

Extrapulmonary nontuberculous mycobacterial disease (NTM)

Oregon surveillance for extrapulmonary nontuberculous mycobacterial disease (NTM) started in January 2014. Case reporting is used to identify outbreaks and potential sources of transmission, and prevent further transmission. Other objectives are to identify epidemiologic trends and to educate the exposed persons about signs and symptoms of disease.

NTM are environmental organisms, usually associated with water and soil; there are more than 100 different species identified. Disease-causing *Mycobacterium* species frequently identified in the United States include: *M. avium* complex (MAC), *M. marinum*, *M. abscessus*, *M. chelonae*, *M. fortuitum*, *M. kansasii* and *M. xenopi* (in certain regions).

Extrapulmonary NTM disease presents as cutaneous, bone, joint, lymph node or central nervous system disease. Cutaneous infections typically result from either direct inoculation during trauma; surgical or medical procedures; exposures to whirlpool baths; or settings such as nail salons or tattoo procedures. These soft tissue infections cause purplish nodules that drain and may ulcerate or scar.

Lymphadenitis occurs most in otherwise healthy children, usually <5 years old. Lymph node disease results in large, reddened and tender nodes, which can drain or ulcerate. The high rate of NTM in Oregon children <5 years of age is consistent with reports in the literature. These cases were predominately cervical lymphadenitis in otherwise healthy children.

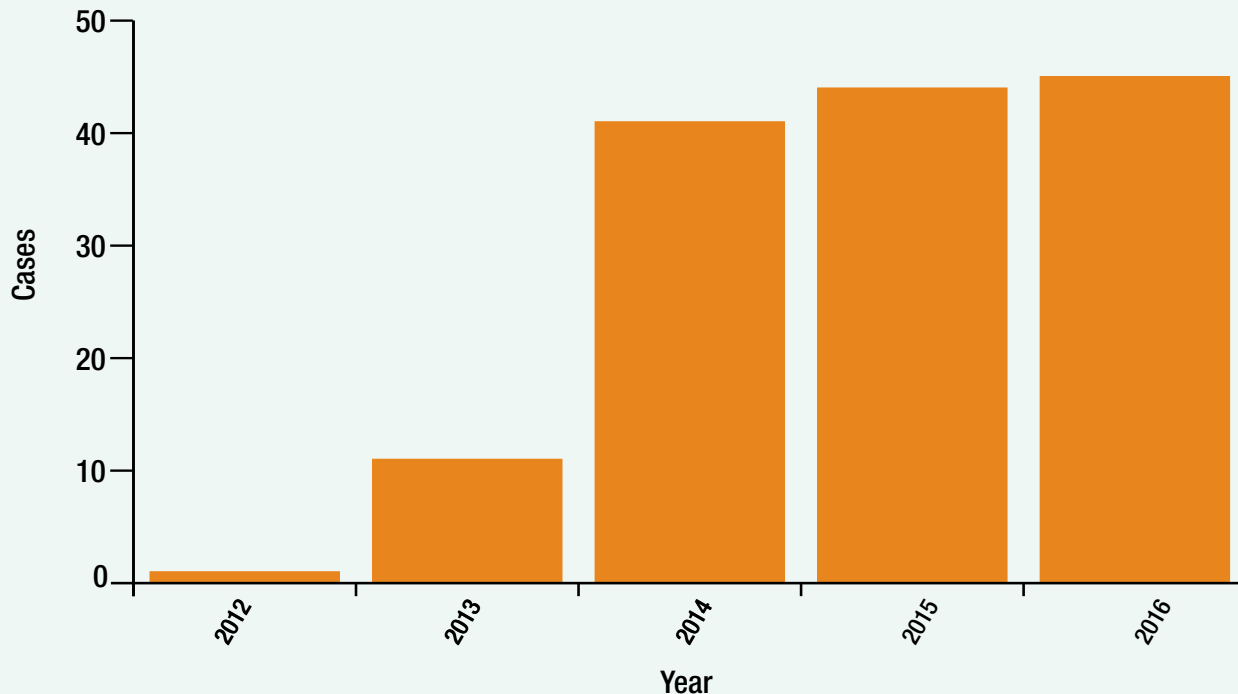
Generally, disseminated extrapulmonary disease occurs in immunocompromised patients, (e.g., HIV, cancer, transplant and others). Symptoms include cough, fatigue, weight loss, fever and night sweats.

