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The Epidemiology of Healthcare-Associated Infections (HAIs) in Long Term Care
UNIT III – Standard & Transmission-Based Precautions



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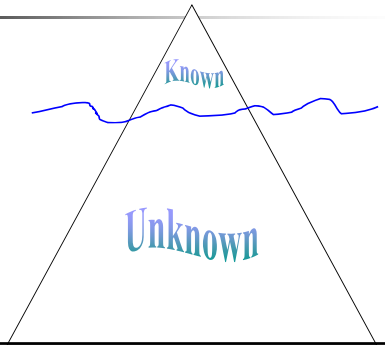
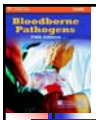
Iceberg Phenomenon



EXAMPLES - DISEASES FREQUENTLY UNDIAGNOSED OR WHICH HAVE A CARRIER STATE

- HIV
- Hepatitis B & C
- Herpes Simplex
- Salmonella
- *Staph aureus*
- *MRSA*, *VRE,* etc.
- Gram negatives
- Meningitis
- Group A Strep
- *H. flu*

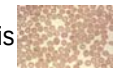
Bloodborne Pathogens

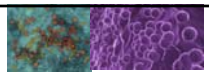


- Hepatitis B and C *
- HIV *
- Malaria
- Babesiosis
- Syphilis
- Etc.







Hepatitis B and C

	Transmission	Incubation	Carriers	Prevention
Hepatitis B	Sex, Peri-natal, Parenteral	60-90days	5-10%	Pre or post exposure Vaccine/HBIG
Hepatitis C	Parenteral, Sexual	2wks-6 mos	75-85%	No vaccine

HIV

HIV	Sexual, Parenteral, Peri-natal	Weeks	95%	No vaccine/Post exposure anti-retrovirals

Hepatitis B & C Outbreaks 1998-2008

- 40 HAI outbreaks investigated by CDC
- Involved more than 500 infected patients in diverse healthcare settings
- 11 HAI outbreaks caused by Hep B & C in 10 states = 120 people infected
- 9 outbreaks occurred in nonhospital settings; All had infection control (IC) breaches

A review of hepatitis B and C virus infection outbreaks in healthcare settings, 2008-2009: Opening our eyes to viral hepatitis as a healthcare-associated infection , Thompson, N. et al 2010, Intern. Conf. on HAIs

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STANDARD PRECAUTIONS

- "Treat all blood and bloody body fluids and other potentially infectious materials (OPIM*) as though they are infectious"
  - *OPIM = saliva in dentistry, internal fluids such as joint fluids, amniotic fluid, etc. Does not include urine, saliva, feces, etc. unless they are bloody.

STANDARD PRECAUTIONS

- Universal Precautions have been replaced!! Term no longer used!!!
  - Use Standard Precautions instead

Prevention and Control Techniques

- Standard Precautions
  - Minimum infection prevention practices that apply to all patient care regardless of infection status of the patient.
  - Designed to protect *both* the patient and the healthcare worker.
    - Hand Hygiene
    - Personal Protective Equipment (PPE)

Prevention and Control Techniques

- Designed to protect *both* the patient and the healthcare worker (continued)
  - Safe Injection Practices
  - The safe handling of equipment and the environment
  - Respiratory Hygiene/cough etiquette

Colonization

- Most isolation systems ignore the fact that :
  - OPENINGS - mouth, nose, vagina, rectum are always colonized with bacteria capable of causing infection.
  - SKIN LESIONS - are also normally colonized

Colonized Body Fluids

- **Feces**
- **Airway secretions** — **ALWAYS**
- **Wound drainage**

- **Blood ?**
- **Urine ?** — **Sometimes**
- **Internal**

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"DIAGNOSIS DRIVEN" SYSTEM OF ISOLATION

CHART → DIAGNOSIS → SIGN ON DOOR

→ GOWN, GLOVES, MASKS

STANDARD PRECAUTIONS

- **Implement Standard Precautions for all patients, not just for someone you know or suspect to be infected!**

STANDARD PRECAUTIONS

- Personal Protective Equipment
  - GLOVES
  - PROTECTIVE FACE & EYEWARE
  - APRONS/GOWNS
- Handwashing
- Safe sharps handling and disposal

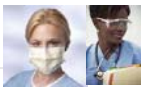
WEAR GLOVES FOR:

