Invasive pneumococcal disease

Invasive pneumococcal disease was added to the notifiable disease schedule primarily for the purposes of surveillance – in particular to monitor the effect of introducing the pneumococcal vaccine for children in June 2008 and the incidence of disease in the community. This epidemiological information, along with information on the distribution of serotypes from laboratory-based surveillance, helps inform future immunisation policy.

Local public health action is not expected in response to individual notifications of this disease.

Epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz

Case definition

*Streptococcus pneumoniae* (pneumococcus) is a gram-positive encapsulated coccus (gram-positive diplococcus). Most pneumococcal serotypes can cause disease, but only a few produce the majority of invasive pneumococcal infections. Invasive pneumococcal disease is defined as pneumococcal disease with detection of *S. pneumoniae* in a normally sterile site, such as the meninges, cerebrospinal fluid (CSF), blood, pleural fluid or joints.

Clinical description

Depending on the site of infection, the main presenting condition is meningitis, pneumonia or septicaemia.

In approximately 25 percent of the population, the bacteria are carried asymptomatically at the back of the nasopharynx. Invasive pneumococcal disease occurs most commonly in the winter months. The risk of disease is higher in infants, the elderly and those with predisposing conditions such as immune deficiency states. It is the most common cause of community-acquired pneumonia in all ages and probably the most common cause of bacterial meningitis in children.

Laboratory test for diagnosis

**Laboratory confirmation requires** at least one of the following:

- isolation of *S. pneumoniae* from blood, CSF or another normally sterile site (for example, joint fluid, pleural fluid)
- detection of *S. pneumoniae* nucleic acid from blood, CSF or another normally sterile site
• a positive newer generation *S. pneumoniae* antigen test on CSF or pleural fluid.¹ ²

Note, detection of *S. pneumoniae* from CSF by microscopy (detection of gram-positive diplococci) can be a useful diagnostic test, but is not sufficient for case confirmation.

**Case classification**

- **Under investigation**: Not applicable.
- **Probable**: Not applicable.
- **Confirmed**: A clinically compatible illness that is laboratory confirmed.
- **Not a case**: A case that has been investigated and subsequently found not to meet the case definition.

Note: in the absence of invasive disease, isolation of *S. pneumoniae* from a non-sterile site (such as sputum, nasal aspirates and ear discharge) is not notifiable. A positive urine antigen test is also not notifiable.

**Spread of infection**

**Incubation period**

Variable, but may be as short as 1–3 days. Illness usually occurs within 1 month of acquiring a new serotype in the respiratory tract.

**Mode of transmission**

By droplet inhalation or direct contact with respiratory tract secretions. Person-to-person transmission is common, but illness in casual contacts and hospital staff is uncommon.

**Notification procedure**

The laboratory undertaking the testing must notify the local medical officer of health of all confirmed cases of invasive pneumococcal disease.

**Reporting**

Ensure complete case information is entered into EpiSurv.

Medical officers of health should review the hospital case notes and/or contact the attending clinician or general practice to obtain information about immunisation history, clinical presentation, clinical course and outcome, and risk factors (such as prematurity, chromosomal or congenital abnormality, immunocompromised, chronic

¹ Occasionally, antigen test results are positive when culture results are negative.

² Isolation of pneumococcus is preferred as this allows for serological identification and so informs the vaccination programme.
illness, smoking) and to ask about earlier vaccinations with either the pneumococcal polysaccharide or conjugate vaccine. It should only be necessary to contact the case or their family/whānau in exceptional circumstances.

If an outbreak occurs, contact the Ministry of Health Communicable Diseases Team and liaison staff at ESR, and complete the Outbreak Report Form.

References and further information


