HOSPITAL .....
CLINICAL PHARMACOKINETICS SERVICE
Antifungal Therapeutic Drug Monitoring (TDM) Request Form

Pharmacy Ref No:
Date Received :
Time Received :

PATIENT PROFILE

Name:	Race:	Ward/Unit:
Gender: ☐ M ☐ F	Weight (kg):	IC:
Age:	Height (cm):	DOA:

CLINICAL SUMMARY AND DIAGNOSIS

LATEST LAB RESULTS

Parameters	Date	Results *(unit)*
Hb / WBC / Platelet		
Albumin		
Serum Creatinine		
ALT / AST / ALP / Bilirubin		
CRP		
Fungal Biomarkers (if available)		
Culture & Sensitivity (specify MIC if available)		

CONCURRENT MEDICATIONS

SAMPLING DETAILS

Sampling indication : ☐ After dose initiation ☐ Subsequent dose adjustment

Drug Analysis *(Tick ☐ where appropriate)*		**Checklist for TDM** *(Tick ☐ where appropriate)*	**Current Dose Regimen**	**Antifungal Initiation**		**Last Dose Given**		**Blood Sampling**	
								Pre/ Post/ Random	
				Date	**Time**	**Date**	**Time**	**Date**	**Time**
	Voriconazole	**NOT INDICATED** ☒ Short term prophylaxis (≤ 2 weeks)	LD: MD:						
	Itraconazole	**CONSIDER IN:** ☐ Difficult to treat invasive fungal infection / Deep seated infection ☐ Poor clinical response ☐ Suspected toxicity ☐ Obesity (BMI >30 kg/m^2) ☐ Concern with gastrointestinal absorption ☐ Significant drug interactions (please specify): _____ ☐ Renal impairment (flucytosine only)	LD: MD:						
	Posaconazole		LD: MD:						
	Flucytosine		LD: MD:						
	Isavuconazole	***Routine TDM Is Not Indicated*** **CONSIDER IN (Definitive therapy only):** ☐ Poor clinical response ☐ Obesity (BMI >30 kg/m^2) ☐ Concern with gastrointestinal absorption ☐ Significant drug interactions (please specify): _____	LD: MD:						

REFER TO TDM SERUM SAMPLING GUIDELINES *(refer back page)*

Requested by: ***(to be signed only by ID Physician / Hematologist / Intensivist / Anaesthesiologist)***

Doctor's Signature & Stamp: _____ Contact/Ext No: _____ Date:

Drug Analysis	***Result***	***Therapeutic Range***

Scientific officer:
Signature and Stamp:

Date:

FOR PHARMACY USE ONLY

Pharmacist's Assessment & Recommendation :

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

_____
Pharmacist's signature & stamp

DOA: Date of admission; LD: Loading dose; MD: Maintenance dose

TDM SERUM SAMPLING GUIDE

DRUG	STEADY STATE *(Time to monitor plasma concentrations)*	SAMPLING TIME	THERAPEUTIC RANGE	Threshold for toxicity	Tube*
VORICONAZOLE	**After dose initiation:** With LD: at least day 3 – 5 Without LD: at least day 5 – 8 **After dose adjustment or IV ↔ Oral switch:** At least day 5 – 8 **Consider early sampling:** In cases of worsening clinical condition or liver cirrhosis: after 3 – 5 days of dose adjustment	**Trough:** Within 30 minutes before next dose	**Prophylaxis:** ≥ 1 mg/L **Treatment:** ≥ 1 mg/L (≥ 2 mg/L for Aspergillosis, CNS infection or deep-seated infection)	> 4 mg/L** (Asian – mainly Japanese population) > 5.5 mg/L (non-Asian) ***Given the genetic diversity of the Malaysian population, use the lower threshold with clinical judgment.*	**RED** Cap Plain tube  **WITHOUT** gel
ITRACONAZOLE	**After dose initiation:** With LD: at least day 6 – 8 Without LD: at least day 11 – 15 **After dose adjustment:** At least day 11 – 15	**Trough:** Within 30 minutes before next dose	**Prophylaxis** **ITZ only:** ≥ 0.5 mg/L **ITZ + OH-ITZ:** ≥ 1 mg/L **Treatment** **ITZ only:** ≥ 1 mg/L **ITZ + OH-ITZ:** ≥ 2 mg/L	**ITZ Only** > 4 mg/L **ITZ + OH-ITZ** > 5 mg/L	
POSACONAZOLE	**After dose initiation:** With LD: at least day 6 Without LD: at least day 8 – 11 **After dose adjustment:** At least day 8 – 11	**Trough:** Within 30 minutes before next dose	**Prophylaxis:** ≥ 0.5 mg/L **Treatment:** ≥ 1.25 mg/L **Trough/MIC ratio:** 5 – 8 (Aspergillus spp.)	> 3.75 mg/L	
FLUCYTOSINE	At the 4th – 6th dose after initiation or dose adjustment	**Trough:** Within 30 minutes before next dose **Peak:** 2 hours after oral dose (*Consider if trough < 25 mg/L*)	**Trough:** 25 – 50 mg/L **Peak:** **Cryptococcal disease:** 30 – 80 mg/L **Other invasive fungal infections:** 40 – 60 mg/L	**Trough:** No established toxicodynamic threshold **Peak:** ≥ 100 mg/L	
ISAVUCONAZOLE (*Routine TDM is not indicated*)	**After dose initiation:** With LD: at least day 6 – 8 Without LD: at least day 11 – 15 **After dose adjustment**: At least day 11 – 15	**Trough:** Within 30 minutes before next dose	**Trough:** ≥ 1 – 2 mg/L	> 5 mg/L	

⚠ ***IMPORTANT:**
Send blood sample to pathology lab WITHIN 2 HOURS of collection for centrifugation.

For laboratory use:
Sample stability after centrifuge (Serum):
- 15 - 30ºC: 1 day
- 2 - 8ºC: 7 days
- < -18ºC: 90 days

References:
1) HKL Antifungal Pharmacokinetic Guide 2025. 2) Instruction manual of Antimycotics in Serum / Plasma, RECIPE Chemicals+Instruments GmbH. 3) Zhang S et al. Development and validation of a high-performance liquid chromatographic assay for the determination of fluconazole in human whole blood using solid phase extraction. 4) Ther Drug Monit. 2008 Jun;30(3):314-9, Ganesh S et al. Development and validation of a volumetric absorptive microsampling assay for analysis of voriconazole and voriconazole N-oxide in human whole blood. Chromb (2018). 5) Flucytosine by Mass spectrometry, Serum/Plasma | ARUP Laboratories Test Directory. (n.d.). https://ltd.aruplab.com/Tests/Pub/3018708. 6) Itraconazole, serum - Laboratory Test Directory | South & West. (n.d.). https://corewellhealth.testcatalog.org/show/LAB10010. 7) Posaconazole, quantitative by LC-MS/MS | ARUP Laboratories Test Directory. (n.d.). https://ltd.aruplab.com/Tests/Pub/2001739.

LD: Loading dose; ITZ: Itraconazole; OH-ITZ: Hydroxyitraconazole