



## Know Your Antifungals: Azoles

Azoles are one of the four currently available antifungal drug classes.<sup>1</sup> The azole antifungal agents include fluconazole, itraconazole, voriconazole, posaconazole, and isavuconazole. When using azole antifungals, considerations should be made for drug-drug interactions, [absorption](#)/kinetics, and adverse effects such as hepatotoxicity and [QTc prolongation](#).<sup>2</sup> Even though they are all in the same drug class, they have varying spectrums of activity. When it comes to the azole antifungals, how do their spectrums of activity differ?

**Table 1. Summary of Azole Antifungal Spectrum of Activity<sup>2-10</sup>**

	Fluconazole	Itraconazole	Voriconazole	Posaconazole	Isavuconazole
<i>Candida albicans</i>	+	+	+	+	+
<i>Candida tropicalis</i>	+	+	+	+	+
<i>Candida parapsilosis</i>	+	+	+	+	+
<i>Nakaseomyces glabrata (Candida glabrata)</i>	+/-* (dose-dependent)	+/-	+/-	+/-	+/-
<i>Pichia kudriavzevii (Candida krusei)</i>	-	+/-	+/-*	+/-	+/-
<i>Candida auris</i>	-	+/-	+/-	+/-	+/-
<i>Cryptococcus neoformans</i>	***	+	+	+	+
<i>Histoplasma spp.</i>	+/-	***	+	+	+
<i>Blastomyces spp.</i>	+/-	***	+	+	+
<i>Coccidioides spp.</i>	+	+	+	+	+
<i>Aspergillus spp.</i>	-	+	+	+	+
<b>Mucorales</b>	-	-	-	+	+

+ Should provide adequate coverage; +/- Has activity, but [elevated MICs](#) are not uncommon; - Does not have activity

\* Preferred therapy if susceptible; \*\* Preferred step down therapy after induction, if indicated

**Key Takeaway:** Azole antifungals differ in their spectrum of activity and preferred place in therapy for various fungal infections. Azoles CANNOT all be used interchangeably.

### References:

- Houšř J, Spižek J, Havlíček V. Antifungal Drugs. *Metabolites*. 2020;10(3):106. Published 2020 Mar 12. doi:10.3390/metabo10030106
- Lewis RE. Current concepts in antifungal pharmacology. *Mayo Clin Proc*. 2011;86(8):805-817. doi:10.4065/mcp.2011.0247
- Pappas PG, Kauffman CA, Andes DR, et al. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2016;62(4):e1-e50. doi:10.1093/cid/civ933
- Clinical Alert to U.S. Healthcare Facilities - June 2016. Centers for Disease Control and Prevention. December 21, 2018. Accessed May 6, 2024. <https://www.cdc.gov/fungal/candida-auris/candida-auris-alert.html>.
- Perfect JR, Dismukes WE, Dromer F, et al. Clinical practice guidelines for the management of cryptococcal disease: 2010 update by the infectious diseases society of america. *Clin Infect Dis*. 2010;50(3):291-322. doi:10.1086/649858
- Patterson TF, Thompson GR 3rd, Denning DW, et al. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2016;63(4):e1-e60. doi:10.1093/cid/ciw326
- Cornely OA, Alastruey-Izquierdo A, Arenz D, et al. Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. *Lancet Infect Dis*. 2019;19(12):e405-e421. doi:10.1016/S1473-3099(19)30312-3
- Wheat LJ, Freifeld AG, Kleiman MB, et al. Clinical practice guidelines for the management of patients with histoplasmosis: 2007 update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2007;45(7):807-825. doi:10.1086/521259
- Chapman SW, Dismukes WE, Proia LA, et al. Clinical practice guidelines for the management of blastomycosis: 2008 update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2008;46(12):1801-1812. doi:10.1086/588300
- Galgiani JN, Ampel NM, Blair JE, et al. 2016 Infectious Diseases Society of America (IDSA) Clinical Practice Guideline for the Treatment of Coccidioidomycosis. *Clin Infect Dis*. 2016;63(6):e112-e146. doi:10.1093/cid/ciw360