Myths, Legends and Half-Truths in Infection Control

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Learning Objectives
- Identify some myths, legends and half-truths in infection control within respiratory care.
- Reveal some of their sources
- Try to clarify the truth about them
- Have some fun in the process!!
- Provide additional resources….

Despite The Facts That:
- Respiratory Care has only been around for about 50 Years
- and
- Evidence-Based practice has (thankfully) gained a foothold

..........Many myths and half-truths have emerged and remain related to infection control.......... 

Areas we’ll Focus on Today
- Handwashing Hogwash
- C-Difficile Difficulties
- Nosocomial Notings
- Zap VAP “Crap”
- Infection control Info-Bites
- Bioterrorism Bologna
- Other Hokie Mis-information & Nearly Useless Stuff

We’ll start with some easy ones…then work from there.........
Infection Control 101 – The difference Among Washing, disinfection and Sterilization

- **Washing:** The use of soap and water to remove all visual and palpable substances from a surface.
- **Disinfection** (Moderate to High-level): The Elimination of all vegetative (living) microbes.
- **Sterilization:** Elimination of all microbes.
  - Bacteria
  - Viruses
  - Protozoa

Infection Control 202 – The Common Modes of Transmission

- Airborne: Via droplet or droplet nuclei
- Contact
  - Direct– Person to person
  - Indirect–Person to surface to person
- Vehicle– Food or water borne
- Vector–Via insect or animal

Handwashing Hogwash #1

- The CDC recommends that health care professionals wash their hands for a minimum of **one minute** between patients.
- True or False???
- **False:** The CDC recommends that we wash our hands for a minimum of 15 seconds between patients and whenever exposed to contaminants. Surgical scrubs should be much longer and done with special anti-microbial solutions.

Handwashing Hogwash #2

- Alcohol-based anti-microbial lotions kill all microbes and if properly used, result in hand sterilization.
- True or False?
- **False:** Anti-microbial lotions are generally effective at achieving medium-level disinfection, thus killing many forms of vegetative bacteria. They are NOT an effective means of sterilization and certain stubborn bacteria such as Clostridium Difficile (C-Diff) and Bacillus anthraxus (Anthrax) can remain viable.
Three factors which have been found to predispose patients to C-Difficile are:

- **Age**: Older folks are more predisposed
- **Recent antibiotic use**: Kills normal enteric flora
- **Recent hospitalization**: Especially if cohorted near others with C-Difficile.

**True or False?**

True: Studies have shown that several factors appear to be associated with a higher predilection to developing C-Difficile.

Over half of health care workers are colonized, mainly their nasal passages, with MRSA.

**True or False??**

False: Several studies have shown that while about 30% of health care workers are nasally colonized with *Staphylococcus aureus*, only about 4% are colonized with the specifically resistant strain known as *methicillin-resistant Staphylococcus aureus (MRSA)*.

If you are stuck by a needle immediately after it has been used on an HIV patient, you are not likely to contract HIV.

**True!** The odds of contracting HIV from a needle stick are relatively remote; about 1 to 200–300, depending on a variety of factors. However, the likelihood of contracting “Hep B” from a need stick is much greater.

Most microbes tend to remain viable for days and weeks on surfaces and within the environment.

**True or False?**

**A "BS" Question!** The ability of a microbe to remain viable in the environment is very variable. The HIV virus is only viable for minutes or seconds. However, the Hepatitis B virus can remain viable for days and even weeks. Certain other microbes, such as *Bacillus anthracis* and *Clostridium tetani* can remain a threat for months and even years, depending upon environmental and other factors.
**Nosocomial Nonsense #5**

- SARS or sudden acute respiratory syndrome is generally only contagious through direct contact with bodily fluids.
- True or False???
- **False**: SARS is highly contagious and many believe that the main means of transmission was through airborne infection or inhalation of droplets or droplet nuclei. Furthermore, it should be noted that over 20% of those who contracted SARS in Canada were health care workers treating patients with SARS.

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**More on SARS**

- One of the Key CXR findings of patients with SARS versus a typical pneumonia is a widened mediastium?
- True or False???
- **False**: In addition to widespread opacities (white patches) suggesting poor or no aeration, patients with SARS tended to have a widened mediastium owing to profound lymphadenopathy.

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**Infection Control Info-Bites #1**

- For ventilator patients, never drain condensate back into the ventilator humidifier. Always open the circuit to remove condensate.
- True or False?
- **False**: New literature strongly suggests minimizing the extent to which the ventilator circuit is “broken” open. Based on this and provided the circuit is not grossly contaminated, it is advised to drain the condensate back into the heated humidifier to lessen the likelihood to introducing microbes into the circuit.

