Class II
  - Comfortable at rest; ordinary activity causes fatigue, dyspnea, or angina; slight limitation on physical activity.
- Class III
  - Comfortable at rest, slight limitation on physical activity.
- Class IV
  - Symptoms at rest, inability to carry on ordinary activity without discomfort.

Symptomatic

1. Mild Edema/Dyspnea
   - Start/add HCTZ 25 mg QD
   - Target Dose ($1.50)
   - Monitor BP, K+, SCr

2. Moderate Edema/Dyspnea
   - Start/add Furosemide 20 - 40 mg QD ($0.90)
   - STOP HCTZ if previously initiated
   - Titrated to control by 20 mg increments daily (maximum dose = 80 mg BID)
   - Monitor electrolytes, BP, SCr

3. Asymptomatic
   - *Start/add Enalapril
     - Initial Dose = 2.5 mg QD
     - Target Dose = 20 mg BID ($3.00)
   - OR
   - Start/add other ACE Inhibitor
   - Monitor K+, BP, SCr

4. Titrated at 2 week intervals

5. Continue Therapy
   - If patient becomes symptomatic
   - go to Box # 11

6. Controlled?
   - Yes
   - Go to Box # 12
   - *Start/add Enalapril
     - Initial Dose = 2.5 mg QD
     - Target Dose = 20 mg BID ($3.00)
   - OR
   - Start/add other ACE Inhibitor
   - Titrated Weekly
   - Monitor K+, BP, SCr

7. Monitor Symptoms (weight gain)

8. No
   - Go to Box # 11

9. *Substitutions for Contraindications and ADRs with ACE Inhibitor:
   - 1) Cough - Angiotensin II Blocker (nonformulary)
   - 2) Angioedema or renal stenosis (contraindication)
     - Hydralazine 10 - 25 mg TID Target dose = 75 mg TID ($6.08) (nonformulary)
     - and
   - Isosorbide dinitrate 10 mg TID Target dose = 40 mg TID ($27.90)

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

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

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Consider Internal Medicine/Cardiology telephone consult or referral prior to adding the following:

If patient has been STABLE for at least 1 month and has NO contraindications to Beta-blockers:
- Add NF Metoprolol XL 12.5mg QD and increase as tolerated
- Target dose = 100-200 mg/day ($20.70-$45.60)
- (Monitor blood pressure and BNP as indicated)

Add Spironolactone 25 mg QD ($6.30)
- If serum K+ levels start to rise reduce the dose to 25 mg QOD
- Monitor K+

Nonstable Patients:
- Add Digoxin 0.25 mg QD ($3.90)
- 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 metoprolol and spironolactone as recommended by consult.

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, February 2000, Revised 2/03, 4/03, 7/04, 9/06, Reviewed 1/06, 1/09.
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 AVOIDED 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 titration:** Begin initial dose monitoring potassium, SCr changes, and blood pressure.
  - **Monitor:** 1) BP for hypotension; 2) K+ for hyperkalemia; 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 I/II Only use in mild edema (occasional symptoms)
  - **Dosage titration:** 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.
  - If continuance of symptoms DC and start furosemide.

Furosemide – loop diuretic
  - **Benefit:** Manage fluid overload to reduce or minimize symptoms
  - **When to use:** In NYHA Class I/IV If HCTZ fails, replace with furosemide.
  - If symptomatic, add to captopril or other ACE inhibitors to decrease fluid overload
  - **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**

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, February 2000, Revised 2/03, 4/03, 7/04, 9/06. Reviewed 1/06, 1/09.
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 uptitration
- **NOTE:** **Use in STABLE patients ONLY**
  **Advise 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, bronchospasm, 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) Mg+
  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**

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

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

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 MONITORING AND REFERRAL GUIDELINE

1. Chronic Hepatitis B

2. 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

3. Evidence of uncompensated cirrhosis?
   Yes
   4. HBV-DNA detectable?
      Yes
      Manage for ESLD
      No
      5. Refer for treatment evaluation

6. Evidence of compensated cirrhosis?
   Yes
   7. HBV-DNA ≥ 2,000?
      Yes
      Refer for treatment evaluation
      No
      8. Refer for treatment evaluation

9. No

10. HBsAg positive?
    Yes
    11. ALT WNL?
        Yes
           12. HBV-DNA ≥ 2,000?
               No
                   Consider biopsy and other causes of ALT elevation and treat accordingly Periodic monitoring if not treated
               Yes
                   Choose:
                   13. Periodic monitoring: Consider biopsy, especially if over 40, and treat if disease present
                   14. Periodic monitoring: Consider biopsy, and treat if disease present
                   15. No
                        16. ALT WNL?
                            Yes
                               17. HBV-DNA ≥ 20,000?
                                   No
                                       18. Consider biopsy and other causes of ALT elevation and treat accordingly Periodic monitoring if not treated
                                       Yes
                                           19. Periodic monitoring
                                               20. No
                                                    21. Consider biopsy and other causes of ALT elevation and treat accordingly Periodic monitoring if not treated
                                                    Yes
                                                       22. Refer for treatment evaluation
                                                    No
                                                         23. Refer for treatment evaluation

HBV-DNA units are in IU/mL. If results are given as log IU/mL, then 2,000 IU/mL = 3.3 log 20,000 IU/mL = 4.3 log

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

<table>
<thead>
<tr>
<th></th>
<th>Month of Treatment</th>
<th>Continued Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Rx 3 6 9 12</td>
<td>Q3 mos. Q6 mos. 6 mos. Post Rx</td>
</tr>
<tr>
<td>CBC + diff</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>PT/PTT</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Liver tests**</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Free T4, T4, TSH</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>alpha-fetoprotein (AFP)</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Creatinine (if on adefovir or tenofovir)</td>
<td>X X</td>
<td></td>
</tr>
<tr>
<td>HBV-DNA</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>HBeAg/anti-HBe (if initially HBeAg positive)</td>
<td>X X X</td>
<td></td>
</tr>
<tr>
<td>HBsAg (if HBeAg neg and HBV-DNA &lt; 2,000)</td>
<td>X X X X X X X X</td>
<td></td>
</tr>
</tbody>
</table>

Box A – Level 2 Labs for Hepatitis B
- Quantitative HBV-DNA
- Abdominal ultrasound
- alpha-fetoprotein
- Alpha-1 antitrypsin
- Ceruloplasmin
- ANA
- CXR and EKG if over 40 or clinically indicated

if not done in the preceding 6 months:
- ALT, AST, bilirubin, albumin, BUN, creatinine
- CBC, platelets, PT
- T4, TSH
- Fe, TIBC

Table 2: Monitoring Schedule on Peg-IFN alfa

<table>
<thead>
<tr>
<th></th>
<th>Week of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Rx 2 4 8 12 16 3 mos. Post Rx 6 mos. Post Rx</td>
</tr>
<tr>
<td>CBC + diff</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>PT/PTT</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>Liver tests**</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>Free T4, T4, TSH</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>alpha-fetoprotein (AFP)</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>HBV-DNA</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>HBeAg/anti-HBe (if initially HBeAg positive)</td>
<td>X X X X</td>
</tr>
<tr>
<td>HBsAg (if HBeAg neg and HBV-DNA &lt; 2,000)</td>
<td>X X X X</td>
</tr>
<tr>
<td>Beck Depression Index</td>
<td>X X X X X X X X</td>
</tr>
</tbody>
</table>

** liver test: ALT, AST, bilirubin (conjugated & unconjugated), albumin, Alkaline phosphatase, LDH

Note that monitoring schedule is by week for interferon and by month for nucleoside analogs

Prepared By the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 1/09.
Chronic Hepatitis C Evaluation and Treatment Pathway

The pathway does not replace sound clinical judgement and is not intended to strictly apply to all patients.

1. **HCV +**
   - Baseline evaluation
   - Preventive care (see box A)

2. **Abnormal LFT or HIV+?**
   - ↑ Alk phos, ↑ bil, ↑ PT, ↓ alb, or ↓ plt
   - Obtain AST, ALT and HCV-PCR (qual) twice within 12 months at least 1 month apart

3. **ALT, AST WNL?**
   - Yes
   - No

4. **APRI Calculation**
   - (use most recent lab results)
   - ([AST/ULN]/Platelets (1,000/mm³) x 100)
   - Calculator is available on CMCWEB

5. **Obtain AST, ALT and HCV-PCR (qual) twice within 12 months at least 1 month apart**
   - Yes
   - No
   - DJC from chronic care
   - Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.

6. **Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.**
   - Yes
   - No

7. **Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.**
   - Yes
   - No
   - Monitor clinical and lab status at least once per year (Box B).
   - Consider repeat biopsy in 3-5 years if probable duration of infection is < 10 years

8. **APRI > 0.42?**
   - Yes
   - No
   - APRI < 1.2?
   - Yes
   - No

9. **APRI < 1.2?**
   - Yes
   - No
   - Absolute contraindications to treatment? (Box B)

10. **Absolute contraindications to treatment? (Box B)**
    - Yes
    - No
    - Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.

11. **Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.**
    - Yes
    - No
    - Monitor clinical and lab status at least once per year.
    - Consider repeat biopsy in 3-5 years if probable duration of infection is < 10 years

12. **Obtain Level 2 labs (Box D). Screen for HCC. Evaluate for non-hep C causes of liver disease as indicated.**
    - Yes
    - No
    - Monitor clinical and lab status at least once per year.
    - Consider repeat biopsy in 3-5 years if probable duration of infection is < 10 years

13. **Liver biopsy**
    - Yes
    - No
    - Consider Liver Biopsy

14. **Consider Liver Biopsy**
    - Yes
    - No
    - Monitor and treat clinically as indicated.
    - Varices or HCC present?

15. **Varices or HCC present?**
    - Yes
    - No
    - Monitor and treat clinically as indicated.
    - Consider for MRIS, hospice or transplant submission as indicated.

16. **Ludwig-Batts score > 1? (Box F)**
    - Yes
    - No
    - Treat with IFN and ribavirin as indicated

17. **Absolute or uncorrectable**
    - Yes
    - No
    - Provide treatment to control or resolve contraindication, if possible. If absolute or not correctable go to Box 19.

18. **Provide treatment to control or resolve contraindication, if possible. If absolute or not correctable go to Box 19.**
    - Yes
    - No

19. **Provide treatment to control or resolve contraindication, if possible. If absolute or not correctable go to Box 19.**
    - Yes
    - No

20. **Monitor and treat clinically as indicated.**
    - Yes
    - No

21. **Monitor and treat clinically as indicated.**
    - Yes
    - No

**APRI Calculation**
- ([AST/ULN]/Platelets (1,000/mm³) x 100)
- Calculator is available on CMCWEB

**Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved July 2008; Revised 5/13.**
Chronic Hepatitis C, page 2

Box A
Baseline Evaluation
- History and physical
- ALT, AST, Alk Phos, Bil, Alb
- CBC, platelets, PT
- 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
- Hep B
- Hep 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 disorders
Additional contraindications for ribavirin
- Pregnancy
- Hemoglobinopathies
- Hemolytic or other severe anemias
- 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 < 70,000
  - Albumin < 3.0
  - Prothrombin time prolonged > 2 sec
  - Bilirubin > 1.5

Box D – Level 2 Labs
- Quantitative HCV-PCR
- HCV genotype
- alpha-fetoprotein
- Alpha-1 antitrypsin
- Ceruloplasmin
- ANA
- CXR and EKG if over 40 or clinically indicated
- Serum pregnancy test if female

If not done in the preceding 6 months:
- ALT, AST, bilirubin, albumin, BUN, creatinine
- CBC, platelets, PT
- T4, TSH
- Fe, TIBC

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>No Fibrosis</td>
<td>No Fibrosis</td>
<td>Stage 0</td>
<td>F0</td>
</tr>
<tr>
<td>Fibrous portal expansion</td>
<td>Mild Fibrosis</td>
<td>Stage 1</td>
<td>F1</td>
</tr>
<tr>
<td>Few bridges or septa</td>
<td>Moderate Fibrosis</td>
<td>Stage 2</td>
<td>F2</td>
</tr>
<tr>
<td>Numerous bridges or septa</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

Initial evaluation of HIV+ patients:
1) Obtain medical history including sexual history, social history, medication history, & history of opportunistic infections.
2) Complete physical examination: vitals, weight, 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 anti-HBsAg, anti-HBeA 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 1+ proteinuria or calculated GFR < 60, consider further evaluation. If normal & high risk based on risk factors, reassess and recheck annually.
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 page 3 & box C page 4.
9) Refer to dental for oral/periodontal evaluation within 30 days from initial chronic care visit.

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 telemedicine/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 HIV retinopathy & 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.

1. Discuss pros & cons of drug therapy, adherence, resistance, administration, possible adverse effects & management.
2. If patient committed, begin HAART. Consider follow up in 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. Offer drug therapy.
5. Patient CD4 count < 350 cells/mm³, symptomatic, pregnant, HIV-associated nephropathy, or hepatitis B co-infection when HBV treatment is indicated?
6. Go to box #10 on page 2.
7. CD4 count 350 to 500 cells/mm³?
8. Consider drug therapy.
9. Do not begin therapy.
• Monitor patient, return to clinic at least every 6 months.
• Obtain CD4 count and viral load every 3-6 months.
• Go to box #3 when patient parameters change.
Is adherence for each drug ≥ 85%?

Yes

Reinforce education. Return to clinic 1 month.

No

Verify that administration is correctly documented on the computer:
1) Counsel patient regarding importance of adherence
2) Identify & treat adverse effects if present
3) Return to clinic in 1 month

Is adherence for each drug ≥ 85%?

Yes

Verify administration is correctly documented on the computer:
1) Counsel patient regarding importance of adherence
2) Identify & treat adverse effects.
3) Return to clinic in 1 month.
4) Obtain viral load.

No

Obtain viral load.

When adherence < 85% for 2 consecutive months:
1) Whenever possible, refer patient to clinical pharmacist for adherence counseling and education.
2) Obtain expedited referral for evaluation by Infectious Disease Specialist/Clinic or designated physician (Texas Tech Units) to determine subsequent management.
3) Consideration may be given to discontinuing therapy, in patients that do not want to continue therapy.
4) Return to clinic q 3 months, obtain CD4 count and viral load every 3-6 months.

Is adherence for each drug ≥ 85%?

Yes

Has viral load decreased > 10 fold (1 log)?

No

Continue current drug therapy:
1) Return to clinic at least q 3-4 months.
2) Obtain CD4 count q 3-6 months & viral load q 3-6 months.
3) Reinforce education at each visit.
4) Goal of therapy is 10 fold (1 log) decrease in viral load at 8 weeks, nondetectable viral load at 4-6 months after starting drug therapy, & increased CD4 count.
5) Obtain expedited referral to Infectious Disease Specialist/Clinic or designated physician (Texas Tech Units) to consider change in drug therapy if:
   a) Goal viral load (nondetectable) not achieved within 4-6 months after starting drug therapy.
   b) Re-appearance of viremia after viral load is nondetectable (confirmed by at least 2 tests 4 weeks apart).
   c) Increase in viral load ≥ 3 fold from nadir (confirmed by at least 2 tests 4 weeks apart).
   d) Declining CD4 count (at least 2 tests).
   e) Severe, unusual, or life-threatening adverse effect suspected.
   f) Patient wants to discontinue therapy
6) UTMB Sector – Obtain resistance test prior to referral to Infectious Disease Specialist if referred for change in therapy

Yes

Obtain viral load.

Repeat viral load in 1 month

Has viral load decreased > 10 fold (1 log)?

No

Yes

Continue current drug therapy so that reliable resistance testing may be obtained:
1) Refer patient to Infectious Disease Specialist/Clinic to evaluate patient for poor adherence, intolerance, versus resistance & to consider changing drug therapy.
2) UTMB Sector – Obtain resistance test prior to referral to Infectious Disease Specialist if referred for change in therapy
3) Return to clinic at least q 3-4 months.
4) Obtain CD4 count and viral load q 3-6 months.
5) Reinforce education at each visit.
### Box A: 1993 CDC Revised Classification System for HIV Infection and Expanded AIDS Surveillance

**Case Definition for Adolescents and Adults***

<table>
<thead>
<tr>
<th>CD4+ T-Cell Categories</th>
<th>Clinical Categories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
</tr>
<tr>
<td>≥ 500 cells/mm³ or ≥ 29%**</td>
<td>Asymptomatic, acute (primary) HIV infection, or persistent generalized lymphadenopathy</td>
<td>Symptomatic, not A or C conditions</td>
</tr>
<tr>
<td>200-499 cells/mm³ or 14-29%**</td>
<td>A1</td>
<td>B1</td>
</tr>
<tr>
<td>&lt; 200 cells/mm³ or 14%**</td>
<td>A3</td>
<td>B3</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</th>
<th>Organism</th>
<th>Recommended Regimen</th>
<th>Alternative Regimen</th>
<th>Discontinuation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (regardless of CD4 count)</td>
<td><em>M. tuberculosis</em> 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>
<td></td>
</tr>
<tr>
<td></td>
<td><em>S. pneumoniae</em> (repeat one time only in 5 years)</td>
<td>Pneumococcal vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Influenza virus (one dose annually)</td>
<td>Influenza vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatitis A virus*****</td>
<td>Hepatitis A vaccine (2 dose series)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatitis B virus*</td>
<td>Hepatitis B vaccine (3 dose series)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 200**</td>
<td><em>Pneumocystis jirovecii</em></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><em>Toxoplasma gondii</em></td>
<td>TMP-SMX DS qd</td>
<td>Dapsone 100mg qd + pyrimethamine 30mg q week + leucovorin 25mg q week</td>
<td>CD4 count &gt; 200 for &gt; 3 months (restart if CD4 count &lt; 100-200)</td>
</tr>
<tr>
<td>&lt; 50</td>
<td><em>M. avium complex</em></td>
<td>Azithromycin 1200 mg q week</td>
<td>Clarithromycin 500mg bid or rifabutin 300mg qd</td>
<td>CD4 count &gt; 100 for ≥ 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, reviewed 2/03, revised 4/97, 9/97, 9/98, 3/99, 7/02, 4/03, 1/04/1/05, 5/06, 3/07, 5/07, 9/09, 7/10
## Box C: Secondary Prophylaxis of Opportunistic Infections

<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 300mg 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 toxoplasmic encephalitis</td>
<td><em>Toxoplasma gondii</em></td>
<td>Sulfadiazine 500-1000mg po qd + Pyrimethamine 25-50mg po qd + Leucovorin 10-25mg po qd</td>
<td>Clindamycin 300-450mg po q 6-8 hr + 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 500mg 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 5-6 mg/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 900mg po qd</td>
<td>CD4 count &gt; 100 for &gt; 3-6 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 – 3 times weekly</td>
<td>CD4 count ≥ 200 for &gt; 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>Coccidioides 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>Herpes simplex virus</em>**</td>
<td>Acyclovir 400mg po bid</td>
<td>Valacyclovir 500mg po bid or famiclovir 250mg bid</td>
<td></td>
</tr>
<tr>
<td>Frequent/severe recurrences</td>
<td><em>Candida</em>** (oropharyngeal, vulvovaginal, esophageal)</td>
<td>Fluconazole 100-200mg po qd</td>
<td>Itraconazole 200mg po qd</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.
Approved 9/96, reviewed 2/03, revised 4/97, 9/98, 3/99, 7/02, 4/03, 1/04, 1/05, 5/06, 1/07, 5/07, 9/09, 7/10

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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. Routes 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
## Medication Guide

### Table 1: Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

<table>
<thead>
<tr>
<th>Medication</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 600mg QD</td>
<td></td>
<td>Hypersensitivity reaction characterized by fever, nausea, vomiting, malaise, anorexia, respiratory symptoms, +/- rash. Should not be restarted if occurs. Record in medical record as allergy. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td>Didanosine EC (ddl, Videx EC ®)</td>
<td>&gt; 60kg 400mg QD or &lt; 60kg 250mg QD</td>
<td>Tenofovir, methadone</td>
<td>Peripheral neuropathy, rare pancreatitis, nausea, diarrhea. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-59</td>
<td>60 kg</td>
<td>125 mg QD</td>
<td></td>
</tr>
<tr>
<td>10-29</td>
<td>125 mg QD</td>
<td>100 mg QD</td>
<td></td>
</tr>
<tr>
<td>&lt;10 or HD</td>
<td>125 mg QD</td>
<td>75 mg QD</td>
<td></td>
</tr>
<tr>
<td>Best if taken on empty stomach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emtricitabine (FTC, Emtriva ®)</td>
<td>200mg QD</td>
<td></td>
<td>Nausea, vomiting, diarrhea, headache, hyperpigmentation of palms &amp; soles. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td>Lamivudine (3TC, Epivir ®)</td>
<td>150mg BID or 300mg QD</td>
<td></td>
<td>Minimal effects. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-49</td>
<td>150 mg QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-29</td>
<td>100 mg QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14</td>
<td>50 mg QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5 or HD</td>
<td>25 mg QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stavudine (d4T, Zerit ®)</td>
<td>&gt; 60kg 40mg BID or &lt; 60kg 30mg BID</td>
<td>Zidovudine, methadone</td>
<td>Peripheral neuropathy, lipodystrophy, hyperlipidemia, pancreatitis. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26-50</td>
<td>20mg q 12</td>
<td>15mg q 12</td>
<td></td>
</tr>
<tr>
<td>10-25 or HD</td>
<td>20mg q 24</td>
<td>15mg q 24</td>
<td></td>
</tr>
<tr>
<td>Zalcitabine (ddC, Hivid ®)</td>
<td>0.75mg qd qd</td>
<td></td>
<td>Peripheral neuropathy, stomatitis. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-40</td>
<td>0.75mg BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>0.75mg BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>no data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zidovudine (AZT, ZDV, Retrovir ®)</td>
<td>300mg BID</td>
<td>Stavudine, ribavirin</td>
<td>Initial GI upset, headache, nail discoloration, fatigue, anemia, neutropenia, myopathy. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;15 or HD</td>
<td>15 or HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100mg TID or 300mg QD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenofovir** (TDF, Viread ®)</td>
<td>300mg QD best if taken with food</td>
<td>Didanosine, atazanavir</td>
<td>GI upset, flatulence, headache, asthma, renal insufficiency. Lactic acidosis with hepatic steatosis.</td>
</tr>
<tr>
<td></td>
<td>CrCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-49</td>
<td>300mg q 48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-29</td>
<td>300mg twice a week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>300mg q 7 days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*not a complete list of drug interactions or adverse effects

**nucleotide reverse transcriptase inhibitor (NtRTI)

HD=hemodialysis

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### Table 2: Combination Products

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Drug Interactions*</th>
<th>Adverse Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epzicom®</strong> (lamivudine 300mg &amp; abacavir 600mg)</td>
<td>1 tablet QD</td>
<td>Same as single entity drugs</td>
<td>Same as single entity drugs</td>
</tr>
<tr>
<td>Nonformulary</td>
<td>Do not use if CrCl &lt; 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Truvada®</strong> (emtricitabine 200mg &amp; tenofovir 300mg)</td>
<td>1 tablet QD</td>
<td>Same as single entity drugs</td>
<td>Same as single entity drugs</td>
</tr>
<tr>
<td></td>
<td>CrCl Dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30-49 1 tab q 48hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 30 do not use</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atripla®</strong> (Emtricitabine 200mg, tenofovir 300mg &amp; efavirenz 600mg)</td>
<td>1 tablet QD</td>
<td>Same as single entity drugs</td>
<td>Same as single entity drugs</td>
</tr>
<tr>
<td></td>
<td>Do not use if CrCl &lt; 50</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><strong>Delavirdine</strong> (DLV, Rescriptor®)</td>
<td>400mg TID</td>
<td>Lovastatin, rifampin, rifapentine, rifabutin, H-2 antagonists (ranitidine), proton pump inhibitors (omeprazole), ergotamine, dapsone, phenytoin, warfarin, carbamazepine, quinidine, clarithromycin</td>
<td>Rash, elevated LFTs, headache</td>
</tr>
<tr>
<td>Nonformulary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Efavirenz</strong> (EFV, Sustiva ®)</td>
<td>600mg q HS best if taken on empty stomach</td>
<td>Rifampin, rifabutin, rifapentine, 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><strong>Etravirine</strong> (Intelence®)</td>
<td>200mg BID best if taken with food</td>
<td>Phenytoin, carbamazepine, other NNRTIs, PIs (except DRV/RTV, SQV/RTV, and LPV/RTV with caution), clarithromycin, rifampin, warfarin</td>
<td>Rash, nausea</td>
</tr>
<tr>
<td>Nonformulary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nevirapine</strong> (NVP, Viramune ®)</td>
<td>200mg QD x 14 days then 200mg BID or 400mg QD</td>
<td>Ketoconazole, rifampin, phenytoin, carbamazepine</td>
<td>Rash, elevated LFTs, hepatitis</td>
</tr>
</tbody>
</table>

### Table 4: Fusion Inhibitors

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Drug Interactions</th>
<th>Adverse Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enfuvirtide</strong> (Fuzeon®)</td>
<td>90mg SQ BID</td>
<td></td>
<td>Local injection site reaction (e.g., pain erythema, induration, nodules, cysts), increased rate of pneumonia, hypersensitivity reaction (rechallenge is not recommended)</td>
</tr>
<tr>
<td>Nonformulary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*not a complete list of drug interactions or adverse effects
### Table 5: Protease Inhibitors (PIs)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage*</th>
<th>Drug Interactions**</th>
<th>Adverse Effects**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atazanavir</td>
<td>400mg QD best if taken with food</td>
<td>Clarithromycin, diltiazem, lovastatin, rifabutin, rifampin, ergotamine, HIV-2-antagonists (ranitidine), proton pump inhibitors (omeprazole), efavirenz, tenofovir</td>
<td>Diarrhea, nausea, prolongation of the PR interval, hyperbilirubinemia, jaundice, hyperglycemia, fat redistribution, increase bleeding in hemophilia</td>
</tr>
<tr>
<td></td>
<td>Boosted or With Tenofovir or EFV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ATV 300 + RTV 100 QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darunavir</td>
<td>Treatment Naive patient DRV 800 + RTV 100 QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Treatment Experienced patient DRV 600 + RTV 100 BID (must be given with RTV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fosamprenavir</td>
<td>1400mg BID</td>
<td>Lovastatin, rifampin, rifabutin, rifampin, ergotamine</td>
<td>Diarrhea, nausea, vomiting, rash, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td></td>
<td>Boosted or f-APV 1400 + RTV 100-200 QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f-APV 700 + RTV 100 BID + EFV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f-APV 700 + 100 BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f-APV 1400 + 300 BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indinavir</td>
<td>800mg q 8 hr drink plenty of fluids, best if taken on empty stomach, best if separate dosing with ddI by 1 hr</td>
<td>Carbamazepine, lovastatin, rifampin, rifabutin, rifampin, ergotamine</td>
<td>Nephrolithiasis, GI intolerance, nausea, metallic taste, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td></td>
<td>Boosted or IDV 800 + RTV 100-200 q 12 hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lopinavir 200mg +</td>
<td>2 tabs BID or 4 tabs QD</td>
<td>Lovastatin, rifampin, rifabutin, rifampin, ergotamine</td>
<td>Nausea, vomiting, diabetes, asthenia, elevated LFTs, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td>Ritonavir 50mg</td>
<td>With EFV or NVP 3 tabs BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(LPV, Kaletra®)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nelfinavir</td>
<td>1250mg BID</td>
<td>Atorvastatin, lovastatin, rifampin, rifabutin, rifampin, ergotamine</td>
<td>Diarrhea, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td>(NFV, Viracept®)</td>
<td>Boosted or with meal or snack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ritonavir</td>
<td>600mg q 12 hr food may decrease GI upset</td>
<td>Lovastatin, amisaradine, quinidine, clozapine, rifabutin, rifampin, ergotamine, desipramine, theocophyline</td>
<td>Nausea, vomiting, diabetes, asthenia, elevated LFTs, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td>(RTV, Norvir®)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saquinavir</td>
<td>1200mg TID best if taken with a large meal</td>
<td>Lovastatin, rifampin, rifabutin, rifampin, ergotamine</td>
<td>Nausea, vomiting, diabetes, rash, elevated LFTs, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td>(SQV, Fortovase®)</td>
<td>Boosted or with SQV 1000 + RTV 100 BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tipranavir</td>
<td>500mg + RTV 200mg BID</td>
<td>Lovastatin, rifampin, amisaradine, quinidine, ergotamine, flucicosone</td>
<td>Hepatotoxicity, rash, hyperlipidemia, hyperglycemia, fat redistribution, lipid abnormalities, increased bleeding in hemophilia</td>
</tr>
<tr>
<td>Nonformulary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*dosage 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
### 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 (Selzentry®)</td>
<td>Tropism testing is required before use</td>
<td>Potent CYP3A inhibitors such as protease inhibitors, delavirdine, itraconazole, ketoconazole, clarithromycin</td>
<td>Abdominal pain, cough, dizziness, musculoskeletal symptoms, pyrexia, rash, upper respiratory track infections, hepatotoxicity, orthostasis</td>
</tr>
<tr>
<td>Nonformulary</td>
<td>With Protease Inhibitors except tipranivir, delavirdine, itraconazole, ketoconazole, clarithromycin 150mg BID</td>
<td>Potent CYP3A inducers such as efavirenz, rifampin, carbamazepine, phenytoin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>With all NRTI, Efavirtide, TPV, NVP 300mg BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>With EFV, rifampin, carbamazepine, phenytoin 600mg BID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### 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 (Isentress®)</td>
<td>400mg BID</td>
<td>rifampin</td>
<td>Nausea, headache, diarrhea, pyrexia, fatigue, elevated CPK</td>
</tr>
<tr>
<td></td>
<td>With rifampin 800mg BID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 healthcare 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/mm$^3$), 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)
      6. Lower HIV viral setpoint = longer time it will take for an individual's disease to progress over time
   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 the 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, rashes, 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/cmm 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*

<table>
<thead>
<tr>
<th>Clinical Category</th>
<th>CD4 Count</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS-defining illness</td>
<td>Any value</td>
<td>Treat</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Any value</td>
<td>Treat</td>
</tr>
<tr>
<td>HIV nephropathy</td>
<td>Any value</td>
<td>Treat</td>
</tr>
<tr>
<td>Hepatitis B co-infected</td>
<td>Any value</td>
<td>Treat when HBV treatment is indicated</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>&lt; 350 cells/mm³</td>
<td>Treat</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>350 to 500 cells/mm³</td>
<td>Consider treatment</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>&gt; 500 cells/mm³</td>
<td>Treatment generally deferred but may consider</td>
</tr>
</tbody>
</table>

B. Table 9: Recommended Initial Regimen for Treatment Naïve Patients*

<table>
<thead>
<tr>
<th>Initial Regimen</th>
<th>Option for New Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNRTI based</td>
<td>Efavirenz + Tenofovir + Emtricitabine (as triple combination)</td>
</tr>
<tr>
<td>PI based</td>
<td>Atazanavir + Ritonavir QD + (tenofovir/emtricitabine)</td>
</tr>
<tr>
<td></td>
<td>Darunavir + Ritonavir QD + (tenofovir/emtricitabine)</td>
</tr>
<tr>
<td>INSTI based</td>
<td>Raltegravir + (tenofovir/emtricitabine)</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Lopinavir/ritonavir BID + Zidovudine + Lamivudine</td>
</tr>
</tbody>
</table>

C. Table 10: Alternative Regimens*

<table>
<thead>
<tr>
<th>Initial Regimen</th>
<th>Option for New Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRTI based</td>
<td>Efavirenz + Zidovudine + Emtricitabine</td>
</tr>
<tr>
<td></td>
<td>Efavirenz + Abacavir + Emtricitabine</td>
</tr>
<tr>
<td></td>
<td>Nevirapine + Zidovudine + Emtricitabine</td>
</tr>
<tr>
<td>PI based</td>
<td>Atazanavir + Ritonavir + Zidovudine + Emtricitabine</td>
</tr>
<tr>
<td></td>
<td>Atazanavir + Ritonavir + Abacavir + Emtricitabine</td>
</tr>
<tr>
<td></td>
<td>Fosamprenavir + Ritonavir + (Zidovudine + Emtricitabine)</td>
</tr>
<tr>
<td></td>
<td>Fosamprenavir + Ritonavir + (Abacavir + Emtricitabine)</td>
</tr>
<tr>
<td></td>
<td>(Tenofovir/Emtricitabine)</td>
</tr>
<tr>
<td></td>
<td>Lopinavir/ritonavir + (Zidovudine + Emtricitabine) or</td>
</tr>
<tr>
<td></td>
<td>(Tenofovir/Emtricitabine)</td>
</tr>
<tr>
<td></td>
<td>Lopinavir/ritonavir + (Abacavir + Emtricitabine) or</td>
</tr>
<tr>
<td></td>
<td>(Tenofovir/Emtricitabine)</td>
</tr>
</tbody>
</table>

*adapted from Guidelines for the use of antiretroviral agents in HIV-1 infected adults and adolescents.
C. Regimens that should not be used
Table 11

<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</td>
</tr>
<tr>
<td>Triple nucleosides (Abacavir + Tenofovir + Lamivudine)</td>
<td>Higher rate of early virologic failure compared to other triple drug regimens</td>
</tr>
<tr>
<td>(Abacavir + Zidovudine + Lamivudine)</td>
<td></td>
</tr>
<tr>
<td>(Didanosine + Tenofovir + Lamivudine)</td>
<td></td>
</tr>
<tr>
<td>Quadruple nucleoside (Abacavir + Lamivudine + Zidovudine + Tenofovir)</td>
<td>Inferior virologic efficacy</td>
</tr>
</tbody>
</table>

D. Combinations or Agents that should not be used
Table 12

<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 8 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/mm³ 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
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 laboratories: urinalysis, thyroid function tests, glucose, liver function tests, lipid profile, BUN, SCr
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 cerebral vascular disease or active malignancy are not candidates for drug therapy.

Box A: Evaluate Patient’s Risk for CHD

1. Count Number of Major Risk Factors
   - Positive Risk Factors
     - Family history premature CHD (CHD in first degree male relative < 55 or female relative < 65)
     - Age ≥ 45 Males, 55 Females
     - HTN ≥ 140/90 mm Hg or antihypertensive medication
     - Current smoker
     - HDL < 40 mg/dl
     - Negative (subtract 1 risk factor)
     - HDL ≥ 60 mg/dl
     - Complete 10-year risk assessment for patients without CHD with ≥ 2 risk factors (see box B&C, page 3)
   - Negative Risk Factors

2. Classify patient based on risk factors and 10-year risk for CHD
   a. Low risk – without CHD & < 2 risk factors
   b. Moderate risk – without CHD & ≥ 2 risk factors (10 yr risk < 10%)
   c. Moderate-high risk – without CHD & ≥ 2 risk factors (10 yr risk 10-20%)
   d. High risk - Patient is considered High Risk if has
     - established CHD or
     - CHD risk equivalent - peripheral arterial disease, abdominal aortic aneurysm, symptomatic carotid artery disease, diabetes, or multiple risk factors that confer a 10-year risk for CHD >20%
     - Very high risk - if has established CHD plus:
       - Multiple risk factors (especially diabetes) or
       - Severe or poorly controlled risk factors

3. Evaluate patient for metabolic syndrome (page 8)
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 aim 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 judgement and are not intended to strictly apply to all patients.

