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# SCIENCE OF COMPLIANCE

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# Objectives

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## ▲ Describe the Impact of Non-Compliance with Horizontal Infection Prevention Measures

- Environmental Hygiene
- Hand Hygiene

## ▲ Discuss Behavior Models and Methods to Promote Compliance

- Human Behavior Models and Compliance
- Traditional Methods to Improve Compliance
- Behavior Modification

## ▲ Review Methods to Measure Compliance

- Environmental Hygiene
- Hand Hygiene

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# **HORIZONTAL INFECTION PREVENTION MEASURES: IMPACT OF NON-COMPLIANCE**

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# Strategic Approaches to Infection Prevention

	Vertical	Horizontal
<b>Goal</b>	Pathogen-based: Reduce infection or colonization due to <b><u>specific</u></b> pathogen(s)	Population-based: Reduce <b><u>all</u></b> infections
<b>Application</b>	Selective	Generally universal
<b>Resources/Cost</b>	Typically high	Lower
<b>Examples</b>	MDRO active surveillance Nasal decolonization Isolation	Hand hygiene Environmental hygiene Care bundles

- Horizontal measures are consistent with patient need to avoid all infections, not just those due to a specific organisms
- Horizontal measures often require modification of behavior of healthcare workers

# Increasing Patient and Staff Safety

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**Horizontal  
Approach to  
Infection  
Prevention**

**Successful Hand  
Hygiene**

**Effective  
Environmental Hygiene**

# Continuous Flow of Pathogens from Patient to Health Care Worker

Patients with pathogens (e.g., MRSA, VRE, *C. difficile*) contaminate environmental surfaces near them

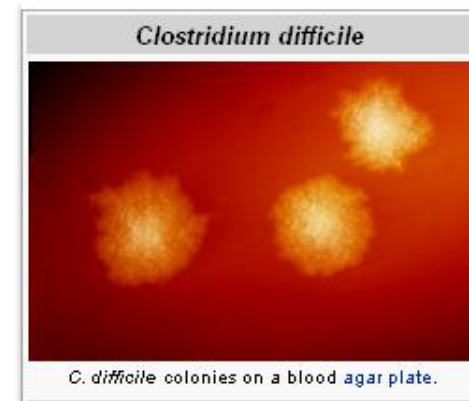
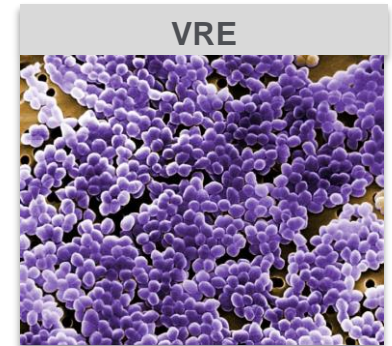
These pathogens become a source from which healthcare workers contaminate their hands or gloves

Contaminated environmental surfaces can contribute to the spread of HAIs



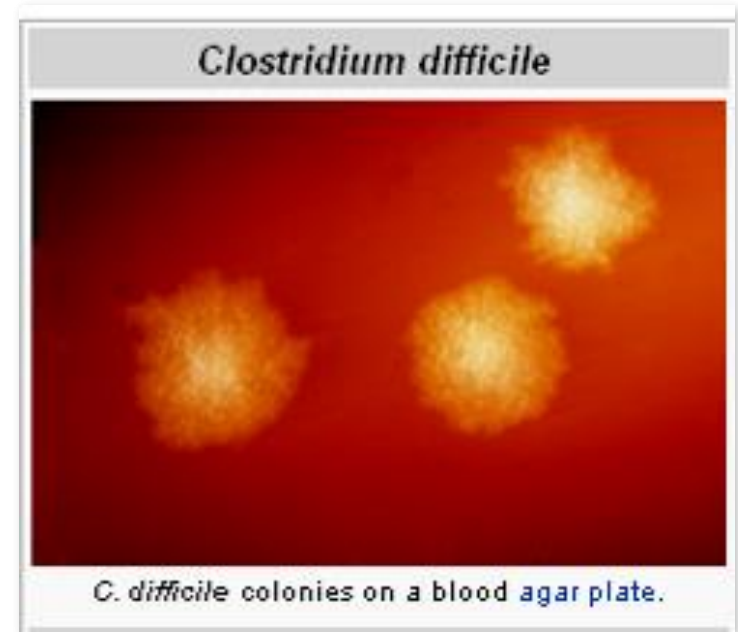
# Pathogens Survive on Environmental Surfaces

Pathogen	Presence on Surfaces
C. difficile	> 5 months
Staphylococci	7 months
VRE	4 months
Acinetobacter	5 months
Norovirus	3 weeks
Adenovirus	3 months
Rotavirus	3 months
SARS, HIV	Days to week

