Latency Encyclopedia Article

Latency

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Latency refers to the period of time it takes for a disease to manifest itself within the human body. It is the state of seeming inactivity that occurs between the instant of stimulation or initiating event and the beginning of response. The latency period differs dramatically for each stimulation and as a result, each disease has its unique time period before symptoms occur.

When pathogens gain entry into a potential host, the body may fail to maintain adequate immunity and thus permits progressive viral or bacterial multiplication. This time lapse is also known as the incubation period. Each disease has definite, characteristic limits for a given host. During the incubation period, dissemination of the **pathogen** takes place and leads to the inoculation of a preferred or target organ. Proliferation of the pathogen, either in a target organ or throughout the body, then creates an infectious disease.

Botulism, tetanus, gonorrhea, diphtheria, staphylococcal and streptococcal disease, pneumonia, and tuberculosis are among the diseases that take varied periods of time before the symptoms are evident. In the case of the childhood diseases—measles, mumps, and chicken pox—the incubation period is 14–21 days.

In the case of **cancer**, the latency period for a small group of transformed cells to result in a tumor large enough to be detected is usually 10–20 years. One theory postulates that every cancer begins with a single cell or small group of cells. The cells are transformed and begin to divide. Twenty years of cell division ultimately results in a detectible tumor. It is theorized that very low doses of a **carcinogen** could be sufficient to transform one cell into a cancerous tumor.

In the case of **AIDS**, an eight- to eleven-year latency period passes before the symptoms appear in adults. The length of this latency period depends upon the strength of the person's immune system. If a person suspects he or she has been infected, early blood tests showing HIV antibodies or antigens can indicate the infection within three months of the stimulation. The three-month period before the appearance of HIV antibodies or antigens is called the "window period."

In many cases, doctors may fail to diagnose the disease at first, since AIDS symptoms are so general they may be confused with the symptoms of other, similar diseases. Childhood AIDS symptoms appear more quickly since young children have immune systems that are less fully developed.