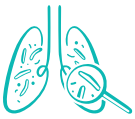
ATS/IDSA STATEMENT REFERENCE GUIDE

Adapted from the American Thoracic Society (ATS)/Infectious Diseases Society of America (IDSA) Statement on Diagnosis, Treatment, and Prevention of **Nontuberculous Mycobacterial (NTM) Lung Disease**

THINK NTM

NTM lung disease is a chronic, debilitating condition that can significantly increase patient **morbidity and mortality.**[1-5]

The signs and symptoms of NTM overlap with other lung comorbidities—like **bronchiectasis, COPD, and asthma**—delaying diagnosis and compounding these existing respiratory conditions.[4,6-8]



Among the almost 200 different species of NTM identified, the most common pathogens for lung disease are *Mycobacterium avium* complex (MAC), *Mycobacterium kansasii*, and *Mycobacterium abscessus*.[9-11]

NTM bacteria are most commonly classified by **growth rate**—either slowly growing (eg, MAC, *Mycobacterium kansasii, Mycobacterium xenopi*) or rapidly growing (eg, *Mycobacterium abscessus, Mycobacterium fortuitum, Mycobacterium chelonae*).[1,9]

TEST FOR NTM

The correct identification of NTM species and subspecies is necessary to accurately assess the clinical significance and severity of isolates. For example, MAC can be classified into distinct species, including *Mycobacterium avium* and *Mycobacterium intracellulare*.[1,12,13]

ATS/IDSA Statement diagnostic recommendations include*:

Clinical and radiographic criteria[1]

- Bronchopulmonary symptoms, nodular or cavitary opacities on chest radiograph, or multifocal bronchiectasis with multiple small nodules on chest high-resolution computed tomography (HRCT) scan, ***and***
- Exclusion of other diagnoses

Microbiologic criteria[1]

- Positive culture results from at least 2 separate expectorated sputum samples, ***or***
- Positive culture result from at least 1 bronchial wash or lavage, ***or***
- Transbronchial or other lung biopsy with mycobacterial histopathologic features and positive culture for NTM or biopsy showing mycobacterial histopathologic features and 1 or more sputum or bronchial washings that are culture-positive for NTM

TREAT NTM

ATS/IDSA Statement treatment recommendations for MAC[1]*

- Macrolide (clarithromycin, azithromycin) + rifamycin (rifabutin, rifampin) + ethambutol, dependent on disease severity and how the disease initially presents[1]
  - Should be continued until culture conversion is achieved and sustained for 12 months[1]

Drug	Nodular Bronchiectatic[a]	Fibrocavitary	Advanced (Severe) or Previously Treated Disease
Macrolide	Clarithromycin 1000 mg TIW or azithromycin 500–600 mg TIW	Clarithromycin 500[b]–1000 mg/d or azithromycin 250–300 mg/d	Clarithromycin 500[b]–1000 mg/d or azithromycin 250–300 mg/d
Ethambutol	25 mg/kg TIW	15 mg/kg/d	15 mg/kg/d
Rifamycin	Rifampin 600 mg TIW	Rifampin 450[b]–600 mg/d	Rifabutin 150[b]–300 mg/d or rifampin 450[b]–600 mg/d
IV Aminoglycoside	None	Streptomycin or amikacin[c] or none	Streptomycin or amikacin[c]

[a]Not recommended for severe or previously treated disease.
[b]Lower dose for weight <50 kg.
[c]Please refer to the ATS/IDSA Statement for dosing recommendation.
IV=intravenous; TIW=three times weekly.

TREAT NTM *(cont'd)*

Susceptibility test recommendations from the ATS/IDSA Statement vary by species. **For MAC isolates, clarithromycin is the only drug for which susceptibility testing is recommended.** There has been no established correlation between in vitro susceptibility results for MAC and clinical response outside of macrolides.[1]

Frequent monitoring

Managing NTM can be a lengthy and difficult process. Frequent monitoring can help with challenges that may occur during treatment.[11]

Strategies for effective NTM management

Review the medication list of NTM patients receiving treatment, and **monitor potential interactions** throughout the treatment period.[14]

Monitor for adverse drug reactions routinely or at repeat intervals to alert you when treatment needs to be **modified or discontinued.**[1,15]

DEFINING TREATMENT SUCCESS

The objectives of therapy vary for each patient depending on the clinical presentation and patient needs. For some, both microbiologic and clinical improvement are attainable; for others, suppressive treatment strategies are appropriate.[1]

The ATS/IDSA Statement defines treatment success as **sustained culture conversion, improved symptoms, and achieved radiologic improvement.**[1]

The ATS/IDSA Statement recommends[1]:

- Close monitoring by obtaining monthly cultures of sputum
- Within 3 to 6 months, patients should show clinical improvement
- Within 12 months, patient sputum culture should convert to negative
- Microbiologic endpoint of treatment is 12 months of sustained negative cultures

Effective disease management may require the use of **adjunctive therapies** alongside primary treatment, such as airway clearance techniques or bronchodilators.[1,16]

Once culture conversion is achieved, guidelines recommend treating patients for an additional 12 months[1,6]

Visit NTMFacts.com

for more information on NTM

This reference guide has diagnosis and treatment strategies for pulmonary infections caused by NTM that are summarized in the statement by the American Thoracic Society (ATS) and the Infectious Diseases Society of America (IDSA). For the official ATS/IDSA Statement, please visit http://www.thoracic.org/statements/resources/mtpi/nontuberculous-mycobacterial-diseases.pdf.

The ATS/IDSA Statement was published in 2007 and is currently in revision.

References: 1. Griffith DE, et al; for the ATS Mycobacterial Diseases Subcommittee. *Am J Respir Crit Care Med.* 2007;175(4):367-416. **2.** Winthrop KL, et al. *Am J Respir Crit Care Med.* 2010;182(7):977-982. **3.** Park HY, et al. *Chest.* 2016;150(6):1222-1232. **4.** Adjemian J, et al. *Am J Respir Crit Care Med.* 2012;185(8):881-886. **5.** Fleshner M, et al. *Int J Tuberc Lung Dis.* 2016;20(5):582-587. **6.** Young JD, et al. *J Respir Dis.* 2007;28(1):7-18. **7.** Yu JA, et al. *Thorac Surg Clin.* 2012;22(3):277-285. **8.** Hojo M, et al. *Respirology.* 2012;17(1):185-190. **9.** Johnson MM, Odell JA. *J Thorac Dis.* 2014;6(3):210-220. **10.** Falkinham JO III. *Curr Environ Health Rpt.* 2016;3(2):161-167. **11.** Adjemian J, et al. *Ann Am Thorac Soc.* 2014;11(1):9-16. **12.** Andréjak C, et al. *Am J Respir Crit Care Med.* 2010;181(5):514-521. **13.** Boyle DP, et al. *Am J Respir Crit Care Med.* 2015;191(11):1310-1317. **14.** Ryu YJ, et al. *Tuberc Respir Dis.* 2016;79(2):74-84. **15.** Egelund EF, et al. *Clin Chest Med.* 2015;36(1):55-66. **16.** Basavaraj A, et al. *Int J Respir Pulm Med.* 2017;4(1):065. doi:10.23937/2378-3516/1410065.