



Bending The Rules Without Breaking the Principles

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- Jim is still employed by Diversey. His expenses to attend this meeting (travel, accommodation, and salary) are paid by this company. Diversey has had no input into this presentation from a commercial interest.



Objectives

- Talk about what we do for a living
- Discuss Standards, Guidelines, Best Practices!
- Some 'sort of real' stories (the names have been changed...)



Infection Prevention and Control

- Who are we?
 - Nurses
 - MLT
 - Public Health
 - Epidemiologists
 - ID Physicians
 - Microbiologists



Why Do We Do What We Do?

- Ain't the money, Honey
- Keen, inquiring minds?
- Save lives?
- Fixation on feces, or other filth?
- Love auditing performance?
- Always wanted to be the 'hygiene police'?





Infection Control

Art
Or Science ?



Art vs. Science

- Science becomes art when you exceed the boundaries of set rules or explicit instructions and run on instinct
- Anyone can follow a set of rules, it takes an artist to make that object or action artful and graceful



Gut Instinct

- Going for a walk
- Checking e mails before going home
- Not saying anything and letting them work it out



Breaking the Rules





Definition – Regulation

- A rule that we must follow
- Rules that the government make under an Act
- Both Provincial and Federal Acts



Code of Federal Regulations (CFR) USA

- The codification of the general and permanent rules and regulations (administrative law) published in the *Federal Register* by the executive departments and agencies of the federal government of the United States
- Divided into 50 titles



Definition - Standard

- Document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose



Standard

- Typically refer to how to do a job
- Not written by government
- Have no authority on their own, but may be adopted into regulations making them legal requirements



'Shall'

- Is used to express a requirement, i.e. a provision that the user is obliged to satisfy in order to comply with the standard



'Should'

- Is used to express a recommendation or that which is advised but not required



'May'

- Is used to express an option or that which is permissible within the limits of the standard



'Can'

- Is used to express possibility or capability



Guideline

- Any document that aims to streamline particular processes according to a set routine
- By definition, following a guideline is never mandatory (protocol would be a better term for a mandatory procedure).



Guideline for Disinfection and Sterilization
in Healthcare Facilities, 2008

MMWR[™]

Morbidity and Mortality Weekly Report

Recommendations and Reports

December 30, 2005 / Vol. 54 / No. RR-17

Guidelines for Preventing the Transmission
of *Mycobacterium tuberculosis*
in Health-Care Settings, 2005



MMWR[™]

Morbidity and Mortality Weekly Report

Recommendations and Reports

August 4, 2006 / Vol. 55 / No. RR-11

**Sexually Transmitted Diseases
Treatment Guidelines, 2006**



Best Practice

- Are generally-accepted, informally-standardized techniques, methods, or processes that have proven themselves over time to accomplish given tasks.

Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices

In All Health Care Settings, 3rd edition

Routine Practices and Additional Precautions

In All Health Care Settings, 3rd edition

Best Practices for Hand Hygiene

In All Health Care Settings, 4th edition



PIDAC Best Practice Disclaimer

- The best practices in this document reflect the best evidence and **expert opinion** available at the time of writing. As new information becomes available, this document will be reviewed and updated.



PIDAC Best Practice 2012

- PIDAC-IPC's work is guided by the best available evidence and updated as required. Best Practice documents and tools produced by PIDAC-IPC reflect **consensus positions** on what the committee deems prudent practice and are made available as a resource to public health and health care providers.



