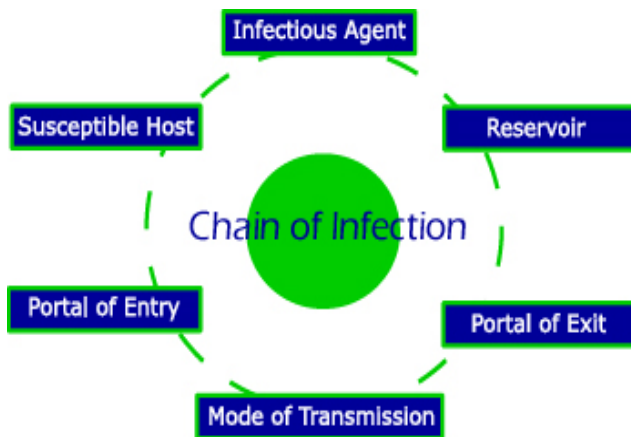


EPIDEMIOLOGY AND RISK OF INFECTION IN HOME HEALTH AND HOSPICE

Statewide Program for Infection Control and Epidemiology
(SPICE)
UNC School of Medicine

OBJECTIVES

- ▶ Discuss the infectious process
- ▶ Review methods for controlling transmission of infection:
 - ▶ Standard Precautions
 - ▶ Transmission-based Precautions
- ▶ Describe steps for detecting and controlling outbreaks



INFECTIOUS AGENT OR “THE HARMFUL GERM”

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



RESERVOIR OR “HIDING PLACES”

Where germs live, grow, and increase in numbers

- ▶ A person
- ▶ Environment/Fomite
- ▶ An animal



PEOPLE AS RESERVOIRS

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



PORTALS OF EXIT AND ENTRY

EXIT OR "THE WAY OUT"

- ▶ **Nose and mouth**
 - ▶ Allows germs to leave in mucous droplets, and saliva or spit
- ▶ **Gastrointestinal tract**
 - ▶ Allows for germs to leave in stool and/or vomit
- ▶ **Skin**
 - ▶ Allows for germs to leave through direct contact, in blood, pus, or other liquids that come from the body.

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 liquids that come from the body.



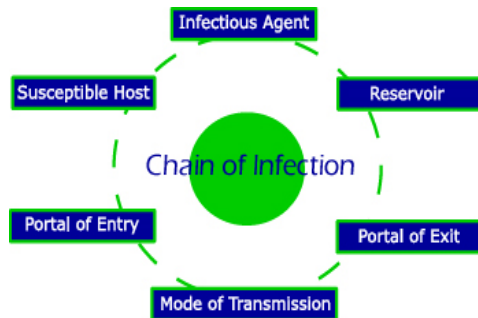
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SUSCEPTIBLE PERSON

- ▶ Age
- ▶ Stress
- ▶ Fatigue
- ▶ Poor Nutrition
- ▶ Chronic Illnesses
- ▶ Not properly vaccinated
- ▶ Open cuts, skin breakdown
- ▶ Medications



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Person to Person
Environmental source

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MODES OF TRANSMISSION



Contact



Droplet



Airborne

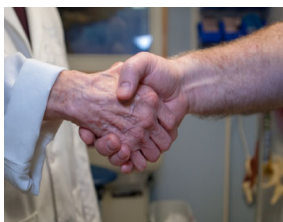


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MODES OF TRANSMISSION

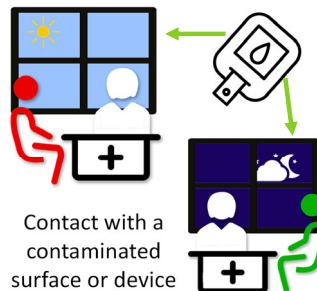
CONTACT

DIRECT CONTACT



Person to person contact and physical transfer of organisms

INDIRECT CONTACT



Contact with a contaminated surface or device

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MODES OF TRANSMISSION



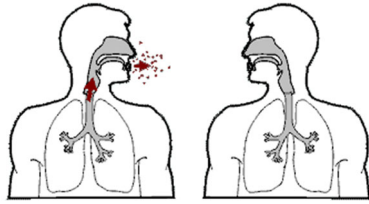
Droplet – an infectious agent travels as a very large particle over a short distance by air current (usually 3-6 feet)

Droplets may arise from speaking, coughing or sneezing
Need to be relatively close

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MODES OF TRANSMISSION

Airborne –
infectious agent
travels as very
small particles over
long distances by
air current




*Small respiratory droplets, that can remain infective for long periods of time are dispersed when an infected person coughs, sneezes, laughs or speaks.
May spread thru ventilation systems*