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>30-Day Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Statins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pravastatin</td>
<td>40mg QD</td>
<td>LDL ↓ 18-55%</td>
<td>myopathy</td>
<td>absolute: liver disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rosuvastatin  10mg QD</td>
<td>LDL ↓ 30%</td>
<td>↑ LFT</td>
<td>relative: certain drugs†</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BAS LDL ↓ 15-30%</td>
<td>HDL ↑ 5-15%</td>
<td>GI upset</td>
<td>absolute: TG &gt; 400mg/dl &amp; dysbetalipoproteinemia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cholestyramine 4gm QID</td>
<td>LDL ↑ 3-5%</td>
<td>Constipation</td>
<td>relative: TG &gt; 200mg/dl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nicotinic Acid 500mg QD</td>
<td>LDL ↓ 5-25%</td>
<td>flushing</td>
<td>absolute: chronic liver disease, severe gout</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Niacin TR 500mg QD</td>
<td>HDL ↑ 15-35%</td>
<td>hyperuricemia</td>
<td>relative: PUD, diabetes, hyperuricemia</td>
<td></td>
</tr>
<tr>
<td>3. Fibric Acid</td>
<td>500mg QD</td>
<td>LDL ↑ 20-50%</td>
<td>GI upset</td>
<td>hepatotoxicity</td>
<td></td>
</tr>
<tr>
<td>Gemfibrozil</td>
<td>600mg QD</td>
<td>LDL ↑ 20-50%</td>
<td>dyspepsia</td>
<td>absolute: severe renal or unexplained non-CHD deaths</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HDL ↑ 10-20%</td>
<td>gallstones</td>
<td>liver disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TG ↑ 20-50%</td>
<td>myopathy</td>
<td>$13.80</td>
<td></td>
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</table>

† cyclosporine, macrolide antibiotics, azole antifungals, protease inhibitors, cytochrome P450 inhibitors (use fibrates with caution)

### Estimate of 10 Year Risk for Men

<table>
<thead>
<tr>
<th>Age</th>
<th>Points</th>
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<tbody>
<tr>
<td>20-34</td>
<td>-9</td>
</tr>
<tr>
<td>35-39</td>
<td>-4</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
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<tr>
<td>45-49</td>
<td>3</td>
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<td>50-54</td>
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<td>70-74</td>
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<tr>
<td>75-79</td>
<td>13</td>
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<table>
<thead>
<tr>
<th>Total Cholesterol</th>
<th>Points</th>
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<tr>
<td>&lt;160</td>
<td>0</td>
</tr>
<tr>
<td>160-199</td>
<td>4</td>
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<tr>
<td>200-239</td>
<td>7</td>
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<tr>
<td>240-279</td>
<td>9</td>
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<tr>
<td>≥280</td>
<td>11</td>
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<table>
<thead>
<tr>
<th>Non-smoker</th>
<th>Points</th>
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<tbody>
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<table>
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<tr>
<th>Smoker</th>
<th>Points</th>
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<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>HDL (mg/dl)</th>
<th>Points</th>
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<tr>
<td>≥60</td>
<td>-1</td>
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<tr>
<td>50-59</td>
<td>0</td>
</tr>
<tr>
<td>40-49</td>
<td>1</td>
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<tr>
<td>&lt;40</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Systolic BP (mmHg)</th>
<th>If Untreated</th>
<th>If Treated</th>
</tr>
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<tbody>
<tr>
<td>&lt;120</td>
<td>0</td>
<td>0</td>
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<td>1</td>
<td>1</td>
</tr>
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<td>130-139</td>
<td>1</td>
<td>2</td>
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<tr>
<td>140-159</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>≥160</td>
<td>2</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Point Total</th>
<th>10 Year Risk %</th>
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<tbody>
<tr>
<td>&lt;0</td>
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</tr>
<tr>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>≥17</td>
<td>≥30</td>
</tr>
</tbody>
</table>

10 Year Risk ___%
Hyperlipidemia Management

EDUCATION FOR PATIENTS AND PRACTITIONERS

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 meal line. 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/risks 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 also 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 who are 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. Cerebrovascular disease (CVD)
   e. Peripheral vascular disease (PVD)
   f. Pancreatitis
   g. Peptic ulcer disease (PUD)
   h. Gout or hyperuricemia
   i. Thyroid disease
   j. Chronic renal insufficiency (CKD)
   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 ≥160mg/dl)
   b. Moderate Risk
      i. No established CHD & ≥2 risk factors
      ii. Elevated cholesterol levels (LDL ≥130mg/dl)
   c. High Risk
      i. Established CHD or CHD equivalent
         a. Atherosclerotic disease (peripheral arterial disease, abdominal aortic aneurysm, symptomatic carotid artery disease)
         b. Diabetes
         c. Multiple risk factors conferring a 10 year risk for CHD > 20%
      iii. Elevated cholesterol levels (LDL ≥100mg/dl)
   d. Very High Risk
      i. Established CHD plus
         a. Multiple risk factors (especially diabetes)
         b. Severe or poorly controlled risk factors
      ii. Elevated cholesterol levels (LDL ≥100mg/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**
  - Males 35-65 years: TC, HDL-c, LDL-c, TG
  - Females 45-65 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**
     - Males 35-65 years: TC, HDL-c, LDL-c, TG
     - Females 45-65 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

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

2. Secondary Prevention
   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. 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- increase TG, decrease 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. Isotretinoin- increase TC & TG, decrease HDL-cholesterol
2. Effects of Various Conditions

<table>
<thead>
<tr>
<th>DISORDER/PT CHARACTERISTIC</th>
<th>EFFECT ON LIPIDS</th>
<th>LAB TEST FOR SCREENING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephrotic syndrome</td>
<td>Increase TC</td>
<td>Urinalysis, serum albumin</td>
</tr>
<tr>
<td>DM</td>
<td>Increase TC, increase TG, Decrease HDL-c</td>
<td>Glucose, Alc</td>
</tr>
<tr>
<td>Obstructive Liver Disease</td>
<td>Increase TC</td>
<td>Liver function tests (LFT’s)</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Increase TC, increase TG</td>
<td>Thyroid function tests (TFT’s)</td>
</tr>
<tr>
<td>Chronic Renal Failure (CRF)</td>
<td>Increase TC, increase TG</td>
<td>Creatinine (Scr)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Increase TG, increase HDL-c</td>
<td></td>
</tr>
<tr>
<td>Inactivity</td>
<td>Increase TC, decrease HDL-c</td>
<td></td>
</tr>
</tbody>
</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 affect 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*

   | TC < 200 mg/dl | Desirable |
   | TC 200-239 mg/dl | Borderline High |
   | TC 240 mg/dl | High |
   | HDL-c < 40 mg/dl | Low |
   | HDL-c 40-59 mg/dl | Normal |
   | HDL-c 60 mg/dl | High |
   | TG 150-199 mg/dl | Borderline High |
   | TG 200-499 mg/dl | High |
   | TG 500 mg/dl | Very High |
   | LDL-c < 100 mg/dl | Optimal |
   | LDL-c 100-129 mg/dl | Near optimal |
   | LDL-c 130-159 mg/dl | Borderline high |
   | LDL-c 160-189 mg/dl | High |
   | LDL-c 190 mg/dl | Very high |

*Adapted from NCEP III Guidelines

2. Recommendations For Follow-up Screening Of Patients Without CHD*

   | TC < 200 mg/dl; HDL-c >40 mg/dl | Retest in 5 years |
   | TC 200-239 mg/dl and < 2 risk factors | Instruct on risk factors and diet, re-evaluate in 1-2 years |
   | TC 200-239 mg/dl and > 2 risk factors | Fasting Lipid Profile (TC, HDL-c, LDL-c, TG) |
   | HDL-c <40mg/dl | Fasting Lipid Profile |
   | TC > 240 mg/dl | Fasting Lipid Profile |

*Adapted from NCEP III Guidelines

3. Treatment Decisions*

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>RISK FACTORS</th>
<th>DIET INITIATION (LDL-c LEVEL)</th>
<th>DRUG INITIATION (LDL-c LEVEL)</th>
<th>LDL-c GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>Without CHD and &lt;2 risk factors</td>
<td>≥ 160 mg/dl</td>
<td>≥ 190 mg/dl</td>
<td>&lt;160 mg/dl</td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>Without CHD and ≥2 risk factors (10 year risk &lt; 10%)</td>
<td>≥ 130 mg/dl</td>
<td>≥ 160 mg/dl</td>
<td>&lt;130 mg/dl</td>
</tr>
<tr>
<td>Moderate-High Risk</td>
<td>Without CHD and ≥2 risk factors (10 year risk 10-20%)</td>
<td>≥ 130 mg/dl</td>
<td>≥ 130 mg/dl</td>
<td>&lt;130 mg/dl</td>
</tr>
<tr>
<td>High Risk</td>
<td>With CHD or CHD equivalent (10 year risk &gt; 20%)</td>
<td>≥ 100 mg/dl</td>
<td>≥ 100 mg/dl</td>
<td>&lt; 100 mg/dl</td>
</tr>
<tr>
<td>Very High Risk</td>
<td>Established CHD and multiple risk factors (especially diabetes) or severe or poorly controlled risk factors</td>
<td>≥100mg/dl</td>
<td>≥ 100mg/dl (&lt;100mg/dl; consider drug options)</td>
<td>&lt; 100mg/dl (consider goal &lt;70mg/dl)</td>
</tr>
</tbody>
</table>

*Adapted from NCEP III Guidelines
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
      Dietary changes and exercise should be attempted prior to initiation of drug therapy. Disease states that can
      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.
   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 statins are usually well
      tolerated and convenient to take, but the expense is considerable.
   3. 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 30mg/dl 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>Waist Circumference</td>
</tr>
<tr>
<td>Men</td>
<td>&gt; 102 cm (&gt;40 in)</td>
</tr>
<tr>
<td>Women</td>
<td>&gt; 88 cm (&gt;35 in)</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>≥ 150 mg/dL</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>&lt; 40 mg/dL</td>
</tr>
<tr>
<td>Women</td>
<td>&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
   a. Primary goal of therapy is to achieve target goal for LDL cholesterol
   b. Treat underlying causes (e.g., obesity and physical inactivity) with weight reduction & increased
      physical activity.
   c. 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. Reevaluation of the modifiable risk factors
      f. Presence of muscle aches in large muscle groups
   2. Physical Examination
      a. Weight
      b. Blood Pressure
   3. Laboratory tests
      a. Fasting lipid profile
      b. LFTs for patients on statins
      c. Creatinine kinase (CK) if symptoms of myositis
   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
PATIENT EDUCATION
HYPERLIPIDEMIA CLINIC

Hyperlipidemia (hyper = high levels, lipidemia = fats in the blood) may be caused by high levels of cholesterol, high levels of triglycerides, or a combination of the 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 states, how high your lipids 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 told is unclear, 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”. This can lead to a heart attack and/or other heart diseases. If the deposits build up in the carotid arteries in the neck, this could lead to a stroke. Lowering of elevated cholesterol levels has been proven to decrease your chance 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 meat, eggs and dairy products. 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 seems 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 to make is to lower the amount of fat in the diet. Food packages, from the commissary, 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. Weight loss, even in the slightly overweight patient, can make a big difference in cholesterol level. The Diet for Health, when followed properly, should help with weight loss. A routine exercise program not only helps with weight loss, but also helps to lower overall risk of heart disease. Every effort should be made to lower cholesterol by following a diet and exercise plan for at least twelve (12) weeks. If cholesterol levels are not significantly decreased and you have been compliant with your diet and exercise program, drug therapy may be considered. Drug therapy for cholesterol control is usually a lifelong therapy and should be avoided if possible. Drug therapy is not a substitute for diet and exercise, but should be considered to be an extension of the therapy. In some patients who already have heart disease or are at high risk for developing heart disease due to high levels of cholesterol, diet, exercise and drug therapy may need to be started at the same time.

HIGH TRIGLYCERIDES

Studies have shown that elevated levels of triglycerides are associated with coronary heart disease. Many, but not all, patients with high triglyceride levels also have high LDL-cholesterol levels and/or low HDL-cholesterol levels. Very high triglyceride levels (greater than 500) have been associated with inflammation of the pancreas (pancreatitis). High levels of triglycerides can sometimes cause the blood to thicken causing a problem with clotting. High triglyceride levels usually respond well to non-drug therapy, such as changes in diet and increased exercise. Triglyceride is ingested in the diet from fats and sugars, is also made in the body in the liver and is important in the body for energy and fuel storage. High triglyceride levels may be caused by overproduction in the liver or decreased removal by the body. Triglyceride levels have been shown to be increased in certain disease states, in times of extreme stress, and by certain drugs.

Reducing other risks of heart disease

A healthy diet, regular exercise, and weight loss in overweight people can improve overall health and decrease the risk of heart disease as well as lowering lipid levels. In addition to hyperlipidemia, there are other risk factors for heart disease that should be controlled:

1. Control high blood pressure
2. Control high blood sugar
3. Stop smoking
4. Limit alcohol intake
5. Reduce stress
HYPERTENSION

JNC-VII CLASSIFICATION AND MANAGEMENT OF HYPERTENSION (1)

<table>
<thead>
<tr>
<th>BP CLASSIFICATION</th>
<th>SBP* MMHG</th>
<th>DBP* MMHG</th>
<th>LIFESTYLE MODIFICATION</th>
<th>INITIAL DRUG THERAPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>&lt;120</td>
<td>and &lt;80</td>
<td>Encourage</td>
<td>No antihypertensive indicated</td>
</tr>
<tr>
<td>PREHYPERTENSION</td>
<td>120-159</td>
<td>Or 80-89</td>
<td>Yes</td>
<td>Without compelling indication</td>
</tr>
<tr>
<td>STAGE 1 HYPERTENSION</td>
<td>140-159</td>
<td>Or 90-99</td>
<td>Yes</td>
<td>Thiazide-type diuretics.</td>
</tr>
<tr>
<td>STAGE 2 HYPERTENSION</td>
<td>≥160</td>
<td>Or ≥ 100</td>
<td>Yes</td>
<td>Two-drug combination for most* (usually Thiazide-type diuretic and BB or ACEI or CCB).</td>
</tr>
</tbody>
</table>

DBP, diastolic blood pressure; SBP, systolic blood pressure

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

*Treatment 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.

1. Is blood pressure > 120/80 (normal)?
   - No
   - Yes

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

3. H&P, lab tests complete. 2° causes of HTN?
   - Yes
   - No

4. Manage 2° causes (see appendix B).

5. Is blood pressure between 121-139/81-89 (pre-hypertension)?
   - Yes
   - No

6. Go to box #10, Page 2

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

8. Encourage lifestyle modifications (see appendix C).

9. Go to box #16, Page 2

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 1/98, 5/11; Revised 10/98, 4/02, 4/03, 10/04, 1/06, 5/09.
**Stage I HTN**

- (SBP140-159 or DBP 90-99 mmHg)
- Begin drug therapy with diuretic (HCTZ 25mg QD)

**Stage II HTN**

- (SBP >/=160 or DBP >/= 100mmHg)
- Two-drug combination for most (usually thiazide-type diuretic and BB, or ACEI, or CCB)

---

**Compelling indication**

Start drug therapy per appendix A recommendations

---

**Goal BP achieved?**

- Yes
  - Go to box 21.

- No
  - Is the patient adherent?
    - Yes
      - Increase dose, change drug class or add another drug. Diuretics should usually be included in any regimen with 2 or more drugs. Follow up based on box 21.
      - Counsell patient regarding IMPORTANCE of compliance and consider changing status of medications to NONKOP.
    - No
      - Consider
        1) Intense individualized counseling
        2) DOT for a short period
        3) Stabilization in an infirmary setting
        4) Obtaining a pharmacotherapy consult.

---

**Is the patient experiencing adverse effects?**

- Yes
  - Change drug class or add drug from another class and reduce dose of offending agent. Follow up based on box 21.

- No
  - Go to box 21.

---

**Is blood pressure at goal (<130/80)?**

- Yes
  - TREAT with lifestyle modifications. Follow-up in CCC per ITP.

- No
  - Start drug therapy for compelling indication. See appendix A for recommendations.

---

**TREAT with lifestyle modifications.**

Follow-up in CCC per ITP.

---

**Does the patient have compelling indications (diabetes or kidney disease)?**

- Yes
  - Go to box 21.

- No
  - Does the patient have compelling indications (see appendix A)?

---

**Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee.**

Approved August 1995; Reviewed 1/98, 5/01; Revised 10/98, 4/02, 4/03, 1/04, 1/06, 5/09.
Appendix A. CO-MORBIDITY FACTORS/COMPELLING INDICATIONS [1,2]

Patient Co-Morbidity/compe1ling indications or Demographics Which Represent
Indications for Drug Therapy Modification

Isolated Systolic HTN - Thiazide Diuretic (HCTZ)
Angina Pectoris - BB (Atenolol, 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)
Recurrent Stroke Prevention - Thiazide Diuretic (HCTZ) and ACEI (Enalapril)
Peripheral Vascular Disease - CCA (Verapamil, Diltiazem)
Benign Prostatic Hypertrophy - Alpha blocker (Doxazosin)
Dyslipidemia – ACEI (Enalapril), CCA, Alpha agonist (Clonidine)
Vascular Headaches - BB (Atenolol, Metoprolol) or CCA (Verapamil, Diltiazem).
Asthma or COPD – Diuretic, BB is relative contraindication.
Hyperuricemia or Gout – BB, Diuretic is relative contraindication.


FORMULARY ANTIHYPERTENSIVES

Diuretics
- Furosemide 20mg, 40mg
- Hydrochlorothiazide 12.5mg, 25mg, 50mg
- Metolazone 5mg
- Triamterene 37.5mg / HCTZ 25mg

Beta Blocker
- Atenolol 25mg, 50mg
- Metoprolol 25mg, 50mg, 100mg
- Propranolol 10mg, 20mg, 40mg

Calcium Channel Blockers
- Amlodipine 5mg, 10mg
- Diltiazem 180mg XR
- Diltiazem 240mg XR
- Verapamil 180mg SR
- Verapamil 240mg SR

Alpha 1 Blocker
- Doxazosin 1mg, 2mg, 4mg

Alpha 2 Agonist
- Guanfacine 1mg, 2mg

ACE Inhibitor
- Enalapril 2.5 mg, 5 mg, 10 mg, 20 mg

Other
- Hydralazine 25mg, 50mg
- Minoxidil 2.5mg, 10mg

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved August 1995; Reviewed 1/08, 5/11; Revised 10/98, 4/02, 4/03, 1/04, 1/06, 5/09.
Appendix B. HYPERTENSION DISEASE MANAGEMENT GUIDELINES*

**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 bared 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.

**Recommendation for Follow-up Based on Initial Blood Pressure Readings**

<table>
<thead>
<tr>
<th>Initial Blood Pressure (mm Hg)*</th>
<th>Follow-up Recommended**</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;120 &lt;80</td>
<td>Recheck as clinically indicated in CCC per ITP</td>
</tr>
<tr>
<td>120-139 80-89</td>
<td>Confirm within 1 year in CCC per ITP***</td>
</tr>
<tr>
<td>140-159 90-99</td>
<td>Evaluate/Refer within 2 months</td>
</tr>
<tr>
<td>&gt;160 ≥100</td>
<td>Evaluate or refer to source of care immediately or within 1 month. For those with higher pressures (e.g., &gt;180/110 mm Hg), evaluate and treat immediately or within 1 week depending upon clinical situation and complications</td>
</tr>
</tbody>
</table>

*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).

**Modify the scheduling for follow up according to reliable information about past blood pressure measurements, other cardiovascular risk factors, or target organ disease. Provide advise on therapeutic lifestyle modifications.

***Patients with compelling indications, e.g. diabetes and kidney disease, should be evaluated/referred within 2 months BP is above goal of <130/80.

**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 medication, herbal remedies, and illicit drugs.
- Results and adverse effects of past antihypertensive therapy.
- Psychosocial and environmental factors that may influence hypertensive control.

**Cardiovascular Risk Factors**

- Hypertension
- Obesity (Body Mass Index ≥ 30 kg/m²)
- Physical Inactivity
- Dyslipidemia
- Diabetes Mellitus
- Microalbuminuria or estimated GFR < 60 ml/min
- Age (>55 male, > 65 females)
- Family history of premature cardiovascular disease (male < 55 or females < 65)
Appendix B. HYPERTENSION DISEASE MANAGEMENT GUIDELINES*  Page 5 HTN

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.
- Fundoscopic 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.
- Examinations of the heart for abnomalities 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.
- Examinations of the extremities for diminished or absent peripheral arterial pulsations, 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
- Pheochromocytoma
- 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).

Appendix C

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 55-year old adults (who were then normotensive in the study) have 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 Greenland 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 their 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 18.5-24.9)</td>
<td>5-20mmHg/10kg weight loss</td>
</tr>
<tr>
<td>Diet</td>
<td>Consider DFH and encourage adherence. Discourage commissary foods.</td>
<td>8-14mmHg</td>
</tr>
<tr>
<td>Dietary sodium restriction</td>
<td>Encourage patient to reduce dietary sodium intake to no more than 2.4g sodium or 6g NaCl</td>
<td>2-8mmHg</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>4-9mmHg</td>
</tr>
</tbody>
</table>

**Set realistic goals for your patients and discuss the value of self-rewarding and goal setting. Encourage patients to make gradual changes to their lifestyle, as they are more likely to comply with one change at a time.

HYPERTENSION EMERGENCY
(See JNC-VII CLASSIFICATION AND TREATMENT) [1]

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, unstable angina pectoris, 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
(See JNC-VII RISK CLASSIFICATION AND TREATMENT) [1]

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 headache, 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 relative 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 bruits/ renal artery stenosis.
Perform neurological exam
Elevate head at 45° angle
Establish intravenous line
Obtain EKG
Obtain labs
Chem-10, CBC, Urinalysis

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. Evaluate target organ damage
(see text above)

3. Sign & Symptoms indicate hypertensive emergency?

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

5. Treat as hypertensive urgency with an oral immediate release hypotensive agent.
   If patient’s medication regimen includes an immediate release product, administer an extra dose of prescribed agent.
   If patient’s regimen includes only sustained release products or agents with a slow onset of action (diltiazem XR, verapamil SR, propranolol LA, amlodipine, doxazosin) administer atenolol 50mg or verapamil 80mg or diltiazem 60mg or clonidine 0.1mg (see appendix B for sample protocol).

6. MAP = (1/3) (SBP-DBP) + DBP
Normal MAP is: 70-105 mmHg

7. 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.

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.
HYPOGLYCEMIA

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

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

Is the patient conscious and cooperative?

No

3. Notify unit provider & establish IV access.

Yes

4. Has IV access been established after at least 2 attempts?

No

5. If unable to establish IV access, administer Glucagon (1mg/cc) – 1mL IM or SQ.
Dose may be repeated 1 time in 30 minutes.

Yes

6. Administer 50mL of D50 IVP, followed by infusion of 5-10% dextrose. Continue infusion until glucose > 70mg/dL.

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. Recheck 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.

Have symptoms resolved?

No

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

Yes

8. 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.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, January 2006. Reviewed 5/10.
Hypoglycemia

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>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Medication</td>
<td>Name of Medication and Dosages Available</td>
<td>Approximate Equivalent (Non-formulary to Formulary)</td>
</tr>
<tr>
<td>Dose Range and Frequency</td>
<td>Dose Range and Frequency</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Hypertensive Medications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felodipine (Plendil®)</td>
<td>2.5 - 10 mg qd</td>
<td>5 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Isradipine (DynaCirc CR®)</td>
<td>5 - 20 mg qd</td>
<td>5 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Nicardipine SR (Cardene SR®)</td>
<td>30 - 60 mg BID</td>
<td>30 mg BID to 5 mg qd</td>
</tr>
<tr>
<td>Nifedipine (Procardia XL®)</td>
<td>30 - 120 mg qd</td>
<td>30 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Nisoldipine (Sular®)</td>
<td>10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Benazepril (Lotensin®)</td>
<td>10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Captopril (Capoten®)</td>
<td>25 - 50 mg bid-tid</td>
<td>25 mg bid to 5mg qd</td>
</tr>
<tr>
<td>Fosinopril (Monopril®)</td>
<td>10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Lisinopril (Prinivil®)</td>
<td>10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
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<tr>
<td>Moexipril (Univasc®)</td>
<td>7.5 - 30 mg qd</td>
<td>7.5 mg qd to 5 mg qd</td>
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<tr>
<td>Perindopril (Aceon®)</td>
<td>4 - 8 mg qd</td>
<td>4 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Quinipril (Accupril®)</td>
<td>10 - 40 mg qd</td>
<td>10 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Ramipril (Altace®)</td>
<td>2.5 - 20 mg qd</td>
<td>2.5 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Trandolapril (Mavik®)</td>
<td>1 - 8 mg qd</td>
<td>2 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Aliskiren (Tekturna®)</td>
<td>150 - 300 mg qd</td>
<td>150 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Azilsartan (Edarbi®)</td>
<td>40 - 80 mg qd</td>
<td>40 mg qd to 5mg qd</td>
</tr>
<tr>
<td>Candesartan (Atacand®)</td>
<td>8 - 32 mg qd</td>
<td>8 mg qd to 5mg qd</td>
</tr>
<tr>
<td>Eprosartan (Teveten®)</td>
<td>400 - 800 mg qd</td>
<td>400 mg qd to 5mg qd</td>
</tr>
<tr>
<td>Irbesartan (Avapro®)</td>
<td>150 - 300 mg qd</td>
<td>150 mg qd to 5 mg qd</td>
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<tr>
<td>Losartan (Cozaar®)</td>
<td>50 - 100 mg qd</td>
<td>50 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Olmesartan (Benicar®)</td>
<td>20 - 40 mg qd</td>
<td>20 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Telmisartan (Micardis®)</td>
<td>20 - 80 mg qd</td>
<td>20 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Valsartan (Diovan®)</td>
<td>80 - 320 mg qd</td>
<td>80 mg qd to 5 mg qd</td>
</tr>
</tbody>
</table>

For each substitution, the dose range and frequency of the non-formulary medication are compared to the dose range and frequency of the formulary medication. The comments column indicates the approximate equivalent dose range and frequency for the non-formulary medication, based on clinical judgment and past experience.
### Anti-Hypertensive Medications Continued

<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 and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td>Acebutolol (Sectral®)</td>
<td>100 - 1200 mg in divided doses</td>
<td>Atenolol (Tenormin®)</td>
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<tr>
<td>Betaxolol (Betopic®)</td>
<td>5 - 20 mg qd</td>
<td>Metoprolol (Lopressor®)</td>
</tr>
<tr>
<td>Bisoprolol (Zebeta®)</td>
<td>2.5 - 10 mg qd</td>
<td>Propranolol (Inderal®)</td>
</tr>
<tr>
<td>Carteolol (Cartrol®)</td>
<td>2.5 – 10 mg qd</td>
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<tr>
<td>Metoprolol succinate (Toprol XL®)</td>
<td>25 – 100 mg qd</td>
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</tr>
<tr>
<td>Nadolol (Corgard®)</td>
<td>40 - 120 mg qd</td>
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<tr>
<td>Penbutolol (Levatol®)</td>
<td>10 - 40 mg qd</td>
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</tr>
<tr>
<td>Pindolol (Visken®)</td>
<td>5 – 20 mg divided bid</td>
<td></td>
</tr>
<tr>
<td>Propranolol long-acting (Inderal LA®)</td>
<td>60 – 180 mg qd</td>
<td></td>
</tr>
<tr>
<td>Timolol (Blocadren®)</td>
<td>10 - 20 mg divided bid</td>
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</tr>
<tr>
<td>Prazosin (Minipress®)</td>
<td>3 - 20 mg in 2 - 3 doses/day</td>
<td>Terazosin (Hytrin®)</td>
</tr>
<tr>
<td>Doxazosin (Cardura®)</td>
<td>1 - 16 mg q hs</td>
<td>Guanfacine (Tenex®)</td>
</tr>
<tr>
<td>Clonidine (Catapress®)</td>
<td>0.1 - 0.8 mg tid</td>
<td></td>
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*Formulary Substitutions page 2*
<table>
<thead>
<tr>
<th>Non-Formulary Medication</th>
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<th>Comments</th>
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<tbody>
<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td><strong>Anti-Hyperlipidemic Medications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluvastatin (Lescol®)</td>
<td>20-80 mg qd</td>
<td>Pravastatin (Pravachol®)</td>
</tr>
<tr>
<td>Lovastatin (Mevacor®)</td>
<td>10-80 mg qd</td>
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</tr>
<tr>
<td>Pitavastatin (Livalo®)</td>
<td>1-4 mg qd</td>
<td>10 mg, 20 mg, 40 mg tablets</td>
</tr>
<tr>
<td>Simvastatin (Zocor®)</td>
<td>5-80 mg qd</td>
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</tr>
<tr>
<td>Atorvastatin (Lipitor®)</td>
<td>10-80 mg qd</td>
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</tr>
<tr>
<td>Rosuvastatin (Crestor®)</td>
<td>5-40 mg qd</td>
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</tr>
<tr>
<td>Fenofibrate (Tricor®)</td>
<td>48-145 mg qd</td>
<td>Gemfibrozil (Lopid®) 600 mg tablets</td>
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<tr>
<td>Colestipol (Colestid®)</td>
<td>5-30 g/day given once or in 2-4 divided doses</td>
<td>Cholestyramine (Questran®) 4g powder</td>
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<tr>
<td><strong>Anti-diabetic Medications</strong></td>
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<tr>
<td>Aspart (Novolog®)</td>
<td>Regular (Novolin R®) 100 units/ml vial, 10 ml</td>
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</tr>
<tr>
<td>Lispro (Humalog®)</td>
<td>Glusine (Apidra®)</td>
<td></td>
</tr>
<tr>
<td>Regular (Humulin R®)</td>
<td>Glargine (Lantus®)</td>
<td>NPH (Novolin N®) 100 units/ml vial, 10 ml</td>
</tr>
<tr>
<td>Detemir (Levemir®)</td>
<td>NPH (Humulin N®)</td>
<td></td>
</tr>
<tr>
<td>NPH 50/ Regular 50 (Humulin 50/50®)</td>
<td>NPH 70/Regular 30 (Novolin 70/30®) 100 units/ml, 10 ml</td>
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<tr>
<td>Lispro Protamine 50/ Lispro 50 (Humalog Mix 50/50®)</td>
<td>Lispro Protamine 75/ Lispro 25 (Humalog Mix 75/25®)</td>
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</tr>
<tr>
<td>Aspart Protamine 70/ Aspart 30 (Novolog Mix 70/30®)</td>
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Formulary Substitutions page 3
<table>
<thead>
<tr>
<th>Non-Formulary Medication</th>
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<th>Comments</th>
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</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>Glimepiride (Amaryl®)</td>
<td>1-8 mg qd</td>
<td>Glipizide (Glucotrol®) 5mg, 10mg tablets</td>
</tr>
<tr>
<td>Glyburide (Diabeta®)</td>
<td>5 – 20 mg in single or divided doses</td>
<td></td>
</tr>
<tr>
<td>Glyburide micronized (Glynase PresTab®)</td>
<td>1.5 - 12 mg in single or divided doses</td>
<td></td>
</tr>
<tr>
<td>Tolazamide</td>
<td>100 mg qd – 500 mg bid</td>
<td></td>
</tr>
<tr>
<td>Tolbutamine</td>
<td>500 – 2000 mg daily in 1 - 3 divided doses</td>
<td></td>
</tr>
<tr>
<td><strong>Anti-Diabetic Medications Continued</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiotropium (Spiriva®)</td>
<td>1 capsule qd</td>
<td>Ipratropium (Atrovent®) 17 mcg, 200 puffs</td>
</tr>
<tr>
<td>Atrovent / ipratropium (Combivent®)</td>
<td>2 puffs qid</td>
<td>Albuterol (Ventolin®) 90 mcg, 200 puffs</td>
</tr>
<tr>
<td>Budesonide (Pulmicort Turbuhaler®)</td>
<td>180 – 1200 mcg/day divided bid</td>
<td>Beclomethasone HFA (QVAR®) 80 mcg, 120 puffs</td>
</tr>
<tr>
<td>Flunisolide (Aerospan®)</td>
<td>500 – 2000 mcg/day divided bid</td>
<td></td>
</tr>
<tr>
<td>Mometasone (Asmanex Twisthaler®)</td>
<td>200 – 400 mcg/day given once daily or divided bid</td>
<td></td>
</tr>
<tr>
<td>Triamcinolone (Azmacort®)</td>
<td>300 – 1500 mcg/day divided 2 – 4 times/day</td>
<td></td>
</tr>
<tr>
<td>Fluticasone (Flovent MDI®)</td>
<td>88 – 440 mcg/day divided bid</td>
<td></td>
</tr>
</tbody>
</table>

**Respiratory Medications**

<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>Glipizide (Glucotrol®) 5mg, 10mg tablets</td>
<td>5-40mg daily in single or divided doses</td>
<td>2 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Glyburide (Diabeta®)</td>
<td>5 – 20 mg in single or divided doses</td>
<td></td>
<td></td>
<td>5 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Glyburide micronized (Glynase PresTab®)</td>
<td>1.5 - 12 mg in single or divided doses</td>
<td></td>
<td></td>
<td>3 mg to 5 mg qd</td>
</tr>
<tr>
<td>Tolazamide</td>
<td>100 mg qd – 500 mg bid</td>
<td></td>
<td></td>
<td>250 mg qd to 5 mg qd</td>
</tr>
<tr>
<td>Tolbutamine</td>
<td>500 – 2000 mg daily in 1 - 3 divided doses</td>
<td></td>
<td></td>
<td>500 mg BID to 5 mg qd</td>
</tr>
<tr>
<td><strong>Anti-Diabetic Medications Continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiotropium (Spiriva®)</td>
<td>1 capsule qd</td>
<td>Ipratropium (Atrovent®) 17 mcg, 200 puffs</td>
<td>2 puffs qid</td>
<td>1 capsule qd to 2 puffs qid</td>
</tr>
<tr>
<td>Atrovent / ipratropium (Combivent®)</td>
<td>2 puffs qid</td>
<td>Albuterol (Ventolin®) 90 mcg, 200 puffs</td>
<td>2 puffs qid prn SOB</td>
<td>2 puffs qid</td>
</tr>
<tr>
<td>Budesonide (Pulmicort Turbuhaler®)</td>
<td>180 – 1200 mcg/day divided bid</td>
<td>Beclomethasone HFA (QVAR®) 80 mcg, 120 puffs</td>
<td>80 - 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>
</tr>
<tr>
<td>Flunisolide (Aerospan®)</td>
<td>500 – 2000 mcg/day divided bid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mometasone (Asmanex Twisthaler®)</td>
<td>200 – 400 mcg/day given once daily or divided bid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triamcinolone (Azmacort®)</td>
<td>300 – 1500 mcg/day divided 2 – 4 times/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone (Flovent MDI®)</td>
<td>88 – 440 mcg/day divided bid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Formulary Medication</td>
<td>Formulary Medication</td>
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<tr>
<td>--------------------------</td>
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<tr>
<td>Name of Medication</td>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Approximate Equivalent (Non-formulary to Formulary)</td>
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<tr>
<td>Dose Range and Frequency</td>
<td>Dose Range and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>Frequency</td>
<td></td>
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</tr>
</tbody>
</table>

### Gastrointestinal Medications

- **Cimetidine (Tagamet®)**
  - 300 – 1600 mg/day in single doses or divided bid - qid
  - *Comments:*
    - 400 mg bid to 150mg bid

- **Famotidine (Pepcid®)**
  - 10 – 80mg/day in single or divided doses
  - *Comments:*
    - 20mg bid to 150mg bid

- **Nizatidine (Axid AR®)**
  - 150 - 300mg/day in single or divided doses
  - *Comments:*
    - 150mg bid to 150mg bid

- **Dexlansoprazole (Dexilant®)**
  - 30-60mg qd
  - *Comments:*
    - 60mg qd to 20mg qd

- **Esomeprazole (Nexium®)**
  - 20-40mg qd
  - *Comments:*
    - 20mg qd to 20mg qd

- **Lansoprazole (Prevacid®)**
  - 15-30mg qd
  - *Comments:*
    - 30mg qd to 20mg qd

- **Pantoprazole (Protonix®)**
  - 20-40mg qd
  - *Comments:*
    - 40mg qd to 20mg qd

- **Rabeprazole (AcipHex®)**
  - 20-40mg qd
  - *Comments:*
    - 20mg qd to 20mg qd

### Anti-Retrovirals Medications

- **Lamivudine (Epivir®, 3TC)**
  - 150mg bid or 300mg qd
  - *Comments:*
    - 300mg qd to 200mg qd

- **Lamivudine + Abacavir (Epzicom®)**
  - 300mg/600mg qd
  - *Comments:*
    - Epzicom® to FTC 200mg qd + ABC 600mg qd

- **Lamivudine + Zidovudine (Combivir®)**
  - 150mg/300mg bid
  - *Comments:*
    - Combivir® to FTC 200mg qd + AZT 300 mg bid

- **Abacavir + Lamivudine + Zidovudine (Trizivir®)**
  - 300mg/150mg/300mg
  - *Comments:*
    - Trizivir® to ABC 600mg qd + FTC 200mg qd + AZT 300mg bid

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Formulary Substitutions page 5

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<table>
<thead>
<tr>
<th>Non-Formulary Medication</th>
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<tbody>
<tr>
<td>Name of Medication</td>
<td>Dose Range and Frequency</td>
<td>Name of Medication and Dosages Available</td>
</tr>
<tr>
<td>Betamethasone dipropionate, augmented (Diprolene®) 0.05%</td>
<td>Clobetasol propionate (Temovate®) 0.05% ointment 15 gm tube</td>
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</tr>
<tr>
<td>Diflorasone diacetate (ApexCon®) 0.05%</td>
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<td></td>
</tr>
<tr>
<td>Halobetasol propionate 0.05% (Ultravate®)</td>
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</tr>
<tr>
<td>Amcinonide (Cyclocort®) 0.1%</td>
<td>Fluocinonide (Lidex®) 0.05% cream 60 gm tube</td>
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</tr>
<tr>
<td>Betamethasone dipropionate (Diprolene®) 0.05%</td>
<td>0.05% ointment 15 gm tube</td>
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</tr>
<tr>
<td>Betamethasone valerate (Valesone®) 0.1%</td>
<td>0.05% cream 15 gm tube</td>
<td></td>
</tr>
<tr>
<td>Diflorasone diacetate (Florone®) 0.05%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halcinonide (Halog®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triamcinolone acetonide (Kenalog®) 0.5%</td>
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<td></td>
</tr>
<tr>
<td>Betamethasone valerate (Psorion Cream®) 0.05%</td>
<td>Triamcinolone acetonide (Kenalog®) 0.025% ointment 15 gm tube</td>
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</tr>
<tr>
<td>Clocortolone pivalate (Cloderm®) 0.01%</td>
<td>0.025% cream 15 gm tube</td>
<td></td>
</tr>
<tr>
<td>Fluocinolone acetonide (Fluorsyn®) 0.025%</td>
<td>0.1% cream 15 gm tube, 1 lb jar</td>
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</tr>
<tr>
<td>Flurandrenolide (Cordran®) 0.05%</td>
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</tr>
<tr>
<td>Fluticasone propionate (Cutivate®) 0.05%</td>
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</tr>
<tr>
<td>Hydrocortisone butyrate (Locoid®) 0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone valerate (Westcort®) 0.2%</td>
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<td></td>
</tr>
<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>Alcometasone dipropionate (Aclovate®) 0.05%</td>
<td>Fluocinolone (Synalar®) 0.01% 60 mL solution</td>
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</tr>
<tr>
<td>Desonide (DesOwen®) 0.05%</td>
<td>Hydrocortisone (Hytone®) 1% 30 gm tube, unit dose packets</td>
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</tr>
<tr>
<td>Hydrocortisone 0.5%, 2.5%</td>
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<tr>
<td>Non-Formulary Medication</td>
<td>Formulary Medication</td>
<td>Comments</td>
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<tr>
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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><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 gtt(s) in affected eye bid</td>
<td></td>
</tr>
<tr>
<td>Levobunolol (Betagan®) 0.25% and 0.5% Ophthalmic Solution</td>
<td>0.25% - 1-2 gtt(s) in affected eye bid 0.5% - 1-2 gtt(s) in affected eye qd</td>
<td>Timolol (Timoptic®) 0.5% Ophthalmic Solution</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></td>
</tr>
<tr>
<td>Carbochol (Isopto Carbachol®) 0.75%, 1.5%, 2.25% Ophthalmic Solution</td>
<td>2 gtt(s) 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®) 1% 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®) 1% 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>Calcium carbonate (Tiralac®) 420mg chewable tablet</td>
<td>Calcium carbonate (Tums®) 500mg chewable tablet</td>
<td>Tiralac contains 168mg elemental calcium</td>
</tr>
<tr>
<td>Calcium carbonate (Tums®) 500mg chewable tablet</td>
<td>Calcium carbonate (Tums®) 500mg chewable tablet</td>
<td>Tums contains 200mg elemental calcium</td>
</tr>
<tr>
<td>Ferrous gluconate (Fergon®) 325mg tablet</td>
<td>Ferrous sulfate (Feosol®) 325mg tablet</td>
<td>Fergon tablet contains 36mg elemental iron</td>
</tr>
<tr>
<td>Ferrous gluconate (Fergon®) 325mg tablet</td>
<td>Ferrous sulfate (Feosol®) 325mg tablet</td>
<td>Feosol tablet contains 65mg elemental iron</td>
</tr>
<tr>
<td>Docusate calcium (Surfak®) 240mg capsule</td>
<td>Docusate sodium (Colace®) 100, 200mg capsule</td>
<td>100mg bid or 200mg qd</td>
</tr>
</tbody>
</table>

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

1. Counsel patient on the signs & symptoms of withdrawal
2. Check baseline blood pressure.
3. Do not discontinue methadone in a pregnant patient. Therapy may be discontinued postpartum.
4. Does the patient have underlying cardiac disease, i.e. CAD, Heart Failure, history of arrhythmias?
   - Yes
   - No
5. Transfer patient to a 24 hour acute care medical facility.
6. Is patient having severe withdrawal symptoms? (Table 1)
   - Yes
   - No
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 and respiratory rate</td>
</tr>
<tr>
<td>• Lacrimation</td>
<td>• Twitching of muscles and kicking movements of the lower extremities.</td>
</tr>
<tr>
<td>• Rhinorrhea</td>
<td>• Increasingly dilated pupils</td>
</tr>
<tr>
<td>• Restless and broken sleep</td>
<td>• Piloerection</td>
</tr>
<tr>
<td>• Increasingly dilated pupils</td>
<td>• Hot and cold flashes</td>
</tr>
</tbody>
</table>

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, October 2008. Reviewed 01/11.
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
Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, July 2010

### Chronic Cancer Pain

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

#### Mild Pain (Scale: 1-3)
- **OPIOID NAÏVE:**  
  - First line therapy:  
    - Acetaminophen 650mg up to Q 4 hours 
    - Ibuprofen 400-800mg up to QID  
    - Naproxen 250-500mg BID  
  - Second line therapy:  
    - Salsalate 500mg BID-TID  
    - Meloxicam 7.5-15mg once daily  
- **CURRENTLY PRESCRIBED OPIOID:**  
  - 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.

