

# CHAIN OF INFECTION

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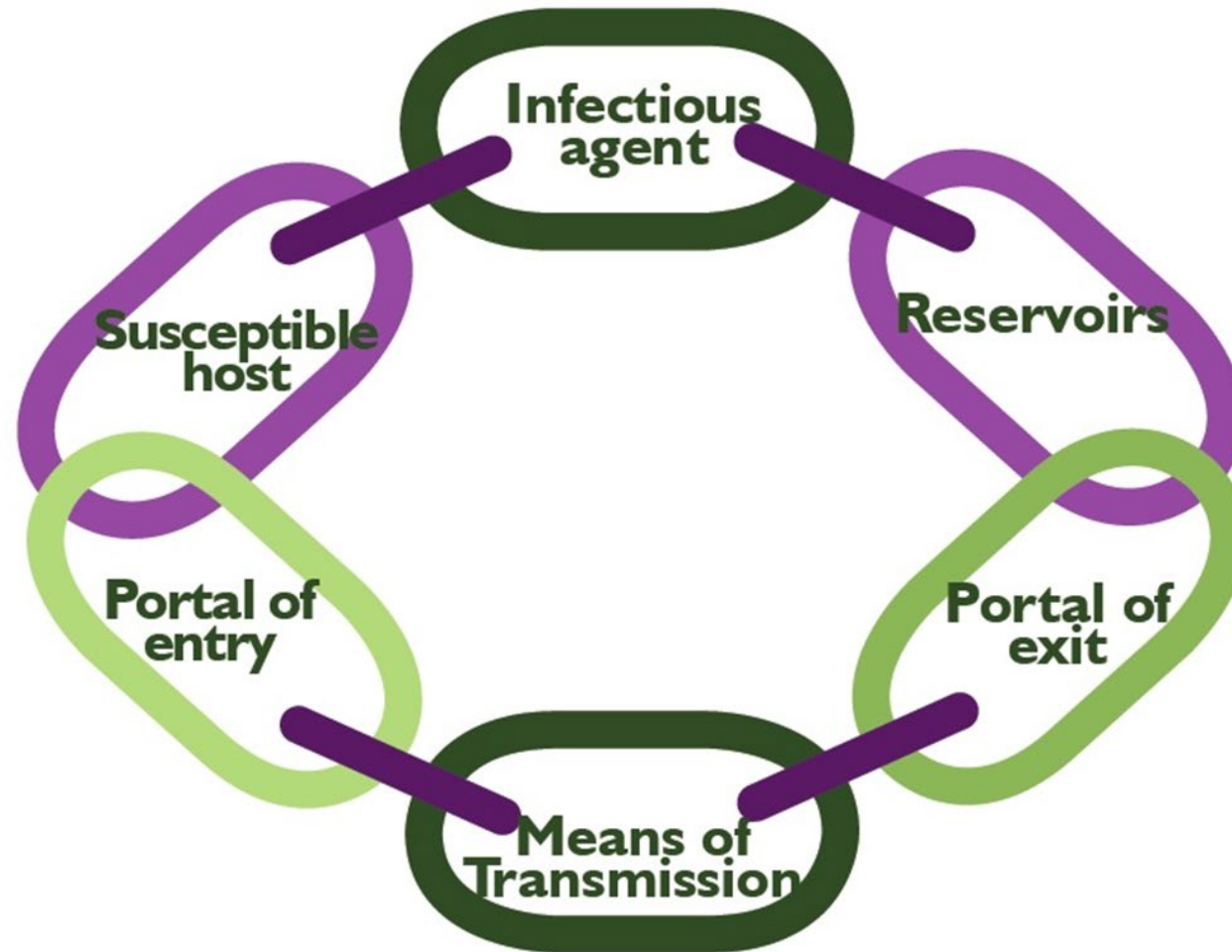
# CHAIN OF INFECTION OBJECTIVES



- ▶ Understand the chain of infection
- ▶ Be able to describe each link in the chain of infection
- ▶ Recognize how to break each link using core infection practices



# THE CHAIN OF INFECTION



# INFECTIOUS AGENT OR “THE HARMFUL GERM”

- ▶ Bacteria (MRSA, VRE)
- ▶ Viruses (Influenza, Norovirus)
- ▶ Fungi (*Candida*, *Aspergillus*)
- ▶ Parasites (*Giardia*, pinworms)
- ▶ Arthropods (mites)
  - ▶ Infestations, not infections

