MAC Lung Disease
Caring for Your Patient

Diagnose MAC Lung Disease

*Mycobacterium avium* complex (MAC) Lung Disease is increasingly prevalent and should be considered in patients with unexplained or worsening pulmonary symptoms and/or underlying lung conditions.\(^1\)

- **Diagnose MAC Lung Disease according to current guidelines\(^2\):**
  - Chest imaging
  - Respiratory specimen (sputum) acid-fast bacteria (AFB) cultures
  - Symptom assessment

- **Collect respiratory specimens for diagnosis\(^2\):**
  - Spontaneous sputum production
  - Sputum induction
  - Bronchoscopy or biopsy, if necessary

- **There are two types of MAC lung disease\(^1\):**
  - Nodular/Bronchiecstatic (NB)
  - Fibro-Cavitary (FC)

Manage MAC Lung Disease

MAC Lung Disease is a **treatable** disease, but **longitudinal care is essential**. One of the goals of therapy is 12 months of sputum culture negativity while on therapy.\(^2\)

- **Use guideline-based therapy**
  - Begin with an oral three-drug macrolide-containing regimen: macrolide + ethambutol + rifampin
  - Establish drug susceptibility for macrolides and amikacin

- **Obtain specimens for AFB culture to measure treatment progress\(^2\):**
  - Every 1–2 months until sputum converts to AFB culture and remains negative
  - Then every 1–3 months until therapy completed

- **Address comorbidities**
  - Manage underlying conditions, including:
    - *Sinus disease\(^7\)*
    - *Bronchiectasis\(^8\)*
    - *GERD\(^9\)*

- **Perform baseline tests to monitor potential side effects**
  - Visual acuity, color vision
  - Audiology
  - Liver enzymes, bilirubin
  - CBC
  - Creatinine

- **Manage underlying lung disease**
  - Optimize airway clearance strategies:
    - Regular aerobic activity, if appropriate\(^1\)
    - PEP valve and postural drainage (Aerobika, Acapella, flute)\(^3\)
    - Hypertonic saline nebulized\(^5\)
    - High-frequency chest wall oscillation (vest)\(^6\)
MAC Lung Disease and its treatment are complicated. What can the patient expect?

Look for medication side effects

**Ethambutol**
- Optic neuritis: Visual acuity/color vision monitoring at baseline and every 1–3 months or if symptoms develop or increase
- Neuropathy

**Macrolide/amikacin**
- Hearing loss: Repeat audiometry with change in symptoms
- Renal toxicity: Test serum creatinine?

**Macrolide/ethambutol/rifampin**
- Rash

**Macrolide/rifampin**
- GI symptoms (nausea, vomiting, diarrhea)
- Hepatotoxicity: Test liver enzymes/bilirubin 1–3 months

Monitor for drug intolerance or toxicity
Monitor as recommended in guidelines

Watch for exacerbation of underlying lung disease

**Lung disease flare-ups are common, especially bronchiectasis**
- Obtain sputum bacterial cultures
- Treat bacterial or other pathogens as needed

Manage patient expectations and nonadherence to medication regimen
- Emphasize importance of guideline-based therapy for treatment success
- Consider support from medication therapy management pharmacy team

Reassess Treatment Response at 6 Months

MAC Lung Disease is considered refractory after failure to convert sputum to AFB culture negative after 6 months of guideline-based therapy without macrolide resistance.

If your patient has not responded to guideline-based therapy after 6 months:
- Assess for emergence of macrolide resistance
- Check in vitro macrolide susceptibility if sputum has not converted to AFB culture negative
- Consider an alternative management approach

If MAC Lung Disease is macrolide resistant, consider:
- Referral to specialized center with expertise in NTM lung disease
- Surgical resection of affected lung tissue, especially large cavities