

# Emerging Infectious Diseases

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## Abstract

Several serious infections in various body sites are brought on by the gram-positive, facultatively anaerobic pathogen streptococcus pneumoniae. Healthy adults frequently have pneumoniae populate their nasopharynx. Despite the fact that many healthy adults carry this bacteria without showing any symptoms, it is a major contributor to serious illnesses such as meningitis, pneumonia, septicemia, and middle ear infections [1]. Together with coagulase-negative Staphylococcus, Staphylococcus aureus, and Pseudomonas aeruginosa, pneumoniae continues to be one of the major causes of infectious disorders of the ocular surface such as keratitis and conjunctivitis. A review that

**Keywords:** Environmental; Pneumococcus

**Introduction:**

Several serious infections in various body sites are brought on by the gram-positive, facultatively anaerobic pathogen streptococcus pneumoniae. Healthy adults frequently have pneumoniae populate their nasopharynx. Despite the fact that many healthy adults carry this bacteria without showing any symptoms, it is a major contributor to serious illnesses such as meningitis, pneumonia, septicemia, and middle ear infections [1]. Together with coagulase-negative Staphylococcus, Staphylococcus aureus, and Pseudomonas aeruginosa, pneumoniae continues to be one of the major causes of infectious disorders of the ocular surface such as keratitis and conjunctivitis. A review that

enzymes that impair the normal operation of organs and/or systems,  
as well as the intracellular growth and metabolic processes of infectious

"deliberate." Along with host and environmental factors, exposure to chemicals and antimicrobial agents (like antibiotics) can cause changes or mutations in a pathogen's genome, which can result in gene damage and the emergence of drug-resistant pathogen variants that may result in the development of new diseases.

### Emerging Infectious Diseases

Since they pose such a substantial threat to human survival and progress, infectious diseases (IDs) have taken centre stage in world history. They make up a large fraction of all human diseases that are now understood. According to estimates, infectious diseases are responsible for at least 25% of the 60 million deaths that occur annually over the world. More than 500,000 people lose their lives each year as a result of neglected IDs, and at least 1 billion individuals are now chronically infected. Since the beginning of time, people have been aware of the dangers of developing IDs. Another serious infectious disease that has affected people around the world is influenza. The Spanish Influenza epidemic of 1918–1919, which killed up to 40 million people globally, was the deadliest outbreak of an infectious disease ever. The 1918–19 influenza pandemic claimed more lives than World War I did. It killed more people in a single year than the Black Death Bubonic Plague, which struck Europe in 1347–1351, did in four years, and more people than the HIV/AIDS epidemic, which claimed 35 million lives at the end of 2015. Infectious diseases have a variety of psychological, emotional, and mental side effects that make it harder for people to cope with their illness. Some contagious illnesses, like leprosy, make persons who have them ashamed and subject them to abuse or social exclusion. The freedom and value of those who suffer are frequently lost. Additionally, a contagious disease's effect on a person's ability to work increases adult poverty, which in turn may have an impact on children's schooling. Children's cognitive growth is also affected by infectious diseases, which can result in a variety of social vices that ultimately contribute to the disease's burden and exacerbate poverty [13].

### Public Health Implications

outcome from the total deletion of the capsule locus. In order to better understand the unpredictable and devastating nature of IDs, there are a lot of lessons to be gained from previous epidemics. Pathogens that cause infectious diseases have shown they are capable of emerging and spreading quickly across borders via any method available, have a high potential for pathogenesis, and can develop or mutate to withstand pharmacological attack. This necessitates always having an effective armament. This can be accomplished through increased international cooperation, strong local, regional, and global networks for strong infectious disease surveillance and research collaboration to enable the sharing of biological and study materials to enhance the development of antimicrobial products and vaccine trials, and collaboration between animal and human health sciences to strengthen capacity for identifying microbial agents with epidemic potential in order to prevent their emergence. Additionally, there is a need to pay close attention to circumstances that encourage the spread of disease, particularly human actions that harm the environment and modify ecological processes and enhance animal-human interaction. They are necessary for an effective pandemic preparedness.

### Conclusion

However, in addition to continuing to be a key factor in ocular infections, pneumoniae is one of the principal causes of catastrophic systemic illnesses such as bacterial pneumonia and meningitis. All three of the forms of ocular infections discussed in this review continue to be primarily caused by the bacterial pathogen pneumoniae. Conjunctivitis can be treated with topical antibiotics, keratitis can be treated but may result in corneal scarring, and endophthalmitis typically results in significant vision loss and may require enucleation. Despite the fact that there are two pneumococcal vaccinations for the protection of non-ocular diseases, they are not very effective against ocular infections. Numerous virulence factors present in this infection cause havoc on the conjunctiva, cornea, and intraocular system. The bacterium may avoid the complement system thanks to the polysaccharide capsule. PLY controls an inflammatory chain reaction that can cause just as much harm as the pathogen itself. S. pneumoniae has three neuraminidases (NanA, NanB, and NanAB) that are involved in adhesion and later colonisation. The vital glycoproteins that are required for the recruitment of MMP-9, a critical metalloprotease for wound healing, are eliminated by the metalloproteinase ZmpC. It might be possible to understand the functions of pneumococcal virulence factors in the pathogenesis of hitherto unrecognised ocular infection types if more was known about them. New virulence pathways may be discovered by better understanding the nutritional milieu of the intraocular environment and pneumococcal metabolism. Infectious illness outbreaks can have negative social, political, and economic impacts in addition to posing a real hazard to public health from emerging and neglected infectious diseases. Since the groundbreaking IOM study [16], which emphasised the significance of emerging infectious diseases, there have been significant advancements as well as many lessons gained from earlier outbreak incidents. The ability to

prepare for pandemics is still a significant issue worldwide. Infectious illness onset and transmission have been discovered to be influenced by a wide range of factors, including human behaviour and activities, pathogen evolution, poverty, environmental changes, and dynamic human relationships with animals. For the development of diagnostics, treatments, and vaccines as well as to potentially enable the detection of pathogens with the potential to cause disease, vigorous study is required to understand key properties of pathogens.

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### Conflicts of Interest

The author has no known conflicts of interest associated with this paper.

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