All Round Defense

How Germs Move and How We Stop Them

The Chain of Transmission

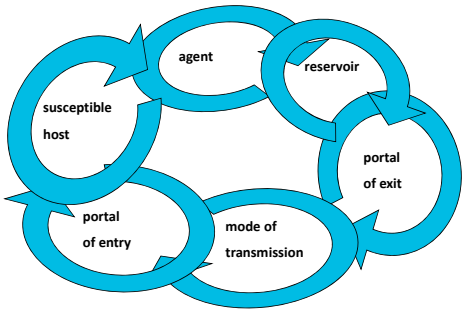
All Round Defense

- the (relative) positioning of defensive fighting positions that are supposed to give military units the ability "to repel an attack from any direction by being organized or sited for **all round defense**"

- Source: Wikipedia®

- Everyone has “bugs” on them, all the time
- Some are normal, some are potentially harmful
- There will always be someone around who can get sick from bugs
- We can get sick or infected by bugs if they find a way thru our defenses:
  - Eyes, nose, mouth, breaks in the skin, etc.

The Chain of Transmission



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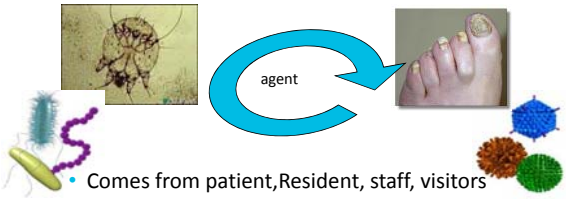
Causative agent *"the Germ"*



- Comes from patient,Resident, staff, visitors
- Patients/Residents: Respiratory secretions, feces, wounds, other body fluids
- Staff: mouth, nose, hands
- Visitors: Respiratory secretions, hands

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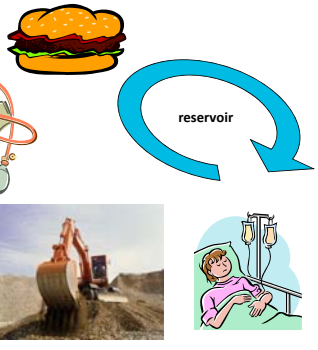
Reservoir *"Hiding Places"*

- People
- Food
- Environment
- Animals



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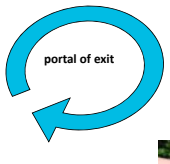
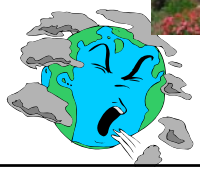
Portal of Exit *"way out"*

- Secretions
- Excretions
- Skin
- Blood
- Body fluids
- Mucous membranes





Mucky Mucous

- One millilitre of saliva can have 100,000,000 bacteria and viruses in it!

Is That The Only Issue?

- Each finger can have 1,000,000 bacteria
- Many are found under the nails and in the cuticle

Wait, There's More!

- Feces has over 1,000,000,000,000 bacteria per gram (dry weight)
- Think of one microgram: still one million bacteria
  - Can't see it
  - Can't smell it

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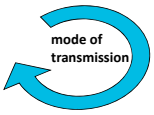
Mode of Transmission

How micro organisms are spread

Direct Contact



Indirect Contact

Common Vehicle

Droplet

Parenteral

Vector

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Contact Transmission

Direct contact

- Shaking hands
- Touching infected material

Common vehicle

- Shared patient care equipment

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Indirect Contact

- Sharing toys, equipment, devices
- Touching contaminated surfaces

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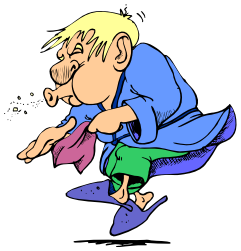
Droplet Transmission

- Droplets from sneezes or coughs that travel short distances (approx 2 M) and then settle on surfaces

  (e.g. influenza, respiratory viruses)



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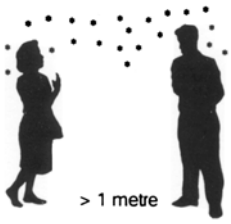
Airborne

- Tiny particles from cough or sneeze remain suspended in air » easily breathed into lungs

(e.g. TB, Measles, Chicken pox)



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Vector

transmission by insects or animals

- E.g.: West Nile Virus
  Malaria
  lime disease

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Parenteral Transmission

- The spread of an infectious agent through intact skin by sharp penetration

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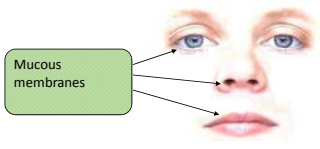
Portal of Entry *"way in"*

- How the infectious agent gets into a person
  - Open skin
  - Mucous membranes – eyes, nose, mouth
  - Gastrointestinal system



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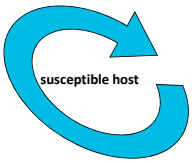
Susceptible Host

- Someone with no immunity to the infectious agent
- Characteristics that affect susceptibility:
  - Age
  - Nutritional status
  - Disease history
  - Underlying illness



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Breaking the Chain

- Interrupting 1 or more links breaks the chain of transmission
- This can be accomplished by the use of **routine practices**
  - Hand hygiene
  - Risk Assessment: Identifying infectious illness and its risk
  - Isolating those with an infectious illness
  - Cleaning and disinfection of environmental surfaces
  - Appropriate use of PPE

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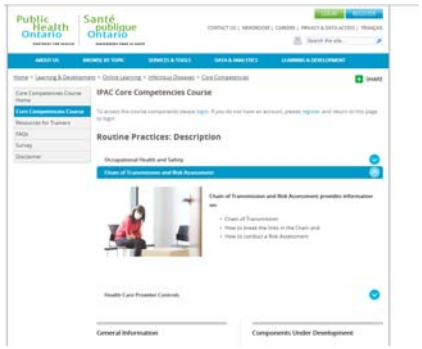

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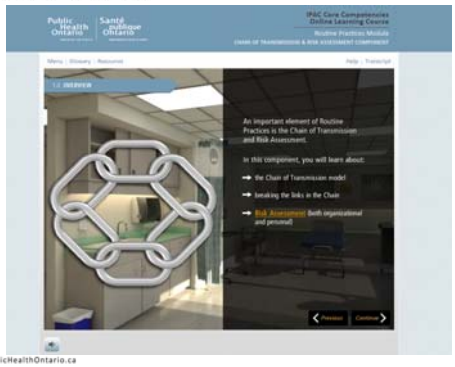

Exercise

- Find the “All Round Defense” cards on your table
- Discuss among tablemates
  - What is the causative organism
  - Where does it live
  - How does it move from where it lives
  - Who does it attack
- Using the booklet- build a chain for this organism
- Fill in the blanks on the chain and suggest how you might break this chain