



HOSPITAL / KLINIK KESIHATAN
CLINICAL PHARMACOKINETICS SERVICE
Therapeutic Drug Monitoring (TDM) Request Form

Pharmacy Ref No:

Note :

- 3 – 5 ml of blood sample is needed for analysis of 1 – 3 drugs.
- Use plain tubes for all the drugs except for Cyclosporin/Tacrolimus/Sirolimus/Everolimus (EDTA tube).
- Correct information is crucial as interpretation of results is dependent on the information provided.

Date Received :

Time Received :

PATIENT PROFILE

Name :	Ward/Unit :	RN / IC :
Age :	Gender : <input type="checkbox"/> M <input type="checkbox"/> F	Race :
Weight (kg) :	Height (cm) :	DOA :

CLINICAL SUMMARY AND DIAGNOSIS**PATIENT CONDITION****INDICATION FOR REQUEST**

<input type="checkbox"/> Oedema	<input type="checkbox"/> Liver Disease	<input type="checkbox"/> Dehydration	<input type="checkbox"/> Therapeutic Monitoring	<input type="checkbox"/> Non-compliance
<input type="checkbox"/> Dialysis	<input type="checkbox"/> Burn	<input type="checkbox"/> Others	<input type="checkbox"/> Suspected Toxicity	<input type="checkbox"/> Others

LATEST LAB RESULTS**CONCURRENT MEDICATIONS**

Parameters	Date	Results (unit)	Parameters	Date	Results (unit)
Blood Urea			Temperature		
Na ⁺ / K ⁺			WBC		
Creatinine			ALT / AST / ALP		
Albumin			HR		
Culture & Sensitivity					

Drug Analysis (Tick ✓ where appropriate)	Present Dose Regimen	Dose Started		Monitoring Date			
				/ /	/ /	/ /	/ /
				Predose / Post 1 / C ₀	Last Dose Given	Postdose / Post 6 / C ₂	Random
		Date	Time	Time	Time	Time	Time
Amikacin							
Carbamazepine							
Cyclosporin							
Digoxin							
Gentamicin							
Lithium							
Methotrexate							
Paracetamol							
Phenobarbitone							
Phenytoin							
Salicylate							
Theophylline							
Valproic acid							
Vancomycin							
Others (please specify):							

REFER TO TDM SERUM SAMPLING GUIDELINES (refer back page)**For injectable drug being analysed :**

Infusion rate :

Duration of Infusion :

REQUESTED BY:

Doctor's Signature : _____ Name & Stamp : _____ Date : _____

FOR PHARMACY USE ONLY	Drug analysis	Result	Therapeutic Range	Calculated Pharmacokinetic Parameters		Time Finished :
				K _e :	C _{min new} :	Test done by :
				t _{1/2} :	C _{max new} :	
				T :	CrCl :	
				C _{max} :	C _{pss} :	
			V _d :			

Pharmacist's Assessment & Recommendation :