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Ministry of Labour – Ontario

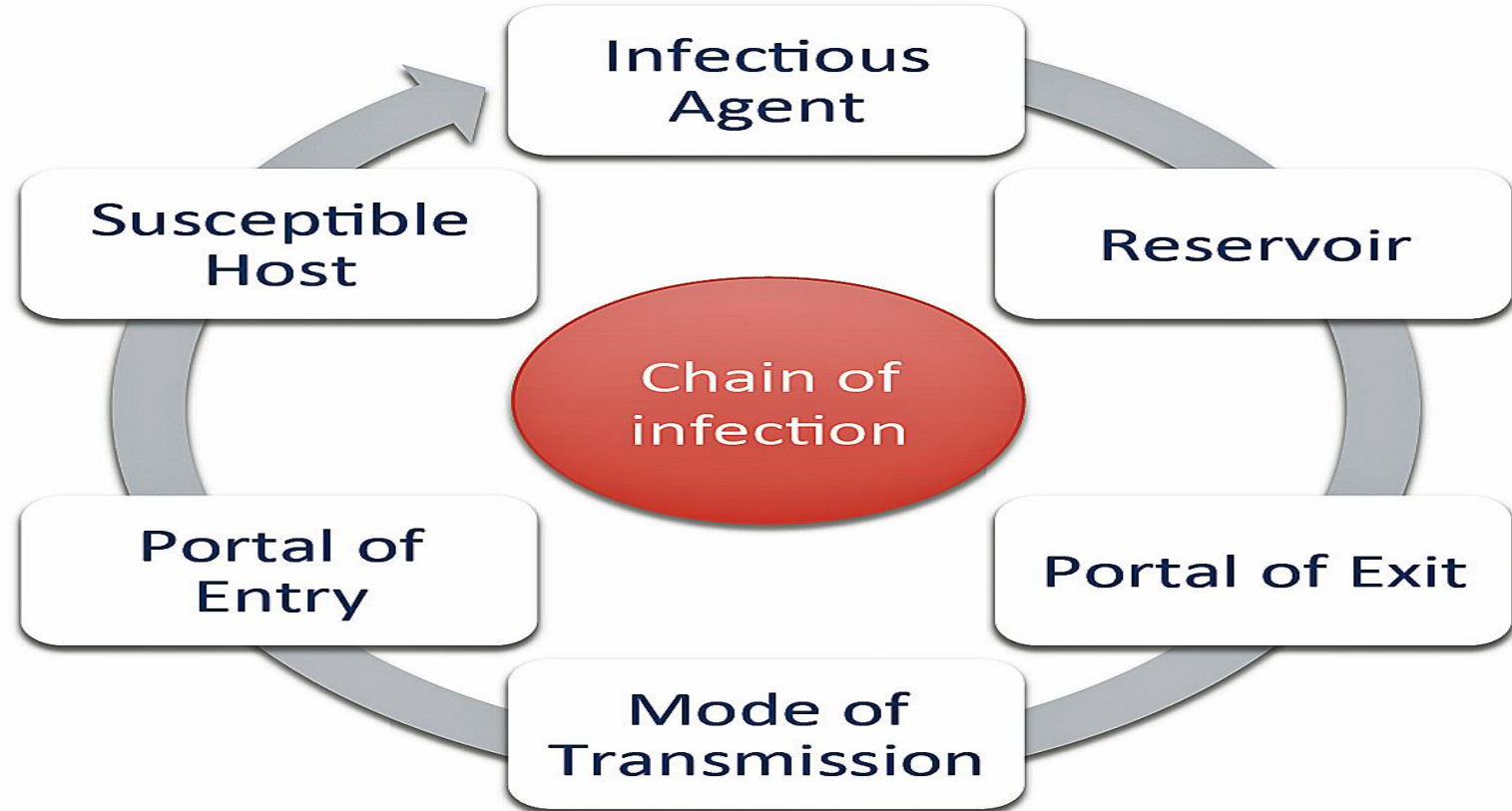
- Performance based
 - “an employer shall take every reasonable precaution to protect...”
- Much of Infection Prevention is basis of reasonable precautions
- Common sense NOT a defense
 - Needs to be elevated in healthcare
- PPE – needs to be available



Guiding Principle – Infections

- What is our cornerstone?

