Supporting Infection Control: Progress in a Tertiary Care Facility

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Getting an infection
Supporting Infection Control: Progress in a Tertiary Care Facility

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What do I want to convey

- HAI’s are real – w/ real cost $ and real changed lives
- Numerous vectors for HAI transmissions
- Prioritization of efforts must involve IP&C
- There is NO single path or route
Infection Control in Facilities

it’s a journey

(but not a trip over the falls!)
Life expectancy vs. health expenditure over time (1970-2014)

Health spending measures the consumption of health care goods and services, including personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration), but excluding spending on investments. Shown is total health expenditure (financed by public and private sources).

Data source: Health expenditure from the OECD; Life expectancy from the World Bank. Licensed under CC-BY-SA by the author Max Roser. The data visualization is available at OurWorldInData.org and there you find more research and visualizations on this topic.
The Basics

- IP&C
- HAI’s
- Construction & renovation issues
- Housekeeping/environmental services

Dr. Embil, IPC

We Are Better Together

Craig D., FM
Microbes, Bacteria & Viruses

- Microorganism - microscopic organism, especially a bacterium, virus, or fungus
- Microbes – usually applied when referring to a micro-organism which causes disease - pathogenic
- Bacteria – a single cell organism
- Viruses – a small organism which requires a host to live on (infect) in order to grow and live.
- Fungus - any of a group of unicellular, multicellular, or syncytial spore-producing organisms including molds, yeast, mushrooms, etc.
What am I cleaning for?

- Cleaning
- Disinfection
- Antiseptic
- Anti-microbial
- Anti-bacterial
- Microbicidal
Disinfection Methods:

• Chemical agents
  • Alcohols
  • Aldehydes
  • Halogens
  • Phenols
  • Surfactants
  • Heavy metals
  • Dyes
  • Oxidants

• Physical methods
  • Boiling
  • Pasteurization
  • Ultraviolet radiation
Factors that influence the degree of killing/disinfection:

- Types of organisms
- Number of organisms
- Concentration of disinfecting agent
- Presence of organic material (e.g., serum, blood)
- Nature (composition) of surface to be disinfected
- Contact time
- Temperature
- pH
- Biofilms
- Compatibility of disinfectants
Pssst! Hey kid! Wanna be a Superbug...? Stick some of this into your genome... Even penicillin won't be able to harm you...!

It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.
Not all are the same....

- **Bacterial spores**
  - *Clostridium botulinum* (causes botulism), *Clostridium tetani* (causes tetanus)

- **Mycobacteria**
  - *M. Tuberculosis* (causes tuberculosis), *M. leprae* (causes leprosy)

- **Small/Non-Enveloped Viruses**
  - *Rhinovirus A, B, C* (causes common cold), *Noroviruses* (causes gastrointestinal infections)

- **Fungi**
  - *Cryptococcus neoformans* (causes meningitis), *Stachybotrys chartarum* (black mold – causes respiratory damage)

- **Vegetative bacteria**
  - Gram positive: *Staphylococcus aureus* (causes skin infection), *Streptococcus pneumoniae* (causes pneumonia)
  - Gram negative: *Escherichia coli, Pseudomonas aeruginosa* (causes respiratory infections, dermatitis...)

- **Enveloped viruses**

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Back on track – IP&C and Facilities

- Challenges
- Compliments
- Cheats or Critical Thinking
Construction & renovation

• Develop with IP&C input - YOUR application of the CSA standard/guideline.
• Think critically
  – and teach your staff to think critically
Construction & renovation

• Think critically! Teach your staff to think critically!
Ongoing Activities

- Routine HVAC maintenance
  - Filters
  - Air flow
  - Duct & coil cleaning

- Surface maintenance
- Ceiling spaces
- Plumbing Systems & Water testing
Cleaning (and disinfection)

- Correct frequency
- Effective products
- Properly applied
Complimentary cleaning devices
more complimentary cleaning devices
Final complimentary device
Complimentary built environment
Or Engineered Infection Prevention (to steal Class 1 line)
more complimentary built environment
Self Cleaning Toilets......

Clean enough to.......
Training & Orientation

• Clinical Management
• IP&C
• Housekeeping
• Maintenance
• Contractors
You’ll Like Clean Hands

I Am Soapy
Outcomes?
Adding on to the journey

• Ebola
• Level IV pathogens
Questions, queries, quibbles?

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• **Brief summary**

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• Today’s hospital facility manager have -what appears to be - hundreds of priorities, codes and standards to follow and ultimately solutions and approaches to address infection control issues. What then are the priorities? How do we engage with IC? What codes and standards should we follow? How do we keep up and train our staff? With so many solutions and approaches available in industry - how do I evaluate, choose, fund and implement the right ones? And to all of this – what is the real outcome? Come on a whirlwind journey (not over the falls) where HSC has jointly worked with and alongside our infection control team to navigate with some good (and celebrated) success.

• **Session Objectives:**

• Understand how various infection control strategies employed by facility managers should be assessed.

• Identify the many options and approaches to supporting infection control

• Prioritize along with infection control which strategies should be employed.