



Classification of Pathogenic Microbes and their Characteristics

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DESCRIPTION

Microorganisms are divided into three main groups. Low-level pathogens, high-level pathogens, and potential pathogens. They are classified using an intrinsic virulence index (IPI), defined as the ratio between the number of patients infected with a particular organism and the number of patients harboring the same organism in their throat and intestines. Although native anaerobes rarely cause infection, they are present in high concentrations in all humans. *Enterococci* and coagulase-negative *Staphylococci* are also carried at high concentrations in the oropharynx by a significant proportion of patients requiring intensive care unit care, but do not cause lower respiratory tract infections. These are low level pathogens and high level pathogens like *Salmonella*. It includes six normal potential pathogens transmitted by healthy individuals and nine abnormal potential pathogens transmitted by patients with acute or chronic conditions. Evidence supports the notion that antibiotic resistance does not contribute to mortality. Infectious diseases continue to pose a major threat to human health. Changes are included. Therefore, there is a growing need for the development of improved antimicrobial chemotherapeutic agents and preventive strategies. A thorough understanding of complex host-pathogen interactions will greatly improve our ability to design such new countermeasures. In this sense, a precise classification of infectious agents with respect to their way of life within the host and the corresponding virulence implications, since a clear concept is essential for successful research in the fields of prevention and treatment.

In symbiotic relationships, parasitism is characterized by microbial causes of host disease. Pathogenic microorganisms are

therefore infectious if they thrive in pathogenicity associated with and causing host damage, but may have alternative lifestyles such as survival and replication within the environment. The persistence and multiplication of bacterial pathogens in environmental niches opens pathways for transmission to human and animal hosts *via* water, food, air and vectors, facilitating interactions with free-living protozoa, thereby contributes to the survival of pathogen-modifying microorganisms, which are pathogens but does not act as a virulence factor during *in vivo* infection. Moreover, the ability to replicate extracellular *in vitro* requires metabolic pathways and corresponding genes distinct from those used in host extracellular growth.

In the current text, the discussion refers to the traditional classification of bacteria as pathogens, so the analysis focuses on the pathogenic lifespan of bacterial parasites. Traditionally, infectious agents are called extracellular pathogens, facultative intracellular pathogens, and compulsory intracellular pathogens. A discussion of published data revealed discrepancies with this classification of bacterial pathogens. This article analyses these contradictions and proposes alternatives. *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, and *Escherichia coli* are typical examples of bacteria designated as extracellular pathogens and wound infections, scarlet fever, certain forms of pneumonia, and urinary tract infections are examples of infections caused by these pathogens. Extracellular pathogens use any route of entry to cause disease, provided a sufficient fluid medium is established at the site of injury. These pathogens normally replicate at extracellular sites such as host mucosal surfaces, blood vessels, lymph, coelomic fluid, and interstitium, but are occasionally found in phagocytic cells that attempt to kill pathogens as a host defense mechanism.

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