Chain of Transmission

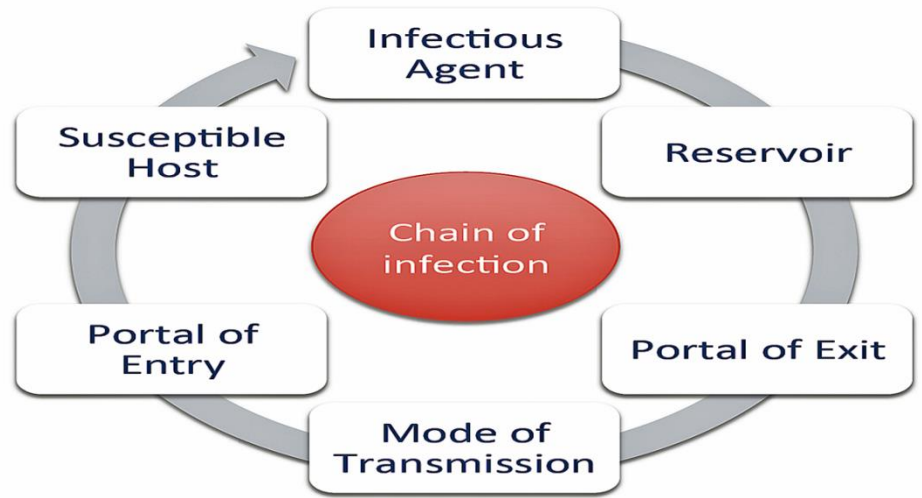




Questions

- Are all the links there?
- Need all six!

Chain of Transmission





Questions?

- Would it be easy to break one link, or more?
- Hand Hygiene
- PPE
- Cleaning and Disinfection

Toilets and urinals flushed
with reclaimed water

DO NOT DRINK





Examples – Outbreaks

- Etiologic Agent
 - Asymptomatic
 - Symptomatic
 - Incubation Period
 - Prodromal Period



