The clinical manifestations of pneumococcal disease depend on the site of infection and the duration of illness. Clinical syndromes are classified as noninvasive (e.g., otitis media) or invasive (e.g., bacteremic pneumonia, meningitis) according to whether a normally sterile site is infected. The pathogenesis of noninvasive illness involves contiguous spread from the nasopharynx or skin; invasive disease involves infection of a normally sterile body fluid or follows bacteremia. Regardless of the mechanism, all pneumococcal infections result from nasopharyngeal acquisition of the organism.

Pneumonia Pneumonia is the most common serious pneumococcal syndrome and is considered invasive when associated with a positive blood culture. Whether to categorize nonbacteremic pneumococcal pneumonia as invasive or noninvasive remains debatable.

Pneumococcal pneumonia can present as a mild community-acquired infection at one extreme and as a life-threatening disease requiring intubation and intensive support at the other.

PRESENTING MANIFESTATIONS The presentation of pneumococcal pneumonia does not reliably distinguish it from pneumonia of other etiologies. In a subset of cases, pneumococcal pneumonia is recognized at the outset as associated with a viral upper respiratory infection and is characterized by the abrupt onset of cough and dyspnea accompanied by fever, shaking chills, and myalgias. The cough evolves from nonpurulent to productive of sputum that is purulent and sometimes tinged with blood. Patients may describe stabbing pleuritic chest pain and significant dyspnea indicating involvement of the parietal pleura. Among the elderly, the presenting clinical symptoms may be less specific, with confusion or malaise but without fever or cough. In such cases, a high index of suspicion is required because failure to treat pneumococcal pneumonia promptly in an elderly patient is likely to result in rapid evolution of the infection, with increased severity, morbidity, and risk of death.

FINDINGS ON PHYSICAL EXAMINATION The clinical signs associated with pneumococcal pneumonia among adults include tachypnea