

1 Concepts of communicable diseases



1.1 What are communicable diseases?

Communicable diseases refer to diseases that can be transmitted and make people ill. They are caused by infective agents (pathogens) e.g. bacteria and viruses, which invade the body and multiply or release toxins to cause damages to normal body cells and their functions. In severe cases, they may lead to death. These infective agents can spread from a source of infection (e.g. patients, sick animals) to a person through various routes of transmission.

1.2 Chain of infection: infective agent-source of infection-mode of transmission-host

Apart from the infective agents, there are three other factors necessary for the occurrence of communicable diseases:

1.2.1 Source of infection

This refers to any environment, in which infective agents can live, parasitize and breed. It includes humans (e.g. patients, carriers and people with latent infections), livestock, insects and soil. The source of infection will normally form the basis for infective agents to infect humans.

1.2.2 Mode of transmission

Mode of transmission	Process	Examples of communicable diseases
Contact transmission <ul style="list-style-type: none"> • Direct Contact • Indirect Contact 	<p>Through direct body contact with the infected, e.g. lifting and assisting in taking baths</p> <p>Through contact with objects contaminated by infective agents, e.g. sharing towels, combs and clothes</p>	Scabies, Chickenpox, Head lice, Acute conjunctivitis
Droplet transmission	Through droplets expelled during sneezing, coughing, spitting and speaking, or subsequent touching of mucous membranes of the mouth, nose and eyes etc with hands contaminated with infective agents	SARS, Influenza
Airborne transmission	The infective agents float in the air for sometime and then enter the body through the respiratory tract	Chickenpox, Pulmonary tuberculosis (smear positive)
Common Vectors (e.g. food-borne, water-borne)	Infective agents enter the body through ingestion of contaminated food or water, or contact with contaminated devices like eating utensils, urinary catheters	Food poisoning, Cholera, Bacillary dysentery, Hepatitis A, Urinary tract infection

Mode of transmission	Process	Examples of communicable diseases
Vectors (insects)	The infective agents either parasitize and breed in the body of the insects, or contaminate the legs and mouths of the insects and then infect human when the insects bite humans or by cross-contamination	Dengue fever, Malaria (mosquito-borne), Infectious gastrointestinal diseases (fly-borne or rodent-borne)
Blood/Body fluid transmission	Transmitted through blood transfusion, tattooing, ear piercing or sexual intercourse	Hepatitis B, AIDS
Congenital Infection	Infective agents enter the foetus through the mother causing infection	Congenital syphilis

Note: Some communicable diseases have more than one mode of transmission.

1.2.3 Host (susceptible population)

Hosts refer to the susceptible population. Some people are more prone to become hosts. For instance, elders with chronic diseases are more susceptible to infection as a result of weakened body immunity.

1.3 Why are residential care homes for the elderly (RCHEs) more vulnerable to outbreaks of communicable diseases?

RCHEs are collective living places where communicable diseases can easily spread through close person-to-person contact. The frailty of the elders also aids the spread. The source of infection can be staff, visitors or residents (e.g. residents newly discharged from hospital). Person-to-person contact then leads to cross-infection, i.e. the transmission of infective agents from one person to another. For instance, a staff member who fails to wash hands after caring for a resident may spread the infective agents from that resident to the next resident he cares for.

1.4 Principles of control of communicable diseases

There are a number of factors crucial to the spread of communicable diseases. They include the infective agent, the source of infection, the mode of transmission and the host -- the so-called "chain of infection". Hence, the control of the spread of communicable diseases should focus on controlling these 4 factors so as to break the chain.

Factors of transmission

Infective agent

Source of infection

Mode of transmission

Host (susceptible population)

Control measures

- Disinfection to kill the infective agents
- Early detection, isolation and treatment of patients and removal of breeding sites
- Maintain good environmental, personal and food hygiene; adopt infection control measures appropriate to the different modes of transmission
- Build up personal immunity by immunization and healthy lifestyles

1.5 What are statutory notifiable communicable diseases?

Some communicable diseases are highly infectious and cause severe sequelae to such an extent that they threaten human lives and affect the economy. If there are proper precautionary or control measures in place, the disaster posed by these communicable diseases can be averted. The evolution of outbreaks of communicable diseases and their management vary to a certain extent with different countries or regions, where the types of communicable diseases occurred and the living environment are different. To safeguard public health and safety, every country or region has legislation stipulating certain communicable diseases as statutory notifiable diseases which warrant special precautions, and policies are developed to prevent outbreaks and to contain their spread. In Hong Kong, there are 32 statutory notifiable communicable diseases under the Quarantine and Prevention of Disease Ordinance (Cap. 141) (the list is attached in [Appendix A](#)). Attending doctors should report to the Central Notification Office (CENO), Centre for Health Protection (CHP) of the Department of Health if such cases arise. Furthermore, the persons-in-charge of RCHes are required to report to the Director of Social Welfare of any suspected or confirmed cases of communicable diseases under section 18 of the Residential Care Homes (Elderly Persons) Regulation (Cap. 459A).