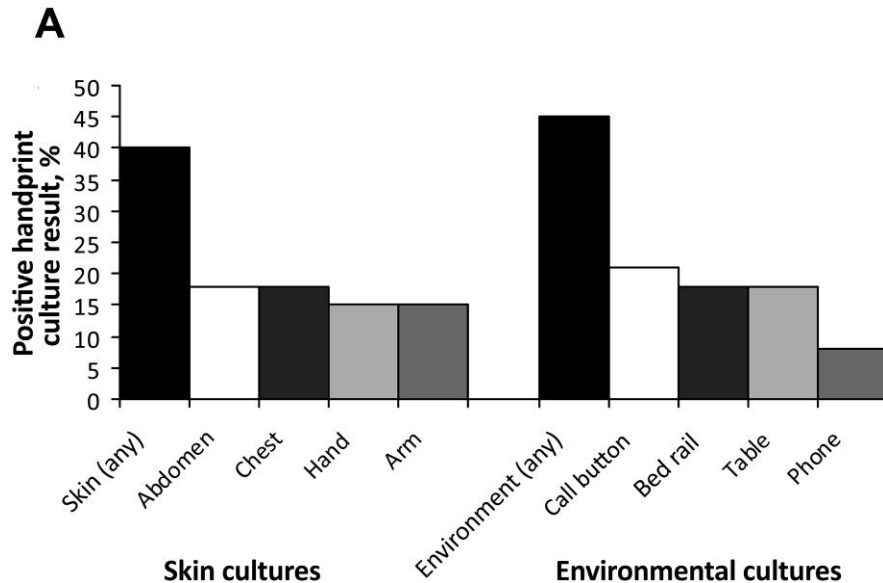


# Survival of *Clostridium difficile* Spores in the Environment

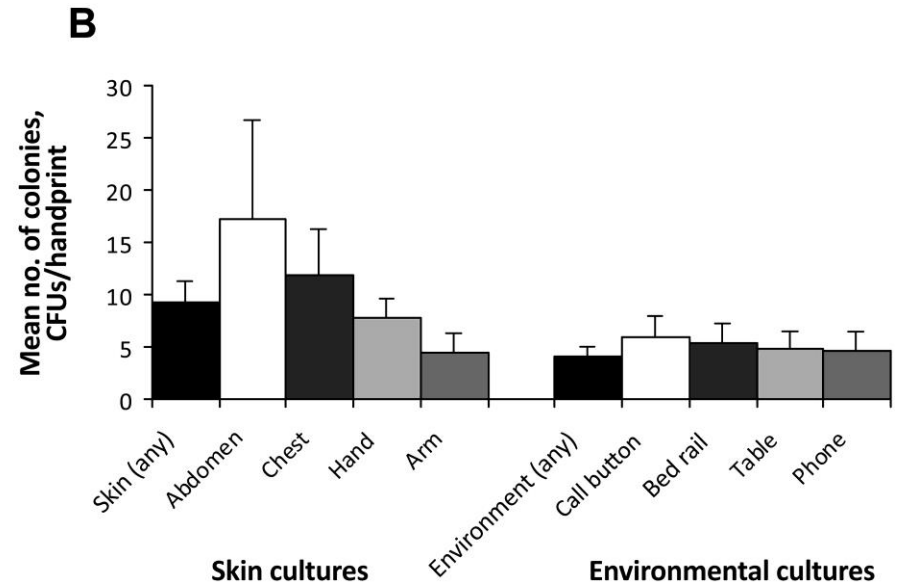
- ▲ Incidence and severity of *C. difficile* disease has increased dramatically
- ▲ Mulligan et al. found *C. difficile* on environmental surfaces **40 days** after an affected patient left the room



# Contamination of Hands with MRSA after Contact with Environmental Surfaces and Skin Colonized Patients



Hand contamination was equally likely after contact with touched environmental surfaces and skin sites



No significant difference in mean number of CFU's per gloved hand after contact with skin and environmental sites

# Link Between Environmental Contamination and Hand Contamination

- ▲ HCWs who have no direct contact with an affected patient, but touch bedding or objects in room may contaminate hands

Environmental Sites Positive	Percent of HCWs with Hand Cultures Positive for <i>C. difficile</i>
0	0/25 (0%)
1-25	0/11 (0%)
26-50	1/12 (8%)
> 50	9/25 (36%)

The more surfaces that are contaminated, the more likely HCW hands will be contaminated

# Transmission of MRSA from Environmental Surfaces to Hands of Healthcare Workers (HCWs)

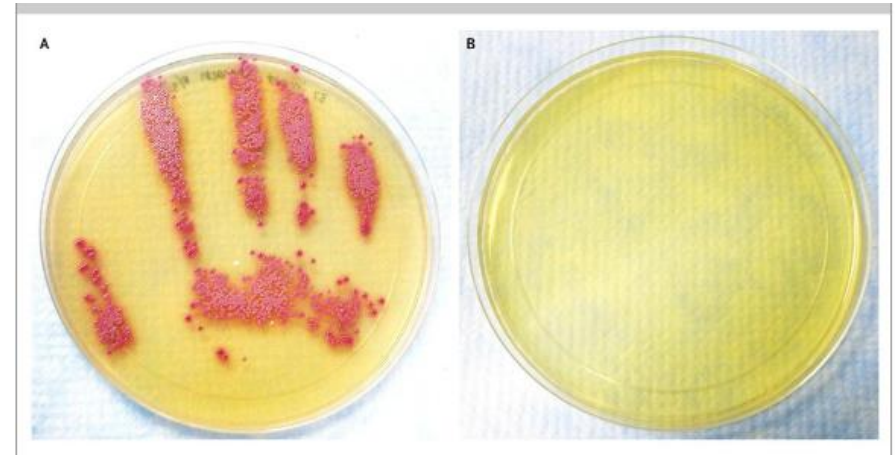
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- ▲ In one study, 42% of nurses who had no direct patient contact, contaminated their gloves by touching objects in the rooms of patients with MRSA
- ▲ Volunteers touched bed rails and overbed tables in rooms of patients not in Contact Precautions
  - 31% of hand imprint cultures yielded *S. aureus* (35% = MRSA)
- ▲ Volunteers touched bed rails and overbed tables in unoccupied rooms that had been terminally cleaned
  - 7% of hand imprint cultures were positive for *S. aureus*

HCW Hands are contaminated even when no direct patient contact occurs

# Efficacy of Alcohol-Based Hand Sanitizer: Impact of Human Behavior

- Health care worker's ungloved hand was cultured after the worker had performed an abdominal examination of a patient colonized with MRSA in his nares
- The MRSA colonies grown from this handprint show the outline of the worker's fingers and thumb
- After the worker's hand had been **cleaned with alcohol foam**, another hand imprint was obtained and the resulting culture was negative for MRSA



These images illustrate the critical importance of hand hygiene in caring for patients, including those not known to carry antibiotic-resistant pathogens.

