

1. Concepts on communicable diseases

1.1 What are communicable diseases?

Communicable diseases refer to the diseases that can be transmitted and make people ill. They are caused by infective agents (pathogens) that invade human body or release toxins to cause damages to normal body cells and their functions. In severe cases, they may lead to death.

1.2 Chain of infection:

infective agent - source of infection - mode of transmission - host

There are four crucial factors for the spread of communicable diseases, namely the 'infective agent', the 'source of infection', the 'mode of transmission' and the 'host' - the so-called 'chain of infection'.

1.2.1 Infective agent

An infective agent is a micro-organism (e.g. bacteria, viruses, fungi and parasite) that will cause an infection.

1.2.2 Source of infection

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

1.2.3 Mode of transmission

This refers to the method of transfer by which the infective agent moves or is carried from one place to another. Some communicable diseases have more than one mode of transmission, e.g. chickenpox can be transmitted by contact or air-borne transmission. Please refer to the Section 1.3 for more details about the mode of transmission of some common communicable diseases.

1.2.4 Host

Hosts refer to the susceptible population. Some people are more prone to infection and become hosts. For instance, young children, elders and patients with chronic diseases are more susceptible to infection because of weakened body immunity.

1.3 Modes of transmission of communicable diseases and examples

Mode of transmission	Process	Examples of communicable diseases
Contact transmission	Through direct body contact with the infected person, e.g. playing together with direct skin contact; or through indirect contact with objects soiled by infective agents, e.g. sharing towels, combs and clothes	<ul style="list-style-type: none"> ■ Acute conjunctivitis ■ Chickenpox # ■ Hand, foot and mouth disease ■ Head lice ■ Herpes zoster infection ■ Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) infection ■ Scabies
Droplet transmission	Inhale or contact of droplets expelled from the sick during sneezing, coughing, spitting and speaking, or through subsequent touching of the mouth, nose and eyes with hands soiled with infective agents	<ul style="list-style-type: none"> ■ Acute bronchiolitis ■ Pneumonia ■ Seasonal influenza ■ Severe acute respiratory syndrome (SARS)
Air-borne transmission	The infective agents float in the air for some time and enter the body through the respiratory tract	<ul style="list-style-type: none"> ■ Chickenpox# ■ Measles ■ Pulmonary tuberculosis (Smear positive)
Food-borne / water-borne transmission	Through ingestion of contaminated food or water, or use of contaminated eating utensils	<ul style="list-style-type: none"> ■ Bacillary dysentery ■ Cholera ■ <i>Escherichia coli</i> infection ■ Food poisoning ■ Hepatitis A ■ Hepatitis E ■ Norovirus infection ■ Viral gastroenteritis
Vector-borne transmission	Through vectors, usually insects. The infective agents parasitise and breed in the bodies of the insects	<p>Mosquito-borne:</p> <ul style="list-style-type: none"> ■ Dengue fever ■ Japanese encephalitis ■ Malaria
Blood / body fluid transmission	Through blood transfusion, tattooing, ear piercing or sexual intercourse	<ul style="list-style-type: none"> ■ Hepatitis B ■ Acquired Immune Deficiency Syndrome (AIDS)
Congenital infection	From the pregnant mother to the foetus	<ul style="list-style-type: none"> ■ Congenital rubella syndrome ■ Congenital syphilis ■ Congenital cytomegalovirus infection

Some communicable diseases have more than one mode of transmission (e.g. chickenpox).

1.4 Principles of communicable diseases control – Breaking the chain of infection

As mentioned in 1.2, 'infective agent', the 'source of infection', the 'mode of transmission' and the 'host' are crucial factors to the spread of communicable diseases. Hence, to break the 'chain of infection' - controlling the spread of communicable diseases should focus on controlling these four factors:

Factors of transmission	Control measures
Infective agent	<ul style="list-style-type: none">■ Disinfection to kill the infective agents
Source of infection	<ul style="list-style-type: none">■ Early detection, isolation and treatment of the sick person■ Removal of breeding sites
Mode of transmission	<ul style="list-style-type: none">■ Maintenance of good personal, environmental and food hygiene■ Adoption of infection control measures appropriate to the different modes of transmission
Host (susceptible population)	<ul style="list-style-type: none">■ Building up personal immunity by immunisation and healthy lifestyle

1.5 Why RCHDs are more vulnerable to outbreaks of communicable diseases?

RCHDs are collective living places where communicable diseases can easily spread through close person-to-person contact. The frailty of persons with disabilities also aids the spread. The source of infection can be staff, carers, visitors or residents (e.g. resident who is newly discharged from the hospital). Person-to-person contact may lead to cross-infection, i.e. transmission of infective agents from one person to another. For example, a staff member who fails to perform hand hygiene between caring of different persons, may spread the infective agents from that person to the next person he/she cares for.

1.6 Key points on basic management of communicable diseases in RCHDs

The home managers have the accountability to ensure their infection control practices are up to standard in their institutions. It is recommended that a designated staff should be appointed for overseeing all the infection control issues in an institution and the staff should have undergone infection control training. The following principles in preventing the spread of communicable diseases should be observed:

- Medical surveillance - Monitor residents and staff condition closely, watch out for any sign and symptom of infection, and maintain residents' personal health records properly.
- Early treatment - Arrange prompt treatment for the infected person to prevent further spread of infection by that person.
- Spread prevention - Implement appropriate infection control measures according to the mode of transmission of the concerned communicable disease to prevent its spread. For example, wear a mask when having respiratory symptoms; handle and dispose body fluid, secretion and excretion properly; perform proper hand hygiene; enhance environmental cleansing; and notify the Department of Health and other concerned government departments promptly for investigation and appropriate advice.