Ochsner
Pathology and Laboratory Medicine

OMCJH.CHEM.COLL.INF.1001 Therapeutic Drug Monitoring Guidelines

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Approval and Periodic Review Signatures

Type	Description	Date	Version	Performed By	Notes
Periodic review	System Chair, Clinical Pathology	6/2/2021	1.0	Gregory Sossaman Gregory Sossaman, M.D.	
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Version History

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1.0	Approved and Current	Initial version	9/29/2017	10/5/2017	Indefinite

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Therapeutic Drug Monitoring Guidelines

Name	When To Draw Sample	Steady State	Additional Considerations
Amikacin	Traditional Dosing: **Peak:** 30 minutes after a 30 minute infusion. **Trough:** 30 minutes before the next dose. Once daily dosing: **Trough**: 30 min before dose	10-15 hours or greater dependent on renal function.	Draw serum concentrations after 5 half lives, usually around the third dose. **Peak:** 30 minutes after IV infusion, 60 minutes after IM infusion. No peak for once daily dosing.
Carbamazepine (Tegretol)	**Trough:** at the end of steady state dosing interval (just prior to dose)	4-7 days	Plasma levels should be monitored weekly during the first month of therapy, periodically thereafter.
Chloramphenicol	**Trough:** < / = to 1 hour before the next dose.	10-15 hours.	***Trough*** levels are preferred to monitor therapy.
Cyclosporine A	**TROUGH ONLY** - **Trough:** 12-18 hours after oral dose. 12 hours after IV dose, OR immediately prior to the next dose.	4 days.	**Peak:** after 3-4 hours **Trough:** >500ng/mL (150 ng/mL whole blood trough levels) are associated with cyclosporine induced nephrotoxicity. 100-400 ng/mL normal trough
Digoxin	Draw levels: 4 hours after an IV dose and 6-8 hours after an oral dose.	IV, PO, Adults: 1-2 weeks.	**Peak:** *Oral:* after 2-8 hours *IV:* after 1-4 hours. Draw levels when compliance, effectiveness, or systemic availability is questioned or toxicity is suspected.
Ethanol	Immediately		Peak: 1 hour after ingestion. MEDICAL USE ONLY. No micro collection.
Ethosuximide (Zarontin)	**Trough:** at the end of steady state dosing interval (just prior to dose).	Adults: 10-13 days Children: 6-7 days.	**Peak:** *Capsule*: 2-4 hours *Syrup:* <2-4 hours.

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Gentamicin	Traditional dosing: **Peak:** 30 minutes after a 30 minute infusion. **Trough:** 30 minutes before the next dose. Once Daily Dosing: **Trough:** 30 minutes before next dose.	10-15 hours or greater dependent on renal function.	Draw serum concentrations after 5 half lives, usually around the third dose. **Peak:** 30 minutes after IV infusion. No peak for once-daily dose
Lidocaine	**1)** 12 hours after initiating therapy for arrhythmia; then every 24 hours thereafter. **2)** Every 12 hours when evidence of cardiac or hepatic insufficiency exists. **3)** Whenever toxicity is suspected. **4)** Whenever ventricular arrhythmias occur despite lidocaine administration.	IV, Adults: immediate	Maximum serum levels in 5-8 hours. Obtain periodic plasma levels once effective levels have been reached.
Methotrexate	Draw levels 24-72 hours after drug infusion. Will vary according to dosing protocol.	N/A	**Peak:** *Oral:* 1-2 hours *Parenteral:* 30-60 minutes
Phenobarbital	Trough: just prior to dose (If infusion, ensure level drawn at least 1 hour after infusion.)	PO: 14-21 days for adults and adolescents. PO: 8-15 days for children and infants.	Peak plasma levels 1-3 hours after oral and IM route. Upper limits for phenobarbital dosing primarily determined by its sedative effects. Trough preferred for monitoring therapy.
Phenytoin	Trough: just prior to dose	Highly variable, about 1-5 weeks	Peak plasma levels 1-3 hours after oral dose. Peak 2-4 hours after IV loading dose.
Primadone (Mysoline) Includes phenobarbital determination	Trough: just prior to dose	PO, Adults and Children: 50-60 hours.	Peak plasma levels 1-3 hours after oral dose. Sample 3-4 weeks after initiation of therapy to allow concentrations of phenobarbital metabolite to reach steady state.

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Procainamide (Pronestyl) Includes NAPA	IV Administration: **1)** 2 hours after start of IV maintenance infusion **2)** 6-12 hours after start of IV maintenance. **3)** Oral therapy: just prior to dose	Steady state for oral therapy: 12-18 hours w/normal renal function. 48-72 hours w/renal impairment.	
Tobramycin	Traditional dosing: **Peak:** 30 minutes after 30 minute infusion. **Trough:** 30 minutes before next dose. Once daily dosing: **Trough:** 30 minutes before next dose.	10-15 hours or greater dependent on renal function.	Draw serum concentrations after 5 half lives, usually around the third dose. **Peak:** 30 minutes after IV infusion. No peak with once daily dosing.
Valproic Acid (Depakene)	Trough: just prior to dose.	*PO: Adults* 1-17 hours *PO: Child* <17 hours	Approximate peak plasma levels after oral dose: *Syrup:* 0.5-1 hour *Capsule:* 1-3 hours *Enteric coated tablet:* 2-6 hours Monitor trough within 2-4 days of initiating treatment or changing dose.
Vancomycin	**Peak:** draw 3 hours after end of infusion. For neonates and patients receiving Q 6hr dosing draw peak 1 hr after infusion. **Trough:** 30 min prior to next dose.	24-36 hours	Vancomycin has a 3 compartment distribution.
Quinidine	Trough: just prior to dose.	30-35 hours	Peak depends on preparation: Quinidine sulfate 1-2 hours after oral dose. Quinidine gluconate 4-6 hours after oral dose.
Salicylayte	Draw steady state plasma levels. Immediately if suspect poisoning.	> one week	Peak plasma levels 2 hours after PO dose. Draw plasma levels for high dose treatment or a change in dosage regimen.

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Theophylline	**IV Adminitration:** **1)** Prior to infusion (if patient has history of theophylline therapy. **2)** 4-8 hours after start of infusion. **3)** Repeat as needed to ensure concentration is maintained within therapeutic range. **Oral Administration:** **Trough:** at the end of steady state dosing interval (just prior to dose) **Peak:** refer to comments.	**IV, PO, Adults:** about 2 days **IV, PO, Child:** 1-2 days PO, infants gradually decreases from newborn value to childhood level. **Neonates, prematures:** 150 hours	Peak plasma levels depends on oral preparation: **1)** Solution - one hour after oral dose. **2)** Solid with rapid dissolution characteristics - two hours after oral dose. **3)** Slow release formulations - 4-6 hours after oral dose. **4)** Theodur - 3 to 7 hours after oral dose.

THERAPEUTIC DRUG MONITORING GUIDELINES
Reference List

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