

## Pathogenic Bacteria and its Effects on Human Body

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### EDITORIAL

Bacteria that can cause disease are known as Pathogenic bacteria. The bacteria that are pathogenic to humans are the topic of this article. The majority of bacteria species are harmless and even useful, but some can cause infectious diseases. Only a few hundred of these pathogenic species are known to exist in humans. The gut flora in the digestive tract contains thousands of species.

Beneficial commensals, which grow on the skin and mucous membranes, and saprophytes, which grow mostly in the soil and decaying matter, are constantly present in the human body. The nutrients in blood and tissue fluids are sufficient to support the growth of many bacteria. The body possesses defence mechanism that enable it to resist microbial invasion of its tissues and provide it with natural immunity or innate resistance against many microorganisms.

Pathogenic bacteria are specially adapted and endowed with mechanisms to overcome the body's natural defences, allowing them to invade parts of the body, where bacteria are not ordinarily found, such as the blood. Some pathogens only infect the epithelium, skin, or mucous membranes on the surface, but many travel more deeply, spreading through the tissues and disseminating through the lymphatic and blood streams. A pathogenic microbe can infect an entirely healthy person in rare situations, but infection usually happens when the body's defence mechanisms are damaged by local trauma or an underlying debilitating disease, such as wounding, intoxication, chilling, fatigue, and malnutrition. In many circumstances, it is important to distinguish between infection and colonisation, which is when the bacteria are causing little or no harm.

Tuberculosis, which is caused by the bacteria *Mycobacterium tuberculosis*, is one of the diseases with the highest disease burden, killing 1.4 million people in 2019, largely in Sub-Saharan Africa. Other globally important diseases produced by pathogenic bacteria include pneumonia, which is caused by bacteria like *Streptococcus*, *Pneumococcus*, and *Pseudomonas*, and foodborne illness, which are caused by bacteria like *Shigella*, *Campylobacter*, and *Salmonella*. Tetanus, typhoid fever, diphtheria, syphilis, and leprosy are all caused by pathogenic bacteria. Pathogenic bacteria are also the cause of high newborn death rates in developing countries.

Most pathogenic bacteria can be grown in cultures and identified using Gram stain and other methods. Bacteria grown in this manner are frequently tested to find which antibiotics will be an effective in treating the infection. Koch's postulates are the standard for establishing a causal relationship between a microbe and a disease for previously identified pathogens. Some pathogenic bacteria cause disease under certain conditions such as when they enter the body through a cut in the skin, through sexual activity, or when the immune system is weakened.

Some *Streptococcus* and *Staphylococcus* species are found on healthy skin or in the nasopharyngeal region and are part of the normal skin microbiota. These species, however, have the ability to cause skin diseases. Sepsis, pneumonia, and meningitis are all examples of streptococcal infections. These infections can become serious creating a systematic inflammatory response, which can lead to severe vasodilation, shock, and death. Other bacteria are opportunistic pathogens that primarily affect persons who are immunocompromised or have cystic fibrosis. *Pseudomonas aeruginosa*, *Burkholderia cenocepacia*, and *Mycobacterium avium* are examples of opportunistic pathogens.

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