



Prevention and Control of Infections

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Introduction

Infection prevention and control (IPC), according to the World Health Organization (WHO), is a scientific strategy and practical solution for preventing infection-related harm to patients and health care personnel. It is a subgroup of epidemiology that is also important in infectious illnesses, social sciences, and global health [1].

Effective IPC is a public health issue that is critical to patient safety and the strengthening of health systems. Effective IPC measures are at the root of the prevention of healthcare-associated infections (HAI), epidemics (including the 2013-2016 Ebola virus disease outbreak), and pandemics of international concern (for example, the 2009 flu pandemic and the coronavirus disease in 2019) [2]. "Access to health care services planned and managed to minimise the risks of preventable HAI for patients and health care workers is a basic human right," according to the WHO's Core Components of IPC [2].

Description

1. Infectious disease transmission

A successful transmission of pathogenic microorganisms such as bacteria, viruses, parasites, or fungus is classified as an infection: [3-6]

Directly:

- Through respiratory droplets (for example, coughing or sneezing)
- Through body fluids
- Direct contact with infectious agent in the environment
- During birthing from mother to foetus (Trans placental/perinatal)

Indirectly:

- Vector or Intermediate Host Biological (for example; Zika Virus)
- Vector or Vehicle Mechanics (for example; Plague - transmission of *Yersinia Pestis* by fleas)
- In the air (for example, Tuberculosis)

2. The triad of epidemiology

Infections in humans happen when an infectious bacterium enters the body, multiplies, and causes a reaction in the body that can lead to infection. The epidemiological triad [7] requires three variables to disseminate infectious disease:

- The Agent - The infection-causing microbe, which can take the shape of bacteria, viruses, parasites, or fungus.
- The Host - The disease's intended victim
- The Environment - The host's immediate surroundings and conditions (external to the host) [8].

3. The Spread of Infection in Healthcare

Due to the presence and relative ratio of susceptible individuals,

healthcare facilities, whether hospitals or primary care clinics are a location with a higher risk of disease transmission. Despite the fact that one out of every ten patients contracts an infection while receiving care [9], effective infection prevention and control reduces healthcare-associated infections by at least 30% [9]. The three components required for infection propagation in a healthcare context are as follows [10]:

- A source is a location where infectious agents can live (e.g. sinks hospital equipment, countertops, and medical devices).
- Patient care spaces, sinks, hospital equipment, counters, and medical devices are all part of the environment.
- Individuals, such as patients, healthcare professionals, and tourists.
- Susceptible Person - A person (patient, healthcare worker, or visitor) who has not been vaccinated or is immune to a certain infectious disease, or who has a weakened immune system or is immune deficient [10].
- Individuals' vulnerability can also be increased by underlying medical problems, drugs, and essential treatments and procedures, all of which raise the chance of infection (for example, surgery).

Transmission is the process through which germs are transferred from one person to another.

- Contact, such as with medical equipment or a vulnerable individual (for example, MRSA or VRE)
- Splashes or sprays (for example, Pertussis)
- Aerosolized particle inhalation (for example, TB or Measles)
- Sharps injuries can expose people to blood-borne infections (for example, HIV, HBV, and HCV)

4. Within-community control of infectious diseases

Infection control and prevention is a global concern, and there are numerous protocols and recommendations that can be followed to reduce the transmission of infection among individuals, populations, and globally [2]. Identifying at-risk groups, such as youngsters, the elderly, and those with chronic illnesses, can also aid in the development of appropriate strategies to safeguard these vulnerable individuals. When it comes to infection control, the first step can be to change behaviour at the community level, such as:

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- Using insect repellents
- Keeping up with routine vaccines and engaging in immunisation programmes
- Social distancing - avoiding interaction with others
- Using condoms when having sex, especially with a new partner
- Taking prescribed drugs, such as antibiotics, as instructed by health professionals

Environmental strategies such as:

- modifying environments
- Disease surveillance
- Food safety
- Air quality is some of the other activities that can be taken to restrict the spread inside communities.

Conclusion

5. Interventions in Medicine

There are biochemical treatments that may be adopted to speed up the recovery process and in some cases prevent viral infections completely, in addition to easy efforts to prevent and control infections [11]. Antibiotics, antivirals, and immunizations have all been proved to hasten healing, limit illness progression, and even eradicate infectious diseases from entire populations.

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Conflict of Interest

None

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