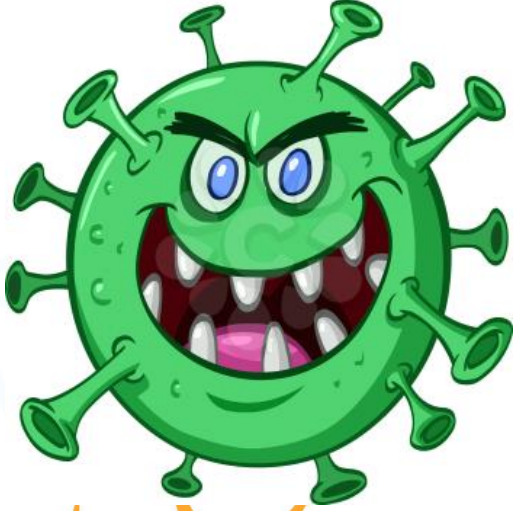
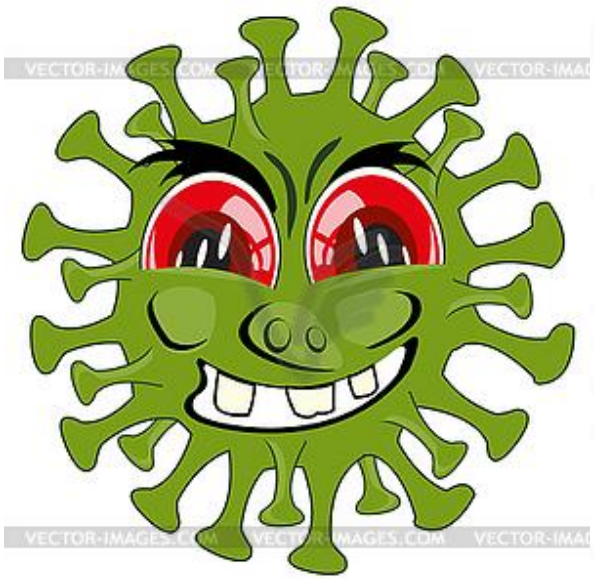
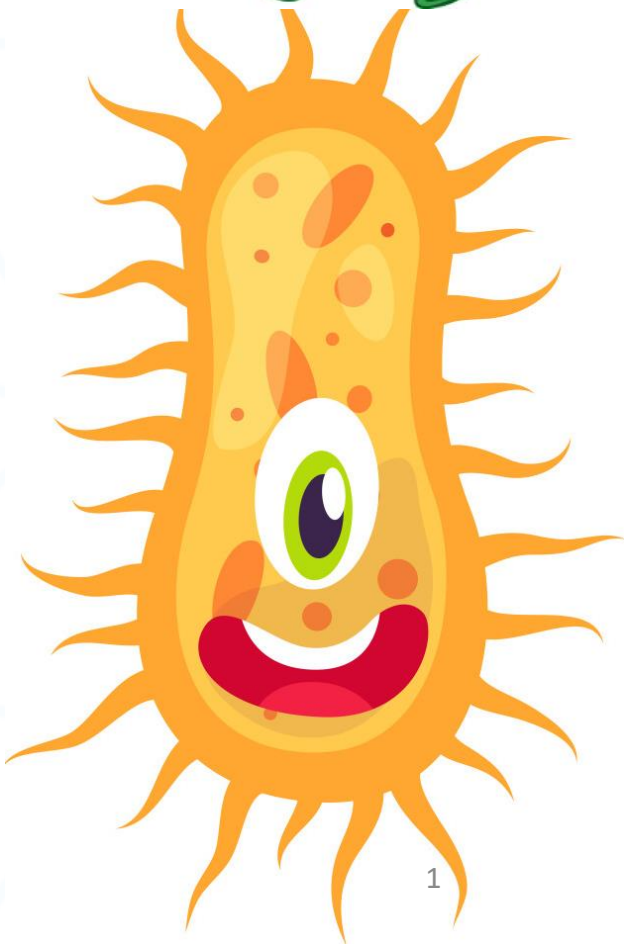


Infection





By. Dr Ahmed Mekawy

WHAT IS AN INFECTION?

What is infection?

