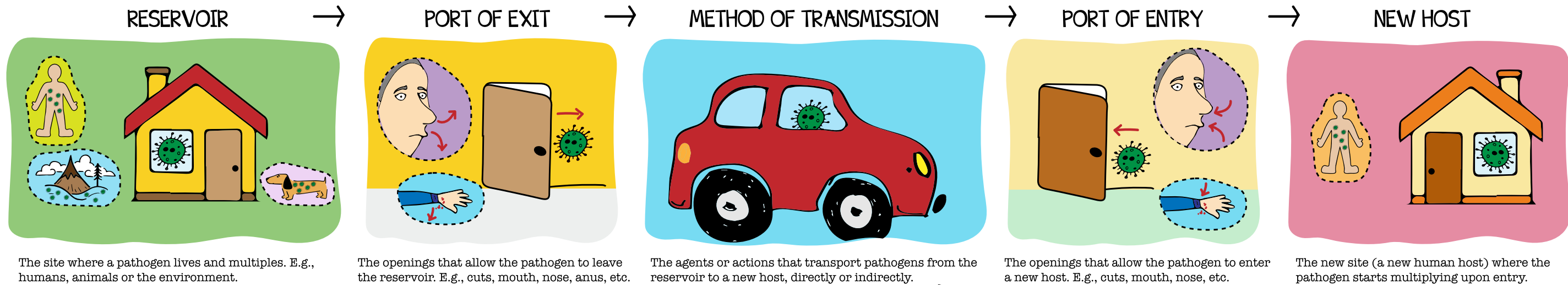


# THE BASICS

## Chain of Infection

Author: Vijeta Raghuram

Every infectious disease in humans spreads through a 'chain of infection'. This chain has 5 components. We catch an infection when a series of events, happening in sequence, link these components together. We can stop infection if we can break a link in any part of the chain.



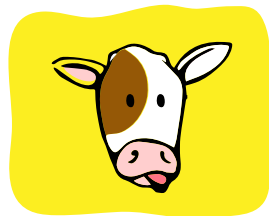
### DIRECT TRANSMISSION

Transmission occurs directly from the reservoir to the new host, via direct contact with mucous membranes or skin, animal bites, droplet spread, or via placenta. (from a pregnant woman to her foetus).

### INDIRECT TRANSMISSION

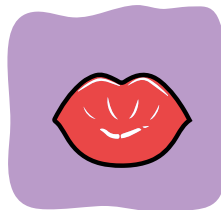
Transmission of pathogens occurs indirectly, via an intermediate agent of transmission.

#### i) DIRECT CONTACT WITH MUCOUS MEMBRANES OR SKIN



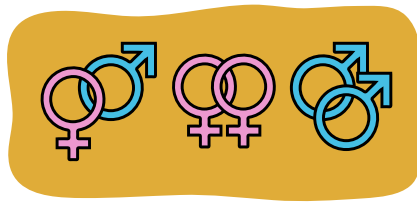
**SKIN-TO-SKIN**

E.g., *Bacillus anthracis* (anthrax; from hides of cattle), head lice.



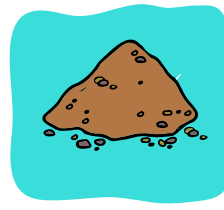
**KISSING**

E.g., Epstein-Barr virus (infectious mononucleosis or "kissing" disease).



**SEX**

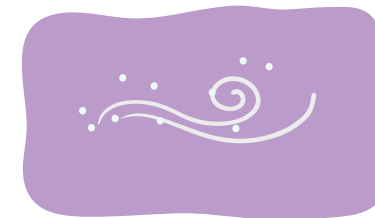
E.g., human papillomavirus (HPV; causing genital warts), HIV (AIDS).



**ENVIRONMENT-TO-SKIN**

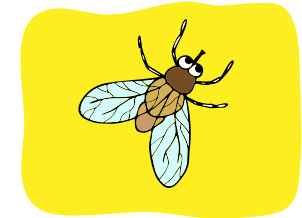
Direct contact with contaminated soil or vegetation E.g., *Clostridium tetani* (tetanus).

#### i) AIRBORNE



Transmission via aerosols, e.g., rubeola virus (measles), or via dust, e.g., hantavirus (hantavirus pulmonary syndrome).

#### ii) VECTORS



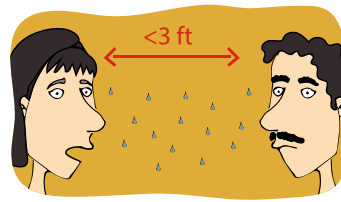
Transmission via insects. E.g., mosquitoes carrying *Plasmodium* (malaria) or flies carrying *Shigella* (shigellosis) on their appendages.

#### ii) ANIMAL BITE



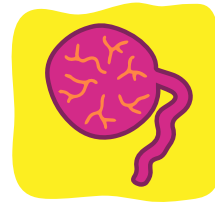
E.g., rabies virus (rabies from dogs).

#### iii) DROPLET SPREAD



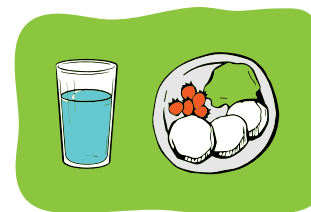
Large-sized droplets released when someone coughs, sneezes, or talks loudly. E.g., Influenza viruses (viral flu), varicella-zoster virus (chickenpox).

#### iv) PLACENTA



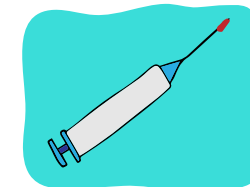
E.g., hepatitis C virus (hepatitis C).

#### iii) VEHICLES



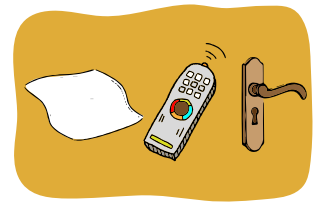
**FOOD, WATER**

Transmission via consuming contaminated food/ water, or by eating with unwashed hands after using the toilet. E.g., *Vibrio cholera* (cholera) and hepatitis A virus (hepatitis A).



**BLOOD**

Transmission via blood transfusion, or sharing needles. E.g., HIV (AIDS), hepatitis B virus (hepatitis B) and hepatitis C virus (hepatitis C).



**FOMITE**

Transmission via inanimate objects like handkerchiefs, remote controls, door knobs, etc. E.g., hepatitis A virus (hepatitis A).