MRSA is susceptible to alcohol-based hand rubs

# Efficacy of Cleaning/Disinfection: Impact of Human Behavior

- Failure to remove MRSA from environmental surfaces is most likely due to:
  - Failure to clean the surface
  - Failure to apply detergent/disinfectant for adequate contact time
  - Failure to apply disinfectant at proper concentration
  - Disinfection attempted without cleaning

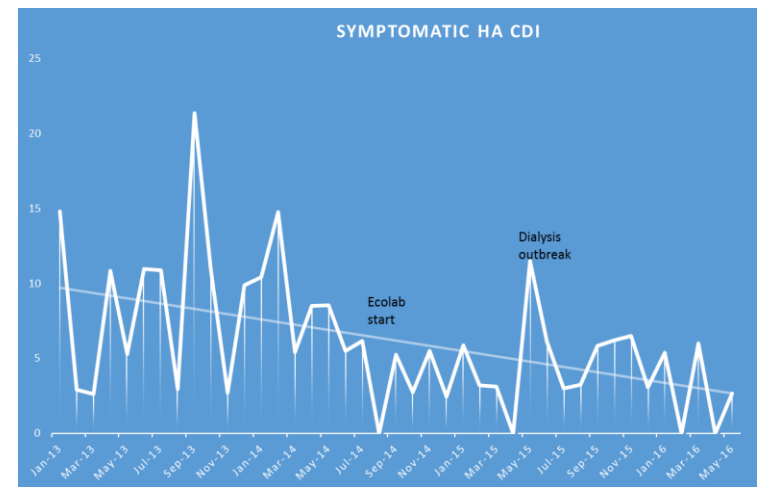


MRSA is susceptible to in-use concentrations of  
EPA-approved hospital disinfectants

# Evidence That Environmental Cleaning Can Reduce Transmission of *C. difficile*

- During an **outbreak** of CDAD, disinfecting environmental surfaces with 1:100 dilution of hypochlorite decreased contamination to 21% of initial levels, and halted the outbreak
  - Kaatz GW et al. Am J Epidemiol 1988; 127:1289
- Environmental monitoring, housewide **daily** use of hydrogen peroxide/peroxyacetic acid and EVS staff training decreased hospital-onset *C. difficile* SIR from 1.629 to 0.667 in 6 months
  - Allen, VG, Scott MG, Yoder BA et al. Abstract presented at APIC Annual Conference 2015

*C. difficile* is susceptible to in-use concentrations of EPA-approved hospital sporicides



# Environmental Contamination

There is a continuous flow of pathogens between patients, healthcare worker and the environment

Disinfectants and hand sanitizers/soap are effective if used correctly

Q: So why do we still have a problem?

A: People!



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# **PROMOTING COMPLIANCE: SOCIAL COGNITIVE MODELS**

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# Social Cognitive Models for Health Behavior

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## ▲ Health Belief Model<sup>1</sup>

- *Threat*
- Developed to explain why some people do not use health services such as immunization and screening
- A person will be more likely to adopt the recommended action if **perceived high susceptibility, high severity, high benefits and low barriers**

## ▲ Protection Motivation Theory<sup>1</sup>

- *Threat*
- *Behavioral control*
- A person will be more motivated to protect himself or herself (i.e., adopt the recommended action) if he or she believes that the **threat is likely**, the **consequences will be serious**, the **recommended action is effective** and that he or she is **able to carry out the recommended action**

## ▲ Self-Efficacy Model<sup>1</sup>

## ▲ Theory of Planned Behavior<sup>1</sup>

## ▲ Health Locus of Control<sup>2</sup>

1. Sutton S. Psychosocial Theories. 2002

<http://userpage.fu-berlin.de/~schuez/folien/Sutton.pdf>

2. Brincks AM, Feaster DJ, Burns MJ et al.

The Influence of Health Locus of Control on the Patient-Provider Relationship.

Psychol Health Med. 2010 Dec; 15(6): 720–728.

# Health Belief Model: Influencing Behavior

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- ▲ Perceived susceptibility
- ▲ Perceived seriousness
- ▲ Cues to action (internal, external)
- ▲ Perceived benefits
- ▲ Perceived barriers
- ▲ Self-efficacy
- ▲ Social pressure
- ▲ Intention to perform action



# Perceived Susceptibility

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- ▲ Self-opinion of the likelihood of acquisition of a disease

Is this patient at risk of infection?



# Perceived Seriousness

- ▲ Self-opinion of how serious a condition and its sequelae are



Is this guy really that vulnerable?

# Cues to Action

- ▲ Strategies to activate readiness to act
- ▲ Human Factors Engineering



Alcohol gel is right in front of me – I'll use it!



The blue cloth is for the patient room

# Perceived Benefits

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- ▲ Self opinion of the ability of the advised action to reduce the risk or seriousness of impact



# Perceived Barrier

- Self-opinion of the tangible and psychological costs of the advised action

I don't want to touch anything that has a button or alarm



We don't have time for hand hygiene!