#### Moderate Pain (Scale: 4-6)
- **OPIOID NAÏVE:**  
  - First line therapy:  
    - APAP/codeine 300/30mg - 1 or 2 tablets Q4-6 hours  
    - APAP/propoxyphene 650/100mg - 1 tablet Q4-6 hours  
  - Second line therapy:  
    - Consider addition and titration of adjunctive therapy according to pain syndrome (Table 1, pg 3).  
- **CURRENTLY PRESCRIBED OPIOID:**  
  - Consider addition and titration of adjunctive therapy according to pain syndrome (Table 1, pg 3).  
  - Increase total daily scheduled opioid dose 25-50%.  
  - Administer as morphine SR 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 BID-QID as needed.  
  - If pain goals are not met, reassess and consider adjunctive therapy.

#### Severe Pain (Scale: 7-10)
- **OPIOID NAÏVE:**  
  - First line therapy:  
    - Morphine ER Elixir 10mg/5ml  
    - Morphine SR Tabs 15mg, 30mg, 60mg
- **CURRENTLY PRESCRIBED OPIOID:**  
  - Increase total daily scheduled opioid dose 50-75%.  
  - Administer as morphine SR divided Q2-4H.  
  - Give morphine elixir 10mg-20mg as needed for breakthrough pain up to QID.  
  - 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.

#### Drug Information

<table>
<thead>
<tr>
<th>Drug</th>
<th>Max Daily Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen (APAP)</td>
<td>4000mg</td>
</tr>
<tr>
<td>APAP/codeine 300/30mg</td>
<td>13 tablets</td>
</tr>
<tr>
<td>Ibuprofen1</td>
<td>3200mg</td>
</tr>
<tr>
<td>Meloxicam1</td>
<td>15mg</td>
</tr>
<tr>
<td>Propoxyphene/ APAP 100/650mg1</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Naproxen1</td>
<td>1500mg</td>
</tr>
<tr>
<td>Salsalate1</td>
<td>3000mg</td>
</tr>
</tbody>
</table>

1. See NSAID adverse effects and cautions (pg 2).  
2. Begin prophylactic bowel regimen when starting opioids (Table 4, pg 5).  
3. Propoxyphene not recommended long term or in high doses due to toxic CNS metabolites.
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 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. 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 under-treatment 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 structure 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 renally excreted (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 antiplatelet effects that can increase the risk of bleeding in patients who are thrombocytopenic or on myelosuppressive chemotherapy and likely to become thrombocytopenic. Consider non-acetylated 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>Bone (NSAIDS)</td>
<td>Ibuprofen 400-800 mg QID</td>
<td>Max daily dose 3200 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meloxicam 7.5-15 mg QD</td>
<td>Max daily dose 15 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Naproxen 250-500 mg BID</td>
<td>BID dosing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salsalate 500mg BID-TID</td>
<td>Max daily dose 3000mg</td>
</tr>
<tr>
<td>Deep, boring, referred, poorly localized</td>
<td>Visceral (Corticosteroids)</td>
<td>Prednisone 10 – 80 mg daily</td>
<td>Increased blood glucose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- May cause GI upset</td>
</tr>
<tr>
<td></td>
<td>Neuropathic (Tricyclic Antidepressants)</td>
<td>Noritrpiline 25– 150 mg divided doses or HS</td>
<td>- Less sedating</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Less anti-cholinergic effects</td>
</tr>
<tr>
<td></td>
<td>Neuropathic (Anticonvulsants)</td>
<td>Carbamazepine 200-400 mg BID – QID</td>
<td>Sedating</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Max daily dose 1600 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabapentin 100mg TID titrate to 300-900 mg TID</td>
<td>Generally requires doses ≥ 1600mg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Potential for abuse (sedation &amp; dizziness)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Drug of choice for lancinating pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Non-formulary medication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Max daily dose 3600 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Dosage base on renal function</td>
</tr>
<tr>
<td>Colic-craming 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</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 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 opioids 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 scheduled dose as needed.
B. Dose Titrations
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 needed use the following guide:
   - Pain < 4 Increase dose by 25%
   - Pain 4-7 Increase dose by 25% to 50%
   - Pain >7 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 is < 4, consider downward dose titration by approximately 25% and reevaluate. Monitor to ensure pain control without escalation.
C. Switching opioids
1. Switch from fixed combination opioids to single entity opioid when acetaminophen dose > 4000mg/day.
2. Conversion equation:
   \[
   \text{Equianalgesic dose (route) current opioid} = \frac{\text{24 hour dose (route) current opioid}}{\text{Equianalgesic dose (route) new opioid}}
   \]
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>
<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>30</td>
<td>10</td>
<td>3</td>
<td>IR: 4hrs</td>
<td>SR: 12hrs</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>20</td>
<td>NA</td>
<td>NA</td>
<td>IR: 4hrs</td>
<td>SR: 12hrs</td>
</tr>
<tr>
<td>Codeine</td>
<td>200</td>
<td>NA</td>
<td>1.5</td>
<td>3-4hrs</td>
<td></td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>30-200</td>
<td>NA</td>
<td>NA</td>
<td>3-5hrs</td>
<td></td>
</tr>
<tr>
<td>Methadone</td>
<td>3-20</td>
<td>10</td>
<td>2</td>
<td>4-8hrs</td>
<td>• Extremely long half life and should be used with caution to avoid accumulation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 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>Hydromorphine</td>
<td>7.5</td>
<td>1.5</td>
<td>5</td>
<td>2-3hrs</td>
<td>• Weak opioid agonist. Recommended max dose is 400mg daily to avoid CNS toxicity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Risk of overdose or suicide for patients who are addiction-prone, taking tranquilizers or antidepressant drugs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 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-naive 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 dosages 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) accelerates drug release and should be avoided.
7. PRN morphine may be needed particularly during the first 8-24 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 3: 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>
</tr>
<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 4: Management of Opioid Side Effects

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anticipate and treat prophylactically. Goal is 1 BM every 1-2 days.</td>
</tr>
<tr>
<td></td>
<td>Encourage increased fluids, fiber and physical activity. (calcium polycarbophil / fiber tabs – 2 to 4 tabs BID)</td>
</tr>
<tr>
<td></td>
<td>As a preventive measure a bowel regimen should be prescribed with the initial opioid prescription consisting of at least a stool softener and a laxative. (docusate 100mg BID &amp; bisacodyl 10-15mg HS)</td>
</tr>
<tr>
<td></td>
<td>For acute treatment of constipation, additional agents may be provided as needed.</td>
</tr>
<tr>
<td></td>
<td>- milk of magnesia 15-60 ml daily or</td>
</tr>
<tr>
<td></td>
<td>- lactulose 15-30 ml BID or</td>
</tr>
<tr>
<td></td>
<td>- If no bowel movement in 3 days, consider magnesium citrate or enema</td>
</tr>
<tr>
<td></td>
<td>- Last line – consider use of prokinetic agent (metoclopramide 10-20mg qid)</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Usually resolves as body adjusts to medication.</td>
</tr>
<tr>
<td></td>
<td>Encourage patient to contact PCP if condition persists more than 1 week or is bothersome.</td>
</tr>
<tr>
<td>Nausea</td>
<td>Take medication with food.</td>
</tr>
<tr>
<td></td>
<td>Encourage patient to contact PCP if condition persists more than 1 week or is bothersome.</td>
</tr>
<tr>
<td>Respiratory Depression</td>
<td>Infrequent, but requires immediate medical attention.</td>
</tr>
<tr>
<td></td>
<td>May occur from drug accumulation as a result of overaggressive titration.</td>
</tr>
<tr>
<td>Sedation</td>
<td>Sedation Scale. (Level 3 or higher – consider intervention)</td>
</tr>
<tr>
<td></td>
<td>4 = Somnolent, minimal or no response to physical stimulation</td>
</tr>
<tr>
<td></td>
<td>3 = Frequently drowsy, easily arousable, drifts off to sleep during conversation</td>
</tr>
<tr>
<td></td>
<td>2 = Slightly drowsy</td>
</tr>
<tr>
<td></td>
<td>1 = Awake and alert</td>
</tr>
<tr>
<td></td>
<td>Sedation can be reduced or avoided with slow titration. Consider dose reduction with slower titration.</td>
</tr>
<tr>
<td></td>
<td>Rule out other causes such as concomitant CNS depressants, CNS pathology, hypercalcemia, dehydration, sepsis, or hypoxia.</td>
</tr>
<tr>
<td>Sweating</td>
<td>Relatively uncommon. Consider dose reduction with slower titration.</td>
</tr>
<tr>
<td>Vomiting</td>
<td>May resolve as body adjusts to medication. Hold the next dose. Increase fluids as appropriate. Progressive alimentation.</td>
</tr>
<tr>
<td></td>
<td>Consider short term use of meclizine, metoclopramide or prochlorperazine.</td>
</tr>
<tr>
<td>Itching</td>
<td>Itching is often self limiting but may be dose related. Consider antihistamine.</td>
</tr>
<tr>
<td></td>
<td>Rule out allergies (e.g., developmental reaction: hives)</td>
</tr>
<tr>
<td>Urinary Hesitation</td>
<td>Go back to previously tolerated dose with gradual titration.</td>
</tr>
<tr>
<td></td>
<td>Consider fecal impaction as a potential cause for urinary retention.</td>
</tr>
</tbody>
</table>
Table 5: Mosby Pain Rating Scale

<table>
<thead>
<tr>
<th>Verbal/Vocal</th>
<th>Body Movement</th>
<th>Facial</th>
<th>Touching</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Positive</td>
<td>0 Moves easily</td>
<td>0 Smiling</td>
<td>0 No touching</td>
</tr>
<tr>
<td>2-4 Whimper/moans</td>
<td>5 Neutral, shifting, pacing</td>
<td>2-4 Neutral</td>
<td>5 Rubbing, patting</td>
</tr>
<tr>
<td>5-7 Repetitive comment, crying</td>
<td>10 Tense, not moving</td>
<td>5-7 Frown, grimace</td>
<td>10 Clenched, tight muscles</td>
</tr>
<tr>
<td>8-10 Screaming</td>
<td></td>
<td>8-10 Clenched teeth</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Non-Communicative Rating Scale

E. Patient Education
1. Relaxation and deep breathing techniques - These methods focus 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 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 & treated promptly (e.g., surgery, steroids, radiotherapy, 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 upward titration to maximum daily dose as tolerated before changing drug therapy.
PAIN, BACK

ACUTE

1. ACUTE

2. Mild to Moderate Pain?

No

9

SEVERE PAIN
(1) Activity Modification as Appropriate
(2) Ibuprofen 400 mg QID PRN X 7 days
(3) Chlorzoxazone 500 mg TID X 7 days if Needed
or
(4) Methocarbamol 1500 mg TID X 7 days if Needed

Yes

3

10

Resolved?

No

11

Reevaluate severity and etiology of pain.
Enter Box # 3 of Acute Pathway.

Yes

12

End Therapy

Yes

4

Resolved?

No

5

Continue NSAID X 30 Days
Reevaluate severity of injury
Provide self exercise/stretch plan

Yes

8

End Therapy

No

7

Resolved?

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved September 1995; Reviewed 3/05, 1/08; Revised 8/98, 4/02, 4/03, 5/11.
**PAIN, BACK Page #2**

**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/Stretch 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?**

5 No

6 Yes

- 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; Reviewed 3/05, 1/08; Revised 8/98, 4/02, 4/03, 5/11.*
TREATMENT OF MILD TO MODERATE PAIN

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

2 Mild pain?

3 Yes No

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

4 Resolved?

5 Yes
End therapy.

6 No
APAP 325mg - 2 tablets QID prn x 10 days KOP
or
Ibuprofen 400 mg TID prn x 10 days KOP
or
Naproxen 500mg BID prn x 10 days KOP

7 Resolved?

8 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.

9 Yes
Re-evaluate etiology of pain.

10 No
End therapy.

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
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>
<tbody>
<tr>
<td>Acetaminophen (APAP) 325mg *</td>
<td>1-2 tablets 2-4 times daily</td>
<td>4,000mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Buprolfin 200mg †</td>
<td>1 tablet 2-3 times daily</td>
<td>3,200mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Buprolfin 400mg</td>
<td>1 tablet 2-3 times daily</td>
<td>3,200mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Buprolfin 600mg</td>
<td>1 tablet 2-3 times daily</td>
<td>3,200mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Buprolfin 800mg</td>
<td>1 tablet 2-3 times daily</td>
<td>3,200mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Salsalate 500mg</td>
<td>1-2 tablets 2-3 times daily</td>
<td>3,000mg/day</td>
<td>NSAID – non-acetylated salicylate</td>
</tr>
<tr>
<td>Naproxen 250mg</td>
<td>1 tablet 2 times daily</td>
<td>1,500mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Naproxen 500mg</td>
<td>1 tablet 2 times daily</td>
<td>1,500mg/day</td>
<td>NSAID – propionic acid</td>
</tr>
<tr>
<td>Meloxicam 7.5mg</td>
<td>1-2 tablets once daily</td>
<td>15mg/day</td>
<td>NSAID - oxicam</td>
</tr>
</tbody>
</table>

*Denotes Floor Stock Item
†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

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

2. **Initial treatment:**
   1. Provide patient education
   2. Pharmacologic Treatment – Monotherapy preferred

<table>
<thead>
<tr>
<th>Drug</th>
<th>Class</th>
<th>Initial Dose</th>
<th>Titration</th>
<th>Target Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Analgesic</td>
<td>325mg tid prn</td>
<td>325mg q week</td>
<td>Max dose=4g/day</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>Analgesic</td>
<td>200mg bid-tid prn</td>
<td>200mg q week</td>
<td>Max dose=3.2g/day</td>
</tr>
<tr>
<td>Naproxen</td>
<td>Analgesic</td>
<td>250mg bid prn</td>
<td>250mg q week</td>
<td>500mg bid</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>Antidepressant</td>
<td>25mg q hs</td>
<td>25mg q month</td>
<td>75-150mg/day</td>
</tr>
<tr>
<td>Carbamazepine*</td>
<td>Anticonvulsant</td>
<td>200mg qd</td>
<td>200mg q month</td>
<td>1000-1600mg/day</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>Anticonvulsant</td>
<td>250 mg qd</td>
<td>250mg q month</td>
<td>500-1250 mg/day</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Anticonvulsant</td>
<td>100mg qd</td>
<td>100mg q month</td>
<td>300-500mg/day</td>
</tr>
<tr>
<td>Pyridoxine**</td>
<td>Other</td>
<td>50mg qd</td>
<td>-</td>
<td>Max dose=100mg/day</td>
</tr>
</tbody>
</table>

*see carbamazepine precaution on page 3
**for drug-induced neuritis (e.g., prescribe pyridoxine prophylactically with isoniazid)

3. Continue therapy & monitor patient for continued response & adverse effects

5. Titrate dose as outlined in box 2. Consider switching to a different agent if patient does not respond to adequate trial.

6. Adequate pain relief?
   - Yes
   - No

7. Titrate dose as outlined in box 2. Consider combination therapy if patient does not respond to an adequate trial of monotherapy.
   1. Analgesic + antidepressant, or
   2. Analgesic + anticonvulsant, or
   3. Antidepressant + anticonvulsant

8. Adequate pain relief?
   - Yes
   - No

9. Consider other therapeutic alternatives

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. Approved January 2005; Revised 3/08, 5/11.

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Neuropathic Pain page 2

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 (“d” drugs (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
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.

C. 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. Is 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 Meets DSM-IV Criteria for Post-Traumatic Stress Disorder or Acute Stress Disorder?
   - Yes
   - No

3. Treat underlying disorder

4. Comorbid depression, bipolar disorder, or other anxiety disorder?
   - Yes
   - No

5. Refer to psychotherapy and initiate medication per appropriate co-morbid treatment pathway.

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. Perform BPRS
   1. Yes
   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 symptom; see page 2 for monitoring parameters)
     D. 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.
**POST TRAUMATIC STRESS DISORDER and ACUTE STRESS DISORDER**

**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**

<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®</td>
<td>20 (20 – 40)</td>
<td></td>
<td>Pregnancy Test – as clinically indicated Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine 20mg capsule</td>
<td>Prozac®</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 10mg/3ml liquid</td>
<td>Pamelor®</td>
<td>25 – 50 (75 – 150)</td>
<td>50 - 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>Other*</td>
<td>Prazosin 1mg capsule</td>
<td>Minipres®</td>
<td>Initial dose 1mg HS; titrate gradually up to 15mg HS based upon response</td>
<td></td>
<td>Pregnancy Test - as clinically indicated. Monitor urine, 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.
POST TRAUMATIC
STRESS DISORDER and ACUTE STRESS DISORDER

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)

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.
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. 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. 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 cause for presentation.
2. Meets Criteria for Psychosis as Defined in DSM-IV?
   - Yes → 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).
   - No → Treat Underlying Disorder.
3. Effective control of target symptoms (psychosis, agitation and/or behavioral dyscontrol)?
   - Yes → Go to box # 11.
   - No → 4. Repeat Diphenhydramine dose every 20-30 minutes (max 200 mg/day).
4. EPS?
   - Yes → 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 6mg/day).
5. Effective control of target symptoms (psychosis, agitation and/or behavioral dyscontrol)?
   - Yes → Go to box # 11.
   - No → 7. 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 6mg/day).
6. Effective control of target symptoms (psychosis, agitation and/or behavioral dyscontrol)?
   - Yes → Go to box # 11.
   - No → 8. Effective control of target symptoms (psychosis, agitation and/or behavioral dyscontrol)?
   - Yes → Go to box # 11.
   - No → 10. Effective control of target symptoms (psychosis, agitation and/or behavioral dyscontrol)?
   - Yes → Go to box # 11.
   - No → 12. Consider pharmacotherapy consult OR Second opinion OR Referral to Inpatient Facility for evaluation.

**NOTE:** Due to very low risk for EPS, adjunctive anticholinergic medication is generally not needed with IM ziprasidone.

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Prepared By the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 12/02, reviewed 4/03, 3/11 revised 11/05, 1/09, 7/10
MANAGEMENT OF THE ACUTELY PSYCHOTIC PATIENT

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 (ie. 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
   - No

2. Treat underlying disorder.

3. Obtain baseline information
   - BPRS
   - AIMS
   - Laboratories in Table 1

4. 1. Monitor & follow BPRS, Mental Status Exam & AIMS
    2. Assess medication compliance
    3. Initiate monotherapy with formulary antipsychotic
       - 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. Signs of Adverse Effects?
   - Yes
   - No

6. Go to Adverse Effect Management page 2

7. Adequate response per BPRS?
   - Yes
   - No

8. • Continue treatment and taper to lowest effective dose
   • Monitor per recommendations in tables 1-2

9. Assess compliance, provide compliance counseling as indicated, & re-evaluate diagnosis
   • Change drug therapy
     • Increase dose of current agent to maximal tolerated dose (Table 3) or
     • Switch to another formulary agent from a different class or
     • If risperidone used, switch to prior authorization agent Ziprasidone titrated up to 60mg BID within 3 days and then up to maximum 80mg BID for at least 6 weeks.

10. Signs of Adverse Effects?
    - Yes
    - No

11. Go to Adverse Effect Management page 2

12. Adequate response per BPRS?
    - Yes
    - No

13. • Continue treatment and taper to lowest effective dose
    • Monitor per recommendations in tables 1-2

14. 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 risperidone or ziprasidone, consider trial of one of these agents
    • Consider non-formulary SGA

15. Go to box 17, page 2

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee, January 1999; revised 4/00, 9/01, 5/02, 7/03, 9/07, 9/10; reviewed 4/03.

Notes:
- If at any time compliance is poor despite adequate education and compelled antipsychotic medications are necessary, consider use of long-acting injectable antipsychotic preparation. Once stabilized on long-acting injectable attempt switch back to oral therapy. Refer to long acting injectable antipsychotic guidance page 3.
- 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, January 1999; revised 4/00, 9/01, 5/02, 7/03, 9/07, 9/10; reviewed 4/03.

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Adverse Effect Management

- 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
  - Amanadine 100 – 300 mg/day
  - Propranolol 20 – 120mg/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

Akathisia

- Lower the dose of the antipsychotic agent to the lowest effective dose or
- Switch to SGA or
- Treat with Propranolol 20 – 120mg/day. Titrated dose as tolerated and as needed.

Tardive Dyskinesia

- Diagnosis supported by AIMS
- Switch to SGA
- Consider pharmacotherapy consult for treatment options

Neuroleptic Malignant Syndrome

- Medical emergency
- Evaluate through medical department for possible referral to emergency room
- Consider STAT CPK
- Discontinue antipsychotic
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 tardive dyskinesia per AIMS?
   - Yes
   - No

   3. Yes
      - Initiate non-formulary Risperidone LA injection 25mg IM q 2 weeks. Titrate to therapeutic dose no more frequent 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. No
      - 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. Yes
      - Continue at lowest effective dose.
      - Monitor per recommendations in table 1 and 2
      - Attempt switch to oral therapy if compliant and stable.

   7. No
      - Consider pharmacotherapy consult and/or non-formulary medication

---

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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></td>
</tr>
<tr>
<td>Fasting Lipid Profile</td>
<td>X</td>
<td></td>
<td>X</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>As clinically indicated</td>
<td>X</td>
</tr>
<tr>
<td>EKG¹</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin²</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 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 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>
</tbody>
</table>
| BPRS (Brief Psychiatric Rating Scale) | X        | • Baseline and at least every 6 months
|                                     |          | • Medication is started, changed or discontinued |
### 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventionals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorpromazine (Thorazine&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>Low</td>
<td>100</td>
<td>30-800</td>
<td>+++</td>
</tr>
<tr>
<td>Fluphenazine (Prolixin&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>High</td>
<td>2</td>
<td>1-40</td>
<td>+++</td>
</tr>
<tr>
<td>Haloperidol (Haldol&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>High</td>
<td>2</td>
<td>1-100</td>
<td>+++</td>
</tr>
<tr>
<td>Molindone (Moban&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>Mid</td>
<td>10</td>
<td>15-225</td>
<td>+++</td>
</tr>
<tr>
<td>Perphenazine (Trilafon&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>Mid</td>
<td>8</td>
<td>12-64</td>
<td>+++</td>
</tr>
<tr>
<td>Thioridazine&lt;sup&gt;*&lt;/sup&gt; (Mellaril&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>Low</td>
<td>100</td>
<td>20-800</td>
<td>+++</td>
</tr>
<tr>
<td>Thiothixene (Navane&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>High</td>
<td>4</td>
<td>6-60</td>
<td>+++</td>
</tr>
<tr>
<td>Trifluoperazine (Stelazine&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>High</td>
<td>5</td>
<td>2-40</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Atypicals</strong> 5HT&lt;sub&gt;2&lt;/sub&gt;/D2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aripiprazole (Abilify&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/+++/+++&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.5</td>
<td>10 - 30</td>
<td>+++</td>
</tr>
<tr>
<td>Clozapine (Clozaril&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>+++/++</td>
<td>50</td>
<td>75 - 900</td>
<td>+++</td>
</tr>
<tr>
<td>Olanzapine (Zyprexa&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/++</td>
<td>5</td>
<td>5 - 20</td>
<td>+++</td>
</tr>
<tr>
<td>Paliperidone (Invega&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/+++</td>
<td>3</td>
<td>3 - 12</td>
<td>+++</td>
</tr>
<tr>
<td>Quetiapine (Seroquel&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>+/-</td>
<td>125</td>
<td>300 - 800</td>
<td>+++</td>
</tr>
<tr>
<td>Risperidone (Risperdal&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/++++</td>
<td>2</td>
<td>0.5-6</td>
<td>+++</td>
</tr>
<tr>
<td>Ziprasidone (Geodon&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/++++</td>
<td>60</td>
<td>120 -160</td>
<td>+++</td>
</tr>
<tr>
<td>Asenapine (Saphris&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>?</td>
<td>5-20</td>
<td></td>
<td>+++</td>
</tr>
<tr>
<td>Iloperidone (Fanapt&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>++++/++++</td>
<td>?</td>
<td>12-24</td>
<td>+++</td>
</tr>
</tbody>
</table>

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<sup>a</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>b</sup> dose-dependent

<sup>#</sup> partial 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.

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

<table>
<thead>
<tr>
<th>Date of Evaluation</th>
<th>Muscles of facial expression</th>
<th>Lips and perioral area</th>
<th>Jaw</th>
<th>Tongue</th>
<th>Upper (arms, wrists, hands, fingers)</th>
<th>Lower (legs, knees, ankles, toes)</th>
<th>Neck shoulders, hips</th>
<th>Severity of abnormal movements</th>
<th>Incapacitation due to abnormal movements</th>
<th>Patient's awareness of abnormal movements</th>
<th>Current problems with teeth &amp;/or dentures?</th>
<th>Does patient usually wear dentures?</th>
<th>COMMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>c.e.g. movements of forehead, eyebrows, preorbital area, cheeks, include frowning, blinding, smiling, grimacing</td>
<td>c.e.g. puckering, pouting, smacking</td>
<td>c.e.g. biting, clenching, chewing, mouth opening, lateral movement</td>
<td>Rate only increase in movement both in and out of mouth, not inability to sustain movement</td>
<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>c.e.g. lateral knee movement, foot tapping, heel dropping, foot squirming, inversion, and eversion of foot</td>
<td>c.e.g., rocking, twisting, squirming, pelvic gyrations</td>
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<td></td>
<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>
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<td>No=0 Yes=1</td>
<td>No=0 Yes=1</td>
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</table>
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.
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.
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. 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. 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.
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/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.

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\(^1\).

ANTIDEPRESSANTS
Table 1 contains information on antidepressants. Doses are approximate equivalencies only within the specified drug category.

Table 1: Antidepressants\(^2,3,4,5\)

<table>
<thead>
<tr>
<th>Drug 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>
</tr>
<tr>
<td>Amitriptyline (Elavil®)</td>
<td>N</td>
<td>100-300</td>
</tr>
<tr>
<td>Amoxapine (Asendin®)</td>
<td>N</td>
<td>100-400</td>
</tr>
<tr>
<td>Clomipramine (Anafranil®)</td>
<td>N</td>
<td>100-250</td>
</tr>
<tr>
<td>Desipramine (Norpramin®)</td>
<td>Y</td>
<td>100-300</td>
</tr>
<tr>
<td>Doxepin (Sinequan®)</td>
<td>N</td>
<td>100-300</td>
</tr>
<tr>
<td>Imipramine (Tofranil®)</td>
<td>Y (TYC only)</td>
<td>100-300</td>
</tr>
<tr>
<td>Maprotiline (Ludiomil®)</td>
<td>N</td>
<td>100-225</td>
</tr>
<tr>
<td>Nortriptyline (Pamelor®)</td>
<td>Y</td>
<td>50-150</td>
</tr>
<tr>
<td>Protriptyline (Vivactil®)</td>
<td>N</td>
<td>15-60</td>
</tr>
<tr>
<td>Trimipramine (Surmontil®)</td>
<td>N</td>
<td>100-300</td>
</tr>
</tbody>
</table>
### Selective Serotonin Reuptake Inhibitors (SSRIs)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Y/N</th>
<th>Range</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<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></td>
<td></td>
<td>CR = 25-75</td>
<td></td>
</tr>
<tr>
<td>Sertraline (Zoloft®)</td>
<td>Y</td>
<td>50-200</td>
<td>50</td>
</tr>
</tbody>
</table>

### Monoamine Oxidase Inhibitors (MAOIs)

*the following are inexact estimates for approximate equivalent dosing*

<table>
<thead>
<tr>
<th>Drug</th>
<th>Y/N</th>
<th>Range</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isocarboxazid (Marplan®)</td>
<td>N</td>
<td>10-30</td>
<td>10</td>
</tr>
<tr>
<td>Phenelzine (Nardil®)</td>
<td>N</td>
<td>15-90</td>
<td>15</td>
</tr>
<tr>
<td>Tranylcypromine (Parnate®)</td>
<td>N</td>
<td>10-60</td>
<td>10</td>
</tr>
<tr>
<td>Selegiline (Emsam®)</td>
<td>N</td>
<td>6-12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(transdermal)</td>
<td></td>
</tr>
</tbody>
</table>

### Others

*the following are inexact estimates for approximate equivalent dosing*

<table>
<thead>
<tr>
<th>Drug</th>
<th>Y/N</th>
<th>Range</th>
<th>CR</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></td>
</tr>
<tr>
<td></td>
<td></td>
<td>XL = 150-450</td>
<td></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>Venlafaxine (Effexor®)</td>
<td>N</td>
<td>75-375</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XR = 37.5-225</td>
<td></td>
</tr>
<tr>
<td>Duloxetine (Cymbalta®)</td>
<td>N</td>
<td>40-60</td>
<td>30</td>
</tr>
<tr>
<td>Nefazodone (Serzone®)</td>
<td>N</td>
<td>300-600</td>
<td>100</td>
</tr>
<tr>
<td>Milnacipran (Savella®)*</td>
<td>N</td>
<td>100-200</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*no data currently available on equivalent dosing*

Table 2 contains guidelines for the different approaches for changing therapy with antidepressants.
**TCA to TCA**
If switching from one TCA to another, a cross-taper is generally not necessary. Since the usual dosage range for most TCA 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. 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 three 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>
</table>
| TCA or Others  | TCA          | • 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 |
| TCA or Others  | SSRI         | • 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 |
| TCA or Others  | Others       | • Discontinue Drug #1 and start Drug #2 the next day  
                |              | OR        |
|                |              | • Discontinue Drug #1 by taper and start Drug #2 gradually |
| TCA            | MAOI         | • Discontinue the TCA by taper (doses >100mg/day). After a 2-week washout, start MAOI |
| 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
- TCA
- SSRI
- Others
  - Discontinue MAOI. After a 2-week washout, start MAOI, TCA, SSRI, or other.

---

### ANTIPSYCHOTICS: Table 3 contains information regarding antipsychotics.

Table 3: Antipsychotics[^3],[^6],[^7],[^13],[^15],[^16],[^17]

<table>
<thead>
<tr>
<th>Drug Formulary</th>
<th>Usual Adult Maintenance Dose (mg/day)</th>
<th>Approximate Equivalent Dose (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional Agents (High Potency)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pimozide (Orap®)</td>
<td>N</td>
<td>1-10</td>
</tr>
<tr>
<td>Fluphenazine (Prolixin®)</td>
<td>Y</td>
<td>0.5-20</td>
</tr>
<tr>
<td>Haloperidol (Haldol®)</td>
<td>Y</td>
<td>0.5-20</td>
</tr>
<tr>
<td>Loxapine (Loxitane®)</td>
<td>N</td>
<td>25-250</td>
</tr>
<tr>
<td>Molindone (Moban®)</td>
<td>N</td>
<td>15-225</td>
</tr>
<tr>
<td>Perphenazine (Trilafon®)</td>
<td>Y</td>
<td>16-64</td>
</tr>
<tr>
<td>Thiothixene (Navane®)</td>
<td>Y</td>
<td>5-40</td>
</tr>
<tr>
<td>Trifluoperazine (Stelazine®)</td>
<td>Y</td>
<td>2-40</td>
</tr>
<tr>
<td><strong>Conventional Agents (Low Potency)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorpromazine (Thorazine®)</td>
<td>Y</td>
<td>200-1000</td>
</tr>
<tr>
<td>Thioridazine (Mellari®)</td>
<td>Y</td>
<td>200-800</td>
</tr>
<tr>
<td><strong>Atypical Agents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aripiprazole (Abilify®)</td>
<td>N</td>
<td>10-30</td>
</tr>
<tr>
<td>Clozapine (Clozaril®)</td>
<td>N</td>
<td>75-900</td>
</tr>
</tbody>
</table>
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\textsuperscript{13,16,19,20,21,22}. 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\textsuperscript{13,23}.

Table 4: Basic Switch Strategies\textsuperscript{13,23}

<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, hardly any</td>
<td>Danger of symptom exacerbation</td>
<td>Patients with low risk of relapse</td>
</tr>
<tr>
<td></td>
<td>drug interactions</td>
<td></td>
<td></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.

Olanzapine (Zyprexa®)

- N
- 5-20
- 5

Quetiapine (Seroquel®)

- N
- 50-800
- 75

Risperidone (Risperdal®)

- Y
- 0.5-6
- 2

Ziprasidone (Geodon®)

- Y (prior auth)
- 40-160
- 60

Paliperidone (Invega®)

- N
- 3-12
- 4

Asenapine (Saphris®)*

- N
- 10-20
- N/A

Iloperidone (Fanapt®)*

- N
- 12-24
- N/A

*no data currently available on equivalent dosing
Cross-tapering is gradually decreasing and tapering the existing antipsychotic, while at the same time initiate and gradually increase the new antipsychotic to be added.

Table 5: Study Switch Strategies \textsuperscript{13,14,18,19,20,21,22,23}

<table>
<thead>
<tr>
<th>FROM (Drug #1)</th>
<th>TO (Drug #2)</th>
<th>STRATEGY</th>
</tr>
</thead>
</table>
| Typical agent or 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* | • 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* | • 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 four and then Drug #1 discontinued at the end of 1 week |
| Typical agent or Risperidone or Olanzapine | Olanzapine | • Olanzapine 10mg daily (starting dose)  
• Abrupt discontinuation: Drug #1 discontinued the day before starting olanzapine |
| OR | Olanzapine | • Olanzapine 10mg daily (starting dose)  
• Dose reduction with overlap: Dose of Drug #1 given in decreasing doses for 2 weeks then discontinued |
| Typical or atypical agent | Aripiprazole | • Aripiprazole 15mg daily (starting dose)  
• Abrupt discontinuation: Drug #1 discontinued the day before starting aripiprazole |
| OR | 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 |
### AGENTS USED IN THE TREATMENT OF BIPOLAR DISORDER

Table 6 contains information regarding agents used to treat bipolar disorder.

Table 6: Agents Used to Treat Bipolar Disorder\(^2,7\)

<table>
<thead>
<tr>
<th>FROM (Drug #1)</th>
<th>TO (Drug #2)</th>
<th>STRATEGY</th>
</tr>
</thead>
</table>
| Typical or atypical agent     | Aripiprazole    | • 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% for week 2, and then discontinued |

*all patients were on ziprasidone monotherapy by the second week regardless of switching strategy

**FROM** (Drug #1) | **TO** (Drug #2) | **STRATEGY**
--- | --- | ---
Typical or atypical agent | Aripiprazole | • 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% for week 2, and then discontinued

*all patients were on ziprasidone monotherapy by the second week regardless of switching strategy

**AGENTS USED IN THE TREATMENT OF BIPOLAR DISORDER**

Table 6 contains information regarding agents used to treat bipolar disorder.

Table 6: Agents Used to Treat Bipolar Disorder\(^2,7\)

<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>6/25-18/75</td>
<td></td>
</tr>
<tr>
<td>Oxcarbazepine (Trileptal®)</td>
<td>N</td>
<td>1200-2400</td>
<td></td>
</tr>
<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></td>
</tr>
<tr>
<td>Valproic Acid (Depakene®)</td>
<td>N</td>
<td>1000-2800</td>
<td>50-125 mcg/mL</td>
</tr>
<tr>
<td>(15-40 mg/kg/d)</td>
<td></td>
<td>ER = 25-60 mg/kg/d</td>
<td></td>
</tr>
<tr>
<td>Divalproe Sodium (Depakote®)</td>
<td>Y</td>
<td>1000-2800</td>
<td>50-125 mcg/mL</td>
</tr>
<tr>
<td>(15-40 mg/kg/d)</td>
<td></td>
<td>ER = 25-60 mg/kg/d</td>
<td></td>
</tr>
<tr>
<td>Clozapine (Clozaril®)</td>
<td>N</td>
<td>100-300</td>
<td></td>
</tr>
<tr>
<td>Olanzapine (Zyprexa®)</td>
<td>N</td>
<td>5-20</td>
<td></td>
</tr>
<tr>
<td>Quetiapine (Seroquel®)</td>
<td>N</td>
<td>400-800</td>
<td></td>
</tr>
<tr>
<td>Risperidone (Risperdal®)</td>
<td>Y</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>Ziprasidone (Geodon®)</td>
<td>Y (prior auth)</td>
<td>80-160</td>
<td></td>
</tr>
<tr>
<td>Aripiprazole (Abilify®)</td>
<td>N</td>
<td>10-30</td>
<td></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.

Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. Approved July 2006. Revised 1/10, 9/11.

This dosing tool does not replace sound clinical judgment, nor is it intended to strictly apply to all patients.
Management of Razor Blade Ingestion

1. Patient reports razor blade ingestion

2. Treat bleeding as necessary

3. Symptoms of foreign body lodgest in esophagus?
   - Yes
   - No

4. Obtain chest X-ray as soon as available.

5. Obtain STAT chest X-ray (send to ER if not available on the unit).

6. Razor blade visualized below the lower esophageal junction?
   - Yes
   - No

7. Mental Health Evaluation (MHE)

8. Admit to crisis management if indicated by MHE

9. Abdominal exam at least daily x 3-4 days.

10. Emergent referral to surgeon as indicated.

11. Signs of acute abdomen or bleeding?
   - Yes
   - No

12. Further follow up as needed. Discharge from crisis management when indicated

13. End

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

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 become 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

Counsel Patient:
(1) Avoid Precipitating Factors
(2) Increase Fluids

1

Yes

2

Mild Symptoms?

No

3

End Intervention

4

No

Contraindications to Decongestants?
(e.g. HTN, etc.)

Yes

5

No

Loratadine 10 mg QD
or Chlorpheniramine (CTM) 4 mg QID
X 14 days

6

Loratadine or CTM plus phenylephrine x 14 days

9

Resolved?

Yes

7

No

Infection Present?

8

Yes

Go To Sinusitis Pathway Box # 6

9

No

Consider Alternative Therapy for Chronic Rhinitis

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

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, September 1996; Reviewed 5/11;

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**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.

1. **Seizure Activity continuing for 0-5 minutes?**
   - Yes
     - Administer oxygen by nasal cannula or mask, position head for unobstructed airway, consider intubation if respiratory assistance is needed.
     - 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.

2. **Suspect seizure activity?**
   - Yes
     - Administer oxygen by nasal cannula or mask, position head for unobstructed airway, consider intubation if respiratory assistance is needed.
     - Establish an I.V. (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).

3. **Observe x 2 hours; if no activity, discharge from medical department.**
   - No
     - **Seizure Activity continuing for 6-9 minutes?**
   - Yes
     - If patient is hypoglycemic or blood glucose is not available, 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.

4. **Seizure Activity continuing for 6-9 minutes?**
   - Yes
     - **Seizure Activity continuing for 10-20 minutes?**
   - No
     - Seizure activity continuing for 10-20 minutes?
     - **Seizure Activity continuing for 10-20 minutes?**
     - **Seizure Activity continuing for 10-20 minutes?**
     - **Seizure Activity continuing for 10-20 minutes?**
   - Yes
     - Go to box #11, page 2.

**Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1998, Reviewed 3/01, 4/03, 1/07. Revised 7/07, 10/08, 9/10.**

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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?

- No
  - 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.

