

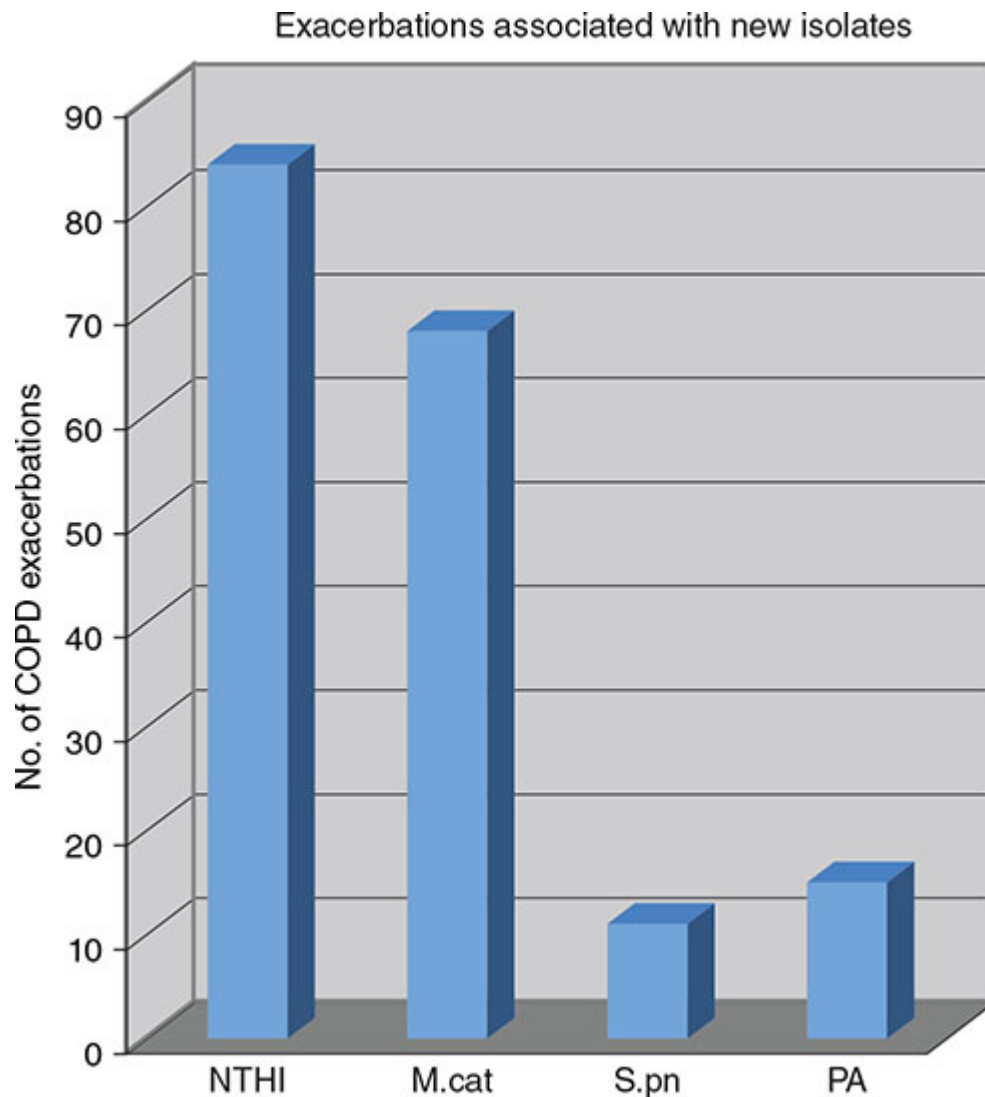


FIGURE 157-3 Cumulative results of a prospective study (1994–2004) of bacterial infection in chronic obstructive pulmonary disease (COPD) showing etiology of exacerbations. The numbers of exacerbations shown indicate the acquisition of a new strain simultaneous with clinical symptoms of an exacerbation. NTHI, nontypable *H. influenzae*; M.cat, *M. catarrhalis*; S.pn, *Streptococcus pneumoniae*; PA, *Pseudomonas aeruginosa*. (Reproduced with permission from JC Goldstein, TF Murphy: *Moraxella catarrhalis*, a human respiratory tract pathogen. *Clin Infect Dis* 49:124, 2009.)

Pneumonia due to *M. catarrhalis* occurs in the elderly, particularly in the setting of underlying cardiopulmonary disease, but is infrequent. Invasive infections, such as bacteremia, endocarditis, neonatal meningitis, and septic arthritis, are rare.