Informed : DR / SNon atam/pm

Pharmacist's signature & stamp

TDM SERUM SAMPLING GUIDE

DRUG		STEADY STATE <i>(Time to monitor plasma concentrations)</i>		SAMPLING TIME		THERAPEUTIC RANGE <i>(*The target reference ranges may vary based on institutional reference & indication)</i>	SAMPLE STABILITY IN BLOOD
		SINGLE DAILY DOSING	MULTIPLE DOSING	SINGLE DAILY DOSING	MULTIPLE DOSING		
AMINOGLYCOSIDE	AMIKACIN	2 nd dose	3 rd or 4 th dose	1 st sample Post 2 hours	Pre 0 – 30 min before dose Post 30 min after 30 min infusion completed	Trough: SDD: <1 mcg/ml Neonates: <5mcg/ml MDD & Dialysis : <10mcg/ml #Peak: Neonates, MDD: 20-30 mcg/ml SDD : *60 mcg/ml	8 hours
	2 nd sample Post 6 hours			Trough: SDD, Neonates & synergistic: <1mcg/ml MDD & Dialysis : <2mcg/ml #Peak: Neonates: 5-12 mcg/ml MDD: 5-10 mcg/ml SDD: *10-30 mcg/ml Synergy: 3-5 mcg/ml # adjustable according to indication			
	GENTAMICIN	Impaired Renal Function: After 24 hours (after 1 st stat dose) or Pre-HD					
VANCOMYCIN		Normal Renal Function : 4 th dose Impaired Renal Function : After 24hours (after 1 st stat dose) Continuous Infusion: Take a sample after 12 – 24 hours of starting the continuous infusion		Trough level: 30mins before dose Peak level: 1 hour after the infusion completed		Trough: Non-complicated infection :10 – 15 mcg/ml Complicated infection :15 – 20 mcg/ml Peak: 25 – 40 mcg/ml Continuous Infusion: 15 – 25mcg/mL AUC₂₄/MIC : 400-600mg.h/L	4 hours
CARBAMAZEPINE		Initiation : 2-3 weeks (Induction Phase) MD : 2-5 days after initiation and dose changes		Pre: 0 – 30 min before dose		4 – 12 mcg/ml	8 hours
PHENOBARBITAL		Without LD : 2- 3 weeks After LD : 2 – 3 hrs after administration		Pre: 0 – 30 min before dose		Epilepsy : 15 – 40 mcg/ml Refractory status epileptics : > 70mcg/ml (up to 100mcg/ml)	8 hours
PHENYTOIN		With LD : Oral: 24 hours IV : 2 hours (if rapid therapeutic concentration is needed) Without LD : 7 – 10 days		Pre: 0 – 30 min before dose		10-20 mcg/ml	8 hours
VALPROIC ACID		2- 4 days		Pre: 0 – 30 min before dose		Epilepsy : 50 – 100 mcg/ml Psychiatric Disorder: 50 – 125 mcg/ml	2 days
THEOPHYLLINE		Adults : 2days Children : 1 – 2 days Infants : 1 – 5 days Newborn : 120 hrs (5 days) Premature neonates : 150 hrs (6 days)		Pre: 0 – 30 min before dose		Apnoea/Bradycardia in neonates : 5 – 10 mcg/ml Asthma/COAD : 10 – 20 mcg/ml	8 hours
DIGOXIN		Without LD : 7 – 14 days With LD : 12 – 24 hours ESRD : 15-20 days		Pre : 0-30 min before dose Post : Oral : At least 6 hours after dose IV : At least 4 hours after dose		CHF : 0.5 – 0.9 ng/mL AF : 0.8 – 2 ng/mL	8 hours
CYCLOSPORINE (EDTA tube)		3-5 days		Co: Immediately before next dose C ₂ : 2 hours after dose		According to drug indication General Therapeutic Range: C ₀ ~100-500mcg/L C ₂ ~600 - 1700mcg/L	7 days
TACROLIMUS (EDTA tube)		3 – 5 days		Pre : 0 – 30 min before dose		5 – 20 ng / ml	7 days
SIROLIMUS (EDTA tube)		Adults : 5 – 7days Children : 3 – 5 days		Pre : 0 – 30 min before dose		4 – 24 ng/ml	8 days
METHOTREXATE		24 - 48 hours		24hr or 48hr post infusion		Variable – Refer to specific protocols	2 days (Room temp)
SALICYLATE		Therapeutic : 5 – 7 days Toxicity : 4 hours after ingestion		Therapeutic : 1 – 3 hours after dose Toxicity : 4 hours after ingestion		Rheumatic Fever : 250 – 400 mcg/ml Anti-inflammatory : 150 – 300 mcg/ml	8 hours
PARACETAMOL		Toxicity : 4 hours after ingestion		Toxicity : 4 hours after single acute ingestion OR Unknown Ingestion Time : 2 sample at 2 hours interval		Refer Rummack Matthew Nomogram	8 hours
LITHIUM		4 – 5 days		Pre: 12 hours after dose (twice daily dosing) Pre: 24 hours after dose (once daily dosing)		0.5 – 1.5 mmol/L	24 hours

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