- Yes
  - 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 3/01, 4/03, 1/07, Revised 7/07, 10/08, 9/10.
Seizure Disorder

1. Seizure activity and seizure classification documented?**
   - Yes: Attempt to confirm seizure activity within last 2 years.
   - No: For new onset seizures, attempt accurate diagnosis. Rule out underlying medical etiology. Consult Neurology if necessary.

2. Is patient on antiepileptic drug (AED) therapy?
   - Yes: Is AED therapy appropriate for diagnosis?
   - No: Is AED therapy effective and tolerated?

3. If seizure activity is confirmed, initiate AED monotherapy based on seizure classification. (Table 1)
   - Go to box #7
   - 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.

4. If seizure activity is confirmed, initiate AED monotherapy based on seizure classification. (Table 1)
   - Go to box #7
   - 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.

5. 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.

6. Check medication compliance. Obtain AED level.

7. Is AED therapy effective and tolerated?
   - Yes: 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
   - No: Monitor & obtain laboratories appropriate to AED utilized. (Table 2). Consider the following which may apply:
     1. Counsel on importance of compliance or
     2. Adjust dose or
     3. Change to alternate AED or
     4. Add additional AED or
     5. Seek neurology consult. Go to box #7.

8. **One seizure event is not necessarily diagnostic for a seizure disorder and may not require long-term AED therapy**

9. 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.

10. Discontinue AED if chronic seizure diagnosis is ruled out.

11. Monitor & obtain laboratories appropriate to AED utilized. (Table 2). Follow up in Chronic Care Clinic. Consider discontinuation of AED when patient with negative EEG has been seizure free for ≥ 2-years. Taper off AED over 3-6 months.

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, March 1998, Reviewed 3/01, 4/03, Revised 11/05, 3/07, 3/08, 10/08, 9/10.
Table 1: Most Commonly Used Drugs for Specific Seizure Disorders

<table>
<thead>
<tr>
<th>Seizure Disorder</th>
<th>Formulary Medications</th>
<th>Generalized Tonic-Clonic</th>
<th>Absence</th>
<th>Preferred with Clinical Evidence of Cirrhosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Partial</td>
<td>Carbamazepine</td>
<td>Carbamazepine</td>
<td>Divalproex Sodium</td>
<td>Levetiracetam</td>
</tr>
<tr>
<td></td>
<td>Levetiracetam</td>
<td>Levetiracetam</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phenytoin</td>
<td>Phenytoin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primidone</td>
<td>Primidone</td>
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<tr>
<td></td>
<td>Divalproex Sodium</td>
<td>Divalproex Sodium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex Partial</td>
<td>Carbamazepine</td>
<td>Carbamazepine</td>
<td>Divalproex Sodium</td>
<td>Levetiracetam</td>
</tr>
<tr>
<td></td>
<td>Levetiracetam</td>
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<tr>
<td></td>
<td>Phenytoin</td>
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<tr>
<td></td>
<td>Divalproex Sodium</td>
<td>Divalproex Sodium</td>
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</tbody>
</table>

Table 2: Monitoring Parameters for Commonly Prescribed Formulary Anticonvulsants

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>1 week</th>
<th>2 week</th>
<th>Q 2 week for 2 months</th>
<th>1 month</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC with platelets</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Metabolic Panel</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EKG</td>
<td>X (&lt;40 years old or as clinically indicated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood levels</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>

Phenytoin

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>1 week</th>
<th>1 month</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC with platelets</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Metabolic Panel</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Blood levels</td>
<td>X</td>
<td>X</td>
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Divalproex Sodium

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>1 week</th>
<th>2 week</th>
<th>Q 2 week for 2 months</th>
<th>1 month</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC with platelets</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Metabolic Panel</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>PT/PTT, INR</td>
<td>X</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Blood levels</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>
Practitioner Education

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 seizures, 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 10% 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 memory loss or aberrations of behavior
     - May be misdiagnosed as psychotic episodes
     - Patients with complex partial seizures are generally amnestic to these events
   - Secondarily generalized—partial onset evolving to generalized tonic-clonic seizures

2. Treatment Options:
   - Formulary- Carbamazepine, Phenytoin, Divalproex Sodium, Primidone, Levetiracetam
   - Nonformulary- Gabapentin, Lamotrigine, Oxcarbazepine, Phenobarbital, Tiagabine, Topiramate, Zoneamide

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 (stiff or rigid); cry or moan; deviation of the eyes and head to one side; rotation of the whole body and distortion of features; suppression of respiration; fall to the ground; loss of consciousness; tongue biting; involuntary urination
     - 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)—Phenobarbital, 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, Phenobarbital, 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 - Begins 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
   - Catamerial 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 voltage-dependent Na channels</td>
<td>800-1200 mg divided tid-qid</td>
<td>Complex partial seizures, generalized tonic-clonic, mixed seizure patterns</td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Zarontin®</td>
<td>Inhibits NADPH-linked aldehyde dehydrogenase</td>
<td>20-40 mg/kg/day divided bid</td>
<td>Absence</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>Luminal®</td>
<td>Enhances GABA</td>
<td>50-100 mg bid-tid</td>
<td>Adjunctive therapy for generalized tonic-clonic and partial seizures</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Dilantin®</td>
<td>Inhibits voltage-dependent Na channels</td>
<td>300 mg/day or 5-6mg/kg/day in 3 divided doses (range 200-1200mg/day)</td>
<td>Generalized tonic-clonic, complex partial seizures; prevention of seizures following head trauma/neurosurgery</td>
</tr>
<tr>
<td>Primidone</td>
<td>Mysoline®</td>
<td>Enhances GABA</td>
<td>750-1500 mg/day in divided doses tid-qid</td>
<td>Monotherapy or adjunctive use for generalized tonic-clonic, psychomotor, and focal seizures</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>Depakote®</td>
<td>Enhances GABA; may also block Na ion channels</td>
<td>1000-2500mg/day divided bid-qid (15-60mg/kg/day)</td>
<td>Monotherapy and adjunctive therapy for complex partial seizures; monotherapy for absence seizures; adjunctive therapy for mixed seizure types that include absence seizures</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Neurontin®</td>
<td>Unclear, but differs from other available anticonvulsants</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>Lamotrigine</td>
<td>Lamictal®</td>
<td>Inhibits voltage-dependent Na channels and glutamate</td>
<td>100-500mg/day in 1-2 divided doses</td>
<td>Adjunctive therapy for partial seizures and generalized seizures of Lennox-Gastaut syndrome, generalized tonic clonic seizures</td>
</tr>
<tr>
<td>Levetiracetam</td>
<td>Keppra®</td>
<td>Unknown</td>
<td>1000-3000 mg/day divided bid</td>
<td>Adjunctive therapy for partial and generalized tonic-clonic seizures; adjunctive therapy for JME</td>
</tr>
<tr>
<td>Oxcarbazepine</td>
<td>Trileptal®</td>
<td>Inhibits voltage-dependent Na channels</td>
<td>600mg bid</td>
<td>Monotherapy or adjunctive therapy for partial seizures</td>
</tr>
<tr>
<td>Pregabalin C-V</td>
<td>Lyrica®</td>
<td>binds with the alpha2-delta site - an aspect of voltage gated calcium channels</td>
<td>75mg bid up to 600mg/day divided as BID</td>
<td>Adjunctive therapy for partial seizures in adults</td>
</tr>
<tr>
<td>Tiagabine</td>
<td>Gabitril®</td>
<td>Inhibits reuptake of GABA into presynaptic nerve terminals</td>
<td>4-56 mg/day divided bid-qid</td>
<td>Adjunctive therapy for partial 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 or mono therapy for partial seizures and generalized tonic-clonic seizures; treatment of seizures associated with Lennox-Gastaut syndrome</td>
</tr>
<tr>
<td>Vigabatrin</td>
<td>Sahril®</td>
<td>increases the levels of GABA, by inhibiting GABA transaminase</td>
<td>500-1500mg/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 voltage-dependent Na channels &amp; voltage-dependent Ca current; binds to GABA receptors and facilitates dopamine and serotonin neurotransmission</td>
<td>100-400 mg/day qd or divided bid</td>
<td>Adjunctive therapy for partial seizures</td>
</tr>
</tbody>
</table>

MOA- Mechanism of Action
JME- Juvenile Myoclonic Epilepsy
Principles of Treatment with Confirmed Seizure Disorder

1. Monotherapy—always preferred
2. Polytherapy (2 agents)—assess patient compliance prior to addition of second agent. Noncompliance may be the single most common reason for treatment failure. If indicated, add a third AED if necessary. A combination of anticonvulsants is not tolerated significantly reduces seizure frequency or severity, b) if both anticonvulsants have been maximized.
3. If possible, begin to slowly (generally over several weeks) reduce the dose of the first drug. This is especially important if the patient has not responded to the first AED.
4. Do not abruptly discontinue any anticonvulsant as this may precipitate status epilepticus.
5. Consider 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.
6. Benefits versus risks must be weighed during pregnancy. The use of antiepileptic agents (and lowest dose) that control seizures should be preferred. The second-generation antiepileptics (levetiracetam, gabapentin, lamotrigine, tiagabine, topiramate, oxcarbazepine) are rated as Pregnancy Category C, which means that risk cannot be ruled out. However, potential benefits may outweigh risks.

Potential Reasons for Treatment Failure

1. Incorrect diagnosis
2. Inappropriate anticonvulsant selected
3. Inappropriate dose
4. Subtherapeutic levels
5. Poor patient adherence
6. Refractory seizures

Contraindications (C/I)/Cautions/Monitoring Parameters

1. Carbamazepine
   - Black box warning—Aplastic anemia and agranulocytosis have been reported. Consider obtaining complete hematologic testing at baseline.
   - Monitor closely if patient has low or decreased WBC or platelet count during the course of therapy. Consider discontinuation of therapy if patient has any evidence of significant bone marrow depression.
   - C1—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
   - May possibly activate latent psychosis and confusion or agitation in the elderly population
   - Severe dermatological reactions have been rarely reported including toxic epidermal necrolysis and Steven-Johnson syndrome
   - Hypotenemia has been reported in association with carbamazepine use either alone or in combination with other drugs
   - Consider obtaining urinalysis, BUN determinations, and electrolytes at baseline, then at one month, and annually or as clinically indicated.
   - Consider obtaining CBC at baseline and as clinically indicated. Consider CBC with platelets at baseline, then twice monthly first two months, and annually or as clinically indicated
   - Monitoring of blood levels is useful for verifying compliance and determining cause of toxicity when more than one agent is used. Consider obtaining carbamazepine level weekly for two weeks, then at one month and annually or as clinically indicated.
   - Therapeutic blood level-0.4-12mcg/ml Toxic concentration-15mcg/ml
   - 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. Is 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 initiating therapy.
     c. The risks and 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 Asian patients if symptoms develop or if adverse effects for 3 months if they have not experienced adverse effects.
   - Phenytoin
     - C1: 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 hypotension and severe myocardial insufficiency
     - Hepatic failure—discontinue therapy if LFTs increase >3 times normal limit
     - Steven-Johnson syndrome—discontinue therapy if signs or symptoms of severe rash develops
     - Hyperglycemia due to inhibitory effect on insulin
     - Peripheral neuropathy
     - Consider alternative anticonvulsant if lymph node enlargement occurs (may represent hypersensitivity reaction)
     - Hydantoins facies (thickening of subcutaneous tissues, enlargement of nose and lips)
     - Acne, hirsutism, and gingival hyperplasia (suggest good oral hygiene) may occur
     - Osteomalacia—treat with vitamin D if alkaline phosphate increases and 25-hydroxycholecalciferol decreases
     - Folate deficiency causing megaloblastic anemia (rare)
     - Consider obtaining CBC at baseline and as clinically indicated. Signs of marked depression of the blood count indicate the need for drug withdrawal.
     - Consider obtaining blood chemistries with emphasis on hepatic and renal function at baseline, then at one month, and annually or as clinically indicated
     - Consider EKG at baseline for patients >40 years old and annually or as clinically indicated
     - Consider obtaining phenytoin level in one week, then in one month, and annually or as clinically indicated
   - Therapeutic blood level (total phenytoin)-10-20mcg/ml. Toxic concentration-30-50mcg/ml
Seizure Disorder, Page 7

Contraindications (C/I)/Cautions/Monitoring Parameters Continued

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, consider 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 closely. If elevation persists, consider disconnection 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 platelet level, INR, PTT 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>
<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, dizziness, GI upset, insomnia. Non-dose-dependent: skin rash. Other: hypersensitivity including risk of hepatic and renal failure and DIC.</td>
<td>• DI - oral contraceptives, enzyme inducing AEDs, rifamycins, VPA levels reduced and VPA may increase lamotrigine levels. Use with caution in renal impairment. Dose adjust -50-75% dose decrease in hepatic impairment. Initiate slowly to reduce the incidence of rash. Pregnancy Category C. Crosses breast milk.</td>
</tr>
<tr>
<td>Levetiracetam</td>
<td>Dose-dependent: dizziness, fatigue, irritability, sedation.</td>
<td>• DI - probenecid- clinical significance unknown; not metabolized thru CYP450; no known interactions with other AEDs. Renal elimination-dose adjust in renal insufficiency and elderly. No dose adjustment for hepatic impairment. Pregnancy Category C.</td>
</tr>
<tr>
<td>Oxcarbazepine</td>
<td>Dose-dependent: GI (Nausea &amp; vomiting), CNS (dizziness, somnolence), diplopia. Non-dose-dependent: hyponatremia, skin rash.</td>
<td>• DI - oral contraceptives, diuretics, AEDs, dihydropyridine calcium channel blockers. 50% dose reduction recommended in renal insufficiency. Kinetic changes not observed in cirrhosis. Does not undergo autoinduction. Crosses placenta and breast milk. Pregnancy Category C.</td>
</tr>
</tbody>
</table>

Table 4
<table>
<thead>
<tr>
<th>DRUG</th>
<th>ADRS</th>
<th>DRUG INTERACTIONS (DI)/COMMENTS</th>
</tr>
</thead>
</table>
| Tiagabine | Dose-dependent: dizziness, weakness, depression, HA, sedation, difficulty with concentration.  
Non-dose dependent: exacerbation of generalized seizures. | • DI - AEDs.  
• Hepatic metabolism-impairment may require dosage reduction or longer dosing intervals.  
• Pregnancy Category C. Excreted in breast milk. |
| Topiramate | Dose-dependent-sedation, confusion, mental slowing, word-finding difficulties, anorexia, paresthesias.  
Non-dose-dependent: weight loss. | • DI - oral contraceptives, AEDs, carbonic anhydrase inhibitors, CNS depressants.  
• Administer with caution in patients with hepatic impairment.  
• CrCl<70ml/min- 50% of usual dose recommended.  
• Pregnancy Category C. Unknown if excreted in breast milk.  
• Counsel pt to drink plenty of fluids. |
| Zonisamide | Dose-dependent: ataxia, somnolence, fatigue, anorexia, weight loss, irritability, dizziness.  
Non-dose-dependent- kidney stones, liver toxicity, leukopenia.  
Others: rash, hypohidrosis predominately children. | • DI - topiramate (additive toxicity), enzyme-inducing AED reduce half-life 50%; cyclosporine, ketoconazole, miconazole inhibit metabolism.  
• Renal and hepatic impairment dose adjustment unknown.  
• Sulfonamide derivative. Contraindication in sulfa allergic patients.  
• Counsel patient to drink plenty of fluids.  
• Crosses placenta and breast milk. Pregnancy Category C. |

**Pseudoseizures**

1. Definition- “Psychogenic seizures are episodes involving affective, autonomic, or sensorimotor 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  
   • Schneker 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.
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.

Table 5

<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>• Elderly-onset epilepsy</td>
</tr>
<tr>
<td>• Partial epilepsy</td>
<td>• Idiopathic 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>• Co-morbidity with concurrent treatments</td>
</tr>
</tbody>
</table>

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).

Table 6

| Tapering schedule: Decrease phenobarbital dose by 30mg a month over 1-6 month period. |
| Example: Patient is receiving 120mg/day |
| 1st month, patient receives 90mg/day |
| 2nd month, patient receives 60mg/day |
| 3rd month, patient receives 30mg/day |
| 4th month, patient receives 0mg/day |
| Labs: If patient has undetectable phenobarbital levels (<2mg/L) and a history of noncompliance, a taper may not be necessary |
| 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. |
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 2

No 5

Continue symptomatic treatment as needed. Is Infection Present?

No 6

Yes

Penicillin Allergy?

No

Yes 8

Penicillin Allergy?

Amoxicillin 500 mg TID X 14 Days KOP

Bactrim DS BID X 14 Days KOP
or
If Sulfas Allergic - Doxycycline 100 mg BID X 14 Days KOP

If responding, but not completely resolved, continue current treatment for an additional 4 weeks.

Yes 10

No

Resolved?

Consider Nonformulary Medication for Resistant Organism
Augmentin 875 mg BID X 14 Days
Cefuroxime 500 mg BID X 14 Days
Clarithromycin 500 mg BID X 14 Days
Levofloxacin 500 mg QD X 14 Days
(For PCN Allergic, 10% cross-sensitivity with Cephalosporins)

End Therapy

Yes

No 12

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.

206
If responding, but not completely resolved, continue current treatment for an additional 4 weeks.

Resolved?

Yes

No

End Therapy

Evaluate and consider referral to a specialist.

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**TINEA PEDIS**

1. **Patient Counseling:**
   1. Wash With Soap & Water
   2. Dry Feet Well
   3. Wear Clean Socks

2. Topical Antifungal Cream
   - 1% Tolnaftate ($0.59)
   - 1% Clotrimazole Cream ($1.31)
   BID X 30 days

3. Resolution?
   - Yes: End Therapy and Reinforce Counseling
   - No: Consider other agent not used above
     - 1% Tolnaftate Cream
     - 1% Clotrimazole Cream
     BID X 30 days

4. Resolution?
   - Yes: Refer to Box #4
   - No: Consider pharmacotherapy consultation

5. Consider Dermatology Consultation

---

Chronic Anticoagulation Using Warfarin

1. Does patient have documented indication for chronic anticoagulation therapy? See Table 5 for indications.
   - Yes
   - No

2. Re-evaluate need for continued therapy. Discontinue if not indicated.
   - Order a PT/INR to be drawn in 5 days. Make sure date of draw is M-F. Reschedule patient to be seen in 7 days. Continue to Box 5.

3. Was PT/INR value measured ≤ 28 days ago?
   - Yes
   - No

4. Does patient have > 1 medical indication for chronic anticoagulation therapy? Refer to Table 5.
   - Yes
   - No

5. Determine the goal INR range and therapy duration for the patient’s indication. Document date of therapy completion, if applicable.
   - Compare the goal INR ranges and therapy durations for each indication. If the INRs differ, choose the higher goal. Continue therapy for the longest duration suggested. Document date therapy will be completed if applicable.

6. Has the patient recently experienced signs/symptoms of thromboembolism? See Table 4.
   - Yes
   - No

7. Consider transport to higher level of care.
   - No

8. Has the patient recently experienced signs/symptoms of moderate to severe bleeding? See Table 3.
   - Yes
   - No

   - 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.

10. Duration of therapy completed?
    - Yes
    - No

11. Is patient’s INR value within the goal range two times in a row?
    - Yes
    - No

12. Confirm correct warfarin dosing. Continue to Box #24.
    - INR value < Goal INR range.
    - Warfarin adherence > 75% over last 30 days?
    - Yes
    - No

13. Continue to Box #20 on the next page.
    - 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.

14. *INR – should be drawn at least every 28 days regardless of follow-up schedule.

Counsel patient on the effects of medication / food / conditions on INR. Adjust the warfarin dose if needed as specified in Table 7 or 8. Schedule INR to be drawn 2 days before next visit, verifying the day is M – F. Schedule patient for follow-up in 7 to 14 days, unless recommended sooner by Table 7 or 8. Return to Box #8.

Counsel patient on the effects of medication / food / conditions on INR. Increase total weekly dose of warfarin (Table 6 or 7). Order an INR to be drawn 2 days before next visit, verifying the day is M – F. Schedule patient for follow-up in 7 to 14 days. Return to Box #8.

Yes

No

Is / are the change(s) expected to stay consistent?

20

Are any of the following occurring?
1. Taking (failing to take, if ordered) medication or nutritional supplements that can modify warfarin’s effects (Tables 10 & 11)
2. Changes in intake of foods that can modify warfarin’s effects (Table 11)
3. Recent development of a condition that can modify warfarin’s effects (Table 12)

21

22

Continue from Box # 18, Page 1

23

24

Continued from Box # 16, Page 1

25

26

27

Warfarin, Page 2

Are any of the following occurring?
1. Taking (failing to take, if ordered) medication or nutritional supplements that can modify warfarin’s effects (Tables 10 & 11)
2. Changes in intake of foods that can modify warfarin’s effects (Table 11)
3. Recent development of a condition that can modify warfarin’s effects (Table 12)

No

Yes

Is / are the change(s) expected to stay consistent?

The pathways do not replace sound clinical judgment, nor are they intended to strictly apply to all patients.
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>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Factors Associated With Deep Venous Thrombosis</strong></td>
</tr>
<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>
<tr>
<td>• Pharmacotherapy</td>
</tr>
<tr>
<td>o Estrogenic oral contraceptive agents</td>
</tr>
<tr>
<td>o Post-menopausal hormone therapy</td>
</tr>
<tr>
<td>▪ Hormonal</td>
</tr>
<tr>
<td>▪ Radiotherapy</td>
</tr>
<tr>
<td>▪ Chemotherapy</td>
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</tr>
</tbody>
</table>

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
E. Risk Factors Associated with Developing A Severe Bleed While On Warfarin Therapy

**TABLE 2**

<table>
<thead>
<tr>
<th>Factors That Increase Risk of Developing A Severe Bleed During Warfarin Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age &gt; 65 years</td>
</tr>
<tr>
<td>• Diabetes mellitus</td>
</tr>
<tr>
<td>• Cerebrovascular disease</td>
</tr>
<tr>
<td>• Anemia</td>
</tr>
<tr>
<td>• Female gender</td>
</tr>
<tr>
<td>• Alcohol abuse</td>
</tr>
<tr>
<td>• History of GI bleeds, peptic ulcerations, etc.</td>
</tr>
<tr>
<td>• Hypertension</td>
</tr>
<tr>
<td>• Renal insufficiency</td>
</tr>
<tr>
<td>• Antiplatelet therapy</td>
</tr>
<tr>
<td>• History of recent or past bleeding event</td>
</tr>
<tr>
<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**

<table>
<thead>
<tr>
<th>Signs &amp; Symptoms Of Possible Acute, Severe Bleed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Severe headache that fails to resolve</td>
</tr>
<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>
</tr>
<tr>
<td>• Dyspnea</td>
</tr>
<tr>
<td>• Decrease in supine blood pressure</td>
</tr>
<tr>
<td>• Hematemesis</td>
</tr>
<tr>
<td>• Hemoptysis</td>
</tr>
<tr>
<td>o Fainting upon rising from a lying position or from a sitting position</td>
</tr>
<tr>
<td>• Hypovolemic shock</td>
</tr>
<tr>
<td>• Tachycardia at rest or with mild exertion (skin may be cool and clammy)</td>
</tr>
<tr>
<td>• Hematuria</td>
</tr>
<tr>
<td>• Melena</td>
</tr>
<tr>
<td>• Menorrhagia</td>
</tr>
<tr>
<td>• Hematochezia as indicated by 1 or more of the following:</td>
</tr>
<tr>
<td>o Bright red colored stool</td>
</tr>
<tr>
<td>o Mahogany colored stool</td>
</tr>
<tr>
<td>o Pure blood</td>
</tr>
<tr>
<td>o Blood mixed with formed stool</td>
</tr>
<tr>
<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

| Signs & Symptoms Of Venous Thromboembolism (VTE) & Pulmonary Embolism (PE) |
|---|---|
| **Venous Thromboembolism** | **Pulmonary Embolism** |
| • Tenderness localized to deep venous system (e.g. calf) | • Hemoptysis |
| • Difference in calf circumference > 3 cm when compared to asymptomatic leg (measure 10 cm (4 in) below the tibial tuberosity) | • Chest pain |
| • Pitting edema present on symptomatic leg only | • Recent onset and/or worsening dyspnea |
| • Collateral superficial veins, non-varicose | • Any clinical signs or symptoms of VTE |
| • Elevated D-dimer reading | • Elevated D-dimer reading (> 500 micrograms / L) |

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, CTPH = 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-segment Elevation Myocardial Infarction, MI = Myocardial Infarction, VKA = Vitamin K Antagonist (ie. warfarin), ASA = Aspirin

<table>
<thead>
<tr>
<th>Medical Condition</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>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin 81 – 325 mg daily</td>
</tr>
<tr>
<td></td>
<td>Plus:</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></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 ≥ 75 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DM</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>HTN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mitral Valve Stenosis</td>
<td>Planned conversion to sinus rhythm</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Start 3 weeks before elective cardioversion and continue for 4 weeks after successful cardioversion</td>
</tr>
<tr>
<td>Antiphospholipid Antibody Syndrome or Presence of Lupus Inhibitor</td>
<td>Patients with no additional risk factors</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patients with recurrent thromboembolic events at INR of 2.0 – 3.0 or with additional risk factors</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td>Cerebral Venous Sinus Thrombosis</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Up to 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVT or PE</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
<td></td>
</tr>
<tr>
<td></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></td>
</tr>
<tr>
<td></td>
<td>1st isolated distal DVT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1st episode, idiopathic</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>At least 3 months; consider long-term therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recurrent</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<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>
</tr>
<tr>
<td>Mitral Annular Calcification</td>
<td>Complicated by systemic embolism, ischemic stroke, or TIA without AF</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin 81 mg/day</td>
</tr>
<tr>
<td></td>
<td>Recurrent episodes despite aspirin therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>With AF</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td>Mitral Valve Stenosis</td>
<td>Preprocedural 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 valvotomy (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>
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<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
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<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mitral Valve Prolapse</td>
<td>With TIA or ischemic stroke</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin 81 mg/day</td>
</tr>
<tr>
<td></td>
<td>With:</td>
<td></td>
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<td></td>
<td>- AF</td>
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<tr>
<td></td>
<td>- Documented systemic embolism</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- Recurrent TIA with aspirin therapy</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td>MI</td>
<td>Post-MI, high risk</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>At least 3 months post-MI</td>
<td>Combination with aspirin 81 mg/day</td>
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<td></td>
<td>- Large anterior MI</td>
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<td></td>
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<tr>
<td></td>
<td>- Significant HF</td>
<td></td>
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<tr>
<td></td>
<td>- Intracardiac 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>Rheumatic Mitral Valve Disease</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>
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<tr>
<td></td>
<td>Left atrial thrombus</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NSR with atrial diameter &gt; 55 mm</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AF with systemic embolism and/or left atrial thrombus while at therapeutic INR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve, Heart, Mechanical</td>
<td>AORTIC Position in NSR w/o left atrial enlargement</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Bileaflet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Tilting disk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MITRAL Position</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Bileaflet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Tilting disk</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 or upward titrate warfarin dose and INR.</td>
</tr>
<tr>
<td></td>
<td>- Caged ball</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Caged disk</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>- Anterior-apical STEMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Left atrial enlargement</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>Systemic embolism despite previously therapeutic INR:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Target 2.5 (2.0 – 3.0)</td>
<td>3.0</td>
<td>2.5 – 3.5</td>
<td>Indefinite</td>
<td>Combine with aspirin 81 mg/day or upward titrate warfarin dose and INR.</td>
</tr>
<tr>
<td></td>
<td>- Target 3.0 (2.5 – 3.5)</td>
<td>3.5</td>
<td>3.0 – 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valves, Heart, Bioprosthetic</td>
<td>AORTIC Position with:</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Aspirin 81 mg/day.</td>
</tr>
<tr>
<td></td>
<td>- NSR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- No other VKA indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANY Position</td>
<td>2.5</td>
<td>2.0 – 3.0</td>
<td>First 3 months following valve insertion</td>
<td>ASA 81 mg/day afterwards in patients with NSR and no other indications for warfarin therapy.</td>
</tr>
<tr>
<td></td>
<td>- History of systemic embolism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></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>- AF</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>
</tbody>
</table>
C. **Sub**therapeutic 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.**

<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.**

<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 8. Unit Management of Supratherapeutic INR*

<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>5.0 – 8.9</td>
<td>None</td>
<td>Hold 1-2 doses. 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>2.5 mg</td>
<td>2.5 – 5 mg, based on patient risk for bleeding</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>≥ 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>
<td></td>
</tr>
<tr>
<td>&gt; 10 or Serious bleeding at any INR elevation</td>
<td></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>Drugs That Can Change Warfarin’s Effects and/or INR</th>
<th>Drugs that ↓ Warfarin Effects and/or INR (SUBtherapeutic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs That ↑ Warfarin’s Effects and/or INR (SUPRAtherapeutic)</td>
<td></td>
</tr>
<tr>
<td>Acetaminophen or aspirin &gt; 1.3 g (1300 mg) per day X 7 days or more</td>
<td>Aminoglutethimide</td>
</tr>
<tr>
<td>Allopurinol</td>
<td>Antithyroid agents: propylthiouracil</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>Azathioprine</td>
</tr>
<tr>
<td>Androgens: testosterone, oxandrolone, methyltestosterone</td>
<td>Bile acid sequestrants: cholestyramine resin</td>
</tr>
<tr>
<td>Cephalosporins: cephalexin, cefazolin, cefadroxil, ceftriaxone</td>
<td>Bosantan</td>
</tr>
<tr>
<td>Antiplatelet agents: aspirin, clopidogrel, ticlopidine, prasugrel</td>
<td>CYP2C9 inducing drugs : carbamazepine, phenobarbital, phenytoin, primidone, rifampin, rifapentine, ritonavir</td>
</tr>
<tr>
<td>CYP 2C9 inhibiting drugs : amiodarone, chloramphenicol, cimetidine, lovastatin, isoniazid, fluoxetine, fluvoxamine, metronidazole, fluconazole, voriconazole, zafirlukast</td>
<td>Penicillin-based antibiotics: dicloxacillin, nafcillin</td>
</tr>
<tr>
<td>Antihyperlipidemic agents: gemfibrozil, clofibrate, fenofibrate</td>
<td>Hormonal Contraceptives: norethindrone / ethinyl estradiol, norgestrel / ethinyl estradiol, ethynodiol diacetate / ethinyl estradiol</td>
</tr>
<tr>
<td>NSAID Agents: aspirin, ibuprofen, indomethacin, naproxen, meloxicam</td>
<td>Hormone Therapy: estrogens, conjugated; synthetic estrogens</td>
</tr>
<tr>
<td>Macrolide antibiotics: clarithromycin, erythromycin</td>
<td>Sulfasalazine</td>
</tr>
<tr>
<td>Levotyroxine</td>
<td>Chronic daily ethanol use</td>
</tr>
<tr>
<td>Anticonvulsants: phenytoin, valproic acid</td>
<td>Griseofulvin</td>
</tr>
<tr>
<td>Omeprazole</td>
<td>Antipsychotic Agents: haloperidol, clozapine</td>
</tr>
<tr>
<td>Quinidine</td>
<td>Spironolactone</td>
</tr>
<tr>
<td>Quinolone antibiotics: ciprofloxacin, levofloxacin</td>
<td>Sucralfate</td>
</tr>
<tr>
<td>Salicylates: aspirin, salsalate</td>
<td>Trazodone</td>
</tr>
<tr>
<td>Selective serotonin reuptake inhibitors: citalopram, fluoxetine, paroxetine, sertraline</td>
<td></td>
</tr>
<tr>
<td>Sulfonamide derivatives: trimethoprim / sulfamethoxazole</td>
<td></td>
</tr>
<tr>
<td>Tetracycline derivatives: tetracycline, doxycycline</td>
<td></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 = Foods High in Vitamin K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverages:</td>
<td>Fats &amp; Dressings:</td>
</tr>
<tr>
<td>Juice, cranberry</td>
<td>Margarine</td>
</tr>
<tr>
<td></td>
<td>Mayonnaise</td>
</tr>
<tr>
<td></td>
<td>Oil, canola</td>
</tr>
<tr>
<td></td>
<td>Oil, vegetable</td>
</tr>
<tr>
<td></td>
<td>Oil, soybean</td>
</tr>
<tr>
<td></td>
<td>Oil, olive</td>
</tr>
<tr>
<td></td>
<td>Foods containing Olestra® synthetic fats</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables:</td>
<td></td>
</tr>
<tr>
<td>Asparagus</td>
<td></td>
</tr>
<tr>
<td>Avocado</td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td></td>
</tr>
<tr>
<td>Brussel sprouts</td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td></td>
</tr>
<tr>
<td>Cabbage, red</td>
<td></td>
</tr>
<tr>
<td>Collard greens</td>
<td></td>
</tr>
<tr>
<td>Endives, raw</td>
<td></td>
</tr>
<tr>
<td>Green scallions, raw</td>
<td></td>
</tr>
<tr>
<td>Kale, raw leaf</td>
<td></td>
</tr>
<tr>
<td>Lettuce, raw</td>
<td></td>
</tr>
<tr>
<td>Mustard greens</td>
<td></td>
</tr>
<tr>
<td>Parsley</td>
<td></td>
</tr>
<tr>
<td>Peas, green, cooked</td>
<td></td>
</tr>
<tr>
<td>Spinach, raw leaf</td>
<td></td>
</tr>
<tr>
<td>Turnip greens, raw</td>
<td></td>
</tr>
<tr>
<td>Watercress, raw</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Over-the-Counter Supplements:</td>
<td></td>
</tr>
<tr>
<td>Vitamin E</td>
<td></td>
</tr>
<tr>
<td></td>
<td></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 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

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, diabetics, immunocompromised patients, patients with peripheral vascular disease, & malnourished patients) using the Braden Scale for Predicting Pressure Sore Risk.
2. Perform physical and visually inspect areas prone to wound development at each clinic visit.
3. May consider moisturizing skin exam for patients with a Braden Scale less than 14 to protect skin integrity.
4. Counsel patient regarding the importance of adequate hydration and nutrition.
5. Counsel patient regarding the importance of repositioning for wound prevention.
6. If needed, provide adequate pain control (refer to pain disease management guideline).
7. If wound is present, determine the stage.
8. Consider consultation with the Wound Care Specialist.
9. The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.

10. Follow Stage 2 treatment in box 11.
11. Educate patient on wound prevention
12. Follow the patient in Chronic Care Clinic
13. Go to box 31 on page 2
14. Go to box 26 on page 2
15. Go to box 35 on page 2
16. *See Definition Chart on page 2

26 Continued from box 17 page 1

27 Obtain culture and sensitivity

28 Is culture positive?

29 No

Discontinue antimicrobial dressing
Use hydrocolloid dressing or foam*. Change q 3-5 days.

30 Yes

Continue using antimicrobial dressing*. Change q 3-5 days.
***Systemic antibiotics are only indicated for systemic symptoms!***

31 Is the wound healing?

32 No

If wound appears to be regressing, evaluate for adequate nutrition and hydration. Check weight, CBC, CMP. If pt has a 15% weight loss in 3 months, lymphocytes <1800 cells/mm³ or albumin <3.5 mg/dl consider nutritional supplements.

33 Yes

Follow Stage 3 treatment in box 18 on page 1.

34

35 Continued from box 20 page 1

36 Is the wound healing?

37 No

Follow Stage 4 treatment in box 23.

38 Yes

Is culture positive?

39 Make corrections and proceed

40 Make corrections and show another proof

41 OK to proceed

Signed: ___________________ Date: ______

---

*Definition Chart

Following products are available through Medical Warehouse

- Wound Cleanser – Dermal Wound Cleaner®, Secura® cleansers
- Secondary Dressing – Hypafix Dressing Retention Tape®, gauze dressing
- Skin Protectant – Tegaderm®, Skin Prep Dressing Wipes®, Secura® protectant creams
- Hydrocolloid Dressing – Allevyn®, Solosite Wound Gel®, Iodosorb®
- Antimicrobial Dressing – Acticoat®, Iodosorb®

Provider Education  

Wound Care page 3

Purpose
1. To define different kinds of wounds and how to tailor treatment regimen per wound type
2. To provide preventative measures and prevention education for each high-risk population
3. To provide provider education on specific treatment measures

Definitions
1. Pressure ulcers
   • Definition: usually occur over bony prominences and are graded or staged to classify the degree of tissue damage observed.
   • Stage I wound: nonblanchable erythema of intact skin
   • Stage II wound: partial thickness skin loss involving epidermis and/or dermis
   • Stage III wound: full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia
   • Stage IV wound: full thickness loss with extensive destruction, tissue necrosis or damage to muscle, bone, or supporting structures
   • Treatment: follow wound care algorithm
2. Venous stasis ulcers
   • Definition: caused by problems in the veins of the lower leg. Leaky valves, obstructions, or regurgitation disturb blood flow from the lower extremities back to the heart. Ulcers appear shallow and moist, usually are situated on the gaiter area of the leg, and ankle is edematous.
   • Treatment:
     • Follow wound care algorithm.
     • Elevate leg at least 2 hours per day.
     • Use compression therapy.
       • Long stretch high compression bandages (example, ACE bandages)
     • Unna Boots
     • Support stockings only when there is no open sore and wound is completely healed. Patient can aggravate open wound when putting on or taking off the stocking.
3. Diabetic foot ulcers
   • Definition: ulcer caused in diabetics secondary to peripheral neuropathy or peripheral vascular disease.
   • Treatment:
     • Optimize glycemic control.
     • Follow wound care algorithm.
     • Non-limb-threatening infections can be treated outpatient with oral antibiotics.
     • Limb-threatening infections will need IV antibiotics and transfer to higher level of care for surgical debridement.