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**Infection Control Info-Bite #2**

- Three of the major components of the ZAP VAP Protocol are:
  - Proper mouth care
  - Elevating the head of bed a minimum of 30 degrees.
  - Subglottic endotracheal tube drainage
- True or False?
- **True**: These are three important measures to reduce the incidence of VAP in hospitals. Others include minimizing lavaging when suctioning and silver nitrate (or similar) impregnated airways.
The piece of respiratory equipment most commonly implicated in nosocomial infection is the hand held nebulizer.

**False**: The large volume or jet nebulizer, not the small volume nebulizer used to deliver aerosolized medications, is still the most common culprit in spreading infection to patients.

In a homecare environment, it is often necessary for the caregiver to boil respiratory supplies equipment to sterilize it and achieve adequate disinfection.

**False!!!**: Boiling can destroy heat labile equipment so it is generally not used to disinfect supplies and equipment. Instead, through washing with soapy water and then soaking in a mixture of 50% white vinegar and 50% water with air drying and generally adequate.

Boiling is an effective means of sterilizing non-disposable respiratory equipment (which is **NOT** heat labile).

**True!!!**: Water boils at different temperature depending upon altitude. Therefore, though boiling may be a good medium level disinfection method, it is not a good means of sterilizing such equipment.

Contaminated aerosol particles from a patient coughing or exhaling from their nebulizer will generally stay suspended for a few minutes and can generally only travel less than 3 feet.

**False!!!**: Contaminated aerosol droplets or drop nuclei can stay suspended for more than an hour and can travel up to 6–10 feet or more. Therefore, it is often advisable to wear a mask when treating patient with an URI. An N95 mask is indicated if TB or SARS are suspected.
**Epiglottitis**

- **Bacterial**
- **Rapid On-set**
- **Profound Illness**
- **Hospitalization common required.**
- **Pt. may be drooling and leaning forward with compromised speech**
- **May need emergent care and airway management.**

**Croup**

- **Viral**
- **More gradual onset**
- **Mild to moderate illness**
- **Occasionally requires hospitalization**
- **Mainly supportive care**

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**Other “Hokie” Information #1**

- Epiglottitis is a mild viral infection of the tissue around the glottis and is generally self resolving.
- **True or False?**
- **False:** Epiglottitis is an acute and severe bacterial infection (Hemophilus influenza type b) affecting young children, resulting in significant swelling of the epiglottis. It can comprise the airway and often requires hospitalization and sometimes intubation done by an anesthesiologist under very controlled circumstances.

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**Hokle Pokle # 2**

- It is generally believed that the most likely delivery method which terrorists would used to deliver a biological weapon would be the aerosol method.
- **True or False?**
- **True:** Though there have been a few documented cases of vehicle, food or water-borne bioterrorist attacks, it is generally believed that an aerosolized agent would be the delivery method of choice. Anthrax was used in the US and the poison gas Sarin, was aerosolized in Japan; both resulting in several deaths.

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**“Hokie Pokle” Information # 3**

- PCP pneumonia is pneumocystis carinii pneumonia, which is a virus which can infect immunocompromised patients.
- **True or False?**
- **False and False (and True)!!!:** PCP pneumonia is now renamed as pneumocystis *jiiirevecci* pneumonia and it is a *protozoal-like* microbe, not a virus.
When the Soviet Union (USSR) broke up in the 1980’s, all of their biological arsenal was either destroyed or otherwise accounted for.

False!!!: In fact, much of the USSR’s biological stockpile remains unaccounted for to this day.

The cost to properly dispose of regulated medical waste (RMW) or “red bag” waste is twenty times that of regular solid waste.

False, RMW is about 2-3 times more costly to dispose of than regular solid waste. Hazardous waste (Mercury) is 6-10 times more costly to dispose of. Also, the Centers for Disease Control (CDC) suggests that only 2-3% of hospital medical waste truly needs to be disposed of as infectious Red Bag hazardous materials.

There’s lots of misinformation in the world of infection control and in our profession. However, some factual info can be quite useful and know the difference. Don’t believe everything you hear and rely on facts and reliable sources.
- CDC
- Current text books
- AARC Clinical Practice Guidelines
- Pubmed/Medline
- Reliable sources change, so keep current!

The guidelines for Hand Hygiene in Health-care Settings. MMWR 2002; vol. 51.

The Centers of Disease Control and Prevention -- http://www.cdc.gov

AARC.org

Egan’s Fundamentals of Respiratory Care, ed 10 2012.

Clinical Assessment in Respiratory Care, ed. 5, 2010.

Pubmed

Medline