# Self-Efficacy

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- ▲ Confidence in self ability to take action



**I have the cleanest  
toilets in the hospital!**

# Social Pressure

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- ▲ The perceived social pressure to engage or not engage in a behavior



Someone will notice my exceptional compliance in using this hallway dispenser

# Intention to Perform Action

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- Individual's readiness to perform a given behavior



**I intend to  
foam in and out of  
the room every time;  
it's a habit for me**

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# PROMOTING COMPLIANCE: OTHER FACTORS

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# Factors Affecting Performance of Hand Hygiene

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- ▲ Role
- ▲ Time
- ▲ Distractions
- ▲ Accessibility
- ▲ Skin condition
- ▲ Gloves
- ▲ Education
- ▲ Products



# Role: Doctors vs Nurses

- ▲ Measured daily number of HH opportunities and compliance
- ▲ 21,450 HH opportunities from med/surg unit
- ▲ Nurses have 3 times more HH opportunities than physicians, yet have 1.5 times higher compliance than physicians



HH compliance in physicians cannot be explained by burden of HH opportunities

# Factors Affecting Environmental Hygiene

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- ▲ Education
- ▲ Time
- ▲ Recognition
- ▲ Tools
- ▲ Products



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# METHODS TO IMPROVE COMPLIANCE

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# Traditional Methods to Improve Compliance

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- ▲ Motivational Programs
- ▲ Administrative Measures
- ▲ Training

# Motivational Programs

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- ▲ Use real-life examples
- ▲ Have patients and families participate





David Williamson Milne

On October 30, 2005 David Williamson Milne passed away at Kingston General Hospital after a battle with hospital-acquired infections. He was loved and is deeply missed by many.

David Milne was the kind of person that you got to know, and like, quickly. His friends were among society's small and society's great, and he treated each with equal respect and appreciation. His Scottish humour and laugh were infectious. Even in his last days he could make us laugh.

His family was the joy of his life and sustained him throughout. As the youngest of a large Manitoba farm family, he was his mother's joy and primary recipient of her loving largess. He wedded his first love and childhood sweetheart, Catherine, who followed him from posting to posting, with one a n d then two children, Catherine Jr. and Jacqueline.

As a long-service pilot in the Canadian Armed Forces David Milne's life was not without risk, but risk balanced in an equation with skill. His heart surgery was a risk, but it was balanced against the outstanding skill of Dr. Hamilton at Kingston General Hospital. The surgery was successful and Dave's recovery was proceeding well, thanks to the care of KGH staff. Unfortunately, a series of hospital-acquired infections set back his progress and ultimately caused his premature passing.

Every year hospital-acquired infections cause or contribute to the death of more people than breast cancer, heart disease, and car accidents combined. Most of these infections are initiated by otherwise caring healthcare workers who forget or neglect to clean their hands. And for each of those who, like our friend David, succumb to one of these unnecessary infections there are many more who ache for their loss. These are not numbers on month-end reports. These are our fathers, our mothers, our children and our dear friends who are dying prematurely because of unclean hands. The little bit of extra time that it takes for healthcare workers to wash or to use an alcohol sanitizer is pittance compared to the waste of so many productive, loved and loving lives.

In honour and memory of David Williamson Milne a donation will be made in his name to the Community and Hospital Infection Control Association of Canada. His family and extended group of friends openly urge those at Kingston General Hospital as well as healthcare workers everywhere to clean their hands before and after every patient contact. It is absolutely a matter of life and death.

Farewell to a dear husband, father and friend.

“Every year hospital-acquired infections cause or contribute to the death of more people than breast cancer, heart disease, and car accidents combined. Most of these infections are initiated by otherwise caring healthcare workers who forget or neglect to clean their hands. And for those who, like our friend David, succumb to one of these unnecessary infections there are many more who ache for their loss. These are not numbers on month-end reports. These are our fathers, our mothers, our children and our dear friends who are dying because of unclean hands. The little bit of extra time that it takes for healthcare workers to wash or to use an alcohol sanitizer is pittance compared to the waste of so many productive, loved and loving lives.”

# Administrative Measures

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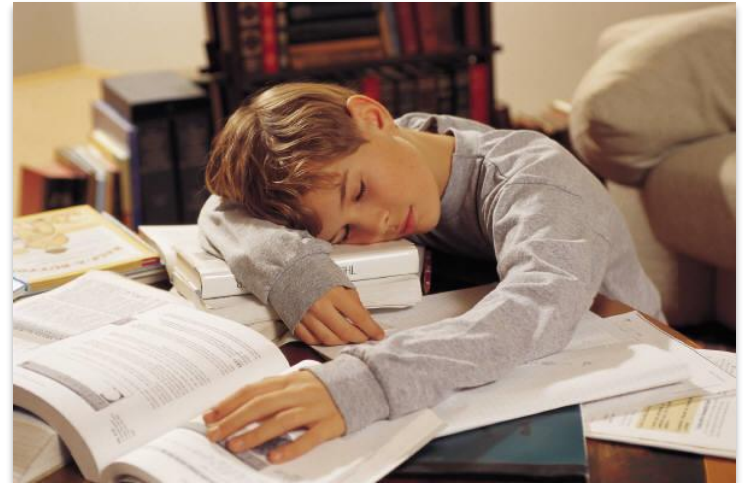
- ▲ Institutional Priority
- ▲ Facility-wide program implementation
- ▲ Monitoring and Feedback



# Training

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- ▲ Training, re-training, and training again!
- ▲ Educational Programs
  - **WHO** expects them to follow hygiene practices
  - **WHAT** are the benefits of hygiene
  - **WHEN** hygiene is indicated
  - **WHERE** tools and products are located
  - **WHY** hygiene is important
  - **HOW** to perform hygiene practices



# Increasing Evidence to Support Behavior Modification Methods

- ▲ Rotating Signage
- ▲ Recognition Programs
- ▲ Positive Deviance
- ▲ Patient Empowerment
- ▲ Peer Mentors
- ▲ Endorsement by Authority Figures



# Behavior Modification: Recent Studies

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- ▲ Just 15% of staff and visitors washed hands at a hospital
- ▲ An image of man's eyes boosted handwashing by 33%
- ▲ A citrus smell around the sanitizer saw 50% increase in handwashing



# Behavior Modification: Flashing Lights

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- ▲ Objective: To address the conspicuity of alcohol gel dispensers
- ▲ Affixed flashing lights to hand sanitizer dispensers for 6 weeks and compared compliance at beginning and end
- ▲ Flashing lights improved HH compliance from 11.8% to 20.7%. This effect was unchanged over 6 weeks.
- ▲ Brighter lights were more effective.