Patients at High Risk for Wounds
1. Type I and type II diabetics
2. Paraplegics & quadriplegics
3. Immunocompromised patients
4. Malnourished patients

Prevention of Wounds
1. The practitioner will assess the 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 on page 5.
2. The practitioner will perform physical and visually inspect areas prone to wound development at each clinic visit.
3. The practitioner will counsel high risk patients regarding the importance of adequate hydration and nutrition for wound prevention.
4. The practitioner will counsel high risk patients regarding the importance of repositioning for wound prevention.
5. The practitioner will institute measures to reduce the risk of high risk patients
   • Type I and type II diabetics
     • Optimize glycemic control.
     • Perform monofilament test for light touch sensation at each Chronic Care Clinic visit.
     • Counsel patient on the importance of keeping feet clean and dry to prevent infections.
     • Counsel patient on conducting daily inspections of feet and to notify a health care provider if and when any lesions start to form.
   • Paraplegics & quadriplegics
     • Counsel patient on the importance of off-loading (avoiding stress on pressure areas, i.e. sacral or heels) and changing positions to prevent excess pressure on prone areas.
     • Counsel patient on transfers to prevent friction or shear at the pressure prone areas
     • Counsel patient on conducting daily inspections of skin and to notify a health care provider if and when any lesions start to form.
   • Immunocompromised patients
     • Treat underlying disease to improve immune system.
     • Counsel patient on conducting daily inspections of skin and to notify a health care provider if and when any lesions start to form.
   • Malnourished patients
     • Provide diet and hydration counseling.
     • Counsel patient on conducting daily inspections of skin and to notify a health care provider if and when any lesions start to form.
Treatment of Wounds

1. Provide adequate pain management (refer to pain assessment guidelines).
2. Assess the patient’s vital signs, provide assistance needed, and encourage adequate hydration.
   - Recommend high protein content diet. Ensure glasses of water per day are consumed.
   - If wound is not improving, or shows signs of bacterial infection, schedule an appointment with a specialist. Consider nutritional supplements of protein (150 mg/kg body weight for 3 months, lymphoma <100 mg/kg body weight for 6 months).
3. Assess wound progression and determine wound stage (Wound Care Assessment Form, pages 6-7).
4. Measure wound area to determine which type of dressing or treatment is offered most.
   - Avoid using hot water and use a mild cleansing agent to maintain infection and dryness of skin.
   - Each patient with a minor wound of 4 cm or less and skin that can be dried should be treated with a non-adherent dressing.
   - Apply a dress and measure over the dressing area.
   - Tumescence pain during a dressing or wound dressing. Underpad or adhesive material that absorbs moisture and provides a non-adherent surface to the skin can be used.
   - Maintain no pressure on the wound by self-taping. Specialty dressings, positioning devices, and support for positioning may be considered.
   - Patients should be repositioned at least once every 2 hours while in bed and every hour while up in a chair. Periodic change of position should be encouraged.
   - While positioned in a side-lying position, the patient’s head should be angled approximately 30-degree angle to prevent direct pressure to the thoracic area.
   - Positioning devices should be utilized to maintain internal pressure to the dressings. Custom-type dressing should not be used.
   - Take no further action to remove or change dressings.
   - Treatment to the bed should be minimized by selection of the lower extremities to prevent contact of the bed with the wound. Support under sheathes or foot protectors may be considered.
   - The head of the bed should be kept level at the lowest degree of elevation noted (less than 30 degrees elevation, unobstructed airway). (Continued)
5. Maintain the skin dry, or presence of infection by following universal precautions.
   - Wipe hands with alcohol or hand sanitizer.
   - Use sterile, non-latex gloves for handling wounds.
   - If the patient is in extremity fracture, the patient should be reassessed weekly.
   - If wound occurs in greater than 14 cm or pressure points are involved.
   - If patient has a wound, regardless of fracture, surgery, or fracture is involved, weekly reassessment is recommended weekly.
7. Ensure continuity of care.
   - If wound occurs Stage II, obtain telephone consultation with Wound Care Specialist.
   - If wound occurs Stage III or IV, request to Wound Care Specialist to be seen via telehealth services (TSHS) and for possible transfer to OR, Ent, or SCI. Consult may recommend consult (e.g., general surgery) or higher level of care.
   - If there is unresolving infection, obtain a telephone consultation or TSHS appointment with Wound Care Specialist.
8. Ensure knowledge and training. For any complicated or fistula wound, obtain Wound Care Specialist consultation.

Fabrication

1. Purpose
   - To prevent bacterial, fungal, and viral infection of infected wounds.
   - To prevent infection by removing dead tissue.

2. When to debride
   - The material surrounding the wound is not a tissue, and the wound is dry, and the wound is clean. The skin is intact, and there is no evidence of infection.
   - The material is not necrotic and does not appear to be healing. The wound is deep, and there is no evidence of infection.

3. When not to debride
   - The wound is contaminated or infected.
   - The wound is not clean, and there is no evidence of healing.
   - The wound is not covered with a protective dressing, and a thorough wound examination should not be performed. If the patient does not have edema, erythema, exudate, or drainage.
Braden Scale For Predicting Pressure Sore Risk

**Directions:** Assessment should be done upon intake, every clinic visit, and Chronic Care Clinic visit for high risk patients (defined on page 3). 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).

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ability to respond meaningfully to pressure-related discomfort.</td>
<td>Unresponsive (does not moan, flinch or grapple) to painful stimuli, due to diminished level of consciousness or sedation or limited ability to feel pain over most of body.</td>
<td>Responds only to painful stimuli. Can’t communicate discomfort except by moaning or restlessness or has a sensory impairment which limits ability to feel pain or discomfort over ½ of body.</td>
<td>Responds to verbal commands, but can’t always communicate discomfort or the need to be turned or has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.</td>
<td>Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.</td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td>Degree to which skin is exposed to moisture.</td>
<td>Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.</td>
<td>Skin is often, but not always moist. Linen must be changed at least once a shift.</td>
<td>Skin is occasionally moist requiring an extra linen change once a day.</td>
<td>Skin is usually dry, linen only requires changing at routine intervals.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of physical activity.</td>
<td>Confined to bed.</td>
<td>Ability to walk severely limited or non-existent. Can’t bear own weight, and/or must be assisted into chair or wheelchair.</td>
<td>Walks occasionally during day, but for very short distances, with or without assistance. Speaks majority of each shift in bed or chair.</td>
<td>Walks outside room at least twice a day &amp; inside room at least once every 2 hours during waking hours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ability to change &amp; control body position.</td>
<td>Does not make slight changes in body or extremity position without assistance.</td>
<td>Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.</td>
<td>Makes frequent though slight changes in body or extremity position independently.</td>
<td>Makes major &amp; frequent changes in position without assistance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Usual food intake pattern.</td>
<td>Never eats a complete meal. Rarely eats more than 1/3 of food offered. Eats 2 servings or less of protein (meat or dairy) per day. Takes fluids poorly. Doesn’t take a liquid dietary supplement or is NPO and/or maintained on clear liquids or IV for more than 5 days.</td>
<td>Rarely eats a complete meal &amp; generally eats only ½ of food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement or receives less than optimum amount of liquid diet or tube feeding.</td>
<td>Eats over ½ of most meals. Eats a total of 4 servings of protein per day. Occasionally will refuse a meal, but will usually take a supplement when offered or is on a tube feeding or TPN regimen which probably meets most of nutritional needs.</td>
<td>Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat &amp; dairy products. Occasionally eats between meals. Does not require supplementation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Friction &amp; Shear</th>
<th>1. Problem</th>
<th>2. Potential Problem</th>
<th>3. No Apparent Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction.</td>
<td>Moves feebly or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.</td>
<td>Moves in bed and in chair independently &amp; has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.</td>
<td></td>
</tr>
</tbody>
</table>

**Date of Assessment**

**Total Score**

## WOUND CARE ASSESSMENT FORM

Patient Name: ____________________________  
Date and time of evaluation: ____________________________  
Admit Date: ____________________________  
Patient Diagnosis: ____________________________  
Location of Wound: 1. ____________________________  
2. ____________________________  
3. ____________________________

### Skin Around Wound

<table>
<thead>
<tr>
<th>Skin Color Around Wound</th>
<th>WOUND 1</th>
<th>WOUND 2</th>
<th>WOUND 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bright red or blanches to touch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark red or purple, non-blancheable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White or gray pallor, macerated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritated, dermatitis or reaction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Peripheral Tissue Edema (press 5 seconds)

<table>
<thead>
<tr>
<th>Peripheral Tissue Edema (press 5 seconds)</th>
<th>WOUND 1</th>
<th>WOUND 2</th>
<th>WOUND 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal swelling around wound</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-pitting edema, skin shiny and taunt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pitting edema</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Peripheral Tissue Firmness (Induration)

<table>
<thead>
<tr>
<th>Peripheral Tissue Firmness (Induration)</th>
<th>WOUND 1</th>
<th>WOUND 2</th>
<th>WOUND 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal firmness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannot gently pinch tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firmness extends to surrounding tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Drainage of the Wound

<table>
<thead>
<tr>
<th>Exudate Type</th>
<th>WOUND 1</th>
<th>WOUND 2</th>
<th>WOUND 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanguinous (bloody)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serous (clear)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serosanguinous (watery pink)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purulent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exudate Amount</th>
<th>WOUND 1</th>
<th>WOUND 2</th>
<th>WOUND 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>None or dry wound tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scant or moist wound tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small or wet wound tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate or saturated wound tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large or draining obvious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION OF WOUND</td>
<td>WOUND 1</td>
<td>WOUND 2</td>
<td>WOUND 3</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>ARCHITECTURE OF UNHEALED WOUND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurements in centimeters (cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Length (vertical dimension) in cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Width (horizontal dimension) in cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Depth (deepest, do not include tunnel) in cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOUND BED CHARACTERISTICS</td>
<td>WOUND 1</td>
<td>WOUND 2</td>
<td>WOUND 3</td>
</tr>
<tr>
<td>Necrotic type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. None visible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Non-adherent yellow slough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Loosely adherent yellow slough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Adherent soft, eschar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Firmly adherent, hard eschar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granulation tissue type</td>
<td>WOUND 1</td>
<td>WOUND 2</td>
<td>WOUND 3</td>
</tr>
<tr>
<td>1. Skin intact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bright beefy red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pink or dull, dusky red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Combination of #2 and #3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Obscured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undermining/Tunneling Wound</td>
<td>Location of undermining/tunneling (use clock as reference)</td>
<td>Depth of tunnel in cm</td>
<td></td>
</tr>
<tr>
<td>For example, right ischial wound with tunnel</td>
<td>Tunnel at 3 o’clock</td>
<td>3 cm</td>
<td></td>
</tr>
</tbody>
</table>

**GOALS**

<table>
<thead>
<tr>
<th>GOALS</th>
<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>
<td></td>
</tr>
<tr>
<td>2. Promote granulation tissue of wound bed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Soften and remove non-viable tissue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Patient will express understanding and importance of the educational information presented</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLAN:**

- [ ]
- [ ]
- [ ]
Patient diagnosed with acne vulgaris
1. Classify severity (table 1, page 3)
2. Begin nonpharmacologic management (page 4)
3. Provide patient education

---

1. Acne Vulgaris (Adolescents)

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

---

2. Moderate Acne

3. 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.

5. Is the patient responding to therapy?
   Yes: Continue therapy & follow up as needed. Consider tapering or discontinuing oral antibiotic for maintenance.
   No: Assess adherence to treatment plan.
      • Intensify treatment to BID dosing if began with QD dosing.
      • If began with BID dosing, add erythromycin 2% topical solution applied BID to acne prone areas.
      Follow up in 6-8 weeks to assess response.

6. Is the patient responding to therapy?
   Yes: Continue therapy & follow up as needed. Consider tapering or discontinuing oral antibiotic for maintenance.
   No: Assess adherence to treatment plan.
      • Intensify treatment plan by adding second topical agent if not already on it or
      • Intensify treatment plan by adding oral therapy if already on combination topical therapy (go to box #13).

---

12. Moderately Severe to Severe Acne

   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: Continue therapy & follow up as needed.
   No: Assess adherence to treatment plan.
      • Intensify treatment plan by adding second topical agent if not already on it or
      • Intensify treatment plan by adding oral therapy if already on combination topical therapy (go to box #13).

15. Assess adherence to treatment plan.
   • Benzoyl peroxide 10% applied QD in AM.
     (Do not apply same time of day as tretinoin)
   • Tretinoin 0.025% to 0.1% applied QD in PM.
   • Nonformulary approval required.
   • Continue tetracycline or doxycycline. May adjust dose if needed.
   Follow up in 6-8 weeks to assess response.

16. Go to box # 17 page 2

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. November 2006. Revised 10/09.
17. Continued from box 16, page 1

18. Is the patient responding to therapy?
   - Yes → Continue therapy & follow up as needed. Consider tapering or discontinuing oral antibiotic and continuing topical therapy for maintenance.
   - No → 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

20. 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

Prepared by the Correctional Managed Care Pharmacy and Therapeutics Committee. November 2006. Revised 10/09.
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 epidermal 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 (40-200) and papules and pustules (40-100), occasional deeper nodular inflamed lesions (≤ 5). Widespread often involving the face and trunk.</td>
</tr>
<tr>
<td>Severe</td>
<td>Many comedones, papules, and pustules present. Nodulocystic acne and acne conglobata with many large and painful nodular or pustular lesions.</td>
</tr>
</tbody>
</table>

![Mild acne](image1)
![Moderate](image2)
![Moderately severe](image3)
![Severe](image4)
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 selecting 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 5-10%</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>Erythromycin 2% 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. <strong>No role in therapy if oral antibiotics are used.</strong></td>
</tr>
<tr>
<td>Tretinoin 0.025% to 0.1% (Retin-A®)</td>
<td>Apply q HS. May use every other day to minimize irritation</td>
<td>Skin irritation, erythema, dryness, scaling, photosensitivity</td>
<td>Nonformulary medication. Maximum response usually requires 12 weeks. Do not apply with benzoyl peroxide. Not recommended in pregnancy.</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.

<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 - Best taken 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.</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.</td>
</tr>
</tbody>
</table>
3. Other oral therapies

<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, hypertriglyceridermia, 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, and should be applied to all acne prone areas and not just visible blemishes.
      • Certain medications (e.g., tretinoin, 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.
      • 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. Meets DSM-IV Criteria for Anxiety Disorder?
   - Yes
   - No

5. Treat any underlying disorder?
   - Yes
   - No

6. Perform BPRS. Meets DSM-IV Criteria for Panic Disorder?
   - Yes
   - No

7. • Initiate Psychotherapy and
   • Initiate 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.

8. 1. Perform BPRS
    2. SSRI therapy effective with >80% medication compliance?
       - Yes
       - No

9. 1. Continue maintenance treatment for 6 – 12 months, reassessing as determined by unit mental health provider
    2. After 12 – 18 months may consider discontinuation of pharmacotherapy
    3. In case of relapse, see box 7 and resume treatment that had proven effective

10. 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.

*Trial of adequate dose/duration is 6-12 weeks up to maximum dosage or maximum tolerated dose with minimum 80% adherence.

Prepared By The Texas Youth Commission and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. Approved 4/11, 10/11.
Therapeutic Monitoring

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>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram 20mg, 40mg tablet</td>
<td>Celexa®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 40)</td>
<td>• Pregnancy Test – as clinically indicated</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine 20mg capsule</td>
<td>Prozac®</td>
<td>Atypical features or dysthymia</td>
<td>20 (20 – 60)</td>
<td>• Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline 50mg, 100mg tablet</td>
<td>Zoloft®</td>
<td>Significant anxiety</td>
<td>50 (50 – 200)</td>
<td></td>
</tr>
<tr>
<td>Tricyclic Antidepressant* (TCA)</td>
<td>Nortriptyline 25mg, 50mg, 75mg capsule 10mg/5ml liquid</td>
<td>Pamelor®</td>
<td>Melancholic features</td>
<td>25 – 50 (75 – 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 tests, blood pressure, and heart rate at baseline</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• EKG considered at baseline and periodically when there is a personal or family history of cardiovascular disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 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 50mg, 100mg tablet</td>
<td>Desyrel®</td>
<td>Atypical features or dysthymia</td>
<td>100 – 150 (300 – 600)</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>• Priapism</td>
</tr>
</tbody>
</table>

Table 2. Monitoring Nortriptyline Drug Levels

<table>
<thead>
<tr>
<th>Therapeutic Drug Level</th>
<th>50 – 150 ng/mL. Consider drawing if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Daily dose near upper limit of range (≥ 100mg/day)</td>
</tr>
<tr>
<td></td>
<td>- Potential for drug interaction (e.g., isosaprenavir, thioridazine, valproic acid, verapamil, use with other antidepressants)</td>
</tr>
<tr>
<td></td>
<td>- Concern regarding adherence</td>
</tr>
<tr>
<td>Toxicty Likely</td>
<td>&gt; 500 ng/mL.</td>
</tr>
<tr>
<td>Signs of Toxicity</td>
<td>Agitation, tachycardia confusion, hypothermia, hypotension, seizures, cardiac arrhythmias, CNS depression, heart block leading to death</td>
</tr>
<tr>
<td>Management of Toxicity</td>
<td>Hold medication until patient has had a medical evaluation with vital signs and EKG. Transfer patient to acute care setting if clinically necessary.</td>
</tr>
<tr>
<td>Timing of Drug Levels</td>
<td>Steady state concentration generally reached within 4-11 days. Draw within 2 weeks of dose change.</td>
</tr>
<tr>
<td></td>
<td>•Draw 12-14 hours after last dose for patients taking once daily or 4-6 hours after last dose if on divided dose regimen.</td>
</tr>
</tbody>
</table>
II. 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.

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>Tablet</td>
<td>20mg, 50mg</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>Tryptic Antidepressant* (TCA)</td>
<td>Nortriptyline</td>
<td>Pamelor®</td>
<td>Capsule</td>
<td>25mg, 50mg, 75mg</td>
</tr>
<tr>
<td></td>
<td>Imipramine</td>
<td>Tofranil®</td>
<td>Tablet</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 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)

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</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>MANNERSMS 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 - Mistrust, 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, guardedness, 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 adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
BIPOLAR DISORDER ADOLESCENTS

1. Rule out other cause for presentation such as medical causes, substance use, or psychosocial stressors.

2. Meets DSM-IV criteria for manic episode, hypomanic episode, or Bipolar NOS?
   - Yes
   - No

3. Meets DSM-IV criteria for bipolar depression?
   - Yes
   - No

4. Go to page 2, box #20

5. Re-evaluate diagnosis and treat underlying causes.

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

7. Consider discontinuing the antidepressant. Go to box #8.

8. Is patient currently prescribed mood stabilizer or antipsychotic?
   - Yes
   - No

9. Do either of the following:
   - Obtain BPRS
   - Maximize dose of mood stabilizer. Adjust dose per serum level. Lithium 0.9 – 1.3 mEq/L or Divalproex EC 75 – 115 mg/mL. May take up to 4-6 weeks.
   - Maximize dose of antipsychotic. Maximum recommended dose of risperidone is 6mg/day.
   - Go to box #11.

10. • Obtain baseline BPRS.
    • Initiate monotherapy* with mood stabilizer or antipsychotic and titrate to therapeutic level. Lithium, Divalproex EC, or Risperidone for 4-6 weeks.

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

12. • Continue treatment & monitor.
    • Follow clinical status and BPRS.

13. Discontinue mood stabilizer or antipsychotic and switch to:
    • Alternative mood stabilizer Lithium or Divalproex EC for 4-6 weeks. Titrate dose to therapeutic level.
    • Atypical antipsychotic Risperidone for 4-6 weeks.

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

15. • Continue treatment & monitor.
    • Follow clinical status and BPRS.

16. Consider combination therapy:
    • Lithium plus Divalproex EC
    • or
    • Lithium or Divalproex EC plus Risperidone

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

18. • Continue treatment & monitor.
    • Follow clinical status and BPRS.

19. 1. Re-evaluate diagnosis
    2. Counsel regarding medication compliance
    3. Consider pharmacotherapy consult

*Choice of agent should be based on phase of illness, side effect profile, history of response, and confounding presentation. Antipsychotic agents may be preferred in patients with significant psychotic features.
Is the patient currently depressed?

Yes

No

- Is there a history of at least 1 hypomanic or manic episode?

Yes

- Obtain baseline BPRS.
- Initiate monotherapy* with mood stabilizer or antipsychotic and titrate to therapeutic level. Lithium, Divalproex EC, or Risperidone for 4-6 weeks.
- Begin psychotherapy for depression

No

- Follow Depressive Disorder Pathway

- Is there a history of at least 1 hypomanic or manic episode?

Yes

- Continue treatment & monitor.
- Follow clinical status and BPRS.

No

- Assess compliance

- Discontinue mood stabilizer or antipsychotic and switch to
  - Alternative mood stabilizer Lithium or Divalproex EC for 4-6 weeks. Titrate dose to therapeutic level.
  - Risperidone for 4-6 weeks.

- Consider combination therapy:
  - Lithium plus Divalproex EC
  - Lithium or Divalproex EC plus Risperidone

- Is there a history of at least 1 hypomanic or manic episode?

Yes

- Continue treatment & monitor.
- Follow clinical status and BPRS.

No

- Assess compliance

- Consider combination therapy:
  - Lithium or Divalproex EC plus SSRI (fluoxetine, citalopram or sertraline)
  - Risperidone plus SSRI (fluoxetine, citalopram or sertraline)

- Is the patient currently depressed?

Yes

- Adequate response per clinical status and BPRS?

Yes

- Continue treatment & monitor.
- Follow clinical status and BPRS.

No

- Assess compliance

- Discontinue mood stabilizer or antipsychotic and switch to
  - Alternative mood stabilizer Lithium or Divalproex EC for 4-6 weeks. Titrate dose to therapeutic level.
  - Risperidone for 4-6 weeks.

- Consider combination therapy:
  - Lithium or Divalproex EC plus SSRI (fluoxetine, citalopram or sertraline)
  - Risperidone plus SSRI (fluoxetine, citalopram or sertraline)

- Is the patient currently depressed?

Yes

- Adequate response per clinical status and BPRS?

Yes

- Continue treatment & monitor.
- Follow clinical status and BPRS.

No

- Assess compliance

- Consider combination therapy:
  - Lithium or Divalproex EC plus SSRI (fluoxetine, citalopram or sertraline)
  - Risperidone plus SSRI (fluoxetine, citalopram or sertraline)

- Is the patient currently depressed?

Yes

- Adequate response per clinical status and BPRS?

Yes

- Continue treatment & monitor.
- Consider discontinuation of antidepressant after depressive symptoms have been absent for at least 2 months.
- Follow clinical status and BPRS.

No

- Assess compliance

- Consider combination therapy:
  - Lithium or Divalproex EC plus SSRI (fluoxetine, citalopram or sertraline)
  - Risperidone plus SSRI (fluoxetine, citalopram or sertraline)

- Is the patient currently depressed?

No

- Re-evaluate diagnosis.
- Counsel regarding medication compliance.
- Consider pharmacotherapy consult.
- Consider non-formulary request for prior authorization antipsychotic or lamotrigine.

*Choice of agent should be based on phase of illness, side effect profile, history of response, and confounding presentation. Antipsychotic agents may be preferred in patients with significant psychotic features.

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
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 patients 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 (4 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 consequence

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 severitypsychotic/remission specifiers (e.g., mild, moderate, severe with psychotic features, partial remission, full remission).

- 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, 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.

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>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></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
Divalproex General Information

Divalproex should be started at a dose of 15 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 2: Frequency of Divalproex Monitoring

<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></td>
</tr>
<tr>
<td>Platelet</td>
<td>X</td>
<td></td>
<td></td>
<td>X</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></td>
<td>X</td>
<td></td>
<td></td>
<td>X</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.

Table 3: Risperidone Titration.

<table>
<thead>
<tr>
<th>Titration Schedule</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weeks 1-2</td>
<td>1mg q HS</td>
</tr>
<tr>
<td>Weeks 3-4</td>
<td>1mg BID</td>
</tr>
<tr>
<td>Weeks 5-6</td>
<td>2mg BID</td>
</tr>
</tbody>
</table>

Common side effects: drowsiness, increased appetite, fatigue, abdominal pain, heart burn, bowel changes, weight gain
Rare side effects: abnormal movements, gynecomastia, galactorrhea
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>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Family History</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></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>X</td>
<td>X</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></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>AIMS</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></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>As clinically indicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin2</td>
<td>As clinically indicated</td>
<td></td>
<td></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.

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 ≥ 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, 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 4-18 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 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>Antimanic</td>
<td>Lithium carbonate</td>
<td>Eskalith®</td>
<td>Capsule</td>
<td>300mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cibalith-S®</td>
<td>Syrup</td>
<td>300mg/5ml</td>
</tr>
<tr>
<td>Anticonvulsant</td>
<td>Divalprox Sodium</td>
<td>Depakote®</td>
<td>EC Tablet</td>
<td>250mg, 500mg</td>
</tr>
<tr>
<td>Anticonvulsant</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 | • 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, 60mg, 80mg | • Intolerant to formulary 2nd generation AP  
|                 |               |                |            |                   | • Treatment failure on formulary 2nd generation AP  
|                 |               |                |            |                   | • Contraindication to formulary 2nd generation AP BMI >90%  |
Table 4

<table>
<thead>
<tr>
<th>Drug</th>
<th>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</td>
<td>Initially 900 – 1200 mg daily in 1 to 3 divided doses.</td>
<td>• Hypersensitivity to lithium &lt;br&gt; • Severe cardiovascular or renal disease &lt;br&gt; • Severe debilitation &lt;br&gt; • Dehydration &lt;br&gt; • Sodium depletion &lt;br&gt; • Pregnancy Category D</td>
<td>&gt; 1 – 1.2 mmol/L &lt;br&gt; Patients who are sensitive to lithium may manifest toxicity at serum levels &lt; 1 mmol/L. &lt;br&gt; <em>Note: A rise in white blood cell count is to be expected.</em></td>
<td>Lithium toxicity can be FATAL</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute: &lt;br&gt; • Agidity &lt;br&gt; • Coarsening hand tremor that spreads to other parts of body while patient sitting still &lt;br&gt; • Confusion &lt;br&gt; • Drowsiness &lt;br&gt; • Dysarthria &lt;br&gt; • GI symptoms (diarrhea, N &amp; V, etc.) &lt;br&gt; • Giddiness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Severe Intoxication: &lt;br&gt; • Arrhythmias &lt;br&gt; • Impaired consciousness &lt;br&gt; • Increase in fasciculations and ataxia &lt;br&gt; • CV collapse with oliguria and anuria &lt;br&gt; • Coarse / irregular limb tremors &lt;br&gt; • Coarse muscle contractions &lt;br&gt; • Choreaathetoid movements &lt;br&gt; • Cogwheel rigidity &lt;br&gt; • Coma &lt;br&gt; • Generalized tonic-clonic seizures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Severe Intoxication: &lt;br&gt; • Arrhythmias &lt;br&gt; • Impaired consciousness &lt;br&gt; • Increase in fasciculations and ataxia &lt;br&gt; • CV collapse with oliguria and anuria &lt;br&gt; • Coarse / irregular limb tremors &lt;br&gt; • Coarse muscle contractions &lt;br&gt; • Choreaathetoid movements &lt;br&gt; • Cogwheel rigidity &lt;br&gt; • Coma &lt;br&gt; • Generalized tonic-clonic seizures</td>
<td></td>
</tr>
<tr>
<td>Divalproex Sodium:</td>
<td>135mg/kg/day or 1,000mg/day given in divided doses up to 60mg/kg/day</td>
<td>• Hypersensitivity to valproate &lt;br&gt; • Hepatic dysfunction &lt;br&gt; • Urea cycle disorder &lt;br&gt; • Pregnancy Category D</td>
<td>&gt; 100 – 125 mcg/mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute: &lt;br&gt; • Somnolence &lt;br&gt; • Lethargy &lt;br&gt; • Mental status change &lt;br&gt; • Coma &lt;br&gt; • Hyperbilirubinemia &lt;br&gt; • Hepatoxicity &lt;br&gt; • Heart block &lt;br&gt; • Vomiting &lt;br&gt; • Thrombocytopenia &lt;br&gt; • Prolongation of bleeding time &lt;br&gt; • Alopecia</td>
<td></td>
</tr>
<tr>
<td>Lamotrigine:</td>
<td>Dosing depends on concomitant drug therapy due to drug interactions &lt;br&gt; Therapeutic plasma concentration has not been established. 4-18 mcg/mL</td>
<td>• Hypersensitivity to lamotrigine &lt;br&gt; • Pregnancy Category C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute: &lt;br&gt; • Rash, maculopapular and erythematous &lt;br&gt; • Tourette’s syndrome &lt;br&gt; • Blood dyscrasias</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Severe Intoxication: &lt;br&gt; • Pancreatitis – Do not rechallenge &lt;br&gt; • Hyperammonemic encephalopathy &lt;br&gt; • Hepatotoxicity, severe or fatal &lt;br&gt; • Stevens-Johnson Syndrome &lt;br&gt; • Toxic epidermal necrolysis &lt;br&gt; • Polycystic ovarian syndrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Severe Intoxication: &lt;br&gt; • Pancreatitis – Do not rechallenge &lt;br&gt; • Hyperammonemic encephalopathy &lt;br&gt; • Hepatotoxicity, severe or fatal &lt;br&gt; • Stevens-Johnson Syndrome &lt;br&gt; • Toxic epidermal necrolysis &lt;br&gt; • Polycystic ovarian syndrome</td>
<td></td>
</tr>
</tbody>
</table>
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)**

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.</td>
<td>SOMATIC CONCERN - Preoccupation with physical health, fear of physical illness, hypochondriasis.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>ANXIETY - Worry, fear, over-concern for present or future, uneasiness</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>EMOTIONAL WITHDRAWAL - Lack of spontaneous interaction, isolation deficiency in relating to others.</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>CONCEPTUAL DISORGANIZATION - Thought processes confused, disconnected, disorganized, disrupted.</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>IMPULSIVENESS</td>
</tr>
<tr>
<td></td>
<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></td>
<td>7.</td>
<td>MANNERISMS AND POSTURING - Peculiar, bizarre, unnatural motor behavior (not including tic).</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>GRANDIOSITY - Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.</td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td>DEPRESSIVE MOOD - Sorrow, sadness, despondency, pessimism.</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>HOSTILITY - Animosity, contempt, belligerence, disdain for others.</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>SUSPICIOUSNESS - Mistrust, belief others harbor malicious or discriminatory intent.</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>HALLUCINATORY BEHAVIOR - Perceptions without normal external stimulus correspondence.</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>MOTOR RETARDATION - Slowed, weakened movements or speech, reduced body tone.</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>UNCOOPERATIVENESS - Resistance, guardedness, rejection of authority.</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>UNUSUAL THOUGHT CONTENT - Unusual, odd, strange, bizarre thought content.</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>BLUNTED AFFECT - Reduced emotional tone, reduction in formal intensity of feelings, flatness.</td>
</tr>
<tr>
<td></td>
<td>17.</td>
<td>EXCITEMENT - Heightened emotional tone, agitation, increased reactivity.</td>
</tr>
<tr>
<td></td>
<td>18.</td>
<td>DISORIENTATION - Confusion or lack of proper association for person, place or time.</td>
</tr>
<tr>
<td></td>
<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></td>
<td>20.</td>
<td>SUICIDALITY - Expressed desire, intent, or actions to harm or kill self.</td>
</tr>
<tr>
<td></td>
<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></td>
<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></td>
<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 adjoining room, books on a shelf, interviewer's clothing, etc.</td>
</tr>
</tbody>
</table>
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. Fluoxetine 10 – 60 mg/day for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

4. Switch to alternative formulary SSRI not tried above. Citalopram 10 – 40mg/day or Sertraline 50 – 200mg/day for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

5. Switch to alternative formulary antidepressant with different mechanism of action. Venlafaxine 37.5 - 225mg/day *
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

6. Switch to alternative non-formulary antidepressant. Bupropion XL for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

7. Begin combination therapy. Venlafaxine or Bupropion XL plus SSRI for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

8. Continue combination antidepressant therapy from above plus Lithium or Lamotrigine for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

9. Consider therapy with antidepressant with best response plus formulary atypical antipsychotic for 4-6 weeks*
   - Adequate response per BPRS
   - Continue treatment
   - Assess compliance
   - Inadequate response per BPRS

10. Reconsider diagnosis and consider psychopharmacology consultation
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 week3, 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>X</td>
<td></td>
</tr>
<tr>
<td>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
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, 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 4-18 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 Sertraline</td>
<td>Celexa® Prozac® Zoloft®</td>
<td>Tablet Capsule Tablet</td>
<td>10mg, 20mg, 40mg 10mg, 20mg 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>Tricyclic Antidepressant* (TCA)</td>
<td>Nortriptyline Imipramine</td>
<td>Pamelor® Tofranil®</td>
<td>Capsule</td>
<td>25mg, 50mg, 75mg 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 depression in children or adolescents
Monitoring Parameters for Antipsychotics

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 (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>X</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>As clinically indicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EKG1</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin2</td>
<td>As clinically indicated</td>
<td></td>
<td></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.
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>
<tr>
<td>• Acute EPS - Akathisia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tardive Dyskinesia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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)

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. 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. 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.
TYPE 1 DIABETES MELLITUS
(Children & Adolescents)


2. Obtain fasting lipid profile at baseline after glycemic controlled achieved if
   a. ≥ 10 years:
      • If normal (LDL <100mg/dl), repeat every 5 years.
      • If abnormal, institute lifestyle modifications for 6 months. If goal LDL of <100mg/dl is not met after 6 months, start statin therapy (pravastatin 10 to 80mg if no contraindications – Table 8) if
        • LDL ≥130mg/dl and patient has at least 1 cardiovascular risk factor.
        • LDL ≥160mg/dl and patient has 0 cardiovascular risk factors.
        • Recheck lipid panel every 3 months until patient reaches goal (LDL <100mg/dl). Once at goal, recheck lipid panel 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 if no contraindications (Refer to Table 8 for ACEI contraindications). Refer to Hypertension disease management guidelines for children & adolescents.

4. Start low dose ACE inhibitor* if microalbuminemia 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) if BMI >80th percentile.

6. Administer annual influenza vaccine. If pneumococcal vaccine was not previously given in their lifetime, administer one time only.

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.

9. Begin multiple daily insulin injections. Dose insulin 0.5 units/kg/day. Use NPH insulin for basal insulin requirements, which should be 50% of total daily dose (TDD) of insulin. Administer 2/3 of the NPH dose in the morning and 1/3 in the evening. Remaining 50% of TDD is administered as Regular insulin divided before meals (See Table 9).

• Obtain fasting finger sticks 3 times a day before meals and at bedtime for 2 weeks.
• Follow up in 2 weeks.

10. 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.
    • Monitor for hypoglycemia (Table 10).
    • Follow up every 2 weeks until FS at goal. (Table 1)

11. Is patient experiencing hypoglycemia ≥ twice a week? (FS <70mg/dl)
    • See Table 10.

12. Check A1C every 3 months. Is A1C at goal?
    • Yes
      • 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 microalbuminemia using a random spot urine sample annually.
        • If A1C not at goal, go to box #4.
    • No
      • Rerevaluate compliance with medications, exercise and diet.
      • Reevaluate NPH and regular insulin doses
      • Consider referral to specialist.

### Table 1: Glycemic Control Goals

<table>
<thead>
<tr>
<th>Age</th>
<th>Premeal BG</th>
<th>Bedtime/Overnight BG</th>
<th>A1C</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12 yrs</td>
<td>90-180</td>
<td>100-180</td>
<td>&lt; 8%</td>
<td>Glucose &lt; 90 or &gt; 180 and/or A1C &gt;8%</td>
</tr>
<tr>
<td>13-19 yrs</td>
<td>90-130</td>
<td>90-150</td>
<td>&lt; 7.5%</td>
<td>Glucose &lt; 90 or &gt; 150 and/or A1C &gt;8%</td>
</tr>
</tbody>
</table>

*If intolerant to ACE-inhibitor, obtain microalbumin annually. If microalbumin > 30, consider non-dihydropyridine CCB (verapamil or diltiazem)

Prepared By The Correctional Managed Care Pharmacy & Therapeutics Committee, November 2006, Revised 11/07 and 4/11

The pathways do not replace sound clinical judgment nor are they intended to strictly apply to all patients.
**TYPE 2 DIABETES MELLITUS (Children & Adolescents)**

1. Institute Lifestyle Modifications & Group/Individual Education with Specific Patient Goals
   2. Obtain fasting lipid profile at baseline after glycemic control achieved if ≥10 years:
      - If normal (LDL <100mg/dL), repeat every 5 years.
      - If abnormal, recheck annually. Institute lifestyle modifications for 6 months. If goal LDL of <100mg/dL is not met after 6 months, start statin therapy (pravastatin 10 to 80mg if no contraindications – Table 8)
        - LDL ≥130mg/dL and patient has at least 1 cardiovascular risk factor.
        - LDL ≥160mg/dL and patient has 2 or more cardiovascular risk factors.
        - Redo lipid panel every 3 months until patient reaches goal (LDL <100mg/dL).
      Once goal, recheck lipid panel annually.
   3. 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.
   4. Determine if blood pressure goal of <90th percentile for age, sex, and height, ACE inhibitor (enalapril 2.5 mg QD) preferred for initial treatment of hypertension if no contraindications (see Table 8). Refer to Hypertension Disease management guidelines for children & adolescents.
   5. Start low dose ACE inhibitor* if microalbuminuria is present (enalapril 2.5 mg QD) and if no contraindications (see Table 8).
   6. Execute exercise plan, diet plan, smoking cessation and weight loss plan if BMI >80th percentile.
   7. Administer annual influenza vaccine. If pneumococcal vaccine not previously given in lifetime, administer one time only.
   8. Refer to Dental for oral/periodontal disease evaluation if not completed at intake.
   9. Refer for diabetess ex.

2. If FPG <100mg/dL or A1c <5.7%,
   - Recheck no later than every 3 years

3. If FPG 100 to 125 mg/dL or A1c 5.7-6.4% (Increased Risk for Diabetes – see Table 3)
   - Counsel on exercise, diet and weight loss
   - Provide diabetes education
   - Treat HTN and hyperlipidemia
   - Recheck FPG annually

4. *If intolerant to ACE inhibitor, obtain microalbumin annually. If microalbumin >30, consider non-dihydropyridine CCB (verapamil or diltiazem).

5. Start metformin in 500mg daily if no contraindication (Table 8). Titrate up to ≥1500mg/day in 500mg increments over 2-4 weeks. Maximum dose is 2500mg/day.
   - Monitor fasting finger sticks (FS) for 2 weeks and follow-up in clinic in 2 weeks.

6. No 6 Yes Controlled?

7. No 7 Yes Controlled?

8. 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 FS for blood glucose (BG) response for 2 weeks.
   - Monitor for hypoglycemia (Table 10).

9. No 9 Yes Go to box #7

10. Check A1C in 3 months Is A1C at goal?
   - Continue current therapy. Follow up in CCF in 3 months
   - Recheck A1C every 6 months.
   - Recheck Chem 10, UA, eye and foot exam annually.
   - Check for microalbuminuria/abnormal using a random spot urine sample annually.

11. Go to box #15

12. Recheck A1C in 3 months Is A1C at goal?
   - Go to box #7
   - Continue current therapy. Follow up in CCF in 3 months
   - Recheck A1C every 6 months.
   - Recheck Chem 10, UA, eye and foot exam annually.
   - Check for microalbuminuria/abnormal using a random spot urine sample annually.

13. No 13 Yes Go to box #7

---

**Table 1: Glycemic Control Goals**

<table>
<thead>
<tr>
<th>Age</th>
<th>Prednisolone</th>
<th>BMI/Height/Weight</th>
<th>HbA1c</th>
<th>Consider Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12 yrs</td>
<td>90-180</td>
<td>100-180</td>
<td>&lt; 8%</td>
<td>Glucose &lt; 90 or ≥180 or A1C &gt;8%</td>
</tr>
<tr>
<td>13-19 yrs</td>
<td>90-130</td>
<td>90-150</td>
<td>&lt; 7.5%</td>
<td>Glucose &lt; 90 or ≥150 or A1C &gt;8%</td>
</tr>
</tbody>
</table>

---

The pathways do not replace sound clinical judgment but are intended to strictly apply to all patients.
15 Continued from box#14

16 Are PM FS at goal?
  Yes 17 Recheck A1C in 3 months, Is A1C at goal?
  No 18 Go to box #7

19 Yes

- Continue metformin and glipizide.
- Start Multi-dose Insulin Therapy by increasing NPH to twice daily dosing. Add NPH at 0.3u/kg in the AM to the PM regimen started above in box # 11. Titrate AM or PM dose of NPH by 10% of the total daily dose (TDD) until AM and PM fingersticks are at goal.
- Obtain AM and PM FS.
- Monitor for hypoglycemia (Table 10).
- Follow up at least monthly.