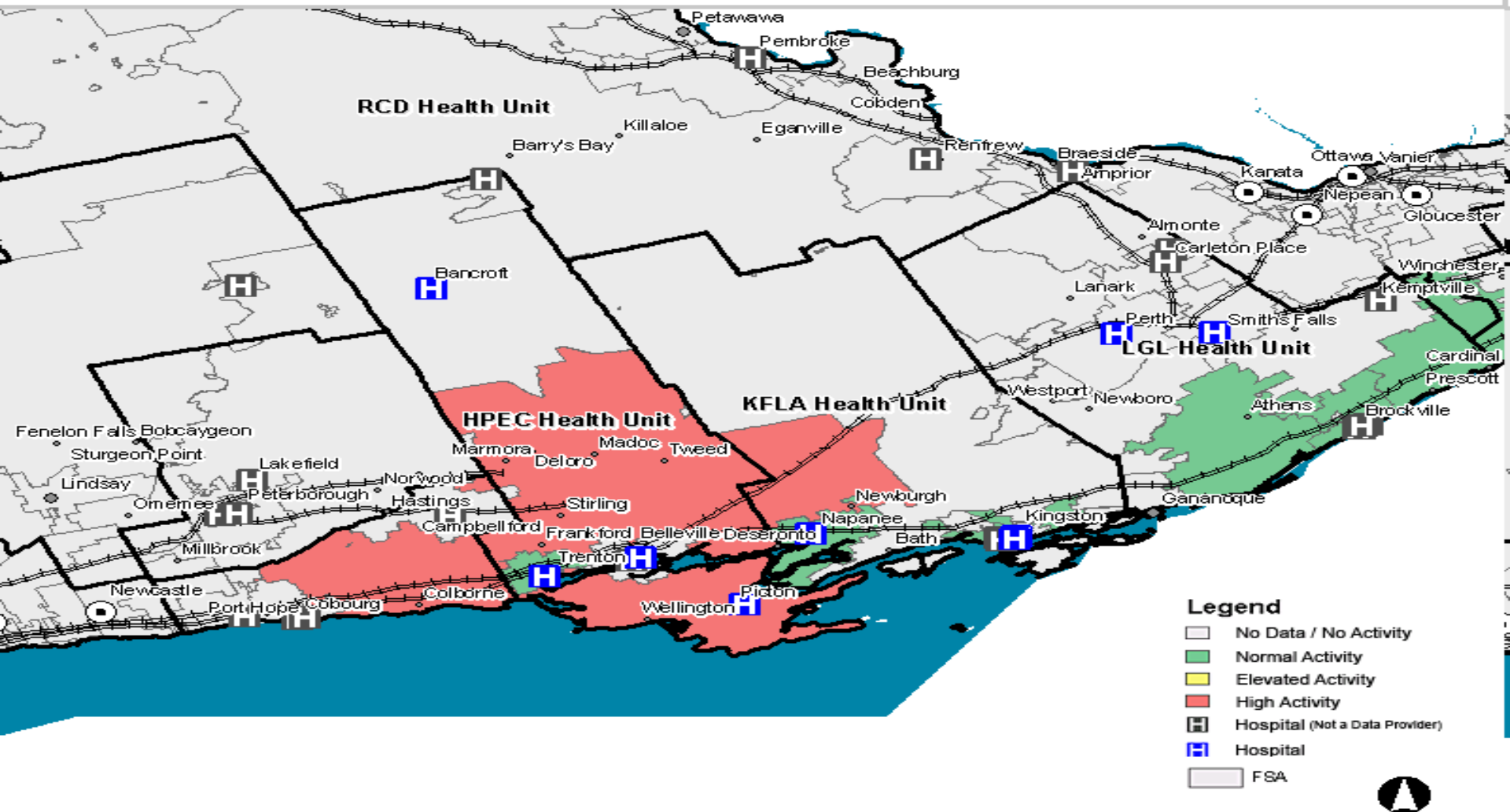
Risks

- To themselves
- To others on the wards
- To other wards (off the ward)



Norovirus

- Outbreak at Long Term Care facility
 - Traditionally limit the movement of patients/residents and staff
 - Exposed, asymptomatic
 - 60th wedding anniversary
 - Tommy Hunter in town!





Risks

- To themselves
 - Pick up community Norovirus
- To others
 - Become symptomatic in community with Norovirus



Behavioral Health Considerations

- Isolation and Mood Issues
 - Norovirus-ish symptoms on open ward
 - Possibly environmental odor sensitivities
 - Patients very aware of their grouping for getting off ward
 - Borderline Code White



Long Term Care

- Norovirus outbreak
 - Second Incubation period
 - St. Patrick's Day!





Risks - MRSA

- Continent, Compliant
- Other patients/staff
- Future discharge issues



Let's Bend Some Rules!





A New Study with Improved Hydrogen peroxide (IHP)

Yale
NewHaven
Health

Yale New Haven
Hospital



John M. Boyce, MD



Study Design

- 12-month prospective trial with cross-over design conducted on two campuses of a university-affiliated hospital
- The 4 study wards included
 - An MICU and its step-down unit on one campus
 - Two general medical wards on the other campus



Study Design

- On each campus, 2 wards were randomized to have EVS perform routine daily cleaning/disinfection of surfaces
- Quat disinfectant, applied using meltblown polypropylene and added bleach for CDI rooms
- IHP disinfectant wipes containing 0.5% IHP ONLY
- After the initial 6 months, ward assignments were changed



Results

- Mean Aerobic Colony Count / surface after cleaning
 - On IHP wards (14.0 CFUs/surface)
 - On Quat wards (22.2 CFUs/surface)

(p = 0.003)



Results

- Logistic regression analysis revealed that the proportion of surfaces yielding no growth after cleaning
 - On IHP wards (240/501 [47.9%])
 - On Quat wards (182/517 [35.2%])
($p < 0.0001$)
- **Both microbiological outcomes favored IHP over Quat**