# Human Factors Engineering

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- ▲ The inter-relationship between humans, the tools they use, and the environments in which they live and work



# Human Factors Engineering

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- ▲ Medical profession sometimes uses blame to encourage proper performance
- ▲ Personal responsibility and training are often the only solution
- ▲ **Design of the system is often overlooked**
  - Environment, organization, technology, task



# What Should We Do to Change?

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- ▲ Don't look at error in compliance as a human problem ... it is a systems problem
- ▲ Don't make it worse by punishing people ...this creates incentive to conceal mistakes
- ▲ Use technology and tools to enhance the task and make it safer; build in stop checks and affordances
- ▲ Analyze the near misses and accidents; learn from mistakes
- ▲ Create a culture of support



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# **COMPLIANCE MONITORING AND FEEDBACK**

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# Feedback Creates Accountability



**Creates**

**Feedback**

**Accountable  
People Who**

**Ask For &  
Offer**



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# **MEASURING HAND HYGIENE COMPLIANCE**

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# WHO Multi-Modal HH Improvement Strategy

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## Step 1: Ensure the preparedness of the institution

- Necessary resources in place
- Key leadership to head the program, including a coordinator and his/her deputy.
- Map out a clear strategy for the entire program.

## Step 2: Conduct baseline evaluation

- Hand hygiene practice, perception, knowledge, and infrastructure

## Step 3: Implement the improvement program

- Availability of an alcohol-based handrub at the point of care
- Staff education and training
- Well-publicized events involving endorsement and/or signatures of commitment of leaders and individual HCWs will draw great dividends.

## Step 4: Follow-up evaluation

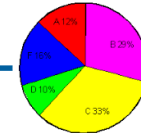
- Assess the effectiveness of the program

## Step 5: Develop an ongoing action plan and review cycle

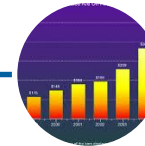
- The overall aim is to ensure hand hygiene is an integral part of the hospital culture.

# Hospitals Have Several Factors to Consider

## Choosing a Compliance Monitoring Program



HAI status  
(vs peers)



Hand Hygiene  
Initiatives



C-Suite  
Agreement



Cost per  
room or bed



Compatible  
IT Structure



Individual vs  
Group data

# Hospitals Need to Plan a Strategy Around Compliance

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## ▲ For accreditation, all hospitals must:

- Implement a program that follows CDC or WHO HH guidelines
- Set goals for improving compliance
- Improve compliance based on established goals

## ▲ Hospitals have different options:



### **Direct observation**

- “Secret shopper” method where HH moments are recorded by an observer



### **Product usage measurement**

- Manually or electronically track how much product is consumed



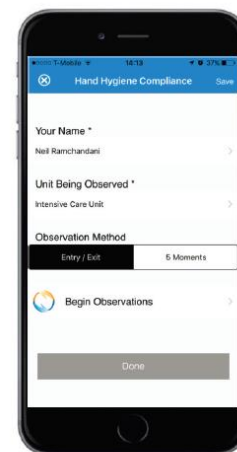
### **Electronic monitoring**

- Technology-enhanced solution that delivers specific data around who, where, and when HH events are performed

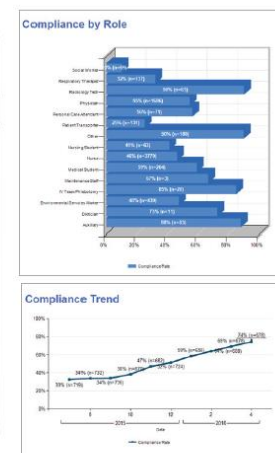
# Direct Observation

<b>Description</b>	<ul style="list-style-type: none"> <li>• Direct observation of hand hygiene practices.</li> <li>• May be manual (pen and paper) or technology assisted</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• The only method that can evaluate the "Five Moments for HH"</li> <li>• Considered gold standard method because it is the only method that directly measures HCW HH compliance</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Hawthorne effect, especially with manual method</li> <li>• Interobserver agreement can vary, thus requiring a great effort in training data collectors</li> <li>• Time intensive to observe and manually create reports</li> <li>• Short observation periods</li> <li>• Captures a fraction of HH opportunities</li> </ul>