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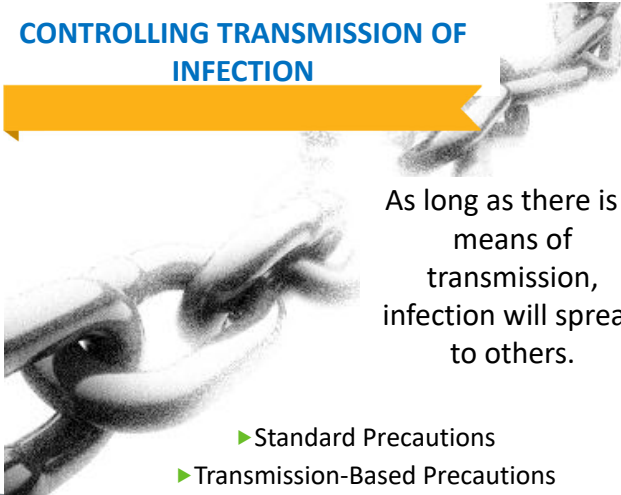
KNOWLEDGE CHECK

The Chain of Infection Includes which of the following:

1. Infectious agent, reservoir, mode of transmission and isolation precautions
2. Susceptible host, portal of entry, OSHA rules, medical waste
3.  Mode of transmission, infectious agent, susceptible host, reservoir, portal of entry and portal of exit
4. None of the above

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CONTROLLING TRANSMISSION OF INFECTION



As long as there is a means of transmission, infection will spread to others.

- Standard Precautions
- Transmission-Based Precautions

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CONTROLLING TRANSMISSION



Standard Precautions

- Hand hygiene
- Use of personal protective equipment
- Respiratory hygiene/cough etiquette
- Safe injection practices
- Use of a mask when injecting the epidural space
- Safe handling of potentially contaminated equipment



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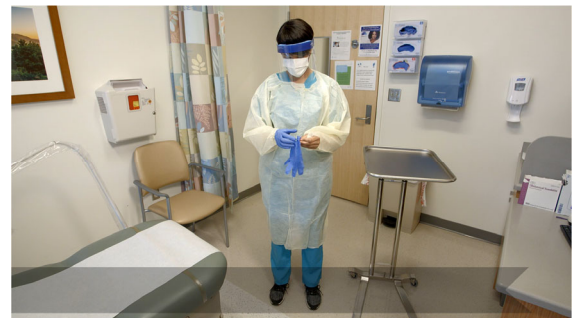
THE BEST WAY TO STOP THE SPREAD OF INFECTION

Hand Hygiene



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PERSONAL PROTECTIVE EQUIPMENT



SPICE

USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)



➤ Three overriding principals related to personal protective equipment (PPE)

- Wear PPE when the nature of the anticipated patient interaction indicates that contact with blood or body fluids may occur
- Prevent contamination of clothing and skin during the process of removing PPE
- Before leaving the work area remove and discard PPE



GLOVES:



DO

- Wear gloves to reduce risk of contamination or exposure to blood/other body fluids
- Clean hands before donning sterile gloves
- Clean hands after removing gloves
- Clean hands and change gloves between task (moving from one body site to another)
- Make sure gloves correct type and fit
- Follow facility policy



DON'T

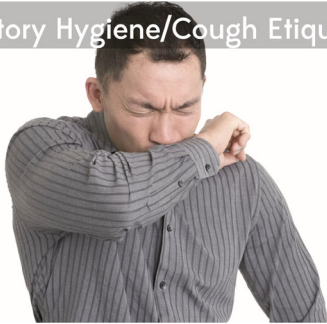
- Re-use or wash gloves (except for utility gloves)
- Substitute glove use for hand hygiene
- Use non-approved hand lotions
- Use gloves if damaged or visible soiled
- Touch your face when wearing gloves
- Wear the same pair from one patient to another
- Wear gloves in the hall
- Forget to remove and dispose of appropriately



RESPIRATORY HYGIENE/COUGH ETIQUETTE



Respiratory Hygiene/Cough Etiquette



CONTROLLING TRANSMISSION



TRANSMISSION-BASED PRECAUTIONS



- Certain conditions (syndromes) require triage and additional attention
 - Diarrhea (*C. difficile*, norovirus)
 - Febrile respiratory illness (influenza)
 - Febrile rash (chickenpox/shingles, measles)
- Early detection is important



CONTACT PRECAUTIONS



- Put on gloves before direct contact with patient or immediate environment.



- Use gown for contact with:

- Uncontrolled secretions
- Pressure ulcers
- Draining wounds
- Stool Incontinence
- Ostomy tubes or bags



CONTACT PRECAUTIONS CONT'D



- ▶ Limit amount of non-disposable patient care equipment brought into home.
- ▶ Place contaminated re-usable noncritical patient care equipment in plastic bag for transport.
- ▶ Clean horizontal surfaces and equipment with Environmental Protection Agency (EPA)-registered disinfectant



DROPLET PRECAUTIONS



- ▶ Instruct patient to follow respiratory hygiene/cough etiquette.
- ▶ HCP should wear surgical mask upon entry to room.
- ▶ Have patient wear a mask when outside the home.
- ▶ Disinfect all horizontal surfaces and equipment using a Environmental Protection Agency (EPA)-registered disinfectant.