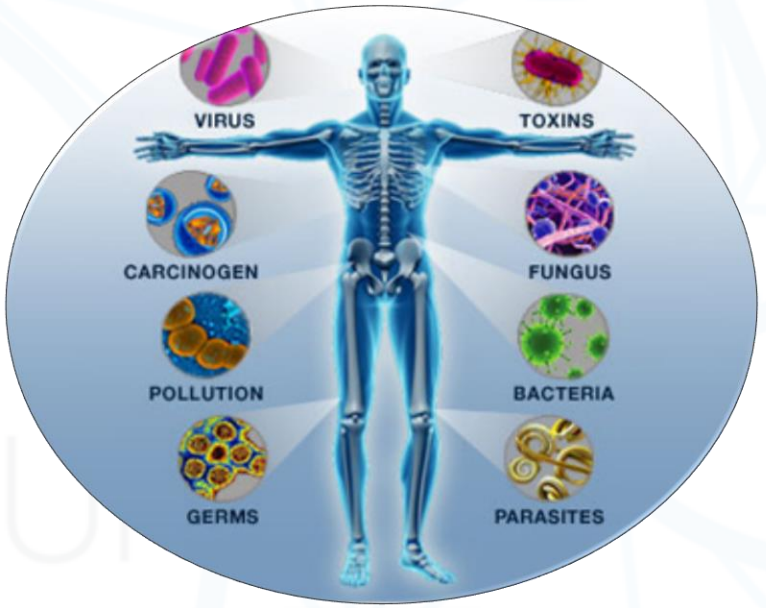
An infection is the invasion of the body's tissues by microorganisms such as bacteria and viruses.
These disease-causing agents produce reactions in their host as the immune system fights the microorganisms and the toxins they produce.
A cold is a type of viral infection.

Infection

An infection is the invasion of an organism's body tissues by disease-causing agents, their multiplication, and the reaction of host tissues to the infectious agents and the toxins they produce

العدوى هي غزو أنسجة جسم الكائن الحي عن طريق العوامل المسببة للأمراض ، وتكاثرها ، ورد فعل أنسجة العائل على العوامل المعدية والسموم التي تنتجها.

Infection



The process by which germs or Microorganisms invade a weak place in the body and multiply there (uses that person's body) , resulting in symptoms of disease in humans

العملية التي تغزو بها الجراثيم أو الكائنات الدقيقة مكانًا ضعيفًا في الجسم وتتكاثر فيه (تستخدم جسم ذلك الشخص) ، مما يؤدي إلى ظهور أعراض المرض لدى الإنسان

Pathogen

allergens

A pathogen is an organism that causes disease.

Bacteria

Viruses

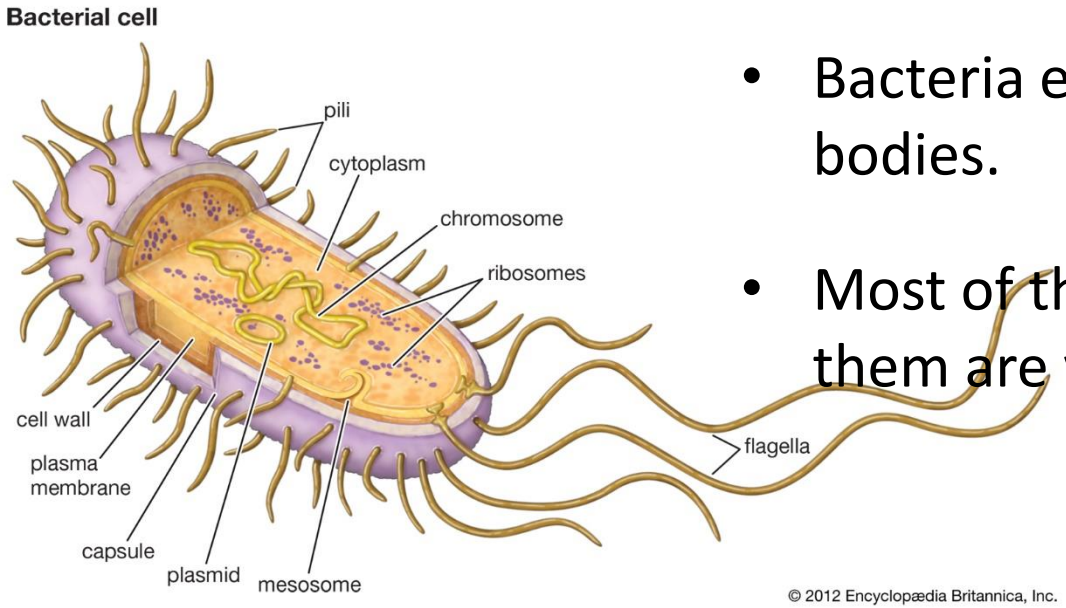
Fungi

Parasites

An allergy is an immune system response to a foreign substance that’s not typically harmful to your body. These foreign substances are called allergens.