## Technology-assisted Direct Observation



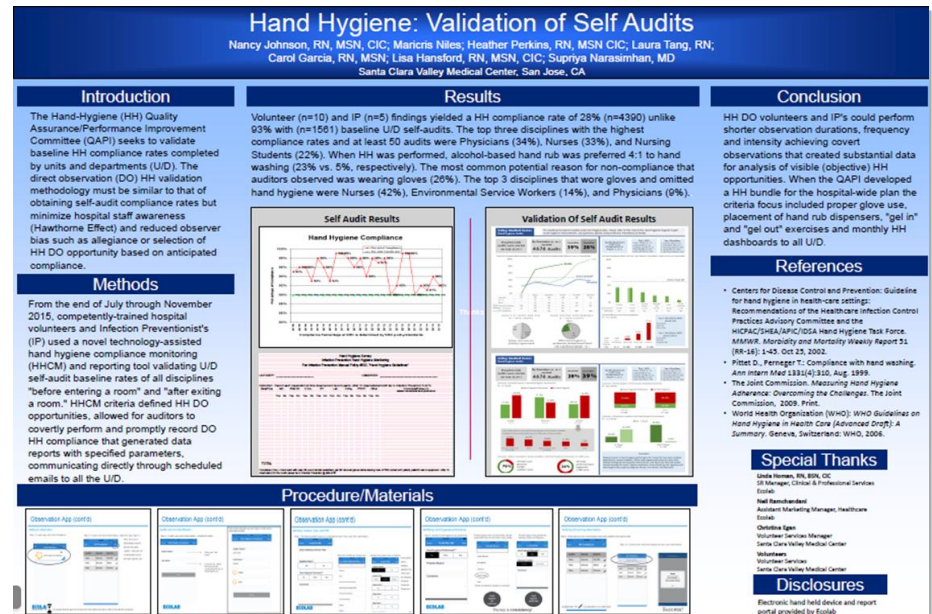
Data Collection Device



Customizable Reports

# Improvements in Direct Observation Tools

- ▲ New Hand Hygiene Observation Tools are more robust
- ▲ More covert, reducing Hawthorne Effect
- ▲ Monitor technique
- ▲ Monitor PPE compliance
- ▲ Secure reporting portal



# Measuring Product Use

<b>Description</b>	<ul style="list-style-type: none"><li>• Indirect way to measure hand hygiene compliance by measuring soap/ABHR consumption</li></ul>
<b>Advantages</b>	<ul style="list-style-type: none"><li>• Less resource intensive than direct observation</li><li>• Possible to do it manually or electronically</li><li>• Can be done in different hospital settings</li></ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"><li>• Not possible to distinguish HH practice among HCWs</li><li>• Does not measure specific moments from “Five Moments”</li></ul>



# Electronic Monitoring

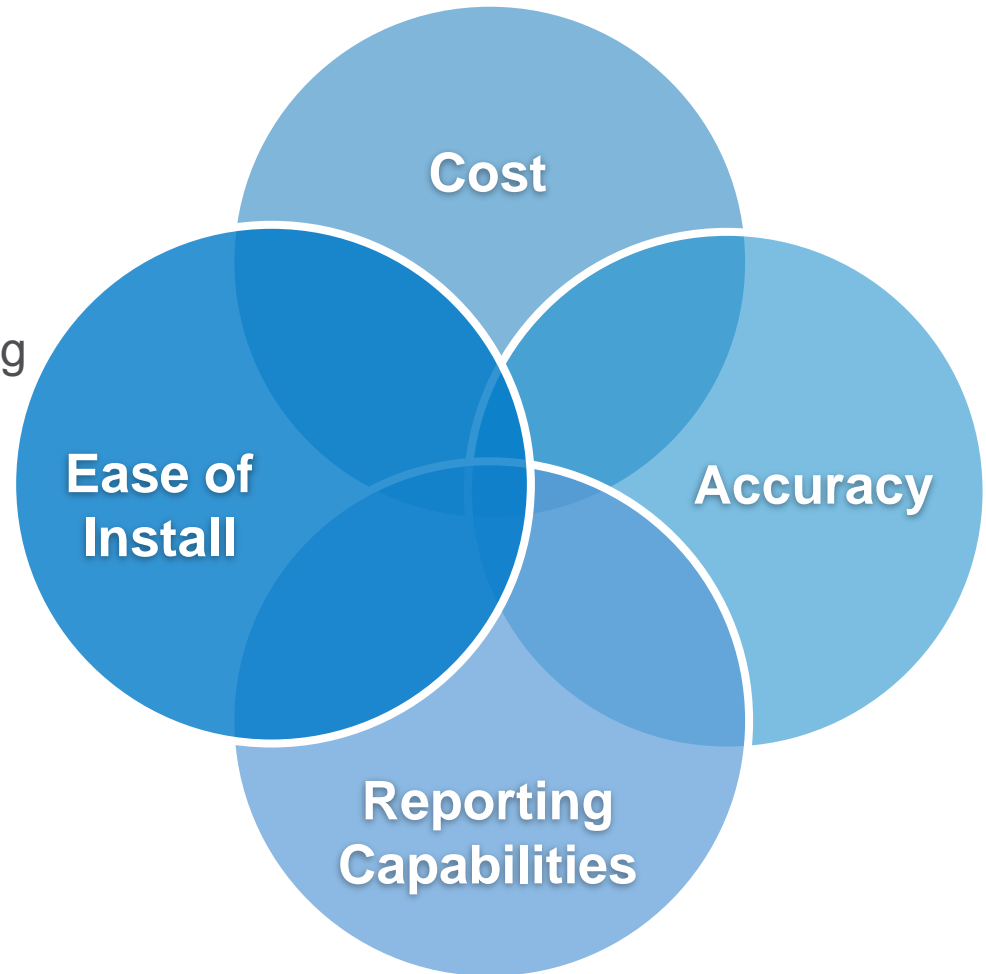
<b>Description</b>	<ul style="list-style-type: none"><li>• Several different types of electronic sensors using different technologies</li><li>• Real time locating systems</li></ul>
<b>Advantages</b>	<ul style="list-style-type: none"><li>• Designed to ensure that HCWs perform HH prior to patient care and may issue an automated notice to do so</li><li>• Promote real-time feedback to HCWs</li><li>• When integrated with a database, allow for automated reports</li></ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"><li>• Some technologies can be expensive with high maintenance costs</li><li>• Some technologies make it necessary to work closely with engineering to assess possible interference with existing equipment</li><li>• Some technologies connect to hospital network and may overload the network</li></ul>



# Evaluating Automated Systems

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- ▲ Cost
- ▲ Accuracy
- ▲ Reporting Capability
- ▲ Ease of Install
- ▲ Individual HCW vs Group Monitoring
- ▲ HH Moments Monitored
- ▲ Monitoring Area
  - Room vs Patient Zone
- ▲ Hospital IT Requirement
- ▲ Battery Life
- ▲ Maintenance



