

# Practice Protocol: Onychomycosis

**Nature:** Discoloration, Dystrophy, Thickness and Pain associated with toenails

**Epidemiology:** 10-15% of total population. Incidence increases with age and comorbidities.

**Classification:** Distal Subungual (most common), Proximal Subungual, Superficial White, Candida Infection of the Nail, Total Dystrophic Onychomycosis.

## Testing:

1. Biopsy with Periodic Acid Schiff Test – Most accurate way to diagnose. Fungal cell wall Stains Magenta (only works in living fungi)
2. Fungal Culture: Dermatophyte Testing Medium (DTM) used with color indicator to test for fungus
3. K-OH Test: Potassium Hydroxide added a nail or skin scrapings to dissolve keratin. Fungal hyphae are observed under a microscope.

## Our Treatment Options

### Conservative

1. Topical Medication: Challenges include compliance to daily application and penetration of the nail plate to reach the fungal infection at the nail bed.
  - a. OTC – Vick’s Vaporub, Witch hazel, Tea Tree Oil, Bleach
  - b. Dr. Office: Not available at pharmacies or stores
    - i. Formula 3: Includes tolnaftate and a jojoba oil carrier
    - ii. Kera Nail Gel: Includes urea, tea tree oil, menthol and eucalyptus. This treatment is designed to breakdown hypertrophic nail
    - iii. Clarus Antifungal Solution: Includes tolnaftate and menthol
  - c. Topical Rx – Insurance may or may not cover this medication (FDA approved)
    - i. Jublia – Daily application (~50% cure after 1yr)
    - ii. Kerydin - Daily application (~36% cure after 1 yr)
    - iii. Penlac (ciclopirox) - Daily application, weekly filing (30% cure after 1 yr)
2. Oral Rx: Lamisil – Treats the fungal nail infection from the inside out (72-75% cure after 1yr)
  - a. Standard Dose - 250mg once daily x 3 months (requires liver function testing)
  - b. Pulse Dose - 250mg x 7 days every 3 months for 21 total days (3 pulses in 1year)
3. Laser Nail Treatments – The nail beds are treated with the laser to kill the fungal infection.
4. Periodic Nail Debridement – Mechanically reduce the bulk and length of the nail with manual debridement

### Surgical

1. Removal of Nail Plate – This will either temporarily or permanently remove the infected nail.