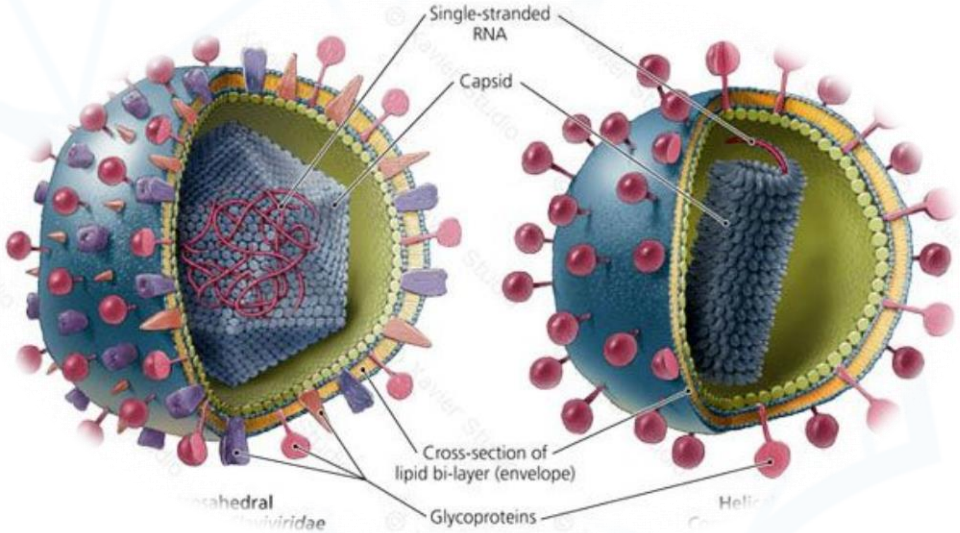
They can include certain foods, pollen, or pet dander (وبر) **.**

Bacteria



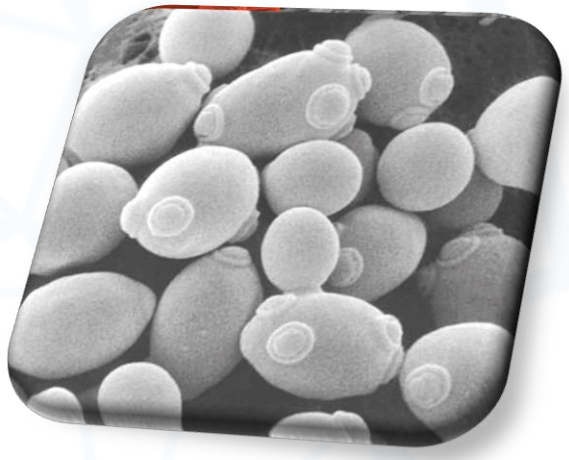
- Bacteria are simple organisms, made up of just one cell, and are capable of reproducing by themselves.
- Bacteria exist everywhere, including inside and on our bodies.
- Most of them are completely harmless and some of them are very useful.

Virus



- Viruses are much smaller than bacteria
- Most viruses have either RNA or DNA as their genetic material
- They can survive out of the body for a time.
- uses their host's metabolic processes to produce a new generation of viral particles.

Fungi



Fungi can be single celled or very complex multicellular organisms.

Single-celled fungi are called yeast.

Fungi cells have a nucleus and organelles, like plant and animal cells do

Parasites

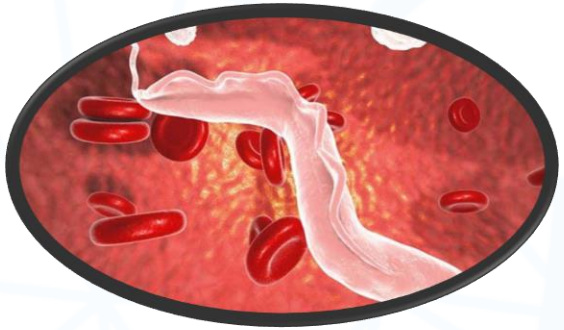
Parasites are organisms that live off other organisms, or hosts, to survive

Some parasites don't noticeably affect their hosts

Others grow, reproduce, or invade organ systems that make their hosts sick, resulting in a parasitic infection.