20 No

21 Recheck A1C in 3 months, Is A1C at goal?
  Yes 22 Go to box #7
  No 23

22 Yes

- Continue metformin.
- 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 glipizide.
- Obtain AM and PM FS.
- Monitor for hypoglycemia (Table 10).
- Follow up at least monthly.

23 No

24 Are AM and PM FS at goal?
  Yes 25 Recheck A1C in 3 months, Is A1C at goal?
  No 26 Go to box #7

25 Yes

26 No

27 Titr ate NPH and/or Regular Insulin AM or PM by 10% of TDD.
If TDD is >200u/day, consider referral to specialist.

Prepared by The Correctional Managed Care Pharmacy and Therapeutics Committee, November 2006. Revised 11/07 and 4/11.
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

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>
<tr>
<td>Plus any two of the following risk factors</td>
<td>• Family history of type 2 diabetes in first or second-degree relative</td>
</tr>
<tr>
<td></td>
<td>• Race/ethnicity – Native American, African American, Latino, Asian American, Pacific Islander</td>
</tr>
<tr>
<td></td>
<td>• Signs of insulin resistance or conditions associated with insulin resistance (e.g., acanthosis nigricans, hypertension, dyslipidemia, polycystic ovarian syndrome)</td>
</tr>
<tr>
<td></td>
<td>• Maternal history of diabetes or gestational diabetes</td>
</tr>
</tbody>
</table>

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 A1C > 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 A1C rises, the risk of diabetes rises disproportionately. See Table 11 for association of A1C and average glucose.
Table 3: Categories of Increased Risk for Diabetes

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPG</td>
<td>100 – 125mg/dl</td>
</tr>
<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>

V. Diagnosis

A. Most children with type 1 diabetes present with a short duration of symptoms (several weeks' history) such as polyuria, polydipsia, polyphagia, weight loss, hyperglycemia, glycosuria, ketonemia, and/or ketonuria.

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 ≥ 200mg/dl, FPG is ≥ 126 mg/dl, or 2-hr plasma glucose ≥ 200mg/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 ≥ 200 mg/dl, diagnosis does not require a repeat value on another day.
3. A1c ≥ 6.5%. Confirmation by repeat testing preferred. A1C may not be an effective test in special patient populations with affected hemoglobin disorders.

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 ≥ 200mg/dl</td>
</tr>
<tr>
<td>Fasting plasma glucose (FPG)</td>
<td>FPG ≥ 126mg/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 ≥ 200mg/dl during OGTT.</td>
</tr>
<tr>
<td>Hemoglobin A1C</td>
<td>A1C ≥ 6.5%</td>
</tr>
</tbody>
</table>

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
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 5: Laboratory Monitoring

<table>
<thead>
<tr>
<th>Test</th>
<th>Frequency of Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting plasma glucose</td>
<td>• Baseline&lt;br&gt;• As clinically indicated to monitor/adjust medications</td>
</tr>
<tr>
<td>A1C*</td>
<td>• Baseline&lt;br&gt;• Every 6 months if stable and meeting treatment goals&lt;br&gt;• Every 3 months if not meeting treatment goals</td>
</tr>
</tbody>
</table>
| Fasting lipid profile               | • At baseline, after glycemic control is achieved<br>• Type 1 diabetes<br>  
 o ≥ 10 years: repeat every 5 years if initial screen is normal (LDL < 100mg/dl). If abnormal, institute lifestyle modifications for 6 months. If goal LDL of <100mg/dl is not met after 6 months, start statin therapy (pravastatin 10 to 80mg if no contraindications – Table 8) if  
  ▪ LDL ≥130mg/dl and patient has at least 1 cardiovascular risk factor  
  ▪ LDL ≥160mg/dl and patient has 0 cardiovascular risk factors  
  ▪ Recheck lipid panel every 3 months until patient reaches goal (LDL <100mg/dl). Once at goal, recheck lipid panel annually.  
 o < 10 years: Only begin ≥2 yo and has positive family history (FH) of hypercholesterolemia (TC > 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 (≥10 years). Repeat every 5 years if initial screen is normal. If abnormal, annual monitoring. Statins not recommended in children < 10 years of age.  
 • Type 2 diabetes - screen all children at baseline regardless of age, repeat every 5 years if initial screen is normal |
| TSH                                 | Baseline (every 2 years in type 1 diabetics). Measure Free T4 if TSH abnormal.          |
| Urinalysis                          | Baseline & annual to screen or as clinically indicated.                                 |
| Random spot urine sample            | Baseline & annual to screen for microalbuminuria. Screening should be initiated once the child is 10 years of age and has had diabetes for 5 years. |
| CHEM 10 (i.e. creatinine)           | Baseline & annual or as clinically indicated                                          |

*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) Gastroenterologist 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 0.9 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 usually preferred during pregnancy
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, radiocontrast media, hypoxic conditions, hepatic disease, metabolic acidosis, hypersensitivity to metformin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pregnancy category B</td>
</tr>
<tr>
<td>Glipizide</td>
<td>5mg qd Max 20mg bid</td>
<td>• Contraindications: Diabetic ketoacidosis, hypersensitivity to glipizide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pregnancy category C</td>
</tr>
<tr>
<td>Insulin</td>
<td>0.5 to 1 units/kg/day</td>
<td>• Contraindication: Hypersensitivity to insulin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Insulin requirements may decrease in newly diagnosed patients during the honeymoon phase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Insulin requirements may increase during puberty to as much as 1.5 units/kg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pregnancy category D</td>
</tr>
<tr>
<td>Pravastatin</td>
<td>Max 80mg/day</td>
<td>• Contraindications: Active liver disease, unexplained persistent elevations of serum transaminases, pregnancy, hypersensitivity to statins or any component of the formulation</td>
</tr>
<tr>
<td></td>
<td>• 10-13 years – 20mg/day</td>
<td>• Pregnancy category X</td>
</tr>
<tr>
<td></td>
<td>• 14-18 years - 40mg/day</td>
<td></td>
</tr>
</tbody>
</table>

Table 9: 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 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 individuals 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>Mg/dl</td>
<td>Mmol/L</td>
</tr>
<tr>
<td>6</td>
<td>126</td>
</tr>
<tr>
<td>7</td>
<td>154</td>
</tr>
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<td>8</td>
<td>183</td>
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<td>240</td>
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<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 foot, 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 (e.g. control of carbohydrate intake)
EXPLOSIVE/REACTIVE AGGRESSION (Adolescents)

Prominent reactive aggression during explosive outbursts not related to typical predatory aggression seen in Conduct Disorder and not better accounted for by Bipolar Disorder, depression, psychosis, ADHD, or ODD. May meet DSM-IV criteria for 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. Initiate monotherapy with mood stabilizer or atypical antipsychotic for 4 weeks. (May switch between agents within class)
   
   - Partial Response
   
   - Adequate Response
     - Continue treatment
   
   - Inadequate Response
     - Partial Response
     
     4. Initiate monotherapy with drug class not tried above for 4 weeks. (May switch between agents within class)
        
        - Partial Response
        
        - Adequate Response
          - Continue treatment
        
        - Inadequate Response
          - Continue treatment

3. Continue treatment

5. Continue treatment

6. Initiate combination therapy mood stabilizer plus atypical antipsychotic for 4 weeks.

   - Inadequate Response
     
     8. Consider other agents (e.g., Inderal, SSRI) and/or psychopharmacology consultation
        
        - Adequate Response
          - Continue treatment

Prepared By The Texas Youth Commission and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. October 2001, revised 5/12/02, 2/25/04, 3/1/06.
### 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;90th percentile</td>
<td>Encourage healthy diet, sleep &amp; exercise</td>
<td>None</td>
</tr>
</tbody>
</table>
| Prehypertension              | 90th to 94th percentile or BP > 120/80mmHg even if <90th percentile up to 94th percentile | • Weight loss if overweight  
• Exercise program  
• Diet plan | None unless compelling indications
| Stage 1 Hypertension         | 95th to 99th percentile plus 5mmHg | • Weight loss if overweight  
• Exercise program  
• Diet plan | 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 |
| Stage 2 Hypertension         | > 99th percentile plus 5mmHg | • Weight loss if overweight  
• Exercise program  
• Diet plan | Initiate therapy with ACEI, BB, CCB, or diuretic. More than 1 drug may be required. |

---

1. Adapted from 4th Report on the Diagnosis, Evaluation and Treatment of High Blood Pressure in Children & Adolescents
2. For gender, age, and height (use tables) measured on 3 separate occasions. Categorize based on the highest value if SBP and DBP differ
3. Compelling indications include diabetes, chronic kidney disease, and heart failure
4. This BP level typically occurs for SBP at 12 years old and for DBP at 16 years old

### Flowchart

1. Is blood pressure < 90th percentile and ≤ 120/80 (normal)?
   - Yes: Encourage healthy diet, sleep, & exercise. Follow-up as needed and recheck blood pressure at next regularly scheduled visit.
   - No: Complete history, physical, and obtain laboratory tests.

2. Any secondary causes of HTN identified?
   - Yes: Manage secondary causes as indicated and initiate antihypertensive therapy as indicated (go to box #6 to treat hypertension).
   - No: Go to box #9, Page 2

3. Does the patient have pre-hypertension?
   - Yes: Go to box #9, Page 2
   - No: Go to box #14, Page 2

**Prepared by the Correctional Managed Care Pharmacy & Therapeutics Committee. November 2006. Revised 4/09.**
Does the patient have compelling indications (diabetes, kidney disease, heart failure)?

No

Yes

Treat with lifestyle modifications & recheck blood pressure in 6 months.

Determine blood pressure classification.

Treat with lifestyle modifications & start drug therapy for compelling indication (table 8).

Stage I HTN

Is the patient symptomatic, have target organ damage or secondary HTN?

No

Yes

Go to box 26.

Treat with lifestyle modifications.

Obtain BP readings monthly. Follow up in 3 months.

Is blood pressure at goal <95th percentile?

Yes

No

Continue lifestyle modifications. Follow up as needed at least every 12 months.

Stage I 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.

Stage II HTN

• Treat with lifestyle modifications
• Initiate drug therapy ACEI, BB, CCB, or diuretic.

Goal BP achieved?

Yes

No

Continue current treatment. Follow up as needed at least every 12 months.

Increase dose as tolerated. Follow up based on box # 26.

Counsel patient regarding importance of compliance.

Is the patient experiencing adverse effects?

Yes

No

Goal BP achieved?

Yes

No

Continue current treatment. Follow up as needed at least every 12 months.

Consider intensive counseling, DOT, stabilization in infirmary, or consultation.
I. 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</td>
<td>Recheck in 6 months</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>95th to 99th percentile</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>plus 5mmHg</td>
<td></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 problem/disorder
   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 enlarge 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 3: BP Level For Males by Age and Height

<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></td>
<td></td>
<td>5th</td>
<td>10th</td>
<td>25th</td>
<td>50th</td>
</tr>
<tr>
<td>8</td>
<td>90th</td>
<td>107</td>
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Table 4

CDC Growth Charts: United States

Stature-for-age percentiles: Boys, 2 to 20 years
Table 5: BP Level For Females by Age and Height

<table>
<thead>
<tr>
<th>Age</th>
<th>BP %</th>
<th>SBP (mmHg) Percentile of Height</th>
<th>DBP (mmHg) Percentile of Height</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>
Table 6

CDC Growth Charts, United States

Stature-for-age percentiles: Girls, 2 to 20 years
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
   3. 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>• Initial: 0.08mg/kg/day up to 5mg/day</td>
<td>• ACE inhibitor</td>
</tr>
<tr>
<td>2.5, 5, 10, &amp; 20mg</td>
<td>• Max: 0.6mg/kg/day up to 40mg/day</td>
<td>• FDA pediatric labeling for children ≥ 6 and creatinine clearance ≥ 30 ml/min</td>
</tr>
<tr>
<td></td>
<td>• Qd or bid</td>
<td>• Contraindicated in pregnancy</td>
</tr>
<tr>
<td>Atenolol (Tenormin®)</td>
<td>• Initial: 0.5-1 mg/kg/day given qd or bid</td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td>25, 50mg</td>
<td>• Max: 2mg/kg/day up to 100mg/day</td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Metoprolol (Lopressor®)</td>
<td>• Initial: 1mg/kg day given once daily</td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td>25, 50, &amp; 100mg</td>
<td>(Initial dose should not exceed 50mg/day)</td>
<td>• FDA pediatric labeling for children ≥ 6 years old</td>
</tr>
<tr>
<td></td>
<td>• Max: 6mg/kg/day up to 200mg/day</td>
<td></td>
</tr>
<tr>
<td>Propranolol (Inderal®)</td>
<td>• Initial: 1-2mg/kg/day given tid</td>
<td>• Beta-blocker</td>
</tr>
<tr>
<td>10, 20 &amp; 40mg</td>
<td>• Max: 4mg/kg/day up to 640mg/day</td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td>Amlodipine (Norvasc®)</td>
<td>• Initial: 2.5mg/day given qd</td>
<td>• Calcium channel blocker</td>
</tr>
<tr>
<td>5 &amp; 10mg</td>
<td>• Max: 5mg/day</td>
<td>• FDA pediatric labeling for children ≥ 6 years old</td>
</tr>
<tr>
<td>Hydrochlorothiazide,HCTZ</td>
<td>• Initial: 1mg/kg/day given qd</td>
<td>• Diuretic</td>
</tr>
<tr>
<td>12.5, 25 &amp; 50mg</td>
<td>• Max: 3mg/kg/day up to 50mg/day</td>
<td>• FDA pediatric labeling</td>
</tr>
<tr>
<td>Furosemide (Lasix®)</td>
<td>Initial: 0.5-2 mg/kg/dose given qd or bid</td>
<td>• Diuretic</td>
</tr>
<tr>
<td>20 &amp; 40mg</td>
<td>Max: 6mg/kg/day</td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Spirinolactone (Aldactone®)</td>
<td>Initial: 1mg/kg/day given qd or bid</td>
<td>• Diuretic</td>
</tr>
<tr>
<td>25mg</td>
<td>Max: 3.3mg/kg/day up to 100mg/day</td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Doxazosin (Cardura®)</td>
<td>Initial: 1mg/day given qd</td>
<td>• Alpha-blocker</td>
</tr>
<tr>
<td>1, 2, &amp; 4mg</td>
<td>Max: 4mg/day</td>
<td>• No FDA pediatric labeling</td>
</tr>
<tr>
<td>Minoxidil (Loniten®)</td>
<td>≥12 years initial: 5mg/day given qd-tid</td>
<td>• Vasodilator</td>
</tr>
<tr>
<td>2.5 &amp; 10mg</td>
<td>≥12 years max: 100mg/day</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>
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<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>• Methyldopa, beta blockers, vasodilators preferred.</td>
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<tr>
<td></td>
<td>• ACE inhibitor and Angiotensin II receptor antagonist (ARB) contraindicated</td>
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</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. Obtain blood pressure reading. Follow up next day to obtain blood pressure reading. Follow up in Chronic Care Clinic per ITM. 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.
• Assess for concurrent medical, psychiatric, and developmental disorders.
• 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?

Pediatric Insomnia Suspected?

Sleep-Related Movement Disorder (SRMD) Suspected?

Sleep-Related Breathing Disorder (SRBD) Suspected?

Parasomnia Suspected?

Go to Box 17

Go to Box 18

Rule-out underlying seizure disorder

Go to Box 32

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 Movement Disorder (SRMD) Suspected?

- Consider referral to sleep clinic for sleep study

SRMD Confirmed?

- Yes: Go to Box 1
- No: No

SRBD Confirmed?

- Yes: Initiate behavioral interventions See Table 1
- No: No

Evaluate serum ferritin levels

Does patient have low serum ferritin?

- Yes: Consider iron supplementation of 1 – 2 mg/kg to achieve ferritin level of more than 50 ng/dL
- No: Evaluate response to therapy
  - Adequate response: Go to Box 29
  - Inadequate response: Continue behavioral interventions

Reconsider diagnosis and consider psychopharmacology consultation

Parasomnia Disorder as outlined by the DSM-IV?

- Adequate response: Initiate behavioral interventions See Table 1
- Inadequate response: Consider use of Cognitive Behavioral Therapy
  - Adequate response: Continue treatment
  - Inadequate response: Reconsider diagnosis and consider psychopharmacology consultation

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.
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%.2 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 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.
  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 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, 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.

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)

Meet 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.

1. Obtain baseline laboratories as indicated in tables 1-2. Medication selection is covered on page 5.

2. Initiate monotherapy with formulary atypical antipsychotic risperidone up to 6mg/day (4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

3. Initiate monotherapy with alternative formulary prior authorization atypical antipsychotic not tried above (aripiprazole up to 30mg/day or ziprasidone 160mg/day for 4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

4. Initiate monotherapy with non-formulary atypical antipsychotic not trialed above or typical antipsychotic (4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

5. Initiate adjunctive therapy with mood stabilizer lithium or divalproex and titrate to therapeutic level (4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

6. Initiate adjunctive therapy with alternative mood stabilizer not tried above and titrate to therapeutic levels (4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

7. Initiate adjunctive therapy with lithium and divalproex and titrate to therapeutic levels (4-6 weeks).
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

8. Reconsider diagnosis and consider psychopharmacology consultation
   - Adequate response per BPRS
   - Continue treatment and monitor per recommendations in tables 1-3
   - Inadequate response per BPRS
   - Assess Compliance

Prepared By The Texas Youth Commission and Reviewed By The Correctional Managed Care Pharmacy & Therapeutics Committee. October 2001, revised 5/12/02, 2/25/04, 3/1/06, 4/19/10.
Antipsychotic Monitoring Parameters in Children and Adolescents Receiving Antipsychotic Pharmacotherapy

Table 1: Metabolic and Endocrine Monitoring Guidelines for Antipsychotic Agents in Children and Adolescents $^{1,2,3,4,5}$

<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>
</tbody>
</table>
| Weight-Height-BMI  
(overweight 25.0-29.9; obese $\geq 30.0$) | X        | X       | X       | X        | X        | X        |
| Blood Pressure, Pulse                  | X        |         |         | X        | X        | X        |
| Fasting Plasma Glucose                | X        |         |         | X        | X        | X        |
| Fasting Lipid Profile                 | X        |         |         | X        | X        | X        |
| CBC, LFT, SCr, Electrolytes           | X        |         |         | X        | X        | X        |
| TSH                                    | X        |         |         |          |          | As clinically indicated |
| EKG$^1$                                | As clinically indicated |         |         |          |          |          |
| Prolactin$^2$                          | As clinically indicated |         |         |          |          |          |

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\textsuperscript{6,7,8,9}

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMS</td>
<td>X</td>
<td>Baseline, at 3 months, then annually</td>
</tr>
<tr>
<td>(Abnormal Involuntary Movement Scale) •Acute EPS - Akathisia •Tardive Dyskinesia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPRS</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>
<tr>
<td>(Brief Psychiatric Rating Scale)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Occurrence of Adverse Effects of Antipsychotic Agents in Children and Adolescents\textsuperscript{10,11}

<table>
<thead>
<tr>
<th>Drug</th>
<th>EPS</th>
<th>Hyper-prolactinemia</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>

\textit{EPS} = extrapyramidal symptoms \\
\textit{NMS} = neuroleptic malignant syndrome \\
\textit{QTc} = corrected QT interval \\
\textit{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 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. Alternately, 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>2mg</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>
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>600 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</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>Upward Titration</th>
<th>Risperdal</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>2 mg</td>
<td>4 mg</td>
<td>6 mg</td>
<td></td>
</tr>
<tr>
<td>Divide:</td>
<td>1 mg/1 mg</td>
<td>2 mg/2 mg</td>
<td>3 mg/3 mg</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</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Generation Antipsychotic</td>
<td>Chlorpromazine</td>
<td>10mg, 25mg, 50mg, 100mg, 200mg tablet</td>
</tr>
<tr>
<td></td>
<td>Fluphenazine</td>
<td>25mg/ml injection</td>
</tr>
<tr>
<td></td>
<td>Haloperidol</td>
<td>2.5mg, 5mg, 10mg tablet</td>
</tr>
<tr>
<td></td>
<td>Perphenazine</td>
<td>2.5mg/ml inj, 25mg/ml decanoate inj.</td>
</tr>
<tr>
<td></td>
<td>Thiothixene</td>
<td>1mg, 5mg tablet; 2mg/ml oral concentrate</td>
</tr>
<tr>
<td></td>
<td>Trifluoperazine</td>
<td>5mg/ml inj, 100mg/ml decanoate inj</td>
</tr>
<tr>
<td>2nd Generation Antipsychotic</td>
<td>Risperidone</td>
<td>0.5mg, 1mg, 2mg, 3mg &amp; 4mg tablet</td>
</tr>
<tr>
<td></td>
<td>Ziprasidone</td>
<td>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>• Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td>2mg, 5mg, 10mg &amp; 15mg tablet</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>• Intolerant to formulary 2nd generation antipsychotic</td>
</tr>
<tr>
<td></td>
<td>20mg, 40mg, 60mg, &amp; 80mg capsule</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>
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.
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. 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. 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.
**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?

   - Yes
     - Perform BPRS and follow for specific symptom resolution.
     - Therapy effective with documented symptom improvement with ≥ 80% compliance?

     - Yes
       - 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

     - No
       - 1. Reevaluate diagnosis and counsel regarding importance of medication adherence.
       - 2. Consider one of the following:
         - Increase toward full therapeutic dose of current antidepressant as clinically indicated and tolerated by the patient for at least 6-12 weeks, or
         - Switch to alternative formulary antidepressant (See Box 6), or
         - Switch to Guanfacine 0.05 – 0.08 mg/kg/day up to maximum 4mg/day, or
         - Switch to Propranolol 20 – 160 mg/day

   - No
     - Treat underlying disorder

3. Comorbid depression, bipolar disorder, or other anxiety disorder?

   - Yes
     - Refer to psychotherapy and initiate medication per appropriate co-morbid treatment pathway

   - No
     - • 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

4. 1. Perform BPRS and follow for specific symptom resolution.
   2. Antidepressant therapy effective with documented symptom improvement with ≥ 80% compliance?

5. 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

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. 1. Reevaluate diagnosis and counsel regarding importance of medication adherence.
   2. Consider one of the following:
      - Increase toward full therapeutic dose of current antidepressant as clinically indicated and tolerated by the patient for at least 6-12 weeks, or
      - Switch to alternative formulary antidepressant (See Box 6), or
      - Switch to Guanfacine 0.05 – 0.08 mg/kg/day up to maximum 4mg/day, or
      - Switch to Propranolol 20 – 160 mg/day

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 and counsel regarding importance of medication adherence.
   2. Consider Pharmacotherapy Consult or request for Nonformulary Medication.

Prepared By The Youth Services Pharmacy & Therapeutics Committee. Approved 10/2011.
**POST TRAUMATIC STRESS DISORDER IN ADOLESCENTS**

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: Treatments for PTSD**

<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>Selective Serotonin Reuptake Inhibitor (SSRI)</td>
<td>Citalopram 10mg, 20mg, 40mg</td>
<td>Celexa® 10mg</td>
<td>10mg (10 – 40)</td>
<td>• Pregnancy Test – as clinically indicated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Emergence of suicidal ideation or behavior</td>
</tr>
<tr>
<td>SSRI</td>
<td>Fluoxetine 10mg, 20mg</td>
<td>Prozac® 10mg</td>
<td>10mg (10 – 60)</td>
<td></td>
</tr>
<tr>
<td>SSRI</td>
<td>Sertraline 50mg, 100mg</td>
<td>Zoloft® 50mg</td>
<td>50mg (50 – 200)</td>
<td></td>
</tr>
<tr>
<td>Alpha antagonist*</td>
<td>Guanfacine 1mg, 2mg</td>
<td>Tenex® 1mg</td>
<td>1mg (1 – 4)</td>
<td>• Pregnancy Test – as clinically indicated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Monitor supine, standing, and sitting BP especially at initiation or change in dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Monitor for orthostatic hypotension</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Taper over 1 week or more when discontinuing</td>
</tr>
<tr>
<td>Beta antagonist</td>
<td>Propranolol 10mg, 20mg, 40mg</td>
<td>Inderal® 20mg</td>
<td>20mg (20-160)</td>
<td>• Pregnancy Test - as clinically indicated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Monitor supine, standing, and sitting BP especially at initiation or change in dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Monitor for orthostatic hypotension</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Taper over 1 week or more when discontinuing</td>
</tr>
</tbody>
</table>
POST TRAUMATIC STRESS DISORDER and ACUTE STRESS DISORDER

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 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 - Mistrust, 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, guardedness, 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. 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.</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?

Yes

No

Observe and follow-up as indicated. Discharge from medical department.

Seizure Activity continuing for 6-9 minutes?

Yes

No

• 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 > 10 minutes?

Yes

No

• 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

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.

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

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).
   - Yes
   - No
   - If seizure disorder is ruled out, discontinue from Chronic Care Clinic.
   - 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. If seizure disorder is confirmed, initiate AED therapy based on seizure classification (see Appendix A&B). Go to box #7.
   - Yes
   - No

7. Assess Medication Regimen
   - Check medication compliance.
   - Obtain AED level if indicated.
   - Obtain baseline lab appropriate for AED (see Appendix C)
   - Is AED therapy effective and tolerable?
     - Yes
     - No

8. Monitor & obtain laboratories appropriate to AED utilized (Appendix C). Consider the following which may apply:
   - Counsel on importance of compliance
   - Adjust dose
   - Change to alternate AED - Once new AED is at therapeutic dose taper the old agent slowly and discontinue.
   - Add additional AED if patient already failed 2 monotherapy regimens.
   - Consider referral if patient remains poorly controlled.

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

**One seizure event is not necessarily diagnostic for seizure disorder and may not require long-term AED therapy.
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)
      c. Seizure triggers (e.g. sleep deprivation, alcohol, stress)
   3. Identify all co-morbidities.
   4. Identify possible causes including family history of epilepsy, history of head trauma, birth complications, fever or 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, bactafen).

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 seizure 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
   - Toxology screen
   - MRI (CT if unavailable or contraindicated)
   - 12 lead ECG
   - 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. Principles 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

3. Potential Reasons for Treatment Failure
   a. Incorrect diagnosis
   b. Incorrect AED for seizure type/syndrome
   c. Subtherapeutic level (inadequate dosing, drug interactions, poor adherence—most common reason for treatment failure)
   d. Refractory seizures
4. Step therapy
   a. Monotherapy is preferred. Generally consider at least two monotherapy trials before using combination therapy. Two-thirds of patients become seizure free with the first or second drug prescribed. When switching agents, the old agent should be continued until a therapeutic level of the new drug is achieved. The old agent is then tapered slowly and discontinued.
   b. Polytherapy with 2 agents – if indicated, add an AED with a different mechanism of action. Start low and titrate slowly.
   c. Polytherapy ≥3 agents – Rarely needed. Consider only after 2 or more adequate trials of dual AEDs have failed and a combination of AEDs is tolerated and significantly reduces seizure frequency or severity. Consider referral prior to triple AED therapy.
5. Use of newer AEDs
   a. Recommended for those who have failed traditional or first generation AEDs or when traditional AEDs are unsuitable (contraindications, drug interactions, intolerance, pregnancy, etc).
   b. Traditional AEDs have the advantage of broad familiarity, lower cost, known efficacy and long term experience.
6. Pregnancy Considerations
   a. Category C – levetiracetam, gabapentin, lamotrigine, tiagabine, oxcarbazepine
   b. Category D – phenytoin, Phenobarbital, primidone, carbamazepine, valproic acid
   c. General recommendations – if possible avoid valproic acid, phenytoin, Phenobarbital 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 Withdrawals</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adolescent-onset epilepsy</td>
<td>• Childhood-onset epilepsy</td>
</tr>
<tr>
<td>• Adult-onset epilepsy</td>
<td>• Elderly-onset epilepsy</td>
</tr>
<tr>
<td>• Partial epilepsy</td>
<td>• Idiopathic generalized epilepsy</td>
</tr>
<tr>
<td>• Juvenile myoclonic epilepsy</td>
<td>• Single type of seizure</td>
</tr>
<tr>
<td>• Presence of multiple seizure types</td>
<td>• Benign epilepsy with centrotemporal spikes</td>
</tr>
<tr>
<td>• Presence of underlying neurological condition</td>
<td>• Normal EEG</td>
</tr>
<tr>
<td>• Abnormal EEG</td>
<td>• Childbearing potential and planning pregnancy</td>
</tr>
<tr>
<td></td>
<td>• Co-morbidity with concurrent treatments</td>
</tr>
</tbody>
</table>

Appendix A: International Classification of Epileptic Seizures

<table>
<thead>
<tr>
<th>Types of Epileptic Seizures</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial (focal) seizures</td>
<td>Begins in one hemisphere. Asymmetric clinical manifestation unless secondary generalized.</td>
</tr>
<tr>
<td>Simple partial</td>
<td>Motor, sensory, autonomic, or psychic signs; consciousness is not impaired.</td>
</tr>
<tr>
<td>Complex partial</td>
<td>Simple partial followed by loss of consciousness or impaired consciousness at onset. Generally amnestic to events. May be misdiagnosed as psychiatric episode.</td>
</tr>
<tr>
<td>Partial Seizures evolving to secondarily generalized</td>
<td>Partial onset with secondary generalization</td>
</tr>
<tr>
<td>Primarily generalized seizures</td>
<td>Involves both hemispheres with bilateral motor manifestations and loss of consciousness.</td>
</tr>
<tr>
<td>Myoclonic</td>
<td>Brief muscle contraction of face, trunk, extremities. May be isolated or repetitive.</td>
</tr>
<tr>
<td>Clonic</td>
<td>Repetitive jerks; cyanosis; foam at the mouth; small grunting respirations between seizures; deep respirations at the end of seizures.</td>
</tr>
<tr>
<td>Tonic</td>
<td>Rigid, violent, sudden muscular contractions; cry/moan; deviation of eyes and head to one side; rotation of the whole body and distortion of features; suppression of respiration; falls; tongue biting; involuntary urination.</td>
</tr>
<tr>
<td>Tonic-clonic</td>
<td>Also know as grand-mal. Includes both atomic and clonic phase.</td>
</tr>
<tr>
<td>Atonic</td>
<td>Sudden loss of postural tone lasting 1 to 2 seconds. Usually no post-ictal confusion. Violent falls.</td>
</tr>
</tbody>
</table>
| Pseudoseizure (non-epileptic)     | Episodes involving affective, autonomic, or sensorimotor manifestations that are precipitated by stress. Clinical characteristics:  
|                                  | • Strongly suggestive – prolonged duration (10-30 min), preserved consciousness despite whole body jerking, bizarre and asynchronous motor movements, pelvic thrusting, not stereotypical  
|                                  | • Strongly against – injuries during spell, tongue laceration (esp. sides), incontinence |

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</td>
<td>Gabapentin</td>
</tr>
<tr>
<td></td>
<td>Divalproex Sodium</td>
<td>Lamotrigine</td>
</tr>
<tr>
<td></td>
<td>Levetiracetam**</td>
<td>Oxcarbazepine</td>
</tr>
<tr>
<td></td>
<td>Phenytoin</td>
<td>Primidone</td>
</tr>
<tr>
<td>Complex Partial</td>
<td>Carbamazepine</td>
<td>Gabapentin</td>
</tr>
<tr>
<td></td>
<td>Divalproex Sodium</td>
<td>Lamotrigine</td>
</tr>
<tr>
<td></td>
<td>Levetiracetam**</td>
<td>Oxcarbazepine</td>
</tr>
<tr>
<td></td>
<td>Phenytoin</td>
<td>Primidone</td>
</tr>
<tr>
<td>Generalized Tonic-Clonic</td>
<td>Carbamazepine</td>
<td>Gabapentin</td>
</tr>
<tr>
<td></td>
<td>Divalproex Sodium</td>
<td>Lamotrigine</td>
</tr>
<tr>
<td></td>
<td>Levetiracetam**</td>
<td>Oxcarbazepine</td>
</tr>
<tr>
<td></td>
<td>Phenytoin</td>
<td>Primidone</td>
</tr>
<tr>
<td>Absence</td>
<td>Ethosuximide</td>
<td>Clonazepam</td>
</tr>
<tr>
<td></td>
<td>Divalproex Sodium</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>
</table>
| Carbamazepine Tegretol® | • 6-12yrs: 10mg/kg/day or 100mg bid up to 1000mg/day 2-4 divided doses  
• >12yrs: 200mg bid, up to 1000mg/day for 12-15yrs or 1200mg/day >15yrs 2-4 divided doses |  
• Somnolence, dizziness, fatigue, ataxia, GI upset  
• Serious: agranulocytosis, hepatitis & hepatic failure, hypersensitivity, rash including Stevens Johnson & toxic epidermal necrolysis, hyponatremia |
| Ethosuximide Zarontin® | > 6yrs: 250mg bid up to 1.5g/day in 2 divided doses |  
• Behavioral changes, anorexia, GI upset, dizziness, headache, somnolence, hiccups  
• Serious: rash including Stevens Johnson, agranulocytosis, aplastic anemia, leukopenia, pancytopenia, systemic lupus erythematosus |
| Phenytoin Dilantin® |  
• Loading dose if not already on phenytoin: 15-20mg/kg in 3 divided doses q 2-4 hours apart  
• Maintenance dose:  
Children: 4-8mg/kg/day 1-3 divided doses up to 300mg/day  
Adult: 300 mg/day in 1-3 divided doses up to 600mg/day |  
• Nystagmus, blurred vision, diplopia, ataxia, dizziness, drowsiness, headache, GI upset, gingival hyperplasia, coarsening of facial features, hirsutism, acne, osteomalacia |
| Primidone Mysoline® | <8 years: 50mg/day up to 25mg/kg/day in 3-4 divided doses  
≥8 years: 250mg/day up to 750-1500mg/day in divided doses tid-qid |  
• Ataxia, dizziness, somnolence  
• Serious: megaloblastic anemia, thrombocytopenia |
| Valproic Acid Depakote® | >10yrs: 10-15mg/kg/day 2-3 divided doses up to 60mg/kg/day  
Usual dose 1000-2500mg/day 2-3 divided doses |  
• GI upset somnolence, ataxia, dizziness, rash  
• Serious: pancreatitis, thrombocytopenia, hepatotoxicity  
• Patients at increased risk for hepatotoxicity include: children < 2yrs, multiple AEDs, severe disorder with mental retardation, organic brain disease |
| Gabapentin Neurontin® |  
(nonformulary) |  
• Somnolence, dizziness, ataxia, weight gain, peripheral edema, behavioral changes in children |
| Lamotrigine Lamictal® |  
(probably) |  
• TIAs in children, insomnia, dizziness, headache, diplopia, ataxia, nausea, vomiting, somnolence  
• Serious: Rash including Stevens Johnson & toxic epidermal necrolysis. Usually occurs in first 2-8 weeks. Increased risk in children, rapid dose titration, & concomitant use of valproic acid. Risk reduced with slow titration. Hypersensitivity reactions including risk of hepatic and renal failure, disseminated intravascular coagulation, arthritis. |
| Levetiracetam Keppra® |  
(prospective) |  
• Irritability, behavioral changes, somnolence, asthena, uncoordinated  
• Serious: rash |
| Ocarbazepine Trileptal® |  
(nonformulary) |  
• Somnolence, dizziness, drowsiness, diplopia, nausea, ataxia  
• Serious: Hyponatremia, skin rash. |
| Phenobarbital Luminal® |  
(nonformulary) |  
• Drowsiness, somnolence, headache, dizziness, ataxia, cognitive effects, GI upset  
• Serious: rash including Stevens Johnson, agranulocytosis |
| Tiagabine Gabitril® | <12yrs: 0.1mg/kg/day up to 1mg/kg/day  
12-18yrs: 4.32mg/day divided bid-qid  
>18yrs: 4.56 mg/day divided bid-qid |  
• Somnolence, dizziness, tremor, headache, weakness, difficulty concentrating |
| Topiramate Topamax® |  
(nonformulary) |  
• Behavioral changes especially in children, anorexia, weight loss, sleep disorders, fatigue, dizziness, headache, paresthesia  
• Serious: Nephrothiasis, open angle glaucoma, and hypophosphatemia especially in children |
| Zonisamide Zonegran® |  
(nonformulary) |  
• Drowsiness, ataxia, anorexia, GI upset, headache, pruritus  
• Serious: Rash, renal calculi, and hypophosphatemia especially in children  
• Do not take if history of sulf allergy. |

*Not a complete list
## Appendix E: AED Drug Interactions

<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, erythromycin, fluoxetine, isoniazid, propranolol, &amp; verapamil; levels decreased by phenobarbital &amp; primidone</td>
</tr>
</tbody>
</table>
| Gabapentin            | • No known drug interactions with other antiepileptic medications  
                          • Weight gain, peripheral edema  
                          • Dose adjustment required when CLCr < 60mL/min. |
| Lamotrigine           | • DI - levels increased by VPA, phenytoin, sertraline; levels decreased by CBZ, phenobarbital, & oral contraceptives; rifamycins; VPA levels reduced and VPA may increase lamotrigine levels.  
                          • Use with caution in renal impairment.  
                          • Dose adjust -50-75% dose decrease in hepatic impairment.  
                          • Initiate slowly to reduce the incidence of rash. |
| Levetiracetam         | • DI - probenecid- clinical significance unknown; not metabolized thru CYP450.  
                          • Renal elimination- dose adjust in renal insufficiency and elderly.  
                          • No dose adjustment for hepatic impairment. |
| Oxcarbazepine         | • DI - oral contraceptives (OCs), diuretics, AEDs, dihydropyridine calcium channel blockers.  
                          • 50% dose reduction recommended in renal insufficiency.  
                          • Kinetic changes not observed in cirrhosis. Does not undergo autoinduction. |
| Phenytoin             | • DI - levels increased by VPA & isoniazid  
                          • DI - probenecid- clinical significance unknown; not metabolized thru CYP450.  
                          • Renal elimination- dose adjust in renal insufficiency and elderly.  
                          • No dose adjustment for hepatic impairment. |
| Topiramate            | • DI - levels increased by VPA, topiramate, oxcarbazepine, allopurinol, diltiazem, fluconazole, fluoxetine, (theprofen, isoniazid, methylphenidate, metronidazole, omeprazole, propranolol, rifampin, excitement; levels decreased by CBZ, amitriptyline, risperidone, metformin.  
                          • Contraindicated sinus bradycardia, sino-atrial block, second and third degree AV block or in patients with Adams-Stokes syndrome; pregnancy |
| Valproic Acid (VPA)   | • DI - levels decreased by CBZ, phenytoin & phenobarbital  
                          • Hepatic metabolism-impairment may require dosage reduction or longer dosing intervals.  
                          • Administer with caution in patients with hepatic impairment.  
                          • CrCl <70mL/min- 50% of usual dose recommended.  
                          • Counsel pt to drink plenty of fluids. |
| Zonisamide            | • DI - topiramate (additive toxicity); enzyme-inducing AED reduce half-life 50%; cyclosporine, ketoconazole, micron ofazole inhibit metabolism.  
                          • Renal and hepatic impairment dose adjustment unknown.  
                          • Sulfonylurea derivative. Contraindication in sulfa allergic patients.  
                          • Counsel patient to drink plenty of fluids. |

*Not a complete list

PRODUCT INFORMATION

ABACAVIR  (Max 11 refills)
ZIAGEN®
300MG TABLET ($8.61)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

ABILIFY® see ARIPIPRAZOLE

ABSORBASE
EUCERIN®
4OZ ($2.22), 16OZ ($3.56) CREAM
(Note: Restricted to regional medical facilities.)

