

Even if you can't see it, you can manage it



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Outline



- Define "the risk" in healthcare
- Categories of Risk
- Occupational Illnesses
- The history of Routine Practices and Additional Precautions
- Factors associated with Transmission
- Syndromic Surveillance
- Controls and Personal Protective Equipment
- Review Risk assessment algorithm

- In Canada, 250,000 people admitted to hospital pick up infections in the hospital while being treated for something else.
- In Canada, healthcare-associated infections kill 8,000-12,000 Canadians each year.

Statistics from NIDD.ca

Healthcare workers are among the leading occupations at risk for on-the-job injuries



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OSHA Five Categories of Risk

- 1. Chemical:** potentially toxic or irritating forms of chemicals including medications, solutions and gases
- 2. Psychological:** factors and situations that potentiate stress, emotional strain and other interpersonal problems
- 3. Physical:** Agents within the work environmental that can cause tissue trauma (e.g. needlestick injuries). Workplace violence.

OSHA: Occupational Safety and Health Administration

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Five Categories of Risk continued

- 4. Environmental, Mechanical/Biomechanical:** Slipping, Tripping, Muscle and back strain.
- 5. Biological: Infectious/biological agents such as bacteria, viruses, fungi or parasites that may be transmitted by contact with infected patients or contaminated body secretions/fluids**

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Occupational Illnesses

- HIV, Hepatitis B, Hepatitis C
- Meningococemia (Neisseria Meningitidis)
- Influenza, Rhinovirus, Metapneumovirus, Respiratory Syncytial Virus, Parainfluenza....
- Tuberculosis
- Measles, Mumps, Rubella, Chicken pox
- Norovirus
- *C. difficile*
- SARS



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Not a new concept....

- 1700s – Syphilis noted to be a disease of midwives and physicians
- Risk due to:
 - high prevalence of congenital syphilis,
 - limited facilities for disinfection at home deliveries;
 - local trauma to the midwife's hands, and
 - the plethora of contaminated secretions and blood

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Occupational Syphilis



- The "digital chancre" was the hallmark of "professional syphilis"
- Coughing patients thought responsible for chancres in the eye of physicians
- Surgeons performing hemorrhoidectomies, circumcision and gynecologic procedures at risk

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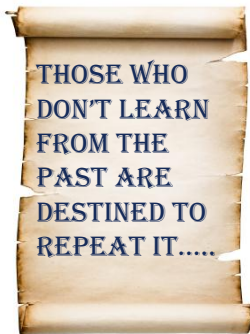
Solutions to Occupational Syphilis

- Adherence to strict hand hygiene after all suspected contacts with syphilis
- Keeping HCW hands free of abrasions and other skin breaks
- (After 1890) thin rubber gloves replaced cotton gloves as a barrier to exposure
- (After 1905) Calomel ointment as post-exposure prophylaxis
- (1914) Goggles began to be used to protect nurses while syringing the eyes, douching and swabbing the throats of syphilitic patients
- Education of HCW

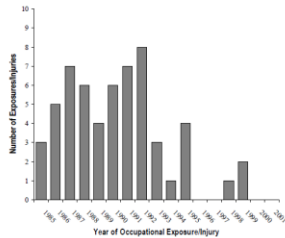


“Universal Precautions” (1906)

- American Journal of Nursing:
“....your training must be materially deficient if this question of self-protection has not been borne upon every person you nurse as a possible victim of syphilis, and a source of danger, no matter what other ailment may be present. Everlasting watchfulness must be your only safeguard.”



Occupationally Acquired HIV



As of December 2006, the most recent possible new case of occupationally acquired HIV/AIDS was reported to CDC in 2000.

Do AN et al ICHHE Feb 2003

Routine Practices (1999)

- Interventions may vary between acute care, chronic care and community settings
- The patient population is becoming increasingly immunocompromised and at greater risk for infection
- Certain routine practices should be used for all patients regardless of diagnosis and tailored to the characteristics of the patients and their environment
- Patients known or suspected to be infected or colonized with certain microorganisms will require additional precautions

Routine Practices and Additional Precautions (1999)

- All clients are potentially infectious, even when asymptomatic
- Same safe standards should be used routinely
- Goal to prevent exposure to blood, body fluids, secretions, excretions, mucous membranes, non-intact skin or soiled items and to prevent the spread of micro-organisms

SARS (2003)

- Worldwide
 - 8,096 cases
 - 21% in healthcare workers
 - 774 deaths
- Canadian outbreak
 - 438 cases
 - 3 HCW died



PIDAC Routine Practices and Additional Precautions in all Health Care Settings (2009)

- HCW must assess the risk of exposure to blood, body fluids and non-intact skin
- HCW must identify the strategies that will decrease exposure risk and prevent the transmission of microorganisms
- A RISK ASSESSMENT followed by implementation of Routine Practices to reduce or remove risk incorporated into daily practice



