

Illustration 2: Three levels involved in infectious disease

1. *Contact level*: This relates to a point in which a disease-causing pathogen comes into physical closure (in touch) with an uninfected host and crosses the threshold of infection. The term “crosses the threshold of infection,” is very significant here because coming-in-contact with a pathogenic infectious agent does not immediately translate into an infectious disease. In fact, an average person is exposed to and with hundreds of thousands of infectious microbial agents each day, yet evidence or even common sense tells us that people are not barraged by infectious diseases as much as they come in contact with them. As a matter of fact, the earth will not be inhabitable if humans are equally sick as they come in contact with disease-causing microbial. The bottom line, however, is that human immune systems are structured to sense dangers even outside the body. For example, the skin is loaded with sensors that spot, identify, and fight pathogens before they even try to penetrate the body. But let us not be deceived into thinking that the antibodies are not immortal. In fact, they can be killed if the bombardment (from the pathogens) is overwhelming and reinforcement is very limited. What I mean is an individual that lives in an unhygienic/unsanitary environment or engages in risky behavior or has been traumatized or abused and at the same time poorly fed has all the earmark of one with weak or failed immune defense systems and susceptible to diseases.

How we come in contact with pathogens are:

- a) Daily habitual interaction with our environment: We encounter disease-causing agents or contaminated objects and materials.
- b) Ignorance or carelessness or laziness: We allow ourselves to inhabit an environment or a lifestyle that is unhygienic, unsafe, and unsanitary.
- c) Our worldview: We are desensitized, behaviorally and cognitively, about the reality of diseases.
- d) Domestic and public arrangements: The type of relationships we enter into or our living arrangements may expose us to infectious disease.
- e) Poverty: Some believe that poverty is a means to possible exposure to disease, but some reject the connection and proposed that whatever caused one to be poor may also be responsible for the exposure to infectious disease.

2. *Sustained level*: This is the ability of a microbe to survive the contact level and make its way to the host's environment (body). Depending on the level of one's immunity (ability of the body to fight and defend itself), the body is well equipped to fight and destroy (eliminate) as many invading pathogenic microorganisms as possible (Sci-Tech Encyclopedia). As we pointed out above, the body's defense against the invading disease-causing pathogens is not always noticeable, except for occasional and short-lived headache, flu, diarrhea, nausea, fever etc. However, the immune defense systems may lose the fight and the pathogens can then penetrate the body. Inside the body, the fight or defense intensifies and in some cases, the antigens will succumb to the overwhelming bombardment of pathogens, especially in individuals with immunocompromising bodies. The continuous attack will systematically destroy whatever system or organization that supports life or function, thereby causing death or long short term disability (Kano & Rubin, 2010). So, the level of human immunity at the time of contact is the greatest determining factor in understanding disease virulence (degree of fatality), alacrity (force of aggression), and transmissibility (rate to which it passes from one person to another) of an infectious disease.

3. *Transmission Level*: Transmission of an infectious disease may occur through one or more of diverse pathways including physical contact with infected individuals. These infecting agents may also be transmitted through liquids, food, body fluids, contaminated objects, airborne inhalation, or through vector-borne. Transmissible diseases which occur through contact with an ill person or their secretions, or objects touched by them, are especially infective, and are referred to as contagious diseases. Infectious (communicable) diseases which usually require a more specialized route of infection, such as vector transmission, blood or needle transmission, or sexual transmission, are usually not regarded as contagious, and thus not amenable to medical quarantine of victims.