ACETAMINOPHEN
APAP, TYLENOL®
325MG TABLET ($0.01)
650MG SUPPOSITORY – 50 SUPP/BOX ($9.10/BOX)
650MG/20.3ML SOLUTION ($0.40)
(Note: Take from stock. No refills allowed.)

ACETAMINOPHEN/CODEINE - CIII, CV
TYLENOl® #3
APAP 300MG/CODEINE 30MG TABLET – CIII ($0.09)
APAP 300MG/CODEINE 30MG/12.5ML SOLUTION - CV ($0.10)
(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 ($0.46)

ACETIC ACID/AL ACET OTIC SOLN
DOMEBORO® OTIC
2% OTIC SOLUTION - 60ML ($17.92)

ACHROMYCIN V® see TETRACYCLINE

ACTIDOSE® see CHARCOAL, ACTIVATED
ACYCLOVIR

ZOVIRAX®

400MG TABLET ($0.14) (Max 11 refills)
800MG TABLET ($0.29) (No refills)

ADENOCARD® see ADENOSINE

ADENOSINE

ADENOCARD®

6MG/2ML VIAL ($4.40)
(Note: May not be given KOP. Restricted to EMS only.)

ADDERALL® see AMPHETAMINE SALTS

ADDERALL XR® see AMPHETAMINE SALTS

ADRENALIN see EPINEPHRINE

ALAMAG® see ALUMINUM/MAGNESIUM HYDROXIDE

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 25/BOX ($3.38/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 ($41.68)

ALCAINE® OPTH SOLN see PROPARACAINE OPH SOL

ALCOHOL

LAVACOL®

ETHYL 70% - 16OZ ($1.50)
(Note: Clinic use only. Take from stock. May not be given KOP.)

ALDACTONE® see SPIRONOLACTONE

302
ALDOMET® see METHYLDOPA

ALLOPURINOL (Max 11 refills)
ZYPLOPRIM®
100MG ($0.03), 300MG ($0.05) TABLET

ALPHAGAN® see BRIMONIDINE

ALTEPLASE
(t-PA, CATHFLO ACTIVASE®)
1MG/1ML - 2ML VIAL ($84.53)
(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
ALAMAG®
300MG/150MG TABLET ($0.03)
(Note: Clinic use only. Take from stock. Use restricted to nursing protocols.)

AMANTADINE HCL (Max 11 refills)
SYMMETREL®
100MG CAPSULE ($0.28)

AMIODARONE (Max 11 refills, tablet only)
CORDARONE®
200MG TABLET ($0.14)
50MG/ML INJECTION - 3ML VIAL ($1.74)
(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 ($0.05), 10MG ($0.03) TABLET

AMMONIA
AROMATIC INHALANT - 0.33ML ($2.37/BOX)
(35% ALCOHOL, 15% AMMONIA) 12 INHALANTS/BOX
(Note: Clinic use only. Take from stock. May not be given KOP.)

AMOXICILLIN
AMOXIL®
250MG ($0.07), 500MG ($0.11) CAPSULE
AMOXIL® see AMOXICILLIN

AMPHETAMINE/DEXTROAMPHETAMINE see AMPHETAMINE SALTS

AMPHE TAMINE SALTS - CII
  ADDERALL®
    5MG ($0.85), 10MG ($0.93) TABLET
  ADDERALL XR®
    10MG ($6.31), 20MG ($6.31), 30MG ($6.31) EXTENDED RELEASE CAPSULE
  (Note: May not be given KOP. Restricted to TYC only. Take from stock TYC institutions only. May only be ordered by a physician.)

AMPHTERICIN B
  FUNGIZONE®
    50MG INJECTION ($9.66)
  IV Preparation Standard:
    D5W ONLY over 4-6 hours.
  (Note: Clinic use only. Take from stock. May not be given KOP.)

AMPICILLIN
  OMNIPEN-N®
    500MG INJECTION, IM OR IV ($1.30)
  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 see ALUMINUM/MAGNESIUM HYDORXIDE

ANTILIRIUM® see PHYSOSTIGMINE

ANTIPYRINE/BENZOCAINE OTIC
  AURALGAN®
    OTIC DROPS - 15ML ($8.55)

ANTIVERT® see MECLIZINE HCL

ANUSOL® OINTMENT see HEMORRHOIDAL OINTMENT

ANUSOL® SUPPOSITORY see HEMORRHOIDAL SUPPOSITORY

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ANUSOL-HC® CREAM see HYDROCORTISONE RECTAL CREAM

APRESOLINE® see HYDRALAZINE

ANUSOL-HC SUPP® see HYDROCORTISONE HEMORRHOIDAL SUPPOSITORY

AQUAMEPHYTON® see PHYTONADIONE

ARIPIPRAZOLE (Max 11 refills)
   ABILIFY®
      2MG ($16.18), 5MG ($16.18), 10MG ($16.18), 15MG ($16.18) TABLET
   (Note: May not be given KOP. Restricted to TYC. 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 \( \geq \) 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 ($15.17), 300MG ($30.06) CAPSULE
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

ATENOLOL (Max 11 refills)
   TENORMIN®
      25MG ($0.02), 50MG ($0.03) TABLET

ATIVAN® see LORAZEPAM

305
ATOMOXETINE (Max 11 refills)

STRATTERA®

25MG ($5.12), 40MG ($5.56), 60MG ($5.56), 80MG ($6.00), 100MG ($6.00) CAPSULE

(Note: May not be given KOP. Restricted to TYC. Prior authorization must be met and noted in the special instructions field for use without nonformulary approval. Criteria include:

a. ADHD and failure on adequate dose and trial of both formulary stimulants.
b. ADHD and intolerance to both formulary stimulants.
c. ADHD and contraindication to use of both formulary stimulants.
d. ADHD and significant history of substance abuse.
e. ADHD and co-morbid anxiety disorder.)

ATRIPLA® see EFAVIRENZ/EMTRICITABINE/TENOFOVIR

ATROPINE SULFATE

ATROPINE

0.1MG/ML INJECTION - 10ML SYRINGE ($2.42) (No refills)

(Note: Clinic use only. Take from stock. May not be given KOP.)

ISOPTO ATROPINE®

1% OPTH SOLUTION - 15ML ($7.70) (Max 11 refills)

(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ATROVENT HFA® see IPRATROPIUM BROMIDE

AURALGAN® see ANTIPYRINE/BENZOCAINE OTIC

AVLOSULFON® see DAPSONE

AZATHIOPRINE (Max 11 refills)

IMURAN®

50MG TABLET ($0.13)

(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
AZITHROMYCIN (Max 11 refills)
ZITHROMAX®
600MG TABLET ($4.81)
(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:
 a. HIV patients dosed 1200 milligrams q week for MAC primary prophylaxis when CD4 count < 50.
b. Pregnancy
   - 2400 milligrams x 1 dose for GC & chlamydia
   - 1200 milligrams x 1 dose for chlamydia)

AZT see ZIDOVUDINE

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 ($3.12)
POLYSPORIN®
OPHTHALMIC OINTMENT - 3.5GM TUBE ($3.94)

BACLOFEN (Max 11 refills)
LIORESAL®
10MG ($0.05), 20MG ($0.06) 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

BARAACLE® see ENTECAVIR

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BAYER® ASPIRIN see ASPIRIN

**BECLOMETHASONE HFA** (Max 11 refills)
  QVAR®
  HFA ORAL INHALER 120 ACTUATIONS/80MCG EACH ($126.02)
  (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 15 days at 4 puffs BID. Inhaler should be ordered accordingly.)

BENADRYL® see DIPHENHYDRAMINE

BENEMID® see PROBENECID

BENZAC® see BENZOYL PEROXIDE

**BENZOIN COMPOUND TINCTURE**
  BENZOIN COMPOUND TINCTURE - 2OZ ($2.45)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

BENZOYL PEROXIDE (Max 3 refills)
  BENZAC®
  10% GEL - 1.5 OZ ($1.83)
  (Note: Orders are to be given a 90 day expiration date.)

**BENZTROPINE MESYLATE** (Max 11 refills)
  COGENTIN®
  1MG ($0.04), 2MG ($0.07) TABLET
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

BETADINE® see POVIDONE-IODINE

BETAPACE® see SOTALOL

**BETHANECHOL** (Max 11 refills)
  URECHOLINE®
  25MG TABLET ($0.15)

BICILLIN-LA® see PENICILLIN G BENZATHINE

**BISACODYL**
  DULCOLAX®
  5MG TABLET ($0.03)
  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 - ($1.79)
   (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 (TDaP)

BRETHINE® see TERBUTALINE SULFATE

BRIMONIDINE (Max 11 refills)
   ALPHAGAN®
   0.2% OPHTHALMIC SOLUTION -10ML ($2.99)

BROMOCRIPTINE MESYLATE (Max 11 refills)
   PARLODEL®
   2.5MG TABLET ($3.63)
   (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 ($1.31)
   0.25% INJECTION - 10ML VIAL ($1.25)
   (Note: Clinic use only. Take from stock. May not be given KOP.)
| **BUTORPHANOL TARTRATE - CIV** |  |
| Stadol® |  |
| **2MG/ML IM INJECTION - 1ML VIAL ($1.30)** |  |
| (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 ($1.03)** |  |
| (Note: Take from stock.) |  |

| **CALAN® SR see VERAPAMIL HCL** |  |

| **CALAN® see VERAPAMIL HCL** |  |

| **CALCIJEX® see CALCITRIOL** |  |

| **CALCITRIOL** |  |
| ROCALTROL® (Max 11 refills) |  |
| **0.25MCG CAPSULE ($0.60)** |  |
| (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.) |  |
| CALCIJEX® (Max 2 refills) |  |
| **1MCG/ML INJECTION -1ML AMPULE ($3.85)** |  |
| (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to use for dialysis patients and floor stock restricted to dialysis units.) |  |

| **CALCIUM CARBONATE** (Max 11 refills) |  |
| OS-CAL® |  |
| **500MG ELEMENTAL CALCIUM/1.25GM CARBONATE SALT TAB ($0.02)** |  |
| (Note: Take from stock.) |  |
| TUMS® |  |
| **500MG CHEW TABLET – 150/BOTTLE ($2.02/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 CHLORIDE** |  |
| **10% INJECTION - 10ML SYRINGE ($2.42)** |  |
| (Note: Clinic use only. Take from stock. May not be given KOP.) |  |
| **CALCIUM GLUCONATE** | 10% INJECTION - 10ML VIAL ($2.34)  
|-----------------------|--------------------------------------------------|
|                       | (94MG CALCIUM GLUCONATE EACH VIAL)  
|                       | (Note: Clinic use only. Take from stock. May not be given KOP.)  
| **CALCIUM POLYCARBOPHIL** | (Max 5 refills)  
|                       | FIBERCON®  
|                       | 625MG TABLET ($0.06)  
|                       | (Note: Not allowed as floor stock except cards of 14 for nursing protocol orders only. No refills allowed on nursing protocol orders.)  
| **CAMPHOR-PHENIQUE®** | see CAMPHOR/PHENOL LIQUID  
| **CAMPHOR-PHENOL** | CAMPHO-PHENIQUE®  
|                       | LIQUID - 1.5OZ ($2.46)  
| **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 ($1.05)  
|                       | (Note: Clinic use only, should be taken from stock, and may not be given KOP.)  
| **CARBIDOPA/LEVODOPA** | (Max 11 refills)  
|                       | SINEMET® 25-250  
|                       | LEVODOPA 250MG/CARBIDOPA 25MG TABLET ($0.21)  
| **CARDIZEM®** | see DILTIAZEM HCL  
| **CARVEDILOL** | (Max 11 refills)  
|                       | COREG®  
|                       | 3.125MG ($0.04), 6.25MG ($0.04), 12.5MG ($0.04), 25MG ($0.04) TAB  
|                       | (Note: Prior authorization criteria must be met and noted in the special instructions field for use without nonformulary approval. Criteria include: Heart failure.)  
| **CASTOR OIL** |  
|                       | CASTOR OIL - 60ML ($3.48)  
|                       | (Note: Take from stock.)  

311
CATAPRES® see CLONIDINE HCL

CATHFLO ACTIVASE® see ALTEPLASE

**CEFAZOLIN SODIUM**
- ANCEF®
  - 1GM INJECTION – 10ML VIAL ($1.20)
  - 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 ($4.98)
  - 1GM INJECTION ($6.64)
  - 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 infirmary units and TYC. Should not be used as single injectable dose followed by oral therapy.)

**CEFTRIAXONE**
- ROCEPHIN®
  - 250MG INJECTION ($1.20)
  - (Note: Clinic use only. Take from stock. May not be given KOP. Use restricted to treatment of GC)
  - 1 GM INJECTION ($1.80)
  - (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to infirmary units and TYC.)

CELEXA® see CITALOPRAM HBR

CELLCEPT® see MYCOPHENOLATE MOFETIL

CENESTIN® see ESTROGENS, SYNTHETIC CONJUGATED

**CEPHALEXIN**
- KEFLEX®
  - 500MG CAPSULE ($0.13)
<table>
<thead>
<tr>
<th>CHARCOAL</th>
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</thead>
<tbody>
<tr>
<td>ACTIDOSE® WITH SORBITOL</td>
</tr>
<tr>
<td>50GM ACTIVATED CHARCOAL / 54GM SORBITOL LIQUID - 8OZ ($18.28)</td>
</tr>
<tr>
<td>(Note: Clinic use only. Take from stock. May not be given KOP.)</td>
</tr>
</tbody>
</table>

| CHLORDIAZEPoxide - CIV |
| LIBRiUM® |
| 10MG ($0.13), 25MG ($0.14) 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 ($2.19) |
| (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® |
| 10MG TABLET ($0.51) |
| (Note: May not be given KOP. Restricted to TYC.) |
| 25MG ($0.73), 50MG ($1.02), 100MG ($1.43), 200MG ($2.13) TABLET |
| 25MG/ML INJECTION - 2ML AMPULE ($6.96) |
| (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 ($0.07) |
| (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 - 60/BOX ($1.18 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 ($0.20)
(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 ($0.04), 20MG ($0.04), 40MG ($0.05) TABLET
(Note: May not be given KOP. 10mg restricted to TYC only.)

CLARITIN® see LORATADINE

CLEAR EYES® see NAPHAZOLINE

CLEOCIN® see CLINDAMYCIN

**CLINDAMYCIN HCL**
CLEOCIN®
150MG CAPSULE ($0.08)

**CLINDAMYCIN PHOSPHATE**
CLEOCIN®
150MG/ML - 6ML VIAL ($3.30)
IV Preparation Standard:
> 600mg in 150mL D₃W over 60 minutes.
900MG/50ML D₃W PREMIX ($14.82)
(Note: Clinic use only. Take from stock. May not be given KOP. Maximum rate of infusion 30 mg/minute.)
CLOBETASOL
   TEMOVATE®
   0.05% OINTMENT - 15GM ($2.50)

CLONIDINE HCL
   CATAPRES®
   0.1MG TABLET ($0.04)
   (Note: Clinic use only for hypertensive urgency. 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 ($5.87)
   (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 ($4.63)
   1% CREAM - 15GM TUBE ($1.22)

CLOZAPINE
   CLOZARIL®
   25MG ($0.42), 100MG ($0.99) 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 ($3.84)
(Note: Should be ordered for 1 bottle to last 90 days.)

COGENTIN® see BENZTROPINE MESYLATE

COLACE ® see DOCUSATE SODIUM

COLLAGENASE

SANTYL®

30GM OINTMENT ($75.61)
(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

CONCERTA ER® see METHYLPHENIDATE

CONDYLOX® see PODOFILOX

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# CONTACT LENS CARE PRODUCTS

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<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 ($7.91)</td>
<td>BOSTON SIMPLUS MULTI-ACTION SOLUTION® 105ML (30)</td>
</tr>
<tr>
<td>RGP, S</td>
<td>CONTACT REWETTING &amp; LUBRICANT SOLUTION ($2.78)</td>
<td>CLERZ PLUS® - 5ML (30)</td>
</tr>
<tr>
<td>S</td>
<td>SOFT CONTACT LENS MULTIPURPOSE SOLUTION ($2.98)</td>
<td>OPTI-ONE MULTIPURPOSE SOLUTION® 360ML (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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<tbody>
<tr>
<td>OPTION 1 (SOFT LENSES)</td>
<td></td>
<td></td>
<td></td>
</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>
<td></td>
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<td></td>
</tr>
<tr>
<td>OPTION 2 (RIGID GAS PERMEABLE LENSES)</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>
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</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

CTM see CHLORPHENIRAMINE MALEATE

CYANOCOBALAMIN, VITAMIN B-12

1000MCG/ML INJECTION - 1ML VIAL ($0.62)
(Note: Clinic use only. Take from stock. May not be given KOP.)
CYCLOGYL® see CYCLOPENTOLATE HCL

CYCLOPENTOLATE HCL

CYCLOGYL®

1% OPHTHALMIC SOLUTION - 15ML ($1.74)

CYCLOSPORINE (Max 11 refills)

NEORAL®

25MG ($0.58), 100MG ($2.02) CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

CYPROHEPTADINE

PERIACTIN®

4MG TABLET ($0.06)

D-T TOXOIDS see TETANUS & DIPHTHERIA TOXOIDS

D4T see STAVUDINE

DACRIOSE® see OPHTHALMIC IRRIGATING SOLUTION

DAPSONE (Max 11 refills)

AVLOSULFON®

100MG TABLET ($1.05)

DARAPRIM® see PYRIMETHAMINE

DARUNAVIR (Max 11 refills)

PREZISTA®

400MG ($15.51), 600MG ($15.51) 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

DECAVAC® see DIPHTHERIA/TETANUS TOXOIDS

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 TYC use only)

DESYREL® see TRAZODONE HCL

DEXAMETHASONE
DECADRON®

4MG/ML – 1ML VIAL ($1.25)
(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/AMPETAMINE see AMPHETAMINE SALTS

DEXTROSE

DEXTROSE 5% IN WATER INJECTION
100ML ($1.05), 500ML ($0.76), 1000ML ($0.89)
DEXTROSE 5% MINI-BAG – 50ML ($1.89)
DEXTROSE 5% IV GLASS BOTTLE 250ML ($3.92)
DEXTROSE 5% IV GLASS BOTTLE 500ML ($3.92)
DEXTROSE 5% in NS INJECTION 500ML ($0.93), 1000ML ($0.98)
DEXTROSE 5% in 1/4 NS INJECTION 1000ML ($0.98)
DEXTROSE 5% in 1/2 NS INJECTION 1000ML ($0.87)
DEXTROSE 5% LACTATED RINGERS 1000ML ($0.89)
DEXTROSE 50% INJECTION SYRINGE 50ML ($3.01)
DEXTROSE 40% GEL 37.5GM TUBE – 3 TUBES/BOX

GLUTOSE 15® ($3.05/TUBE)
(Note: Clinic use only. Take from stock. May not be given KOP. 500ml glass bottle restricted to use with nitroglycerin IV kit.)

DIAMOX® see ACETAZOLAMIDE

320
**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:
- Spinal cord injury
- Multiple sclerosis
- Muscular dystrophy
- Spastic hemiplegia
- Amyotrophic lateral sclerosis
- Cerebral palsy)

**DICLOxacillin Sodium**
DYNAPEN®
250MG ($0.19), 500MG ($0.37) CAPSULE

**DIDANOSINE-EC** (DDI) (Max 11 refills)
VIDEX-EC®
250MG ($4.83) 400MG ($7.62) 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**
LANOXIN®
0.125MG ($0.25), 0.25MG ($0.19) TABLET (Max 11 refills)
0.25MG/ML INJECTION – 2ML AMPULE (0.66) (No Refills)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

DILACOR® XR see DILTIAZEM HCL

DILANTIN® see PHENYTOIN SODIUM

**DILTIAZEM** (Max 11 refills)
CARDIZEM®
60MG ($0.06), 90MG ($0.06) TABLET
DILACOR® XR (extended release once-daily dosage form)
180MG ($0.48), 240MG ($0.54) CAPSULE

321
DIPHENHYDRAMINE 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 ($1.95)
   (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
   DECAVAC®, D-T TOXOIDS
       1ML VIAL ($17.34)
   (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.)

DIPYRIDAMOLE (Max 11 refills)
   PERSANTINE®
       75MG TABLET ($0.25)
   (Note: Use should be limited to combination therapy with ASA for intermittent
   claudication.)

DISALCID® see SALSALATE

DITROSPAN® see OXYBUTYNIN

DIVALPROEX SODIUM (Max 11 refills)
   DEPAKOTE®
       250MG ($0.06), 500MG ($0.12) 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 ($5.43)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

322
DORZOLAMIDE
  TRUSOPT®
  2% OPHTHALMIC SOLUTION – 10ML ($15.49)

DOUBLE ANTI-BIOTIC OINTMENT see BACITRACIN/POLYMYXIN B

DOXERCALCIFEROL (Max 11 refills)
  HECTORAL®
  2.5MCG CAPSULE ($20.82)
  (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 ($0.10)

D-T TOXOIDS see DIPHTHERIA/TETANUS TOXOIDS

DULCOLAX® see BISACODYL

DUOFILM® see SALICYLIC ACID

DYAZIDE® see TRIAMTERENE/HCTZ

DYNAPEN® see DICLOXACILLIN SODIUM

ECOTRIN® see ASPIRIN, ENTERIC-COATED

EDROPHONIUM CHLORIDE
  ENLON®
  10MG/ML INJECTION - 15ML VIAL ($21.80)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

EFAVIRENZ (Max 11 refills)
  SUSTIVA®
  600MG TABLET ($17.79)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

EFAVIRENZ / EMTRICITABINE/ TENOFOVIR (Max 11 refills)
  ATRIPLA®
  600MG/200MG/300MG TABLET ($52.39)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

EFFEXOR® see VENLAFAXINE HCL

323
ELECTROLYTE ORAL SOLUTION
GOLYTELY®

PEG 3350 & ELECTROLYTE SOLUTION
- 4 LITER BOTTLE ($5.56)
(Note: Clinic use only. Take from stock. May not be given KOP.)

ELIMITE® see PERMETHRIN

EMTRICITABINE (Max 11 refills)
EMTRIVA®, FTC

200MG CAPSULE ($13.53)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

EMTRICITABINE/TENOFOVIR (Max 11 refills)
TRUVADA®

EMTRICITABINE 200MG/TENOFOVIR 300MG TABLET ($34.60)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

EMTRIVA® see EMTRICITABINE

ENALAPRIL (Max 11 refills)
VASOTEC®

2.5MG ($0.02), 5MG ($0.02), 10MG ($0.02), 20MG ($0.02) TABLET

ENGEX® B see HEPATITIS B VACCINE, RECOMBINANT

ENLON® see EDROPHONIUM CHLORIDE

ENTECAVIR
BARACLUDE®

0.5MG ($24.54), 1MG ($24.54) 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 utmbcmc.pharmacyHG@utmb.edu for UTMB units and Utilization Management at (806)356-5350 for TTUHSC units.)

ENTERAL FEEDING
OSMOLITE® 1 CAL

8 OZ RTU CAN ($0.72)
(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.)

ENUCLENE® see TYLOXAPOL/BENZAL OPHTH LUBRICANT

324
ENULOSE® see LACTULOSE

EPINEPHRINE HCL
ADRENALIN®
1:1000 (1MG) INJECTION - 1ML AMPULE ($1.17)
1:10,000 (0.1MG) INJECTION - 10ML SYRINGE ($2.18)

EPIPEN®
1:1000 (0.3MG/0.3ML) INJECTION – 2ML SYRINGE ($79.69)
(Note: Clinic use only. Take from stock. May not be given KOP. Epipen restricted to TYC for emergency boxes only.)

EPIPEN® see EPINEPHRINE

EPOGEN® see EPOETIN ALFA

EPOETIN ALFA (Max 2 refills)
PROCRIT®
10,000 UNIT/ML INJECTION - 2ML VIAL ($321.68)
(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.

ERYTHROPOIETIN see EPOETIN ALFA

ERYTHROMYCIN BASE
ERYTHROCIN®
500MG TABLET ($1.90)

ERYTHROMYCIN STEARATE
ERYTHROCIN®
250MG TABLET ($1.36)

ERYTHROMYCIN
ILOTYCIN®
0.5% OPHTHALMIC OINTMENT - 3.5GM ($0.68)
T-SAT®
2% TOPICAL SOLUTION - 60ML ($14.62)
(Note: Topical solution restricted to TYC facilities and may not be given KOP.)

ERYTHROPOIETIN see EPOETIN ALFA

ESKALITH® see LITHIUM CARBONATE
ESTROGENS, CONJUGATED

PREMARIN®
25MG/5ML INJECTION – 5ML VIAL ($106.97)
(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 – 42.5 GRAM TUBE ($128.22)
(Note: Restricted to use in female patients only.)

ESTROGENS, SYNTHETIC CONJUGATED (Max 11 refills)
CENESTIN®
0.625MG ($2.82), 1.25MG ($2.82) TABLET
(Note: Restricted to use in female patients only.)

ETHAMBUTOL HCL (Max 11 refills)
MYAMBUTOL®
400MG TABLET ($0.85)
(Note: May not be given KOP.)

ETHANOL see ALCOHOL, ETHYL

ETHOSUXIMIDE (Max 11 refills)
ZARONTIN®
250MG CAPSULE ($0.83)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ETHYNYLODIOL DIACETATE/ETHINYL ESTRADIOL (Max 11 refills)
ZOVIA – 1/50E®
1/50-28 TABLET ($18.48/pack)
(Note: Restricted to female patients.)

EUCERIN® see ABSORBACE

FEOSOL® see FERROUS SULFATE

FERROUS SULFATE (Max 11 refills)
FEOSOL®
325MG TABLET ($0.01)

FIBERCON® see CALCIUM POLYCARBOPHIL

326
FLEETS PHOSPHO SODA® see SODIUM PHOSPHATE ORAL SOLUTION

FLAGYL® see METRONIDAZOLE

**FLUCONAZOLE** (Max 11 refills)
DIFLUCAN®

100MG ($0.11), 150MG ($0.42), 200MG ($0.23) 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 ($3.26)
(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 ($21.12)

**FLUCINONIDE** (Max 2 refills 60gm cream only)
LIDEX®

0.05% OINTMENT - 15GM ($12.85)
0.05% CREAM - 15GM ($8.25), 60GM ($16.41)

**FLUORETS®** see FLUORESCEIN SODIUM STRIPS

**FLUORESCEIN SODIUM STRIPS**
FLUORETS®

1MG OPHTHALMIC STRIPS – 100/BOX ($0.12 each strip)
(Note: Clinic use only. Take from stock. May not be given KOP.)

**FLUOXETINE** (Max 11 refills)
PROZAC®

10MG ($0.03), 20MG ($0.02) CAPSULE
(Note: May not be given KOP. 10mg restricted to TYC only.)
**FLUPHENAZINE HCL** (Max 11 refills)

PROLIXIN®

- 2.5MG ($0.06), 5MG ($0.07), 10MG ($0.09) TABLET
- 2.5MG/ML INJECTION - 10ML VIAL ($67.33)

(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 ($53.55)

(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 ($1.71)

**FLUZONE®** see INFLUENZA VACCINE

**FOLIC ACID** (Max 11 refills)

FOLVITE®

- 1MG TABLET ($0.02)

**FOLINIC ACID** see LEUCOVORIN CALCIUM

**FOLVITE®** see FOLIC ACID

**FORTAZ®** see CEFTAZIDIME

**FOSAMPRENAVIR** (Max 11 refills)

LEXIVA®

- 700MG TABLET ($12.16)

(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

**FTC** see EMTRICITABINE

**FUNGIZONE®** see AMPHOTERICIN B

**FUROSEMIDE** (Max 11 refills, tablet)

LASIX®

- 20MG ($0.03), 40MG ($0.03) TABLET
- 10MG/ML INJECTION - 4ML VIAL ($0.38)

(Note: Injection for clinic use only, should be taken from stock and may not be given KOP.)

**GEL KAM®** see STANNOUS FLUORIDE

328
GEMFIBROZIL (Max 11 refills)
LOPID®
600MG TABLET ($0.16)

GENOPTIC® see GENTAMICIN

GENTAMICIN

GENOPTIC®, GENTAK®
0.3% OPHTHALMIC OINTMENT - 3.5GM ($13.12)
0.3% OPHTHALMIC SOLUTION - 5ML ($1.52)

GENTAMICIN
40MG/ML INJECTION - 2ML VIAL ($0.77)

IV Preparation Standard:
≤ 100mg in 100mL D5W over 60 minutes
>100mg in 150mL D5W 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 ($8.31)
(Note: Clinic use only. Take from stock. May not be given KOP.)

GEODON® see ZIPRASIDONE

GLIPIZIDE (Max 11 refills)
GLUCOTROL®
5MG ($0.02), 10MG ($0.03) TABLET

GLUCAGEN® see GLUCAGON

GLUCAGON

GLUCAGEN®
1MG KIT ($96.89)
(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 ($1.09)
(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 ($0.08), 5MG ($0.09) TABLET

2MG/ML ORAL CONCENTRATE - 120ML ($3.80)

5MG/ML LACTATE INJECTION - 1ML VIAL ($1.37)
(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 ($45.13)
(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

HEMORRHOIDAL-HC® see HYDROCORTISONE
HEMORROIDAL (Max 11 refills)
  ANUSOL®, TUCKS®
  OINTMENT - 30GM ($3.20)
  SUPPOSITORY - 12/BOX ($0.54 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 ($0.36)

  HEPARIN
  1,000U/ML - 30ML VIAL ($5.63)
  5,000U/ML - 1ML VIAL ($1.40)
  5,000U/ML - 10ML VIAL ($7.12)
  20,000U/ML - 1ML VIAL ($7.81)
  (Note: Clinic use only. Take from stock. May not be given KOP. 1,000U/ML & 5,000U/ML-10ML restricted to dialysis centers.)

HEPATITIS A VACCINE, INACTIVATED (Max 1 refill)
  HAVRIX®
  1440 EL.U/ML – 1ML VIAL ($57.16)
  [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®
  20MCG/ML - 1ML VIAL ($44.92)
  (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. Post-exposure prophylaxis
  e. Job assignment that includes the handling of medical waste
  f. ≤ 18 year old without documentation of series completion)
<table>
<thead>
<tr>
<th>Medicine</th>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td><strong>HEXACHLOROPHENE</strong></td>
<td>PHISOHEX® 3% DETERGENT - 150ML</td>
<td>$23.23</td>
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<td><em>(Note: Restricted to regional medical facilities.)</em></td>
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<tr>
<td><strong>HYDRALAZINE</strong></td>
<td><em>(Max 11 refills)</em></td>
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<td>APRESOLINE® 25MG ($0.13), 50MG ($0.16) TABLET</td>
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<td><strong>HYDROCHLOROTHIAZIDE</strong></td>
<td><em>(Max 11 refills)</em></td>
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<td>HYDRODIURIL® 12.5MG CAPSULE ($0.07), 25MG ($0.01), 50MG ($0.03) TABLET</td>
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<td><strong>HYDROCORTISONE</strong></td>
<td>ANUSOL-HC® 1% HEMORRHOIDAL-HC RECTAL CREAM – 30GM ($1.42)</td>
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<td>25MG HEMORRHOIDAL-HC RECTAL SUPPOSITORY – 12/BOX ($0.54 EACH)</td>
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<td><em>(Note: Max 11 refills on hemorrhoidal cream &amp; suppositories.)</em></td>
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<td>HYTONE® 1% CREAM – 30GM ($1.12), U/D PACKET ($0.06)</td>
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<tr>
<td><strong>HYDROCORTISONE SODIUM SUCCINATE</strong></td>
<td>SOLU-CORTEF® 100MG INJECTION - 2ML VIAL ($2.02), 250MG INJECTION - 2ML VIAL ($6.86)</td>
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<td>IV Preparation Standard: 50-100mg in 100mL D5W over 40 minutes &gt;100mg in 250mL D5W over 60 minutes</td>
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<td><em>(Note: Clinic use only. Take from stock. May not be given KOP.)</em></td>
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<tr>
<td><strong>HYDROPEROXIDE</strong></td>
<td>3% SOLUTION - 473ML ($0.96)</td>
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<td><em>(Note: Clinic use only. Take from stock. May not be given KOP.)</em></td>
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<tr>
<td><strong>HYDROXYZINE PAMOATE</strong></td>
<td><em>(Max 2 refills)</em></td>
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<td>VISTARIL® 25MG ($0.05), 50MG ($0.05) CAPSULE</td>
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<td><em>(Note: May not be given KOP. Restricted to TYC only.)</em></td>
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<tr>
<td><strong>HYTONE®</strong></td>
<td>see HYDROCORTISONE CREAM</td>
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332
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.)

ILOTYCIN® see ERYTHROMYCIN

IMDUR® see ISOSORBIDE MONONITRATE

IMIPRAMINE HCL (Max 11 refills)
  TOFRANIL®
  25MG ($0.19), 50MG ($0.26) TABLET
  (Note: May not be given KOP. Restricted to TYC for treatment of enuresis.)

IMODIUM® see LOPERAMIDE HCL

IMURAN® see AZATHIOPRINE

INDERAL® see PROPRANOLOL

INDINAVIR (Max 11 refills)
  CRIXIVAN®
  400MG ($2.45) CAPSULE
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

INFLIXIMAB
  REMICADE®
  100MG IV INJECTION ($685.98)
  (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 ($85.71)
(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)

INH see ISONIAZID

INSULIN, HUMAN (Max 11 refills)

NOVOLIN®

NPH 100 UNITS/ML - 10ML VIAL ($17.32)
REGULAR 100 UNITS/ML - 10ML VIAL ($17.32)
70/30 (70% NPH/30% REG) 100 UNITS/ML - 10ML VIAL ($17.32)
(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 ($175.93)
0.02% NEBULIZER SOLUTION - 2.5ML ($0.17) (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 ($37.67)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to dialysis centers.)

ISENTRESS® see RALTEGRAVIR

334
ISONIAZID (Max 11 refills)
NYDRAZID®, INH
300MG TABLET ($0.11)
(Note: May not be given KOP.)

ISOPTO ATROPINE® see ATROPINE SULFATE

ISOPTO CARPINE® see PILOCARPINE HCL

ISOPTO HYOSCINE® see SCOPOLAMINE HBR

ISOPTOTEARS® see METHYLCELLULOSE

ISOSORBIDE MONONITRATE (Max 11 refills)
ISMN, IMDUR®
30MG ($0.22), 60MG ($0.31) 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 – 20ML MDV ($1.41)
(Note: Restricted to EMS for treatment of HTN emergencies per protocol.)

LACTATED RINGERS
INJECTION 1000ML ($0.84)
(Note: Clinic use only. Take from stock. May not be given KOP.)
**LACTULOSE** (Max 11 refills)

**ENULOSE®**

10GM/15ML SYRUP - 473ML ($3.44)

(Note: Take from floor stock.)

**LANOXIN®** see **DIGOXIN**

**LASIX®** see **FUROSEMIDE**

**LATANOPROST** (Max 11 refills)

**XALATAN®**

0.005% OPHTHALMIC SOLUTION - 2.5ML ($3.33)

(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 ($0.75)

(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

**LEVETIRACETAM** (Max 11 refills)

**KEPPRA®**

500MG ($0.11), 1000MG ($0.53) TABLET

(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Not recommended to be used as monotherapy. Prior authorization criteria must be met and noted in the special instructions field for use without non-formulary approval. Criteria include:

a. Advanced liver disease (LFTs > 3x ULN, cirrhosis)
b. Concomitant antiretroviral therapy (HAART)
c. Documented intolerance to other formulary anticonvulsants
d. Treatment failure on at least three formulary agents (Carbamazepine, Phenytoin, Divalproex sodium).)

**LEVODOPA/CARBIDOPA** see **CARBIDOPA/LEVODOPA**

**LEVOPHED®** see **NOREPINEPHRINE**

**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 ($2.75)
2% JELLY - 30ML ($5.68)
5% OINTMENT – 1.25OZ ($17.93)
0.4% D5W IV INJECTION - 500ML ($2.25)
2% IV INJECTION (20MG/ML) - 5ML SYRINGE ($2.01)
1% LOCAL INJECTION (10MG/ML) - 20ML VIAL ($0.96)
2% LOCAL INJECTION (20MG/ML) - 20ML VIAL ($0.88)
1% WITH EPINEPHRINE 1:100,000 – 30ML VIAL ($2.66)
(Note: Injection and 2% jelly for clinic use only and should be taken from stock. 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 ($12.19)
(Note: May not be given KOP.)

LO/OVRAL-28® see NORGESTREL/ETHINYL ESTRADIOL

LONITEN® see MINOXIDIL

LOPERAMIDE HCL (Max 2 refills)
IMODIUM®
2MG CAPSULE ($0.05)

LOPID® see GEMFIBROZIL
LOPINAVIR/RITONAVIR (Max 11 refills)
   KALETRA®
   200MG/50MG FILM-COATED TABLET ($5.65)
   (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 ($0.18)

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.)

LOTROMIN® see CLOTRIMAZOLE

LOW-OGESTREL® see NORGESTREL/ETHINYL ESTRADIOL

LUBRICANT EYE OINTMENT
   LUBRIFRESH PM®
   OPTHALMIC OINTMENT - 3.5GM ($1.95)

LUBRICANT, SURGICAL
   SURGILUBE®
   4.24 OZ TUBE ($29.18)
   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 ($1.30)
   (Note: Clinic use only. Take from stock. May not be given KOP.)
MAGNESIUM HYDROXIDE
MILK OF MAGNESIA®
2400MG/30ML SUSPENSION - 30ML UNIT DOSE ($0.33)
(Note: Take from stock.)

MAGNESIUM SULFATE
50% INJECTION (500MG/ML) - 2ML VIAL ($0.54)
(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 ($50.35)
(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 ($35.02) (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

339
MEGESTROL ACETATE (Max 11 refills)
MEGACE®
  20MG ($0.13), 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)
  5MG CAPSULE ($0.08)
  (Note: May not be given KOP. Restricted to TYC only.)

MELOXICAM (Max 2 refills)
MOBIC®
  7.5 MG TABLET ($0.03)

MENINGOCOCCAL VACCINE, POLYSACCHARIDE
MENOMUNE®
  50MCG/0.5ML SDV ($104.86)
  (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 ($2.94)
  (Note: Clinic use only. Take from stock. May not be given KOP. Restricted to TYC facilities.)

MENOMUNE® see MENINGOCOCCAL VACCINE
MEPHYTON® see PHYTONADIONE
MERREM® see MEROPENEM

MEROPENEM
MERREM®
  1GM IV INJECTION – 30ML VIAL ($26.40)
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 ($0.09)

**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.)

**METHYLCCELLULOSE**
ISOPTOTEARS®
  0.5% OPHTHALMIC SOLUTION - 15ML ($16.72)

**METHYLDOPA**
ALDOMET®
  250MG TABLET ($0.09)
  (Note: Floor stock restricted to Carol Young Medical Facility. Non-formulary approval is still required for use.)