Healthcare Outcome	IHP Wards (10,741 Pt. Days)	Quat Wards (11,490 Pt. Days)
	Cases (Rate per 1000 pt. days)	Cases (Rate per 1000 pt. days)
VRE Acquisitions + BSIs	59 (5.49)	75 (6.52)
MRSA acquisitions + BSIs	21 (1.95)	32 (2.78)
<i>C. difficile</i> infection	6 (0.56)	12 (1.04)
Composite Outcome	86 (8.0)	119 (10.4)

23% fewer cases/1000 Pt-days on IHP wards



Confounders

- Hand hygiene compliance rates comparable on study wards
- Antibiotic usage: Non-*C. difficile* agent use was 10.8% higher on IHP wards which would be expected to lead to more VRE, MRSA and CDI outcomes, not fewer as observed



Routine Practices

- Our Rule
- Our Principle
- Our guiding light
- Do we need to remind people?

WARNING!!

This patient has:

- Skin!
- Feces!
- Mucous Membranes!

PERFORM HAND HYGIENE AFTER CONTACT WITH THIS PATIENT OR THEIR ENVIRONMENT!

Hi Healthcare
Person

I have

**Skin, Feces and
Mucous
Membranes!**

Please sanitize your
hands after contact
with me or my
surroundings



Contact Precautions

- Principles
 - Sound or not?
 - Heightened awareness when we KNOW!
 - Medical student comment:
 - “If I do Routine Practices the way you indicate, why do we need Contact Precautions?”