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# MEASURING ENVIRONMENTAL HYGIENE COMPLIANCE

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# CDC Toolkit: Options for Evaluating Environmental Cleaning - 2010

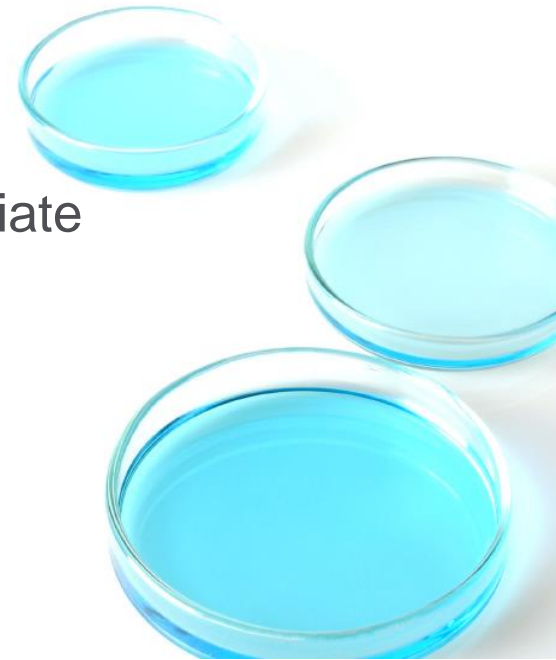
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- ▲ **Recommendations to optimize high touch surface cleaning:**
  - **Clean high-touch objects (HTOs)**
  - **Perform objective monitoring** of the thoroughness of disinfection cleaning of HTOs
  - **Provide continuous feedback** that drives focused education for ES staff
  - **Develop reports** documenting progress to share with staff, leadership and surveyors

# Quantitative Environmental Monitoring Methods

## ▲ Total Aerobic Bacteria Count

- Measure of amount and type of pathogens on a surface
- Reliable, specific results
- Outbreak investigation
- Pre-cleaning culture taken of HTOs
- Post-cleaning cultures taken to measure appropriate reduction of organisms (CFUs)
- At least 2 days before results available



\*Hayden MK, Bonten MJ, Blom DW, Lyle EA, van de Vijver DA, Weinstein RA. *Reduction in acquisition of vancomycin-resistant enterococcus after enforcement of routine environmental cleaning measures.* Clin Infect Dis. 2006 Jun 1;42(11):1552-60.

\*Goodman ER, Platt R, Bass R, Onderdonk AB, Yokoe DS, Huang SS. *Impact of an environmental cleaning intervention on the presence of methicillin-resistant Staphylococcus aureus and vancomycin-resistant enterococci on surfaces in intensive care unit rooms.* Infect Control Hosp Epidemiol. 2008 Jul;29(7):593-9.

\*Guerrero D, Carling PC, Jury L, Ponnada S, Nerandzic M, Eckstein EC, Donskey C. *Beyond the "Hawthorne effect": Reduction of Clostridium difficile environmental contamination through active intervention to improve cleaning practices.* Abstract 60. SHEA Fifth Decennial Meeting; Atlanta, GA; March 18-22, 2010.

# Quantitative Environmental Monitoring Methods

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## ATP (Adenosine Triphosphate) Measurement

### ▲ Measure of organic cellular material (ATP) on surfaces

- Pre-cleaning swab to measure baseline organic material
- Post-cleaning swab to evaluate organic material removal
- Provides quick results
- Can be used for teaching

Swab surface → Luciferase tagging of ATP → Hand-held  
luminometer

# ATP in Healthcare

## Designed for Industrial Use

- ▲ Developed in the 1970s for commercial food preparation
- ▲ Very clean stainless steel surfaces
- ▲ High-grade disinfectants + water flushing
- ▲ Testing immediately after cleaning and just before use is the standard
- ▲ Looking for “0” Relative Light Units (RLU)



## Healthcare Use

- ▲ Healthcare disinfection process does not completely remove dead organic material
- ▲ ATP measures all organic debris-microbial and non-microbial, live and dead
- ▲ Can't expect “0” RLU. An RLU standard has not been set to define clean versus contaminated surfaces in healthcare
- ▲ Surface contaminants may artificially increase or decrease RLU Readings
  - Bleach quenches the ATP reaction

# Qualitative Environmental Monitoring Methods

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## ▲ Visual Assessment

- **Measure of visible appearance of cleanliness**
- Traditional Environment of Care rounds
- Observations – overt or covert
- Limited to visible soil-can't see pathogens
- Can be subjective



Shiny floors ≠ Clean!

# Qualitative Environmental Monitoring Methods

## ▲ Fluorescent Marker

- Measure of cleaning process/thoroughness of cleaning
- Objective, accepted methodology
- Clear marker applied to HTOs after cleaning is completed
- Marker reviewed by auditor with black light after cleaning
- Removal of the mark is a “pass.” Intact or disturbed mark is a “fail”

