



Bridging the Evidence to Practice Gap in Infection Prevention

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2024**

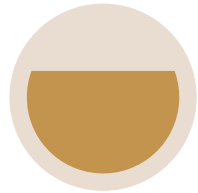
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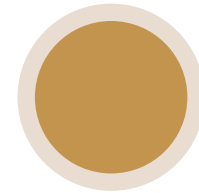
Learning Objectives



History of Infection
Prevention



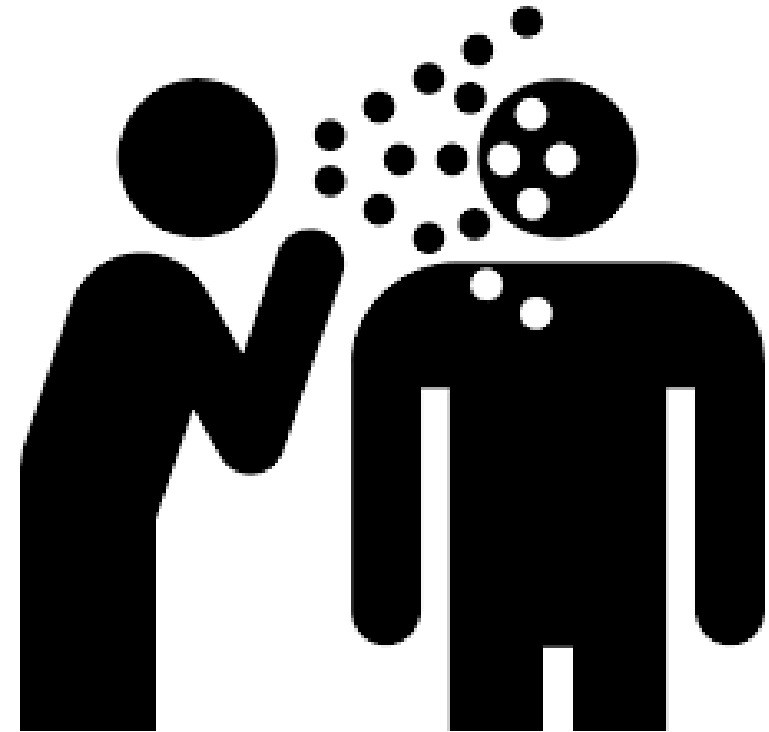
Evidence to
Practice Gaps

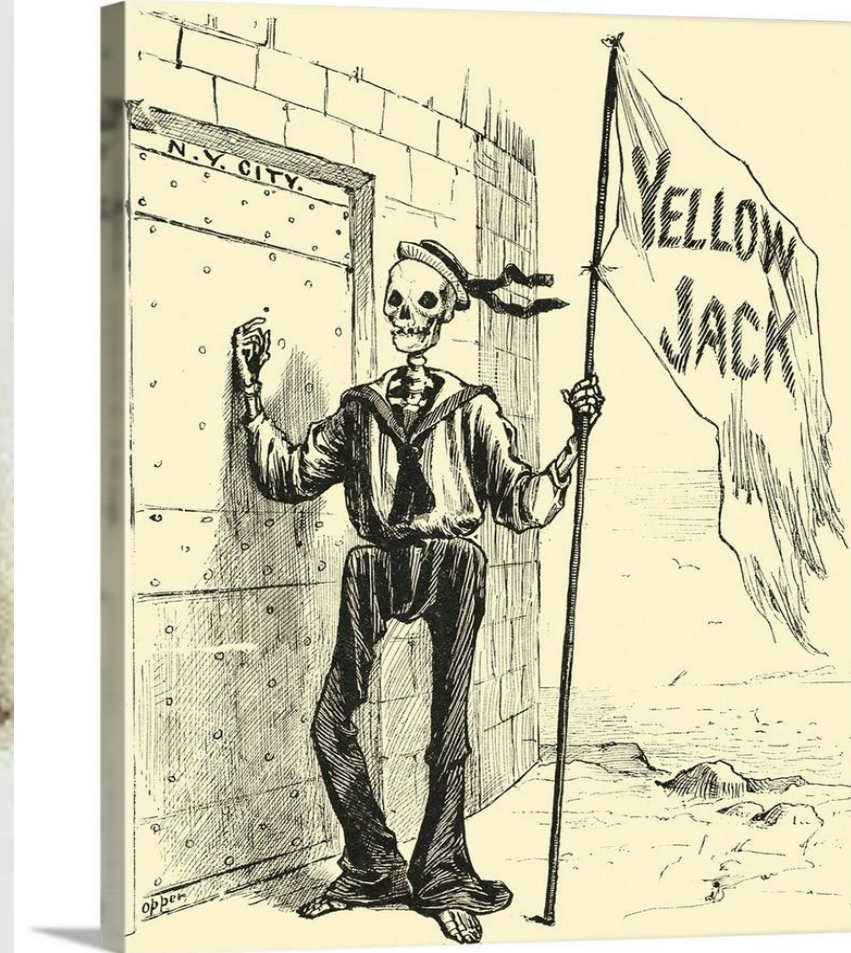


Ways to Bridge the
Gaps

What is Infection Prevention?

- Science and practice of preventing infections – in humans
- Control or minimize spread





History of Infection Prevention

Hand Washing

- **Ignaz Semmelweis**
 - First reported study of disease spread and infection prevention
 - High mortality for mothers cared for by physicians versus midwives
 - Chlorinated lime solution to wash hands before contact with mothers



