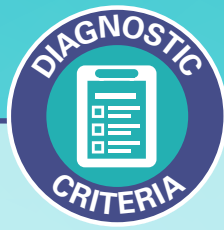




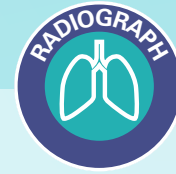
Updates in Nontuberculous Mycobacteria (NTM): Best Practices for Diagnosis, Management and Personalized Treatment Selection



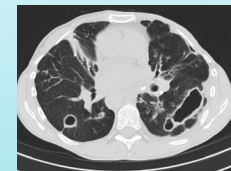
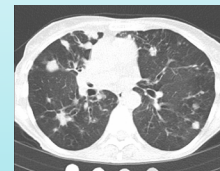
- Chronic cough
- Fatigue
- Fever/chills
- Night sweats
- Weight loss
- Shortness of breath
- Hemoptysis



- Positive culture results from at least **two** separate expectorated sputum samples of the same species
- Positive culture results of at least one bronchial wash or lavage
- Transbronchial biopsy or other lung biopsy with mycobacterial histopathologic features and positive culture for NTM or biopsy showing mycobacterial histopathologic features and one or more sputum or bronchial washings that are culture positive for NTM



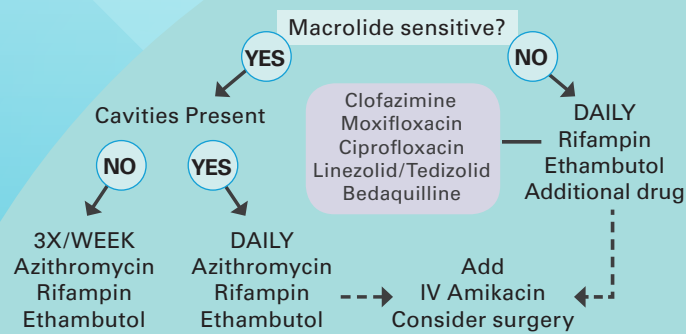
- Nodular or cavitory opacities on chest radiograph or
- High resolution computed tomography showing multifocal bronchiectasis with multiple small nodules



- Nodular Bronchiectatic
- Cavitory



Treatment *M. avium* complex



Treatment of MAC

	Initial Therapy	
	Nodular/bronchiectatic Disease	Cavitory Disease
Macrolide	clarithromycin 1000 mg tiw or azithromycin 500-600 mg tiw	clarithromycin 500-1000 mg/day or azithromycin 250-500 mg/day
Ethambutol	25 mg/kg tiw	15 mg/kg day
Rifampin	rifampin 600 mg tiw	rifampin 450-600 mg/day
Aminoglycoside	None	strep or amikacin

Duration of treatment: 12 months of negative cultures

Medical treatment for refractory MAC

Amikacin Liposome Inhalation Suspension → 30% additional culture conversion²

Risk of increased respiratory adverse reactions. Please refer to new CLSI MIC cutpoints.⁴

Management strategies for common side effects of inhaled amikacin.

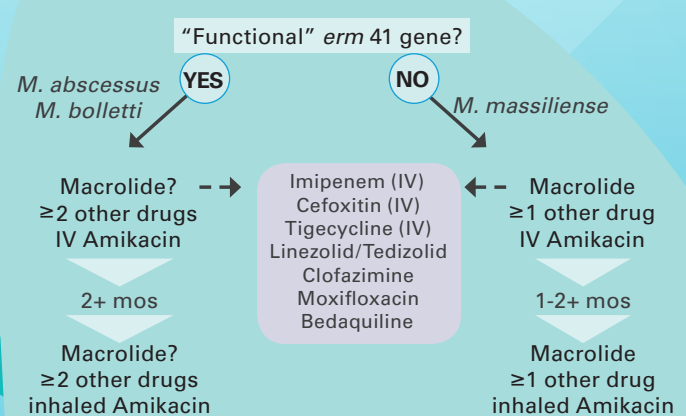
- * Side Effects: Management Strategy**
- Ototoxicity: Follow audiograms
- Dysphonia: Discontinue use of drug for a brief period of time and then reintroduce
- Coughing: Bronchodilator

*Based on expert opinion for the monitoring and management of side effects.



- Provide patient education
- Detect side effects early
- Manage side effects
- Optimize nutrition, physical fitness, overall well-being and caregiver relationships

Treatment *M. abscessus*



Consider surgery for focal disease.

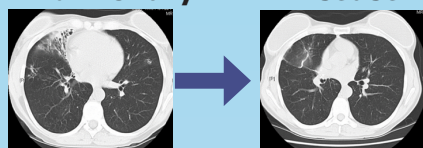
Interpretation of extended clarithromycin susceptibility results for *M. abscessus*

<i>M. abscessus</i> subspecies	<i>M. massiliense</i> <i>M. abscessus</i> *	<i>M. abscessus</i> <i>M. bolletii</i>	Any
Clarithromycin susceptibility days 3-5	Susceptible	Susceptible	Resistant
Clarithromycin susceptibility day 14	Susceptible	Resistant	Resistant
Macrolide susceptibility phenotype	Macrolide susceptible	Inducible macrolide resistance	High-level constitutive macrolide resistance
Genetic implication	dysfunctional erm(41) gene	functional erm(41) gene	23S ribosomal RNA point mutation
Macrolide Effect	anti-mycobacterial	immunomodulatory	immunomodulatory

*15-20% of *M. abscessus* will have a dysfunctional erm(41) gene (c28 sequevar)³



Surgical Treatment of Pulmonary NTM Disease



Indications to consider surgery

- Massive hemoptysis
- Failure of medical therapy
- Intolerance to medical therapy
- Macrolide resistant MAC infection
- Cavitory lesions
- Focal severe bronchiectasis
- Focal disease with *M. abscessus* infection

¹ Am J Respir Crit Care Med Vol 175. pp 367-416, 2007. | ² Am J Respir Crit Care Med 2017; 195(6): 814-823. | ³ Thorax 2017;72(Suppl 2):ii1 | ⁴ CLSI: M62: 2018