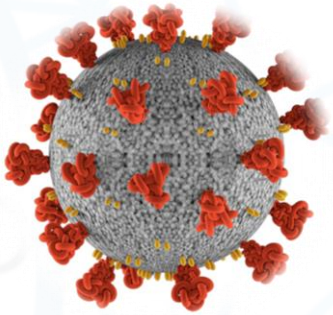
Giardia duodenalis or *intestinalis*
Cryptosporidium parvum
Cyclospora cayetanensis
Toxoplasma gondii
Trichinella spiralis
Taenia saginata/Taenia solium

Parasites may be present in food or in water and can be identified as causes of foodborne or waterborne illness



Covide - 19

Corona virus Particles (80 to 120nm-160nm) in diameter



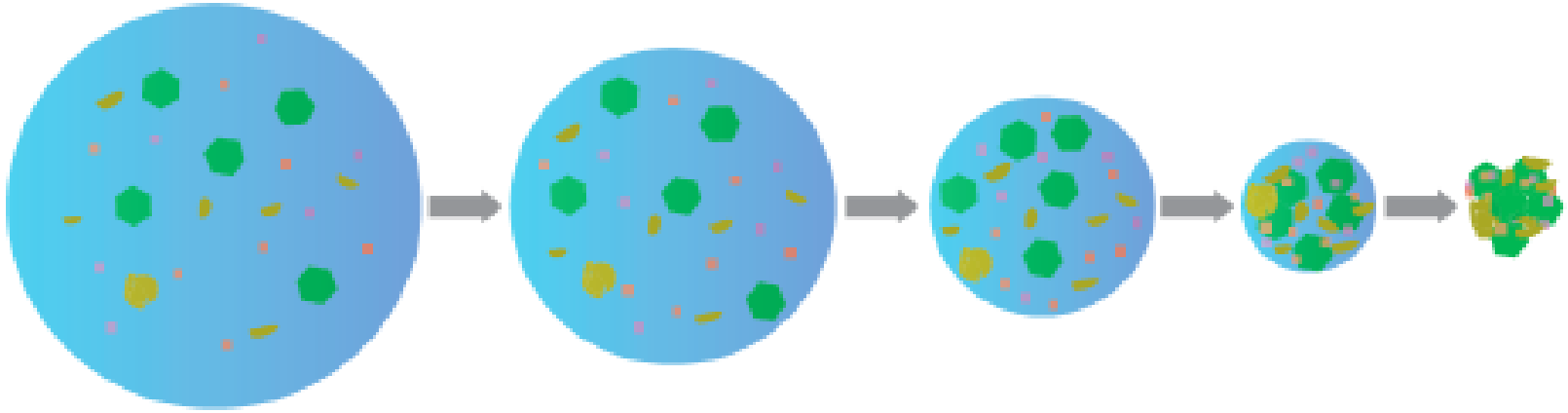
1µm = 1000nm

An infection transmitted from one individual to another by droplets of moisture expelled from the upper respiratory tract through sneezing or coughing.

Droplets Subdivision and Classification

Larger particles (e.g., **those greater than 10 µm** in aerodynamic diameter) will settle out of the air rapidly, decreasing the airborne concentration but contaminating the surface on which they land.

Smaller particles (e.g., **those smaller than 10 µm**) will tend to remain airborne for longer periods.