Risk Assessment

- Done before each interaction with a client or their environment
- A dynamic process based on continuing changes in information
- Determines which interventions are required to prevent transmission during the interaction



Environment

- Inadequate cleaning
- Shared care equipment without cleaning between clients
- Crowded facilities
- Shared facilities such as multi-bed rooms (toilets, sinks, baths)
- High patient-HCW ratio
- Inadequately educated, trained or non-compliant staff



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Susceptible Host

- Patient in ICU or requiring extensive hands-on care
- Patient has invasive procedures or devices
- Non-intact skin (client or staff)
- Debilitated, severe underlying disease
- Extremes of age
- Recent antibiotic therapy
- Immunosuppression
- Lack of appropriate immunization



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Assessing the Risk of Transmission

- Before each interaction assess risk of:
 - Contamination of skin or clothing by microorganisms in the client environment
 - Exposure to blood, body fluids, secretions, excretions, tissues
 - Exposure to non-intact skin
 - Exposure to mucous membranes
 - Exposure to contaminated equipment or surfaces
- Look for symptoms of infection

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Overuse of PPE (More is not Better)

- PPE should never be used indiscriminately
- Potential negative impacts:
 - Interference with quality of care
 - Waste and increased cost
 - Decreased likelihood of proper hand hygiene when gloves overused
 - Shortages related to inappropriate use
 - Re-use of gloves and gowns
 - Environmental concerns related to disposable PPE



Gloves

- Medical grade gloves must be worn when it is anticipated that the hands will be in contact with
 - mucous membranes,
 - non-intact skin,
 - tissue,
 - blood,
 - body fluids,
 - secretions,
 - excretions or
 - equipment and environmental surfaces contaminated with the above.



Gloves

- Wear the correct size
- Put on immediately prior to the activity
- For clean/aseptic procedures, clean hands before donning gloves
- Remove and discard immediately after the procedure
- Change gloves when moving from a contaminated body site to a clean body site on the same client
- Do not wash or re-use gloves
- Do not wear the same pair for the care of more than one client



Types of gloves

- Good quality vinyl gloves are sufficient for most tasks
- Latex or synthetic gloves (nitrile, neoprene) preferred for procedures that require manual dexterity
- Powdered latex gloves have been associated with latex allergy
- New types of latex being developed which may be safe for those with allergy to rubber latex
- Wear gloves that fit snugly around the wrist when wearing with a gown



Gowns

- Recommended when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of blood, body fluids, secretions or excretions
- Only worn for providing care
- Put on immediately before the task
- Wear properly (tied at neck and waist)
- Remove immediately after the task for which it has been used
- Prevent contamination of clothing during removal
- Discard immediately after removal
- Do not hang gowns for use later
- Do not re-use gown
- Do not go from client-to-client wearing the same gown



Type of gown

- When used for PPE
 - Cuffed
 - Long sleeved
 - Full coverage of the body front from neck to mid-thigh or below
 - Clinical and laboratory coats are not a substitute
 - Several sizes should be available



Masks and Respirators

- A mask is used (in addition to eye protection) to protect the mucous membranes of the nose and mouth when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of
 - blood,
 - body fluids,
 - secretions or
 - excretions or
- within 2 metres of a coughing client.



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Masks

- Mask should securely cover mouth and nose
- Change mask if it becomes wet
- Do not touch mask while wearing it
- Remove mask carefully after completion of task
- Do not allow mask to hang to dangle around neck
- Clean hands after removing the mask
- Do not re-use disposable masks
- Do not fold the mask or put it in a pocket for later use.

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N95 Respirators

- Used to prevent inhalation of small particles that may contain infectious agents transmitted via the AIRBORNE route
- Also worn for aerosol-generating procedures that have been shown to expose staff to undiagnosed tuberculosis:
 - Sputum induction
 - Diagnostic bronchoscopy
 - Autopsy examination



Eye Protection

- Used (in addition to a mask) to protect the mucous membranes of the eyes when it is anticipated that a procedure or care activity is likely to generate splashes or sprays of
 - blood,
 - body fluids
 - secretions or
 - excretions or
- within 2 metres of a coughing client.



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Eye Protection

- Includes:
 - Safety glasses
 - Safety goggles
 - Face shields and
 - Visors attached to masks
- Prescription eyeglasses are not acceptable alone
- Must provide a barrier to splashes from the side
- May be disposable or cleanable



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Procedures that Generate Droplets

- Certain procedures **routinely** require PPE (mask, protective eyewear) when within 2 metres of the patient
- Examples
 - Patients on oxygen concentrations of 50% or higher
 - Nebulized therapies
 - Use of bag-valve mask to ventilate a patient
 - Endotracheal intubation
 - Open airway suctioning
 - Tube or needle thoracostomy
 - Therapeutic bronchoscopy (not diagnostic bronchoscopy)
 - Performing a tracheostomy



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Routine Practices Risk Assessment Algorithm