**Infectious  
Agent**

# RESERVOIR OR “HIDING PLACE”

## PEOPLE AS RESERVOIRS

- ▶ Blood
- ▶ Skin
- ▶ Digestive tract
  - ▶ Mouth, stomach, intestines
- ▶ Respiratory tract
  - ▶ Nose, throat, lungs
- ▶ Urinary tract

## ENVIRONMENT AS RESERVOIRS

- ▶ Doorknobs
- ▶ Light switches
- ▶ Phones
- ▶ Pens
- ▶ Tables/counter tops
- ▶ Patient/resident personal items
- ▶ Area surrounding patient/residents

**Reservoir**

# PORTAL OF EXIT OR “THE WAY OUT”

## ▶ Nose and mouth

- ▶ Allows germs to leave in mucous droplets, saliva or spit, and the gastrointestinal tract

## ▶ Gastrointestinal tract

- ▶ Allows for germ to leave in stool and/or vomit

## ▶ Skin

- ▶ Allows for germs to leave through direct contact, in blood, pus, or other substances that come from the body



# MODES OF TRANSMISSION

- ▶ Contact - Individual comes in contact with source
  - ▶ Direct – Physical contact between source and susceptible host
  - ▶ Indirect – Susceptible host contacts contaminated inanimate objects
- ▶ Droplet - Direct contact with droplets or indirect contact with secretions
- ▶ Airborne - Inhalation of aerosols or droplet nuclei
- ▶ Vectors - Ticks and mosquitos

**Transmission**

# PORTAL OF ENTRY OR “THE WAY IN”

## ▶ Nose and mouth

- ▶ Allows germs to enter in mucous droplets and saliva or spit

## ▶ Gastrointestinal tract

- ▶ Allows for germs to enter via ingestion

## ▶ Skin

- ▶ Allows for germs to enter through direct contact with blood, pus, or other substances that come from the body





# SUSCEPTIBLE PERSON OR PERSON AT RISK

- ▶ Age: Very young or old
- ▶ Stress
- ▶ Fatigue
- ▶ Poor nutrition
- ▶ Chronic illnesses
- ▶ Unvaccinated
- ▶ Open cuts/wounds & skin breakdown
- ▶ Medications

**Susceptible  
Host**



# BREAKING THE CHAIN

## ▶ Infectious Agent:

- ▶ Vaccinations/immunizations

## ▶ Reservoir:

- ▶ Environmental cleaning
- ▶ Disinfection/sterilization
- ▶ Hand Hygiene

## ▶ Portal of Exit:

- ▶ Source control
- ▶ Keeping wounds covered
- ▶ Contain secretions/bodily fluids
- ▶ Standard/Transmission based precautions



# BREAKING THE CHAIN

## ▶ Mode of Transmission:

- ▶ Standard/Transmission based precautions
- ▶ Hand hygiene
- ▶ Handling linen properly
- ▶ Insect repellent

## ▶ Portal of Entry:

- ▶ Standard/Transmission based precautions
- ▶ Hand hygiene
- ▶ Remove indwelling devices

## ▶ Susceptible Host:

- ▶ Good nutrition
- ▶ Adequate rest
- ▶ Vaccinations/immunizations
- ▶ Glycemic control



# KNOWLEDGE CHECK

► What are the six links in “The Chain of Infection”?

A) Infectious agent, reservoir, susceptible host, transmission-based precautions  
portal of exit and pandemic

B) Portal of exit, susceptible host, mode of transmission, portal of entry, reservoir and infectious agent

C) Hands, environmental surfaces, infectious agent, mode of transmission, upon exiting a room and immunocompromised individuals

D) PPE, environmental cleaning, disinfectant wipes, high-touch surfaces, bed bugs and therapy animals



# KNOWLEDGE CHECK

► What are the two main reservoirs?

- A) People and animals
- B) Animals and dishwashers
- C) The environment and people
- D) Keyboards and cell phones



# KNOWLEDGE CHECK

▶ True or false, “The Portals of Entry” & “The Portals of Exit” are the same?

▶ A) True



▶ B) False

# SUMMARY

- ▶ You now understand the chain of infection
- ▶ You can describe each link in the chain of infection
- ▶ And recognize how to break each link using core infection practices

