Miconazole

**Antifungal Class:**
Azoles (specifically imidazole)

**Antimifungal Spectrum:**
Various yeasts including Pseudoallescheria spp. and other phaeohyphomycoses

**Mechanism of Action:**
Bind to the heme moiety of the fungal cytochrome P-450 dependent enzyme lanosterol 14-α-demethlyase. Inhibits 14-α-demethlyase, blocks formation of ergosterol and leads to the buildup of toxic methylated 14-α-sterols. Both effects serve to inhibit cell growth.

**Pharmacodynamics:**
Other azoles have shown in murine models to exhibit AUC:MIC ratio as predictive of effect for *Candida* spp. This may vary by fungal species however.

**Pharmacokinetics:**
Absorption: Topical: negligible through intact skin

**Adverse Effects:**
Topical: Contact dermatitis, burning
Vaginal: Irritation, burning, itching, and abdominal cramping

**Dosage:**
Miconazole nitrate vaginal suppository 200 mg
Topical Cream: 2% Various sizes, most commonly 15 g and 30 g
Vaginal Cream: 2% With applicator, 45 g
Vaginal Cream 4% 15 g, 25 g
Topical liquid 2% 90 mL
   Neosporin AF®: 2% (105 mL)
Topical Powder: 2%, Various sizes
Topical Tincture: 2%

Tinea corporis: Apply topically twice daily x 4 weeks
Tinea pedis: Apply topically twice daily x 4 weeks
Tinea cruris: Apply topically twice daily for 2 weeks
Vulvovaginal candidiasis:
   Cream, 2%: Insert 1 applicatorful at bedtime for 7 days
   Cream, 4%: Insert 1 applicatorful at bedtime for 3 days
   Suppository, 100 mg: Insert 1 suppository at bedtime for 7 days
   Suppository, 200 mg: Insert 1 suppository at bedtime for 3 days
   Suppository, 1200 mg: Insert 1 suppository x 1 at bedtime

Disease state based dosing:
Renal failure: No dosing adjustment necessary
Hepatic failure: No dosing adjustment necessary
Contraindications/Warnings/Precautions:
Precautions: None

Drug Interactions:
Clotrimazole is an inhibitor of the cytochrome P450 3A4, 2A6, 2C8/9, and 2E1, 2C19, 2D6 isoenzymes. Caution should be exercised and monitoring is suggested when concomitantly administering miconazole with drugs that have narrow therapeutic windows and are substrates of aforementioned CYP substrates. However, it should be noted that the majority of drug interactions are appreciated using the IV form of miconazole which has been supplanted by newer azole antifungals.

Pregnancy:
Category C: Risk unknown. Human studies inadequate.

Monitoring Requirements:
None

Brand names/Manufacturer:
Aloe Vesta® 2-n-1 Antifungal - Convatec
Baza® Antifungal - Sween
DermaFungal - Dermarite
Dermagran® AF - Dermasciences
Fungoid® Tincture - Pedinol
Lotrimin® AF Powder/Spray - Schering-Plough
Mitrazol™ - Healthpoint
Monistat® 3 Ortho-Mcneil Pharmaceutical
Monistat® 7 Ortho-Mcneil Pharmaceutical
Podactin Cream - Reese
Zeasorb®-AF - Stiefel Laboratories