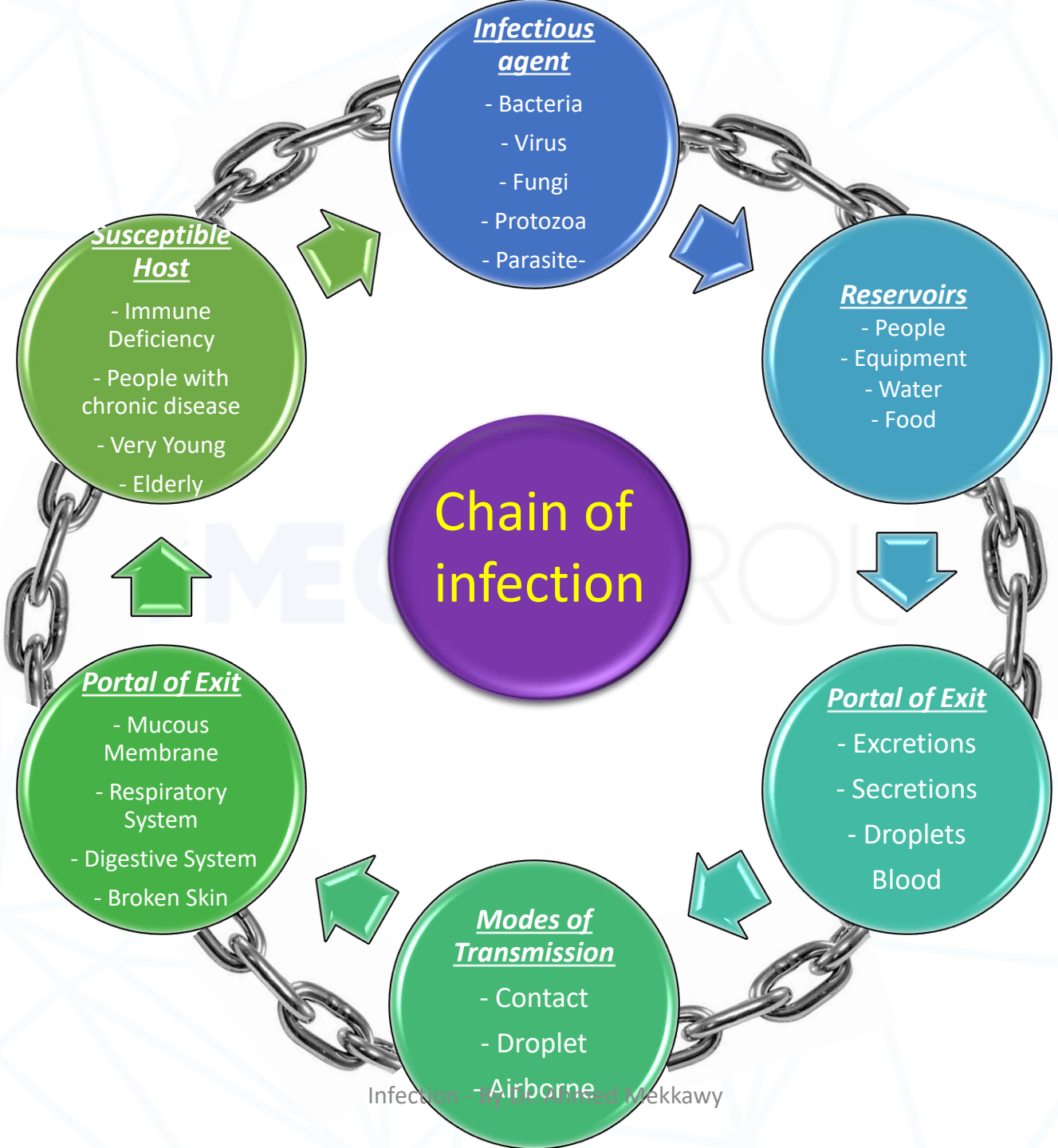
Evaporation of a liquid expelled *droplet* to a *droplet nucleus* (Image source: Verreault et al., 2008)