AIRBORNE PRECAUTIONS



- ▶ Have system in place to identify patients with known or suspected airborne spread infections.
- ▶ Instruct patient to follow respiratory hygiene/cough etiquette.
 - ▶ If tolerated, patient can wear surgical mask while in the home to prevent dispersion of microorganism.
- ▶ Educate family regarding the contagious nature of the disease.
 - ▶ Protect vulnerable household members (immunocompromised, <4 yrs old)
- ▶ For TB, HCP must wear fit-tested N-95 respirator upon entry.
- ▶ For Chickenpox and Measles, susceptible staff should wear a surgical mask.
- ▶ Clean horizontal surfaces and equipment with EPA-registered disinfectant.



PRECAUTIONS IN THE HOME



- ▶ Caregivers should wash hands with soap and water after contact with infected or colonized person and before leaving home
- ▶ Use disposable towels to dry hands
- ▶ Do not share personal care items with infected person
- ▶ Disposable gloves should be worn if contact with body fluids is possible. Wash hands following removal
- ▶ Change linens and wash on a routine basis
- ▶ Clean environment routinely and when visibly soiled with body fluids



KNOWLEDGE CHECK

What is the single most effective way to prevent the spread of infections?

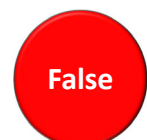
1. Using PPE
2. Cleaning patient care equipment
3. ☒ Hand Hygiene
4. Coughing into the crook of elbow or tissue



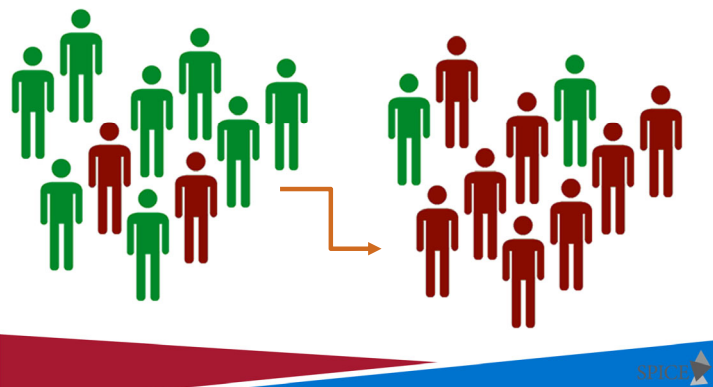
KNOWLEDGE CHECK

True or False

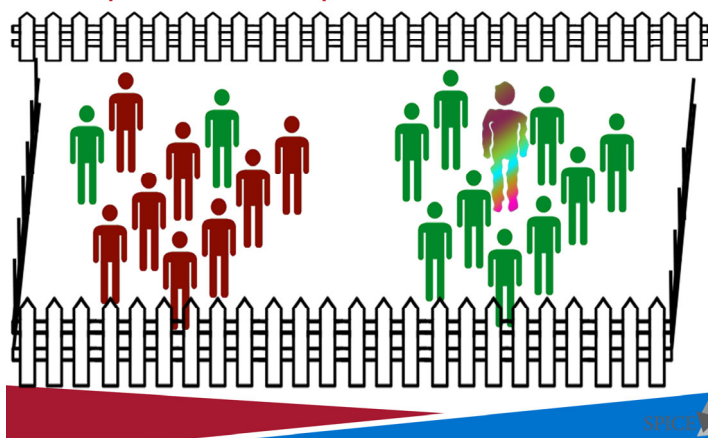
Staff who enter the home of a patient requiring droplet precautions should wear a mask upon entry into the home



OUTBREAK INVESTIGATION



The goal of the investigation is to control and prevent the spread of further disease



OUTBREAKS STEPS

- ▶ Verify diagnosis
- ▶ Establish case definition
- ▶ Review for cases – case search
- ▶ Create a line listing
- ▶ Make an epi-curve
- ▶ Develop hypothesis
- ▶ Test hypothesis
- ▶ Control measures
- ▶ Evaluate control measures
- ▶ Disseminate information

OUTBREAK INVESTIGATION



Know Who to Call for Assistance

- Your Supervisor/Manager



- Local Health Department



- North Carolina Division of Public Health
919-733-3419



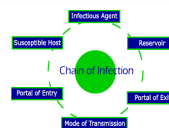
- Statewide Program for Infection Control and Epidemiology (SPICE) spice@unc.edu
919-966-3242

KNOWLEDGE CHECK

Who should be notified of a suspected or known communicable disease outbreak?

- a) Risk Management
- b) Administration/Director
- c) Local Health Department
- ✓ All of the above

SUMMARY



Discuss the "chain of infection"

Discuss the "chain of infection"

Review **standard** and **transmission-based** precautions for controlling transmission of infections

Review **standard** and **transmission-based** precautions for controlling transmission of infections

Describe the steps for **detecting** and **controlling** outbreaks

Describe the steps for **detecting** and **controlling** outbreaks



QUESTIONS?

