HOSPITAL PAKAR UNIVERSITI SAINS MALAYSIA
CLINICAL PHARMACOKINETICS SERVICE
PHARMACY DEPARTMENT

Therapeutic Drug Monitoring Request Form

|OFFICE HOUR: 09-7673425/ 3455|AFTER OFFICE HOUR: 013-5503425|

Pharmacy Reference No:

Date & Time Received:

PATIENT DETAIL			
Name:		RN:	DOA:
Race : M/C/I Others:	Gender : M/ F	Height (cm):	Weight (kg):
Ward/Clinic : Ext :	Bed :	Age:	If prem: _____ weeks post conception

CLINICAL SUMMARY & DIAGNOSIS

PATIENT CONDITION			
☐ Oedema	☐ Dialysis	☐ Dehydration	☐ Burn
☐ Liver disease	☐ Renal disease	☐ Heart rate (bpm)	☐ Temperature (°c)

PURPOSE OF TDM	**INDICATION OF ANALYSED DRUG**	**CONCURRENT MEDICATIONS**
☐ Routine monitoring		
☐ Non compliance	**FIRST DOSE (including loading dose)**	
☐ Suspected toxicity	Dose: Date & Time:	

LABORATORY RESULT						
Creatinine (µmol/L)		White Blood Cell (x10/L)		AST (µ/L)		Culture & Sensitivity
Blood Urea (mmol/L)		CRP (mg/L)		ALT (µ/L)		
K^+ (mmol/L)		Albumin (g/L)		ALP (µ/L)		
Na^+ (mmol/L)						

DRUG ANALYSIS

Note: Accurate information is crucial, as both assessment and recommendation depend on the information provided

Drug for analysis (Please state one drug only)	**Current dose regime**	**Start date**	**Date & Time** *(Please refer to TDM Serum Sampling Guide at the back)*			
			Last dose given	**Pre dose/ Post 2 hours**	**Post dose/ Post 6 hours**	**Random**
Drug: _____						

For injectable drug to be analysed:

Given as: ☐ BOLUS ☐ Infusion
If infusion: Infusion duration: _____ hr
Infusion rate : _____ ml/hr

Requested by:

_____
Doctor's signature & stamp Date:

PHARMACIST'S ASSESSMENT AND RECOMMENDATION

Drug	Result		Therapeutic Range	Calculated Pharmacokinetic Parameters			
	Pre			K_e :	C_{min} :	AUC_{24} :	AUC_{24new} :
	Post			$t_{1/2}$:	C_{max} :	$C_{max new}$:	Cpss :
	Random			T :	Vd :	$C_{min new}$:	CrCl :

Pharmacist's assessment & recommendation:

Informed: Dr/ SN ..... on .....at..... am/ pm

_____
Pharmacist's signature & stamp

TDM Serum Sampling Guide, Jabatan Farmasi, Hospital Pakar USM				
DRUG	**STEADY STATE (Time to monitor plasma concentration)**	**SAMPLING TIME**	**SAMPLE STABILITY IN BLOOD (Room Temperature)**	**SAMPLE CONTAINER**
Amikacin	**Adult/ Pediatrics:** 3rd dose **Neonates (36 -48hourly):** 2nd dose **Single Daily Dose (SDD):** After 2nd dose	**Pre**: 0-30 mins before dose **AND** **Post**: 1 hour after complete infusion/ BOLUS **SDD**: Post 2 hours **AND** Post 6 hours **Renal impairment**: 2 hours after dose served (post) **AND** 6 hours after complete HD (random) **CRRT:** Pre **AND** post levels on 2nd dose **CAPD**: 2 hours after dose served (POST) **AND** just before the next dose (PRE)	8 hours	Plain tube without gel (Red cap)
Gentamicin			4 hours	
Vancomycin	OD/ BD : 3rd dose TDS/ QID : 4th dose	**Pre**: 0-30 mins before dose **AND** **Post**: 1 hour after complete infusion **RRT (IHD, PD, nocturnal CRRT, AKI dose-by level)**: Random 24 hours after last dose **OR** Pre-HD on dialysis day (or 6 hours after complete HD if pre-HD not taken) **CRRT**: Pre **AND** post levels on 2nd dose **Continuous IV infusion**: Random level at 24 hours after dose initiation	4 hours	
Carbamazepine	**After initiation:** 2-3 weeks **After dose adjustment:** 2-5 days	**Pre**: 0-30 mins at steady state **Carbamazepine/ Valproic Acid (Daily Dose):** 12 hours after last evening dose **After loading Dose:** **Phenobarbitone**: 2-3 hours after complete infusion **Phenytoin**: 12 hours after (2 hours after if need to reload/ to aid determine maintenance dose)	8 hours	
Phenobarbitone	2 - 3 weeks		8 hours	
Phenytoin	7 - 10 days		8 hours	
Valproic acid	2 - 4 days		2 days	
Lithium	4 - 5 day	**Pre**: 0-30 mins at steady state before morning dose/ 12 hours after last evening dose	24 hours	
Digoxin	**After initiation:** **With Loading Dose:** 12 - 24 hours **Without Loading Dose:** 3 - 5 days **After dose adjustment:** 5 - 7 days	**Pre**: 0-30 mins at steady state	8 hours	
Methotrexate	24- 48 hours	**Random**: At 48 hours, 72 hours post infusion	2 days	
Theophylline	3 - 7 days	**Pre**: 0-30 mins at steady state	8 hours	
Acetaminophen	**Toxicity**: 4 hours after ingestion	**Toxic case:** 4 hours post ingestion **OR** **Unknown time of ingestion:** 2 random samples (2-4 hours apart)	8 hours	
Salicylate	**Therapeutic:** 5 - 7 days **Toxicity:** 4 hours post ingestion	**Therapeutic:** 1 – 3 hours after dose served **Toxicity:** 4 hours post ingestion	8 hours	
Cyclosporine	3 - 5 days	**Pre**: 0-30mins at steady state	7 days	EDTA Tube

References:
i) National Antibiotic Guideline 2024, Ministry of Health (Malaysia), ii) Guide to Antimicrobial Therapy in the Adult ICU 2023, Malaysian Society of Intensive Care, iii) Polisi dan Garis Panduan Perkhidmatan Farmasi Farmakokinetik Klinikal 2022, Bahagian Amalan dan Perkembangan Farmasi KKM, iv) Clinical Pharmacokinetics Pharmacy Handbook, second edition 2019 (edited version)