- Contact With mucous membranes
- Contact with non-intact skin
- Contact with moist body substances

APRON/GOWN

"when it is likely that clothing will be soiled"

EYE AND FACE PROTECTION



" when it is likely that eyes or mucous membranes will be splashed by body fluids"

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Standard Precautions

- HANDWASHING
  - Alcohol-based hand rubs are now considered the primary mode of hand hygiene by the CDC and WHO because:
    1. Broad spectrum activity
    2. Increased compliance (decreased time, decreased irritation convenient to patient)

  - 2 Caveats
    - Hands not visibly soiled
    - Not caring for patient with diarrhea

  - 15 - 30 second friction rub with soap & water under warm water anytime hands are soiled

Standard Precautions

- **HANDWASHING**
  - Before touching a patient, *even if* wearing gloves.
  - Before exiting the patient's care area after touching the patient or immediate environment.
  - After contact with blood, body fluids or excretions, or wound dressing.
  - Prior to performing an aseptic task.
  - Moving from a contaminated body site to a clean body site during patient care.
  - After glove removal.

Injection Safety

- The CDC "One & Only" Campaign
  - is a public health campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), to raise awareness among patients and healthcare providers about safe injection practices. The campaign aims to eradicate outbreaks resulting from unsafe injection practices.
  - http://www.oneandonlycampaign.org/

Injection Safety

- Use aseptic technique when preparing and administering medications
- Cleanse the access diaphragms of medication vials with 70% alcohol before inserting a device into the vial.
- NEVER administer medications from the same syringe to multiple patients even if the needle is changed or the injection is administered through intravenous tubing.
- Do not reuse a syringe to enter a medication vial or solution.

Injection Safety

- Do not administer meds from a single use or single dose vial to more than one patient.
- Do not use fluid infusion or administration sets (e.g., IV tubing) for more than one patient.
- Dedicate multi-dose vials to single patient when- ever possible. If used for more than one patient, restrict use to a central medication area & should not enter the patient treatment area.

Anyone performing a spinal injection procedure should follow the CDC recommendations below to ensure that they are not placing their patients at risk for infections such as bacterial meningitis.

- Facemasks should always be used when injecting material or inserting a catheter into the epidural or subdural space.
- Aseptic technique and other safe injection practices (e.g., using a single-dose vial of medication or contrast solution for only one patient) should always be followed for all spinal injection procedures.
- These recommendations apply in any setting where spinal injection procedures are performed, such as hospitals, outpatient imaging facilities, ambulatory surgery centers, and pain management clinics.

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ADVANTAGES OF STANDARD PRECAUTIONS

- **Applies principles of "common-sense"**
- **Does not need a diagnosis**
- **Becomes part of routine health care worker (HCW) behavior**
- **Consistent and defendable**
- **Eliminates the** 

Factor

TRANSMISSION-BASED ISOLATION

- 3 Types – **Contact, Droplet, Airborne**
- Used when routes of transmission are not completely interrupted using Standard precautions alone.
- Always used in addition to Standard Precautions
- Efforts must be made to counteract possible adverse events in these residents.
- Regarding patient placement in NH/SNFs, make decisions on a case by case basis, balancing the risks of other patients in the room, the presence of risk factors that increase the likelihood of transmission, and the potential adverse psychological impact.

TRANSMISSION-BASED PRECAUTIONS

- **CONTACT ISOLATION**
  - Used for diseases that are known and transmitted through contact . Examples include Multi-drug resistant organisms such as MRSA, VRE, and CRE's.
  - Precautions include:
    - Wash hands
    - Put on gloves and gown before entering the room,
    - Remove gloves and gown before exiting
    - Wash hands

Droplet Precautions

- Used to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions.
- Use for Pertussis, **Influenza**, Adenovirus, Rhinovirus, N. meningitides
  - Private room or cohort (separate by at least 3 ft).
  - Wear regular isolation mask for close contact.
  - Patient wear mask if transported, if tolerated & follow resp. hygiene/cough etiquette.

AIRBORNE TRANSMISSION – for diseases transmitted through droplet-nuclei

- Chickenpox**
- Varicella Zoster**
- Tuberculosis*
- Measles**

- *Use N-95 Respirator*
- *For diseases with ** must be properly immunized to enter room.*
- *Need Private Room with Negative air pressure.*
  - ***Unless NH/SNF is properly equipped with negative pressure room patients with these diseases should be transferred***