

Antifungal Therapeutic Dose Adjustment Considerations by Drug

Itraconazole	
Drug Level (mg/L)	Consider Dose Adjustments
Supratherapeutic: >3-4	Consider dose reduction if the patient is experiencing an adverse event (or transition to another antifungal if clinically appropriate).
Therapeutic: 0.5 to 3-4 (depending on indication)	No change
Subtherapeutic: <0.5-1 (depending on indication)	<ul style="list-style-type: none"> For capsules, absorption can be increased by taking the medication with an acidic carbonated beverage (such as cola or ginger ale) or stopping or reducing H2RAs and PPIs Change capsules to solution Increase daily dose by 100-200 mg For solution, take the medication on an empty stomach

Posaconazole	
Drug Level (mg/L)	Consider Dose Adjustments
Supratherapeutic: >3-3.75	<ul style="list-style-type: none"> Delayed-release tablets: Reduce daily dose by 100 mg and recheck in 5-7 days Oral suspension: Reduce daily dose by 200 mg and recheck in 5-7 days
Therapeutic: 0.5 to 3-3.75 (depending on indication)	No change
Subtherapeutic: 0.5-1.5 (depending on indication)	<ul style="list-style-type: none"> Delayed-release tablets and IV: Increase daily dose by 100 mg Oral suspension: <ul style="list-style-type: none"> Dose at 200 mg 4 times daily rather than 400 mg BID OR Increase daily dose by 200-400 mg and recheck in 5-7 days (maximum absorbable individual dose is 400 mg) Ensure suspension is taken with a fatty meal or nutritional supplement and an acidic carbonated beverage (such as cola or ginger ale)
Subtherapeutic: <0.5	<ul style="list-style-type: none"> Delayed-release tablets: Consider q 12h dosing for very low levels Consider other triazoles

Voriconazole	
Drug Level (mg/L)	Consider Dose Adjustments
Supratherapeutic: >4.0 (Asians)-5.5 (Non-Asians) ¹	<ul style="list-style-type: none"> If levels are very high, consider holding 1-2 doses and restart at lower dose Oral Tablets: Decrease the daily dose by 50-100 mg and recheck level in 4 days
Therapeutic: 0.5 to 4-5.5 (depending on indication)	No change
Subtherapeutic: 0.5-2.0 (depending on indication)	<ul style="list-style-type: none"> Oral Tablets: Increase daily dose by 50-100 mg and recheck level in 4 days IV: Increase IV therapy by 50% to a maximum of 6 mg/kg
Subtherapeutic: <0.5	<ul style="list-style-type: none"> Patient may be a rapid metabolizer; split the dose to q 8h and recheck level in 2 days Evaluate for DDIs and adherence

Isavuconazole	
Drug Level (mg/L)	Consider Dose Adjustments
Supratherapeutic: >4.6-5.1 (depending on indication)	Consider dose reduction in patients with adverse events; but relationship of levels to toxicity is unclear. Unbound levels of isavuconazole may vary widely, study is needed.
Therapeutic: 1 to 4.6-5.1 (depending on indication)	No change
Subtherapeutic: 0.5-<1	Consider increasing the dose by 186 mg (1 capsule).
Subtherapeutic: <0.5	Double the dose or decrease the dosing interval to q 12h.

1. Takesue Y et al. *Clin Ther.* 2022 Dec;44(12):1604-1623. doi: 10.1016/j.clinthera.2022.10.005.
H2RA = H2 receptor antagonist; PPI = proton pump inhibitor

Resources for implementing TDM:

- SIDP/MSGERC Guidance: McCreary EK et al. *Pharmacotherapy.* 2023 Oct;43(10):1043-1050. doi: 10.1002/phar.
- Asian Guidelines: Takesue Y et al. *Clin Ther.* 2022 Dec;44(12):1604-1623. doi: 10.1016/j.clinthera.2022.10.005.
- Medscape continuing education: 5 Things to Know About Antifungal Therapeutic Drug Monitoring. [medscape.com/viewarticle/999522_print](https://www.medscape.com/viewarticle/999522_print)
- University of Michigan Antifungal TDM Guidelines: https://www.med.umich.edu/asp/pdf/adult_guidelines/Antifungal_TDM.pdf

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