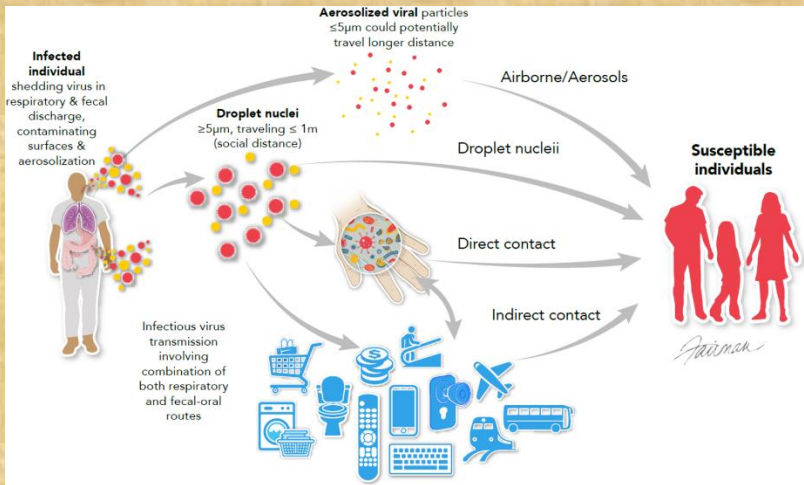


Chapter 11

WHY DO WE FALL ILL?

Infectious diseases:



Infectious agents could be a virus.

Example.

- SARS virus, which cause SARS disease. It can be a bacteria.
- Staphylococci, which cause Acne. It can be a fungi.
- Aspergillus, which causes Aspergillosis. It can be protozoan.
- Trypanosoma, which cause sleeping sickness and Leishmania which cause kala-azar.

It could be multicellular insects or worms. For example, *Ascaris lumbricoides* also called as roundworm that causes ascariasis. We see infectious agents across wide range of groups.

Let us list some examples of disease caused by various organism.

Virus is that causative organism for Common cold, Influenza, Dengue, AIDS etc.

Bacteria is responsible for typhoid, cholera, Tuberculosis, anthrax.

Fungi will cause various skin infections.

Plasmodium, a protozoan causes the deadly malaria. Worms can cause elephantiasis. The members of each one of the groups has many biological characteristics in common. All viruses live inside host cell, whereas bacteria will rarely do so.

Virus, bacteria and fungi can multiply faster when compared to worms. Taxonomically, all bacteria are closely related to each other than to virus or fungi.

Which implies that many important life processes are similar in bacterial group are not shared with virus group.

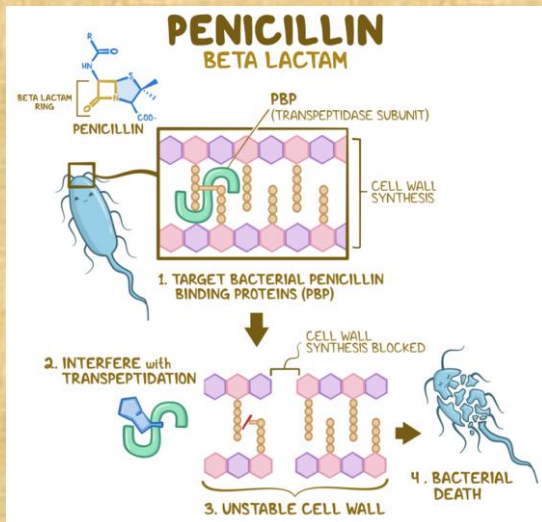
We can manipulate this difference in life process across the different groups for treatment purpose.

Moreover, drug that block one of the life processes in one member of the group is likely to be effective against many other members of the same group. But same drug won't work against a microbe belonging to a different group.

- What is **antibiotic**?

They are drugs that can block the biochemical processes important for bacteria.

Let's take penicillin as an example.



Penicillin blocks the bacterial process that builds the cell wall. Thus the growing bacteria become unable to make new cell wall and die off. Penicillin can work on many species of bacteria since most of the bacteria have similar life process, as we have mentioned before.

- Doesn't the penicillin affect our own cell?

The answer is No!

Because the human cells doesn't need a cell wall, so the drug doesn't have any effect on humans.