**METHYLPHENIDATE-CII**
RITALIN®
  5MG ($0.07), 10MG ($0.08), TABLET
CONCERTA ER®
  27MG ($5.41), 36MG ($5.58), 54MG ($6.07) EXTENDED RELEASE TABLET
  (Note: May not be given KOP. Restricted to TYC use only. Take from stock TYC institutions only. May only be ordered by a physician.)

**METHYPREDSISOLONE SODIUM SUCCINATE**
SOLU-MEDROL®
  125MG INJECTION – 2ML VIAL ($3.12)
  IV Preparation Standard:
  3gm in 100mL D5W over 40 minutes.
  (Note: Clinic use only. Take from stock. May not be given KOP.)

**METHYSALICYLATE/MENTHOL BALM**
ANALGESIC BALM
  30GM TUBE ($1.00)
  (Note: May not be given KOP. Restricted to TYC.)
METOCLOPRAMIDE HCL (Max 2 refills)
REGLAN®
  10MG TABLET ($0.09)

METOLAZONE (Max 11 refills)
ZAROXOLYN®
  5MG TABLET ($0.81)
(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 ($0.70)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

METRONIDAZOLE HCL
FLAGYL®
  250MG ($0.24), 500MG ($0.44) TABLET
  500MG READY-TO-USE 100ML BAG NS ($1.10)
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 ($3.02/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 ($0.23) 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®
30MG EXTENDED RELEASE TABLET ($0.71)
(Note: Take from stock. May not be given KOP. 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. May only be ordered by a physician.)

MOTRIN® see IBUPROFEN

MS-CONTIN® see MORPHINE SULFATE

MULTIVITAMIN (Max 11 refills, tablet)
M.V.C. ® 9+3
INJECTION - 10ML VIAL ($3.86)
(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.)

MURO® 128 see SODIUM CHLORIDE OPHTHALMIC OINTMENT
M.V.C.® 9 + 3 see MULTIVITAMIN

MYAMBUTOL® see ETHAMBUTOL HCL

MYCOBUTIN® see RIFABUTIN

MYCOLOG®II see NYSTATIN/TRIAMCINOLONE CREAM

MYCOPHENOLATE MOFETIL (Max 11 refills)
CELLCEPT®
250MG CAPSULE ($0.41)
500MG TABLET ($1.00)
(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 ($9.20)

IV Preparation Standard:

≤ 1gm in 100mL D5W over 30 minutes

> 1gm in 100mL D5W over 40 minutes.

(Note: Clinic use only. Take from stock. May not be given KOP.)

**NALOXONE HCL**

NARCAN®

0.4MG/ML INJECTION - 1ML VIAL ($6.21)

(Note: Clinic use only. Take from stock. May not be given KOP)

**NAPHAZOLINE HCL**

NAPHCON®, CLEAR EYES®

0.012% OPHTHALMIC SOLUTION - 15ML ($2.66)

**NAPHAZOLINE/PHENIRAMINE**

NAPHCON-A®, OPCON-A®

NAPHAZOLINE 0.025%/PHENIRAMINE 0.3%

OPHTHALMIC SOLUTION - 15ML ($7.10)

NAPHCON® see NAPHAZOLINE HCL

NAPHCON-A® see NAPHAZOLINE HCL

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

344
NELFINAVIR (Max 11 refills)
  VIRACEPT®
  625MG TABLET ($5.90)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

NEOMYCIN/BACITRACIN/POLYMIXIN
  NEOSPORIN®
  OPHTHALMIC OINTMENT - 3.5GM ($3.73)
  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/POLYMIXIN/HYDROCORTISONE
  CORTISPORIN®
  OPHTHALMIC OINTMENT - 3.5GM ($5.19)

NEOMYCIN/POLYMIXIN/DEXAMETHASONE
  MAXITROL®
  OPHTHALMIC SUSPENSION - 5ML ($3.37)
  OPHTHALMIC OINTMENT - 3.5GM ($3.28)

NEOMYCIN/POLYMIXIN/HYDROCORTISONE
  CORTISPORIN®
  OTIC SUSPENSON - 10ML ($4.73)

NEOMYCIN/GRAMICIDIN/POLYMIXIN
  NEOSPORIN®
  OPHTHALMIC SOLUTION - 10ML ($5.83)

NEORAL® see CYCLOSPORINE

NEOSPORIN® see NEOMYCIN/GRAMICIDIN/POLYMIXIN
  see also NEOMYCIN/BACITRACIN/POLYMIXIN

NEPHRO-VITE® see VITAMIN B COMPLEX & VITAMIN C

NEVIRAPINE (Max 11 refills)
  VIRAMUNE®
  200MG TABLET ($8.90)
  (Note: May not be given KOP.)

NICOLAR® see NIACIN
NIACIN (Max 11 refills)
NIASPAN ER®
500MG ($2.43), 1000MG ($4.30) TABLET
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

NITRO-DUR® see NITROGLYCERIN
NITRO-BID® see NITROGLYCERIN

NITROFURANTOIN
MACRODANTIN®
50MG CAPSULE ($0.69)

NITROGLYCERIN (Max 1 refill SL tablets, 11 refills ointment & patches)
NITROSTAT®
5MG/ML INJECTION - 10ML VIAL ($3.48)
0.4MG SUBLINGUAL TABLET - 25 PER BOTTLE ($7.78 PER BOTTLE)
NITROBID®
2% TOPICAL OINTMENT - 60GM ($39.31)
NITRO-DUR®
0.2MG/HR ($0.56), 0.4MG/HR ($0.67) 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.” Injection for clinic use only, should be taken from stock, and may not be given KOP.)

NITROSTAT® see NITROGLYCERIN

NIX® see PERMETHRIN

NOREPINEPHRINE
LEVOPHED®
1MG/ML – 4ML VIAL ($1.60)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional medical facilities.)

NORETHINDRONE/ETHINYL ESTRADIOL (Max 11 refills)
ORTHO NOVUM®, NORINYL®
1/35-28 TABLET ($59.92)
(Note: Restricted to female patients)
NORGESTREL/ETHINYL ESTRADIOL (Max 11 refills)
LO/OVRAL®, LOW-OGESTREL®
0.3/30-28 TABLET ($15.90)
(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 ($0.14), 50MG ($0.17), 75MG ($0.23) CAPSULE
10MG/5ML LIQUID – 16OZ ($29.36)
(Note: May not be given KOP.)

NORVASC® see AMLODIPINE

NORVIR® see RITONAVIR

NOVOLIN® see INSULIN, HUMAN

NYDRAZID® see ISONIAZID

NYSTATIN
MYCOSTATIN®
100,000UNITS/ML ORAL SUSPENS - 60ML ($4.06)

NYSTATIN/TRIAMCINOLONE
MYCOLOG II®
CREAM - 15GM ($16.72)
OINTMENT - 15GM ($26.29)

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 ($1.41)

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 ($4.00)

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 ($156.14 per 100 count bottle)

PARAFON FORTE® DSC see CHLORZOXAZONE

PARICALCITOL
   ZEMPLAR®
   5MCG/ML - 1ML VIAL ($14.49)
   (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 ($162.64)
(Note: May not be given KOP. Prior authorization required by HCV group from pharmacy at utmbcmc.pharmacyHG@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 ($3.06)
(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 ($22.70)
(Note: Clinic use only. Take from stock. May not be given KOP.)

PENICILLIN G BENZATHINE
BICILLIN LA®
1.2MU/2ML SYRINGE ($48.13)
(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 ($4.54)
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

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<th>Medicine</th>
<th>Formulation/Details</th>
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| **PERMETHRIN** | NIX® 1% LOTION – 2OZ ($6.85)  
ELIMITE® 5% CREAM – 60GM ($42.09) |
| **PERPHENAZINE** (Max 11 refills) | TRILAFON® 4MG ($0.62), 8MG ($0.75) TABLET  
(Note: May not be given KOP.) |
| **PERSANTINE®** see DIPYRIDAMOLE |
| **PETROLATUM** | VASELINE®  
JELLY - 13OZ ($2.99)  
(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 ($0.15) |
| **PHENERGAN®** see PROMETHAZINE HCL |
| **PHENYLEPHRINE HCL** | SUDAFED-PE® 10MG TABLET ($0.01) |
| **PHENYTOIN** (Max 11 refills) | DILANTIN® 125MG/5ML SUSPENSION - 8OZ ($16.80)  
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units. Restricted to regional medical facilities.) |
| **PHENYTOIN SODIUM** (Max 11 refills, capsule) | DILANTIN® 100MG CAPSULE ($0.20)  
(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.) |
PHISOHEX® see HEXACHLOROPHENE

PHOSPHATE ENEMA see SODIUM PHOSPHATE/SODIUM SALT

PHYSOSTIGMINE SALICYLATE
ANTILIRIUM®
1MG/ML INJECTION - 2ML AMPULE ($3.36)
(Note: Clinic use only. Take from stock. May not be given KOP.)

PHYTONADIONE (VITAMIN K-1)
AQUAMEPHYTON®
10MG/ML INJECTION - 1ML AMPULE ($7.33)
(Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)
MEPHYTON®
5MG TABLET ($6.82)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PILOCARPINE HCL (Max 11 refills)
ISOPTOCARPO®
2% OPHTHALMIC SOLUTION - 15ML ($29.07)
4% OPHTHALMIC SOLUTION - 15ML ($30.50)

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 ($242.32),
0.5ML SINGLE DOSE VIAL ($54.40)
(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

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PODOCON-25® see PODOPHYLLUM RESIN

PODOFILOX
  CONDYLOX®
    0.5% TOPICAL SOLUTION - 3.5ML ($55.05)
    (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 ($245.63)
    (Note: May not be given KOP. Prior authorization required for use. Criteria: patients < 18 years old.)

POLYSPORIN® see BACITRACIN/POLIMYXIN B

POLYSTYRENE SODIUM SULFONATE
  KAYEXALATE®
    SUSPENSION 15G/60ML - 16OZ ($28.80)
    (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/POLIMYXIN B

POLYVINYL ALCOHOL (Max 11 refills)
  ARTIFICIAL TEARS
    1.4% OPHTHALMIC SOLUTION - 15ML ($1.55)

POTASSIUM CHLORIDE (Tablets max 11 refills)
  K-DUR®
    10MEQ ($0.29), 20MEQ ($0.30) EXTENDED RELEASE TABLET
    20MEQ/1000ML D5W INJECTION ($1.90)
    20MEQ/1000ML 1/2NS D5W INJECTION ($1.39)
    (Note: Injection for clinic use only, should be taken from stock, may not be given KOP, and restricted to infirmaries & regional medical facilities.)

POVIDONE-IODINE
  BETADINE®
    10% OINTMENT - 30GM ($1.35)
    (Note: Clinic use only. Take from stock. May not be given KOP.)
PRAVACHOL® see PRAVASTATIN

PRAVASTATIN (Max 11 refills)
PRAVACHOL®

10MG ($0.15), 20MG ($0.15), 40MG ($0.23) TABLET

PRED FORTE® see PREDNISOLONE ACETATE

PREDNISOLONE ACETATE
PRED FORTE®

1% OPHTHALMIC SUSPENSION - 5ML ($7.96)
PRED MILD®

0.12% OPHTHALMIC SUSPENSION - 5ML ($18.54)

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 ($0.19)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

PROBENECID (Max 11 refills)
BENEMID®

500MG TABLET ($0.46)

PROCAINAMIDE HCL
PROCAN®

100MG/ML INJECTION - 10ML VIAL ($13.97)
(Note: Clinic use only. Take from stock. May not be given KOP.)
PROCAN® see PROCAINAMIDE HCL

PROCHLORPERAZINE
COMPANZINE®
  10MG TABLET ($0.08)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)
  5MG/ML INJECTION - 2ML VIAL ($1.88)
  (Note: May not be given KOP. Injection for clinic use only, should be taken from stock,
  and restricted to the Carol Young Medical Facility for post-chemotherapy use.)

PROCRIT® see EPOETIN

PROGRAF® see TACROLIMUS

PROLIXIN® see FLUPHENAZINE HCL

PROLIXIN D® see FLUPHENAZINE DECANOATE

PROMETHAZINE HCL
PHENERGAN®
  25MG TABLET ($0.32)
  25MG SUPPOSITORY - 12/BOX ($12.12/BOX)
  25MG/ML INJECTION - 1ML VIAL ($1.01)
  (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.)

PROPARACAIN HCL
ALCAINE®
  0.5% OPHTHALMIC SOLUTION - 15ML ($0.02)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

PROPRANOLOL HCL (Max 11 refills)
INDERAL®
  10MG ($0.02), 20MG ($0.03), 40MG ($0.04) TABLET
  1MG/ML INJECTION - 1ML VIAL ($2.40)
  (Note: Injection for clinic use only, should be taken from stock, and may not be given KOP.)

PROTAMINE SULFATE
  50MG INJECTION - 5ML VIAL ($3.13)
  (Note: Clinic use only. Take from stock. May not be given KOP.)

PROVENTIL-HFA® see ALBUTEROL
PROVERA® see MEDROXYPROGESTERONE

PROZAC® see FLUOXETINE

**PYRAZINAMIDE (PZA)** (Max 11 refills)
- 500MG TABLET ($0.62)
  (Note: May not be given KOP.)

**PYRIDOXINE HCL (VITAMIN B-6)** (Max 11 refills)
- 50MG TABLET ($0.01)

**PYRIMETHAMINE** (Max 11 refills)
  - DARAPRIM®
    - 25MG TABLET ($7.49)
  (Note: May not be given KOP.)

PZA see PYRAZINAMIDE

**QUESTRAN LIGHT®** see CHOLESTYRAMINE

QVAR® see BECLOMETHASONE

**RALTEGRAVIR** (Max 11 refills)
  - ISENTRESS®
    - 400MG TABLET ($15.72)
  (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

RAPAMUNE® see SIROLIMUS

**RANITIDINE HCL** (Max 11 refills, tablets)
  - ZANTAC®
    - 150MG TABLET ($0.02)
    - 25MG/ML IV/IM INJECTION - 2ML VIAL ($1.09)
  (Note: Injection for clinic use only, should be taken from stock, may not be given KOP, and restricted to regional medical facilities.)

REFRESH PM® see LUBRICANT EYE OINTMENT

REGLAN® see METOCLOPRAMIDE HCL

REMICADE® see INFliximab

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RENAGEL® see SEVELAMER

RETROVIR® see ZIDOVUDINE

REYATAZ® see ATAZANAVIR

RIBASPHERE® see RIBAVIRIN

RIBAVIRIN (Max 11 refills)

   RIBASPHERE®

      200MG CAPSULE ($1.19)
      (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.pharmacyHG@utmb.edu for UTMB units and Utilization Management at (806)356-5350 for TTUHSC units.)

RIFABUTIN (Max 11 refills)

   MYCOBUTIN®

      150MG CAPSULE ($11.59)
      (Note: May not be given KOP.)

RIFADIN® see RIFAMPIN

RIFAMPIN (Max 11 refills)

   RIFADIN®

      300MG CAPSULE ($0.90)
      (Note: May not be given KOP.)

RINGERS INJECTION, LACTATED see LACTATED RINGERS

RISPERDAL® see RISPERIDONE

RISPERIDONE (Max 11 refills)

   RISPERDAL®

      0.5MG TABLET ($0.16)
      (Note: May not be given KOP. Restricted to TYC.)
      1MG ($0.17), 2MG ($0.35), 3MG ($0.30), 4MG ($0.52) TABLET
      (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

RITALIN® see METHYLPHENIDATE
RITONAVIR (Max 11 refills)
NORVIR®
100MG TABLET ($8.28)
(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 ($4.89)
(Note: Clinic use only. Take from stock. May not be given KOP.)

SALINE SOLUTION - SEE SOFT CONTACTS SALINE SOLUTION

SALINE see SODIUM CHLORIDE

SALSALATE (Max 2 refills)
DISALCID®
500MG TABLET ($0.26)

SALT WATER GARGLE see SODIUM CHLORIDE GARGLE

SANTYL® see COLLAGENASE

SAQUINAVIR (Max 11 refills)
INVIRASE®
500MG TABLET ($7.09)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

SCOPOLAMINE HYDROBROMIDE
ISOPTO HYOSCINE®
0.25% OPHTHALMIC SOLUTION - 5ML ($23.50)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units..)

SELENIUM SULFIDE
SELSUN®
2.5% SUSPENSION - 120ML ($7.03)
(Note: Orders should be written for 1 bottle to last 90days.)

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SELSUN® see SELENIUM SULFIDE

SERTRALINE (Max 11 refills)
   ZOLOFT®
       50MG ($0.07), 100MG TABLET ($0.06)
   (Note: May not be given KOP.)

SEVELAMER (Max 11 refills)
   RENAGEL®
       800MG TABLET ($2.76)
   (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 ($27.49/BOX)
   (Note: Clinic use only. Take from stock. May not be given KOP.)

SILVER SULFADIAZINE
   SILVADENE®
       1% CREAM - 50GM ($4.88), 400GM ($21.81)
   (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 ($1.35/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 ($10.23), 2MG ($20.46) 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 ($3.33)
(Note: Clinic use only. Take from stock. May not be given KOP.)

SODIUM CHLORIDE
0.45% INJECTION - 1000ML ($0.91)
0.9% INJECTION – 100ML ($1.05), 250ML ($0.70)
500ML ($0.74), 1000ML ($0.83)
0.9% MINI-BAG – 100ML ($1.89)
0.9% IRRIGATION SOLUTION - 250ML ($0.95)
0.9% BACTERIOSTATIC INJECTION - 30ML VIAL ($0.44)
0.9% BACTERIOSTATIC FREE INJ - 10ML VIAL ($0.73)
0.9% INHALANT SOLUTION - 3ML VIAL ($0.10)

OCEAN® (Max 2 refills)
NASAL SPRAY - 45ML ($0.64)

MURO 128® (Max 11 refills)
2% OPHTHALMIC SOLUTION - 15ML ($11.55)
5% OPHTHALMIC SOLUTION - 15ML ($7.62)
5% OPHTHALMIC OINTMENT - 3.5GM ($7.35)

GARGLE
PACKETS - 1000/BOX ($1.61/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 ($0.52)
(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

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SPIRONOLACTONE (Max 11 refills)
ALDACTONE®
25MG TABLET ($0.11)

STADOL® see BUTORPHANOL TARTRATE

STANNOUS FLUORIDE
GELKAM®
0.4% GEL – 3.5OZ ($6.63)

STAVUDINE (D4T) (Max 11 refills)
ZERIT®
20MG ($1.78), 30MG ($1.89), 40MG ($2.04) 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 ($0.88)

STRATTERA see ATOMOXETINE

SUDAFED-PE® see PHENYLEPHRINE

SULAMYD® see SULFACETAMIDE SODIUM

SULFACETAMIDE SODIUM
SULAMYD®
10% OPHTHALMIC SOLUTION - 15ML ($2.04)

SULFADIAZINE (Max 11 refills)
MICROSULFON®
500MG TABLET ($2.35)
(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 ($4.00)
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 ($0.15)

SUNSCREEN
SUNSCREEN
SPF 15 LOTION - 240ML ($2.39)
(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 LEVOTHYROXINE SODIUM

TACROLIMUS (Max 11 refills)
PROGRAF®
0.5 MG ($1.37), 1MG ($2.75), 5MG ($13.90) CAPSULE
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

TAPAZOLE® see METHIMAZOLE

TDaP see TETANUS/DIPHTHERIA/ACELLULAR PERTUSSIS

TEGRETOL® see CARBAMAZEPINE

TEMOVATE® see CLOBETASOL

TENEX® see GAUNFACINE

TENOFOVIR (Max 11 Refills)
VIREAD®
300MG TABLET ($23.43)
(Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

TENOFOVIR/EMTRICITABINE see EMTRICITABINE/TENOFOVIR

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 ($1.44)  
(Note: Clinic use only. Take from stock. May not be given KOP.)

**TETANUS/DIPHTHERIA TOXOIDS**  
DECAVAC®  
0.5ML SINGLE DOSE VIAL ($17.34)  
(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 ($35.94)  
(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 ($1.11)

**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 ($0.07), 5MG ($0.09), 10MG ($0.13) CAPSULE
  (Note: May not be given KOP.)

THORAZINE® see CHLORPROMAZINE HCL

TIMOLOL MALEATE (Max 11 refills)
  TIMOPTIC®
  0.5% OPHTHALMIC SOLUTION - 5ML ($2.14)

TINACTIN® see TOLNAFTATE

TIOTROPIUM (Max 11 refills)
  SPIRIVA® HANDIHALER
  18MCG CAPSULE, 30/BOX ($232.68/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 ($1.90)
  40MG/ML INJECTION – 2ML VIAL ($1.60)
  (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 ($1.42)
  1% CREAM - 15GM ($0.86)

T-PA (TISSUE-TYPE PLASMINOGEN ACTIVATOR) see ALTEPLASE

TRAZODONE HCL (Max 11 refills)
  DESYREL®
  50MG ($0.01), 100MG ($0.02) TABLET
  (Note: May not be given KOP.)
TRI-CHLOR® see TRICHLOROACETIC ACID

TRIAMCINOLONE

KENALOG®
- 0.025% OINTMENT - 15GM ($4.48)
- 0.025% CREAM - 15GM ($2.88)
- 0.1% CREAM 15GM ($2.88), 1LB ($16.42)
- 10MG/ML INJECTION - 5ML VIAL ($10.20)
- 40MG/ML INJECTION - 1ML VIAL ($7.90)

KENALOG IN ORABASE®
- 0.1% DENTAL PASTE – 5GM ($41.92)
(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 ($45.33)
(Note: Clinic use only. Take from stock. May not be given KOP.)

TRIFLUOPERAZINE HCL (Max 11 refills)

STELAZINE®
- 2MG ($0.31), 5MG ($0.40), 10MG ($0.55) TABLET
(Note: May not be given KOP.)

TRIFLURIDINE

VIROPTIC®
- 1% OPHTHALMIC SOLUTION - 7.5ML ($111.29)

TRILAFON® see PERPHENAZINE

TRIMETHOPRIM/POLYMIXIN B

POLYTRIM®
- 1MG/10,000U OPHTHALMIC SOLUTION - 10ML ($1.20)

TRUSOPT® see DORZOLAMIDE

TRUVADA® see EMTRICITABINE/TENOFOVIR
TRYPSIN/BALSAM PERU/CASTOR OIL
GRANULEX®
4OZ SPRAY ($8.48)
(Note: Clinic use only. Take from stock. May not be given KOP. Recommended for stage 1 and 2 wounds only.)

T-SAT® see ERYTHROMYCIN TOPICAL SOLUTION

TUBERCULIN INJECTION (PURIFIED PROTEIN DERIVATIVE)
PPD, APLISOL®
10TESTS/1ML INJECTION - 1ML VIAL ($25.90)
50TESTS/5ML INJECTION - 5ML VIAL ($92.56)
(Note: Clinic use only. Take from stock. May not be given KOP.)

TUCKS® OINTMENT see HEMORRHOIDAL OINTMENT

TUMS® see CALCIUM CARBONATE

TYLENOL® see ACETAMINOPHEN

TYLENOL® W/CODEINE see ACETAMINOPHEN/CODEINE

TYLENOL #3® see ACETAMINOPHEN WITH CODEINE

TYLOXAPOL/BENZALCONIUM (Max 5 refills)
ENUCLENE®
0.02%/0.25% EYE LUBRICANT - 15ML ($8.57)

URECHOLINE® see BETHANECOL

VALIUM® see DIAZEPAM

VANCOCIN® see VANCOMYCIN HCL

VANCOMYCIN HCL
VANCOCIN®
1G INJECTION VIAL ($3.81)
IV Preparation Standard:
≤500mg in 100mL D₂W over 60-90 minutes
>500mg in 150mL D₂W 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 ($87.11)
(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 ($1.36)
(Note: Clinic use only. Take from stock. May not be given KOP. Restricted to regional medical facilities.)

VASOTEC® see ENALAPRIL

VEETIDS® see PENICILLIN VK

VENLAFAXINE HCL (Max 11 refills)

EFFEXOR®
37.5MG ($0.31), 75MG ($0.33) TABLET
(Note: May not be given KOP. Restricted to TYC only.)

VENOFER® see IRON SUCROSE

VENTOLIN® see ALBUTEROL SULFATE

VERAPAMIL HCL (Max 11 refills, tablet & caplet)

CALAN®
80MG ($0.03), 120MG ($0.04) IMMEDIATE RELEASE TABLET
2.5MG/ML INJECTION - 2ML VIAL ($0.99)

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

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VICKS VAPORUB® see CAMPHTOR/EUCALYPTUS/MENTHOL

VIDEX-EC® see DIDANOSINE

VIRACEPT® see NELFINAVIR

VIRAMUNE® see NEVIRAPINE

VIREAD® see TENOFOVIR

VIROPTIC® 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 COMBINATION WITH VITAMIN C (Max 11 refills)

NEPHRO-VITE®

TABLET ($0.11)

(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 ($0.32)

WATER FOR INJECTION, BACTERIOSTATIC - 30ML ($0.47)

(Note: Clinic use only. Take from stock. May not be given KOP.)

WELLCOVORIN® see LEUCOVORIN CALCIUM

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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 ($0.37)
   (Note: Allowed KOP at 8-hour units, may not be given KOP at all other units.)

ZIPRASIDONE HCL (Max 11 refills, capsule)

   GEODON®

   20MG ($7.36), 40MG ($7.36), 60MG ($8.93), 80MG ($8.93) CAPSULE
   (Note: May not be given KOP. Restricted to TYC. 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 ($14.95)
   (Note: Clinic use only. Take from stock. May not be given KOP. See the Acute Psychosis pathway for injection dosing recommendations.)
ZITHROMAX® see AZITHROMYCIN

ZOVIA® see ETHYNODIOL DIACETATE/ETHINYL ESTRADIOL

ZOVIRAX® 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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<td>PHARMACEUTICAL AIDS</td>
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</table>
4:00  **ANTI-HISTAMINES**
- chlorpheniramine
- cyproheptadine
- diphenhydramine
- hydroxyzine
- loratadine
- meclizine
- promethazine

8:00  **ANTI-INFECTIVES**
8:08  **Anthelmintics**
- mebendazole

8:12  **Antibacterials**
8:12.02  **Aminoglycosides**
- gentamicin
- tobramycin

8:12.06  **Cephalosporins**
- *1st Generation*
  - cefazolin
  - cephalexin

- *3rd Generation*
  - ceftazidime
  - ceftriaxone

8:12.07  **Miscellaneous β-Lactams**
- meropenem

8:12.12  **Macrolides**
- azithromycin
- erythromycin

8:12.16  **Penicillins**
- penicillin G benzathine
- penicillin G potassium
- penicillin G procaine
- penicillin VK

- *Penicillinase-Resistant Penicillins*
  - dicloxacillin
  - nafcillin

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### Aminopenicillins Penicillins
- amoxicillin
- ampicillin

#### 8:12.18 Quinolones
- ciprofloxacin

#### 8:12.20 Sulfonamides
- sulfadiazine
- sulfamethoxazole/trimethoprim
- sulfasalazine

#### 8:12.24 Tetracyclines
- doxycycline
- tetracycline

#### 8:12.28 Miscellaneous Antibiotics
- clindamycin
- rifabutin
- rifampin
- vancomycin

#### 8:14 Antifungals
- amphotericin B
- fluconazole
- nystatin

#### 8:16 Antimycobacterial Agents
##### 8:16.04 Antituberculosis Agents
- ethambutol
- isoniazid
- pyrazinamide
- rifabutin
- rifampin

#### 8:16.92 Miscellaneous
- dapsone

#### 8:18 Antivirals
##### 8:18.04 Adamantanes
- amantadine

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8:18.08  **Antiretroviral Agents**

*Integrase Inhibitor*
raltegravir

*Nucleoside reverse transcriptase inhibitors*
abacavir
didanosine
emtricitabine
stavudine
zidovudine

*Nucleotide reverse transcriptase inhibitors*
tenofovir

*Non-nucleoside reverse transcriptase inhibitors*
efavirenz
nevirapine

*Protease Inhibitors*
atazanavir
darunavir
fosamprenavir
indinavir
lopinavir/ritonavir
nelfinavir
ritonavir
saquinavir

*Fixed-Dose Combinations*
efavirenz/emtricitabine/tenofovir
dacticamivirine/tenofovir

8:18.20  **Interferons**
peginterferon alfa-2a

8:18.32  **Nucleosides and Nucleotides**
acyclovir
entecavir
ribavirin

8:30  **Antiprotozoals**

8:30.08  **Antimalarials**
pyrimethamine

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8:30.92 Miscellaneous
  metronidazole

8:36 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 / Antispasmodic
    atropine
    ipratropium
    tiotropium

  12:12 Sympathomimetic Agents
    albuterol
    dopamine
    epinephrine
    norepinephrine
    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
  protamine

24:00  CARDIOVASCULAR DRUGS
24:04  Cardiac Drugs
  adenosine
  amiodarone
  digoxin
  lidocaine
  procainamide
  sotalol

24:06  Antilipemic Agents
  Bile Acid Sequestrant
  cholestyramine

  Fibric Acid Derivative
  gemfibrozil

  HMG-CoA Reductase Inhibitor (Statin)
  pravastatin

  Miscellaneous
  Niacin

24:08  Hypotensive agents
  Alpha1-Blocker
  terazosin

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<th>Category</th>
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<td>Angiotensin-Converting Enzyme Inhibitor</td>
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<td>Beta-Blocker</td>
<td>atenolol</td>
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<td>carvedilol</td>
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<td>metoprolol</td>
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<td>propranolol</td>
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<td></td>
<td>sotalol</td>
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<tr>
<td>Calcium Channel Blocker</td>
<td>diltiazem</td>
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<td>Dihydropyridine Calcium Channel Blocker</td>
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<td>guanfacine</td>
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<td>methyldopa</td>
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<td>minoxidil</td>
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<td>Loop Diuretics</td>
<td>furosemide</td>
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<td>spironolactone</td>
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<td>Metolazone</td>
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24:12 Vasodilating Agents
dipyridamole
isosorbide mononitrate
nitroglycerin

28:00 CENTRAL NERVOUS SYSTEM AGENTS
28:08 Analgesics and Antipyretics
28:08.04 Nonsteroidal Anti-Inflammatory Agents
Acetylated salicylates
aspirin

Non-acetylated salicylates
salsalate

Propionic Acids
ibuprofen
naproxen

Oxicams
meloxicam

28:08.08 Opiate Agonists
acetaminophen / codeine
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

28:12.08 Benzodiazepines
diazepam
lorazepam

28:12.12 Hydantoins
phenytoin

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28:12.20 Succinimides  
ethosuximide

28:12.92 Miscellaneous Anticonvulsants  
carbamazepine  
divalproex sodium  
levetiracetam  
magnesium sulfate

28:16 Psychotherapeutic Agents  
28:16.04 Antidepressants  
Serotonin Modulators  
trazodone

Selective Serotonin Reuptake Inhibitor  
citalopram  
fluoxetine  
sertraline

Serotonin-Norepinephrine Reuptake Inhibitor  
venlafaxine

Tricyclic Antidepressant  
imipramine  
nortriptyline

28:16.08 Antipsychotics  
Atypical Antipsychotic  
aripiprazole  
clozapine  
risperidone  
ziprasidone

Typical Antipsychotic  
chlorpromazine  
fluphenazine  
haloperidol  
perphenazine  
thiothixene  
trifluoperazine

28:20 Respiratory & Cerebral Stimulants  
ammonia

378
amphetamine salts
methylphenidate

28:24 Anxiolytics, Sedatives, and Hypnotics
28:24.08 Benzodiazepines
  chlordiazepoxide
diazepam
lorazepam

28:24.92 Misc Anxiolytics, Sedatives, & Hypnotics
  hydroxyzine
  promethazine

28:28 Antimanic Agents
  lithium

28:36 Antiparkinsonian Agents
  amantadine
  benztropine
  levodopa/carbidopa
  bromocriptine

28:92 Central Nervous System Agents, Miscellaneous
  atomoxetine

36:00 DIAGNOSTIC AGENTS
36:56 Myasthenia Gravis
  edrophonium

36:84 Tuberculosis
  tuberculin PPD

40:00 ELECTROLYTIC, CALORIC & WATER BALANCE
40:08 Alkalinizing Agents
  sodium bicarbonate

40:10 Ammonia Detoxicants
  lactulose

40:12 Replacement Preparation
  calcium carbonate
  calcium chloride
  calcium gluconate
dextrose

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Potassium chloride
ringers-lactated
sodium chloride

40:18 Ion-removing Agents
40:18.18 Potassium-Removing Agents
sodium polystyrene sulfonate

40:18.19 Phosphate-Removing Agents
sevelamer

40:20 Caloric Agents
dextrose
ental feeding

40:28 Diuretics
acetazolamide
furosemide
hydrochlorothiazide
metolazone

40:28.16 Potassium Sparing Diuretics
spironolactone
triamterene/HCTZ

40:36 Irrigating Solutions
ophthalmic irrigating solution
sodium chloride
sterile water
water, bacteriostatic

40:40 Uricosuric Agents
probenecid

48:00 RESPIRATORY TRACT AGENTS
48:04 Antihistamines
chlorpheniramine
cyproheptadine
diphenhydramine
loratadine

48:10 Anti-inflammatory Agents
48:10.08 Orally Inhaled Preparations
beclomethasone
Bronchodilators
albuterol
atropine
epinephrine
ipratropium
terbutaline
tiotropium

EYE, EAR, NOSE, & THROAT (EENT) PREPARATIONS

Anti-Infectives

Antibacterials
bacitracin / polymyxin ophth
erthromycin ophth
gentamicin ophth
neomycin / polymyxin / hydrocortisone otic
neomycin / polymyxin / bacitracin / hydrocortisone ophth
neomycin / gramicidin / polymyxin ophth
neomycin / polymyxin / dexamethasone ophth
neomycin / bacitracin / polymyxin ophth
sulfacetamide ophth
tobramycin ophth
trimethoprim / polymyxin ophth

Antivirals
trifluridine ophth

Miscellaneous Anti-Infectives
acetic acid / aluminum acetate otic
carbamide peroxide otic
chlorhexidine
silver nitrate

Anti-Inflammatory Agents

Corticosteroids
neomycin / polymyxin / hydrocortisone otic
neomycin / polymyxin / bacitracin / hydrocortisone ophth
neomycin / polymyxin / dexamethasone ophth
prednisolone ophth

Nonsteroidal Anti-inflammatory Agents
flurbiprofen ophth

Local Anesthetics
antipyrine / benzocaine otic

381
proparacaine ophth

52:24  **Mydriatics**
atropine ophth
cyclpentolate ophth
scopolamine ophth

52:28  **Mouth Washes & Gargles**
hydrogen peroxide
sodium chloride gargle

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 Blocking Agents**
timolol ophth

52:40.12  **Carbonic Anhydrase Inhibitors**
acetzolamide
dorzolamide ophth

52:40.20  **Miotics**
pilocarpine ophth

52.40.28  **Prostaglandin Analogs**
latanoprost

52:12  **Contact Lens Solution**
contact rewetting and lubricant solution
contact lens enzymatic solution
gas permeable lens multi-action solution
soft contact lens multi-purpose solution

52:92  **Miscellaneous EENT Drugs**
fluorescein strips
lubricant eye oint
methylcellulose ophth
polyvinyl alcohol / artificial tears
sodium chloride ophthalmic
sodium chloride nasal
tyloxapol / benzalconium ophthalmic

56:00 GASTROINTESTINAL DRUGS
56:04 Antacids & Adsorbents
aluminum hydroxide / magnesium hydroxide
calcium carbonate
charcoal, activated
magnesium hydroxide

56:08 Antidiarrheal Agents
bismuth subsalicylate
loperamide

56:10 Antiflatulents
simethicone

56:12 Cathartics & Laxatives
Bowel Evacuants
PEG-3350

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
pancrelipase

56:22 Antiemetics
meclizine
prochlorperazine
promethazine
56:28 Antiulcer Agents and Acid Suppressants
    ranitidine
    omeprazole

56:32 Prokinetic Agents
    metoclopramide

68:00 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
    conjugated estrogen
    conjugated estrogen, 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
    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
influenza virus vaccine
hepatitis A vaccine
hepatitis B vaccine
measles-mumps-rubella vaccine
meningococcal polysaccharide vaccine
pneumococcal vaccine polyvalent
poliovirus vaccine, inactivated
varicella vaccine

84:00 SKIN & MUCOUS MEMBRANE AGENTS
84:04 Anti-Infectives
84:04.04 Antibacterials
bacitracin / polymyxin
erythromycin
neomycin / bacitracin / polymyxin

84:04.08 Antifungals
clostrimazole
gentian violet
miconazole
nystatin
nystatin/triamcinolone
tolnaftate

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84:04.12 Scabicides & Pediculicides
   permethrin

84:04.92 Miscellaneous Local Anti-Infectives
   alcohol, ethyl
   chlorhexidine
   hexachlorophene
   hydrogen peroxide
   povidone iodide
   selenium sulfide
   silver sulfadiazine

84:06 Anti-Inflammatory Agents
   clobetasol propionate
   fluocinolone acetonide
   fluocinonide
   hydrocortisone
   nystatin / triamcinolone
   triamcinolone
   triamcinolone / orabase

84:08 Antipruritics & Local Anesthetics
   calamine
   hemorrhoidal
   lidocaine
   orabase / benzocaine
   phenazopyridine

84:28 Keratolytic Agents
   salicylic acid

84:32 Keratoplastic Agents
   coal tar

84:80 Sunscreen Agents
   sunscreen, SPF 15

84:92 Miscellaneous
   absorbase
   benzoin compound
   benzoyl peroxide
   body lotion

386
camphor / phenol
collagenase
mentholatum rub
podofilox
podophyllum resin
trichloroacetic acid
trypsin/balsam peru/castor oil

86:00  SMOOTH MUSCLE RELAXANTS
86:12  Genitourinary Smooth Muscle Relaxants
       oxybutynin

88:00  VITAMINS
88:08  Vitamin B Complex
       cyanocobalamin
       folic acid
       prenatal-folic acid
       pyridoxine
       thiamine

88:16  Vitamin D
       calcitriol
       doxercalciferol
       paricalcitol

88:24  Vitamin K
       phytonadione

88:28  Multivitamin Preparations
       multivitamin, I.V. infusion
       multivitamin
       nephro-vite
       prenatal-folic acid

92:00  MISCELLANEOUS THERAPEUTIC AGENTS
92:12  Antidotes
       flumazenil
       glucagon
       leucovorin
       magnesium sulfate
       physostigmine
       phytonadione
       protamine sulfate
92:16  **Antigout Agents**
allopurinol

92:28  **Cariostatic Agents**
stannous fluoride

92:36  **Disease-modifying Antirheumatic Drugs**
infliximab

92:44  **Immunosuppressive Agents**
azathioprine
cyclosporine
mycophenolate mofetil
sirolimus
tacrolimus

92:92  **Other**
adenosine
melatonin

96:00  **PHARMACEUTICAL AIDS**
glucose tolerance test
lubricant, surgical
petrolatum jelly
sodium chloride inhalant