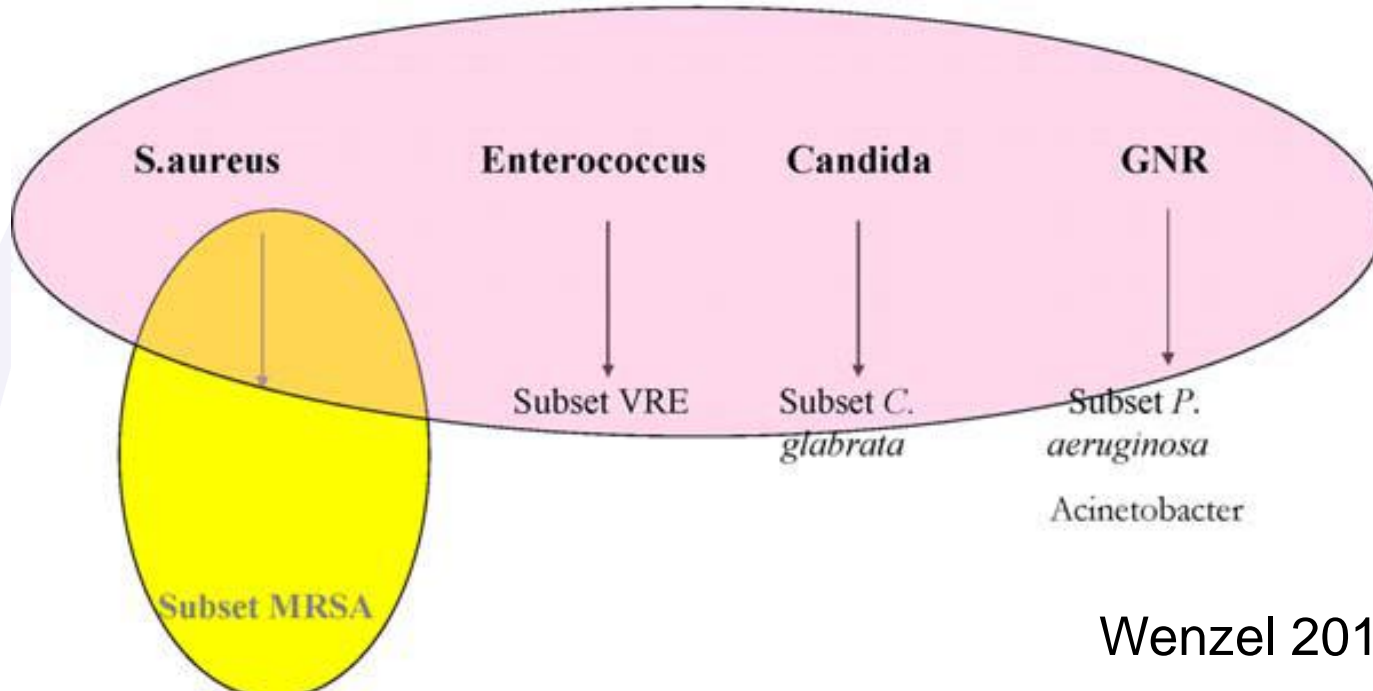
CONTACT PRECAUTIONS

- WE JUST FOUND OUT THAT THIS PATIENT HAS A BUG THAT COULD BE CARRIED TO THE NEXT PATIENT.
- NOW WE REALLY MEAN YOU HAVE TO PERFORM HAND HYGIENE AND TRY NOT TO SOIL YOUR UNIFORM!
- WE ARE NOT SURE ABOUT THE GUY NEXT DOOR, YET, SO DO WHATEVER YOU WANT!



Horizontal vs Vertical Infection Control

Controlling Healthcare Associated BSI: Vertical vs Horizontal Approach





Jim's Theorem of Isolation

- The degree of attention to precautions is directly proportional to the mystique or fear of the organism
 - MRSA
 - Pandemic H1N1
 - MERS-CoV
 - SARS
 - CRE
 - Ebola



SARS





Ebola





Jim's Addendum

- The mystique of the organism is inversely proportional to the amount of information staff retain about Routine Practices!



In a Nut Shell

- If they are leaking, protect yourself and limit their movement
- If it is dirty or you used it, clean it!
- 20 Words!



Leaking

- Vomit
- Diarrhea
- Uncontrolled nasal secretions
- Wound drainage with frequent dressing changes required



Limit Their Movement

- Isolation or Additional Precautions
- Contact
- Droplet



Airborne

- In my opinion, really the only precaution we need
- N95 Respirator/PAPR
 - Science here is also a bit sketchy!
- Airborne Infection Isolation Room (AIIR)



Protect Yourself

- Gloves
 - Blood
 - Body Fluids
 - Excretions
 - Secretions
 - Equipment that is soiled by above



Exposure or
Potential
Exposure



Protect Yourself

- Face Protection
- Mask, Mask with attached eye shield, Visor
 - Risk of splash or spray
 - Irrigation
 - Cough
 - Trach care





Protect Yourself

- Gowns
 - Risk of splash or spray
 - Bathing patients
 - Anything to do with feces





If it is Dirty or You Used It

- Hands
- Equipment
 - Vital tower
 - Bladder Scanner





Clean It!

- Point of Care Disinfection
 - Readily available
 - To all staff
 - 0/0/0 HMIS rating





Summary

- What do you think? Art or science?
- Case by case is always necessary, in some cases!
- Keep the Chain of Transmission in your mind's eye
- Get people to understand simple Routine Practices



Summary

- I think it is okay to bend...without breaking the previous thoughts!





References

- Boyce JM, et al. Prospective cluster controlled crossover trial to compare the impact of an improved hydrogen peroxide disinfectant and a quaternary ammonium-based disinfectant on surface contamination and health care outcomes. *Am J Infect Control* 2017;45:1006-10
- Wenzel RP et al. Infection control: the case for horizontal rather than vertical interventional programs. *Int J Infect Dis* 2010;14S4:S3-S5



tions?



Additional Resources

- www.sdfhc.com/CE
 - Introduction to Microbiology
 - Breaking the Chain of Infection
 - The Dirty Dozen – Key Pathogens
 - What can go Wrong with Cleaning and Disinfection
 - Are You Addressing the Risk?
 - Using a Sporidical Agent Everywhere is NOT the Solution to CDI



Additional Resources

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