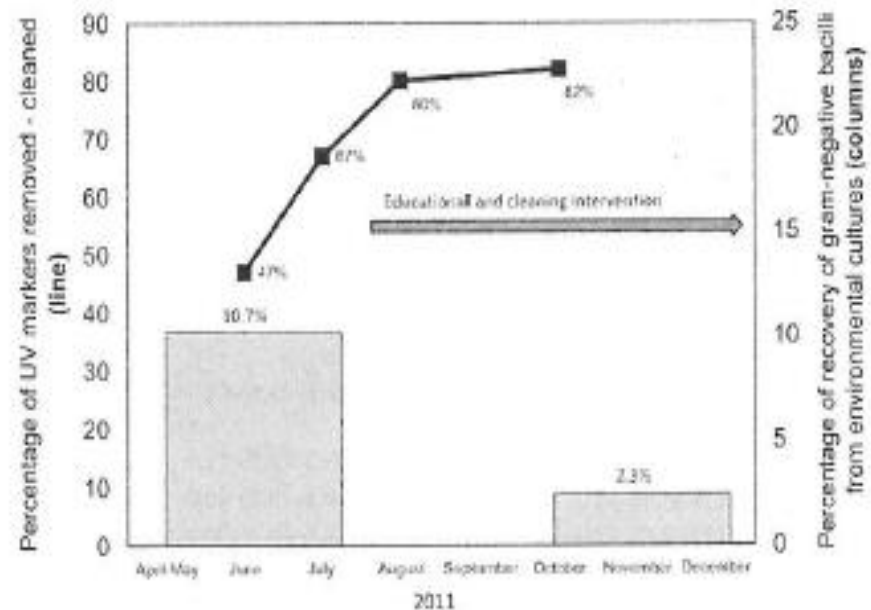


High Touch Object	Baseline	Q3 2014	Q4 2014	Change over Baseline	Trend
Anesthesia Cart	85%	95%	100%	15%	↑
Anesthesia Pole	85%	95%	100%	15%	↑
Back Table	20%	100%	100%	80%	↑
Cabinet Door	20%	100%	100%	80%	↑
Floor	20%	100%	100%	80%	↑
Hamper	20%	100%	100%	80%	↑
Light Glass Surface	20%	100%	100%	80%	↑
Light Side Handle	20%	100%	100%	80%	↑
Light Switch	20%	100%	100%	80%	↑
Magn Tray	20%	100%	100%	80%	↑
Monitor Equipment	20%	100%	100%	80%	↑
OR Door Handle	20%	100%	100%	80%	↑
OR Table Controls	20%	100%	100%	80%	↑
OR Table Mattress Top	100%	100%	100%	0%	→
OR Table Railing	20%	100%	100%	80%	↑
Table Strap	20%	100%	100%	80%	↑
Telephone	20%	100%	100%	80%	↑
Waste	20%	100%	100%	80%	↑
X-Ray Viewer	20%	100%	100%	80%	↑
<b>Total</b>	<b>28%</b>	<b>95%</b>	<b>100%</b>	<b>72%</b>	<b>↑</b>
Number of HTOs Tested	64	495	12	(52)	
Number of Audits Performed	5	42	1	(4)	
<span style="color: red;">Red: &lt; 75%</span> <span style="color: yellow;">Yellow: 75%-89%</span> <span style="color: green;">Green: 90%+</span>					

# Environmental Monitoring is Effective

## Decreasing Operating Room Pathogen Contamination Through improved Cleaning Practice

- ▲ Prospective environmental study using feedback with UV markers and environmental cultures
- ▲ Percentage of UV markers cleaned increased from 47% to 82%
- ▲ Recovery of gram negative bacilli from environment decreased from 10.7% to 2.3%
- ▲ **As cleaning improved, environmental bioburden decreased**



# Environmental Monitoring is Effective

## Environmental Cleaning Intervention and Risk of Acquiring Multi-Drug Resistant Organisms from Prior Room Occupants

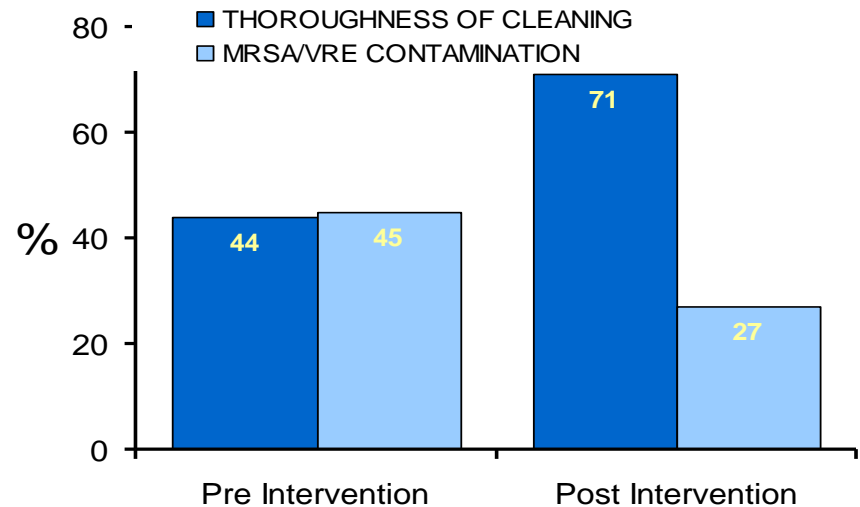
### ▲ 10 ICUs

### ▲ Targeted feedback

- Fluorescent marker
- Cleaning cloths saturated with disinfectant
- Increased education

### ▲ Acquisition was lowered

- 3.0% to 1.5% for MRSA
- 3.0% to 2.2% for VRE



# Summary

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- ▲ Hand Hygiene and Environmental Hygiene are horizontal infection prevention strategies that are effective against a broad range of pathogens and infections
- ▲ There is a constant transfer of pathogens between the patient, healthcare worker and environment that we strive to minimize
- ▲ FDA-approved hand soaps/ABHRs and EPA-registered disinfectants are effective if used correctly
- ▲ Human behavior impacts the effectiveness of horizontal infection prevention methods
- ▲ Monitoring hand hygiene and environmental hygiene compliance provides information to help drive behavior changes and improve outcomes
- ▲ Understanding the advantages and disadvantages of monitoring methods can help you choose the right method for your situation

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# THANK YOU!

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