Treatment is based upon the species identified and the site of infection. For the immunocompetent, infections are usually curable with a two to three drug regimen for two to six months, depending on site of infection. Susceptibility testing of the organism determines the appropriate antibiotic treatment. For those with disseminated disease, cure is difficult to achieve without restoration of the immune system.

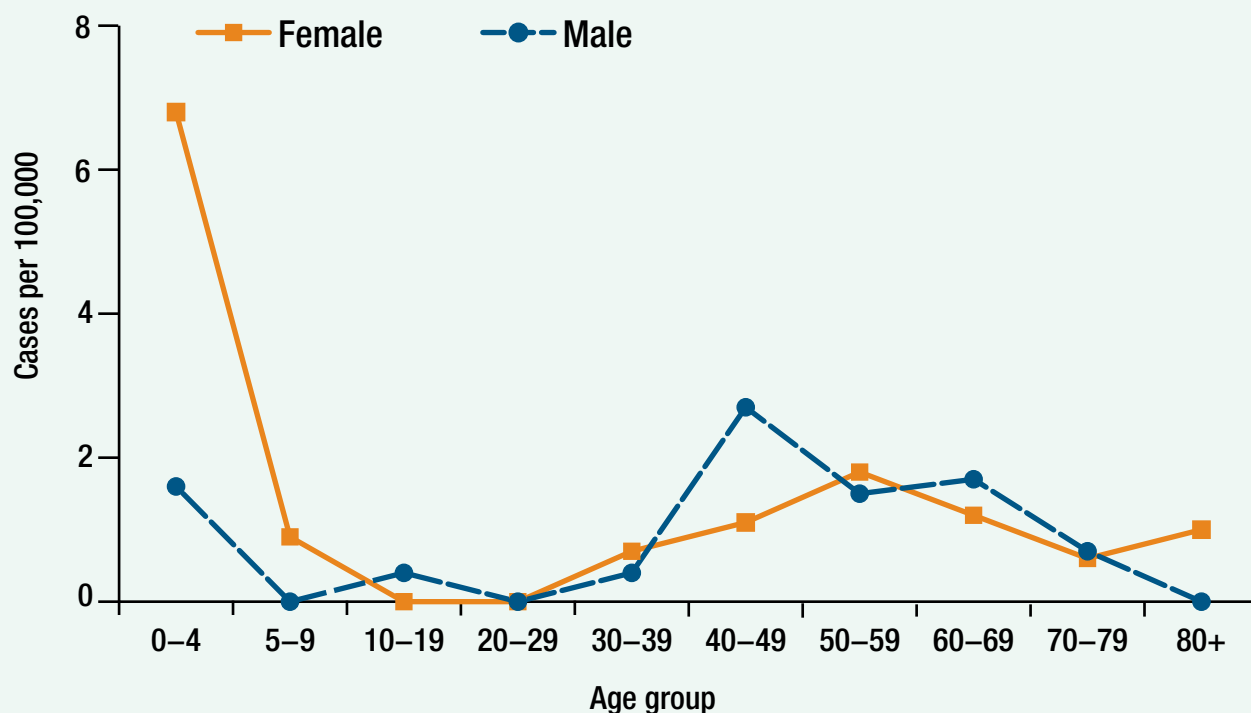
One hundred thirty-eight cases of extrapulmonary NTM were reported among Oregon residents from 2014 to 2016. The median case age was 51 (range 0–92) years; 72 (52%) were female; 46 (33%) were hospitalized at the time of specimen collection. Tissue and wound cultures accounted for 70 (51%) of the cases. *M. avium* complex accounted for 60 (43%) of cases. Sixteen of those were from lymph nodes in children 1–4 years of age.

No NTM clusters were detected in 2016. In previous years three NTM clusters were detected. One was an *M. fortuitum* cluster, which included seven cases who had prosthetic joint replacement surgery; two cases of *M. fortuitum* associated with abdominoplasty in an ambulatory surgery center; and two *M. haemophilum* cases associated with a tattoo parlor.

Incidence of extrapulmonary nontuberculous mycobacterial disease (NTM) by year: Oregon 2012–2016



Incidence of extrapulmonary nontuberculous mycobacterial disease (NTM) by age and sex: Oregon, 2016



Prevention

- For surgical procedures, follow infection prevention best practices; includes following sterilization guidelines and not using tap water or ice in the operating room.
- Avoid dusts from potting soil.
- Adequately clean baths in nail salons.
- Tattoo ink should be diluted with sterile water.