Image: Elke R. Steiner

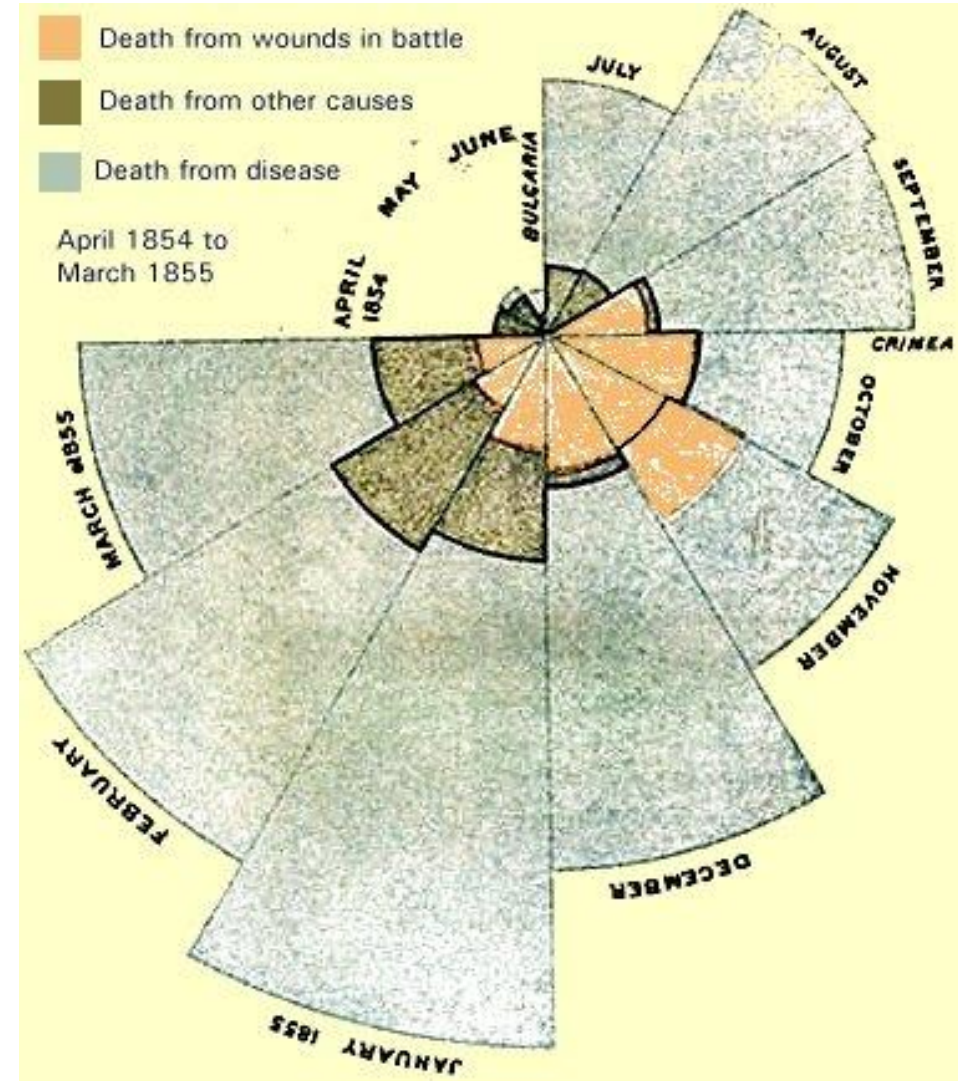
Sanitation

- **John Snow**
 - London Cholera outbreak 1854
 - Waterborne disease
 - Removal of handle from Broad Street water pump



Cleanliness

- **Florence Nightingale**
 - Statistician
 - Founder of modern nursing
 - Clean air, clean water, clean environment, healthy foods



Universal Precautions

Please follow standard precautions