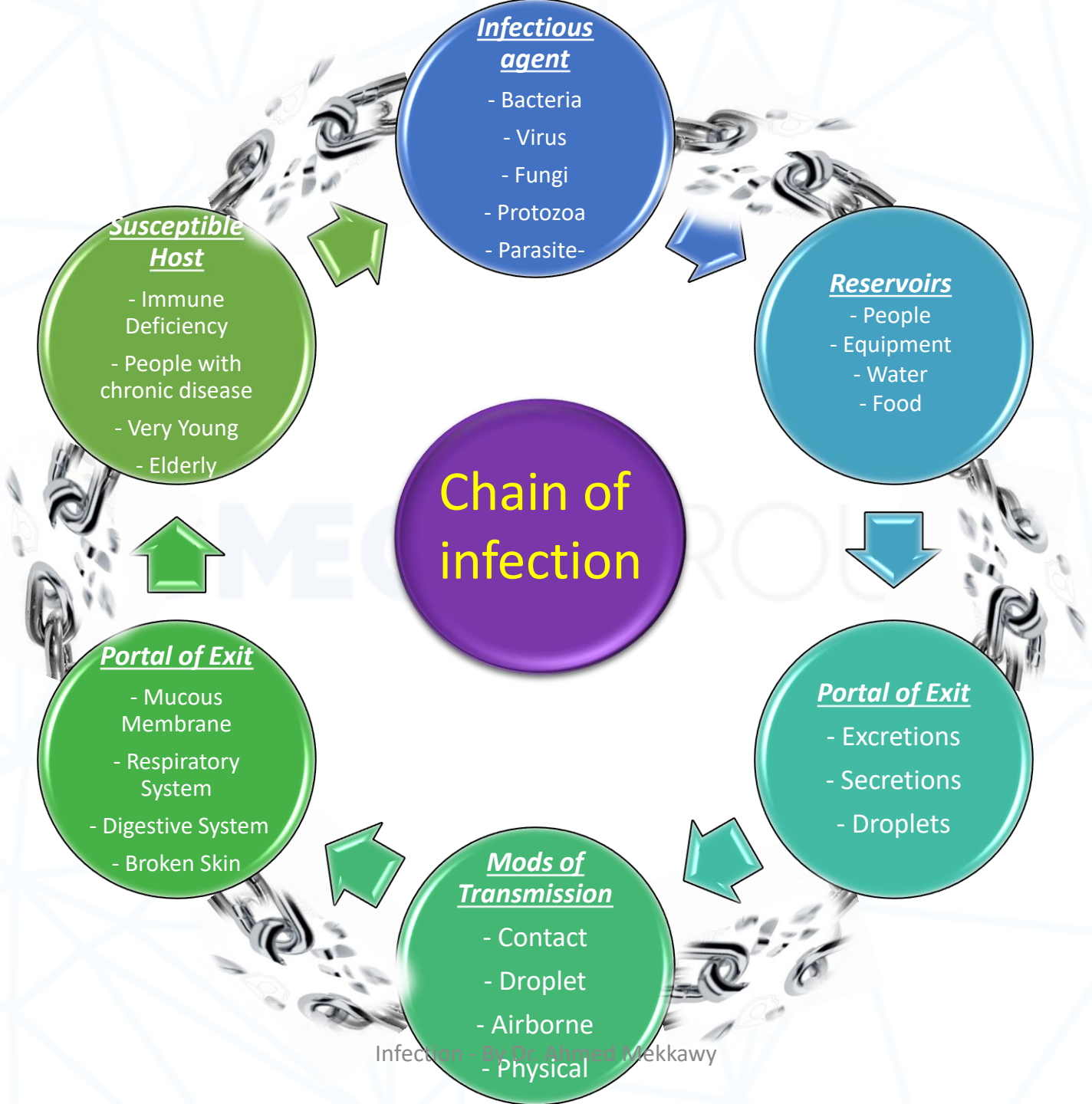
Food infection or **poisoning**

foodborne **illness**

caused by eating contaminated **food**. **Infectious** organisms like bacteria and viruses can contaminate the **food** at any point of processing or production

Food poisoning, also called foodborne illness, is illness caused by eating contaminated food. Infectious organisms — including bacteria, viruses and parasites


Infectious agent
- Bacteria
- Virus
- Fungi
- Protozoa
- Parasite-
Reservoirs
- People
- Equipment
- Water
- Food
Portal of Exit
- Excretions
- Secretions
- Droplets
Blood
Modes of Transmission
- Contact
- Droplet
- Airborne
Portal of Exit
- Mucous Membrane
- Respiratory System
- Digestive System
- Broken Skin
Susceptible Host
- Immune Deficiency
- People with chronic disease
- Very Young
- Elderly
Chain of infection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Chain of infection

Types of Infection

- Community-acquired infections
- Hospital-acquired infections
- Laboratory-acquired infections

Community acquired infections

Are the infections acquired in the community, outside the hospital.

Infection	Microorganism
Respiratory Tract Infection	• Streptococcus Pneumonia • Heamophilus Influenza
Urinary Tract Infection	• **E-Coli**
Gastro-intestinal Infection	• **E-Coli** • **Salmonella** • **Rotavirus** • **Parasites**

Hospital-acquired infections

Infections contracted within the hospital (Sick building illness)

Some of the **common nosocomial infections** are urinary tract **infections**, respiratory pneumonia, surgical site wound **infections**, bacteremia, gastrointestinal and skin **infections**.

Due to:

The health care professionals as a result of their direct or indirect contact with the patients

The presence of bacteria or viruses passing through HVAC System (Non – Sterile)

Laboratory-acquired infections

Are all infections acquired through laboratory or labor atory-related activities regardless of whether they are symptomatic or asymptomatic in nature.

Organism	No. of cases of infecti
Shigella species	15
Brucella species	7
Salmonella species	6
Staphylococcus aureus	
All	6
MRSA	5
Neisseria meningitidis	4
Escherichia coli O157:H7	2
Coccidioides species	2
Clostridium difficile	1

If proper healthy methods are followed and the chain of infection is broken, we can reduce its transmission through the previous methods

The aim of isolation precautions is to interrupt these links.


Thank you