**Science**

Poppy in this story represents the bacteria Streptococcus pneumoniae. Streptococcus pneumoniae is part of the normal bacteria present in the pharynx. Streptococcus pneumoniae has a polysaccharide capsule which limits immune recognition, inhibits complement deposition and phagocytosis, and so helps streptococcus pneumoniae survive.

Streptococcus pneumoniae is the most common cause of bacterial pneumonia. It has virulence factors which help it cause pneumonia by overcoming the mucociliary system. These include secretory protease and pneumolysin which damage the ciliated epithelial cells and breakdown secretary IgA.

Once in the lung infection results in an inflammatory response which increases the amount of fluid in the lung. This can be detected as consolidation on chest x-rays. The most common treatment for pneumococcal pneumonia is oral amoxicillin.

S. pneumoniae can be transmitted by respiratory droplets, especially from people coughing.

It is possible to vaccinate people to develop antibodies against the pneumococcal polysaccharide capsule.

Vaccination is highly effective at preventing pneumococcal disease and is normally given to patients considered at risk of pneumococcal pneumonia.