- Wash hands
- Wear Personal Protective Equipment (PPE)



Gloves



Protective Clothing



Masks



Eye Protection

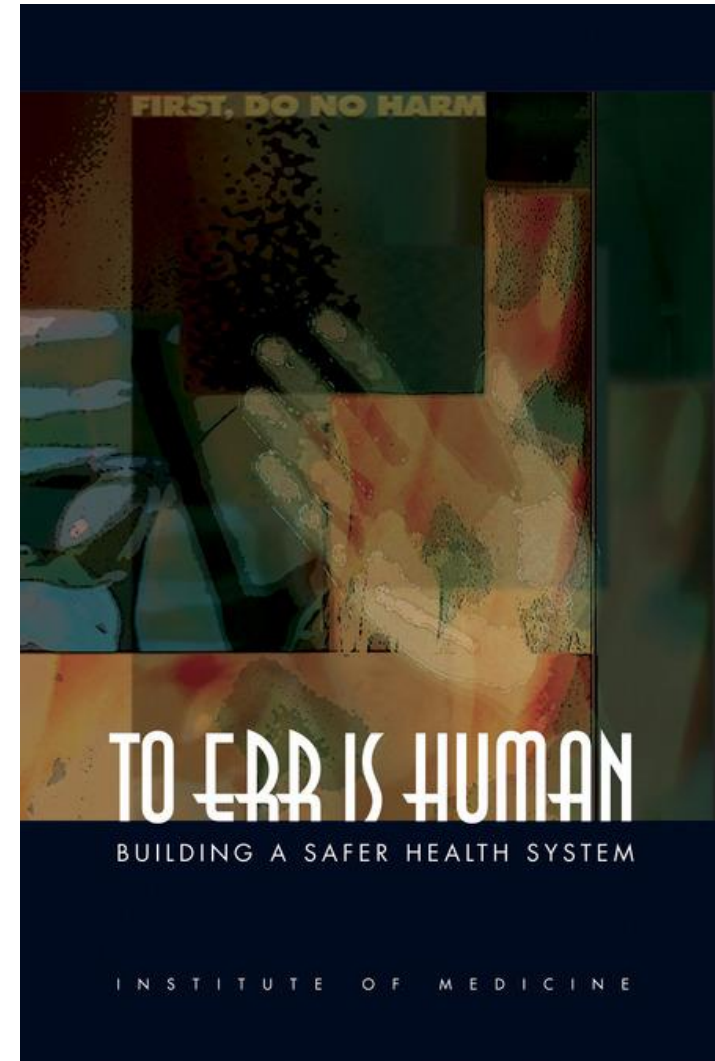


Face Shields

- 1940-1960: Antibiotic era, *S. aureus* outbreaks in nurseries
- 1950-1970: Surveillance & infection control programs develop
- 1980: HIV & antibiotic resistant bacteria
- 1990: Blood-borne pathogens

Patient Safety Era

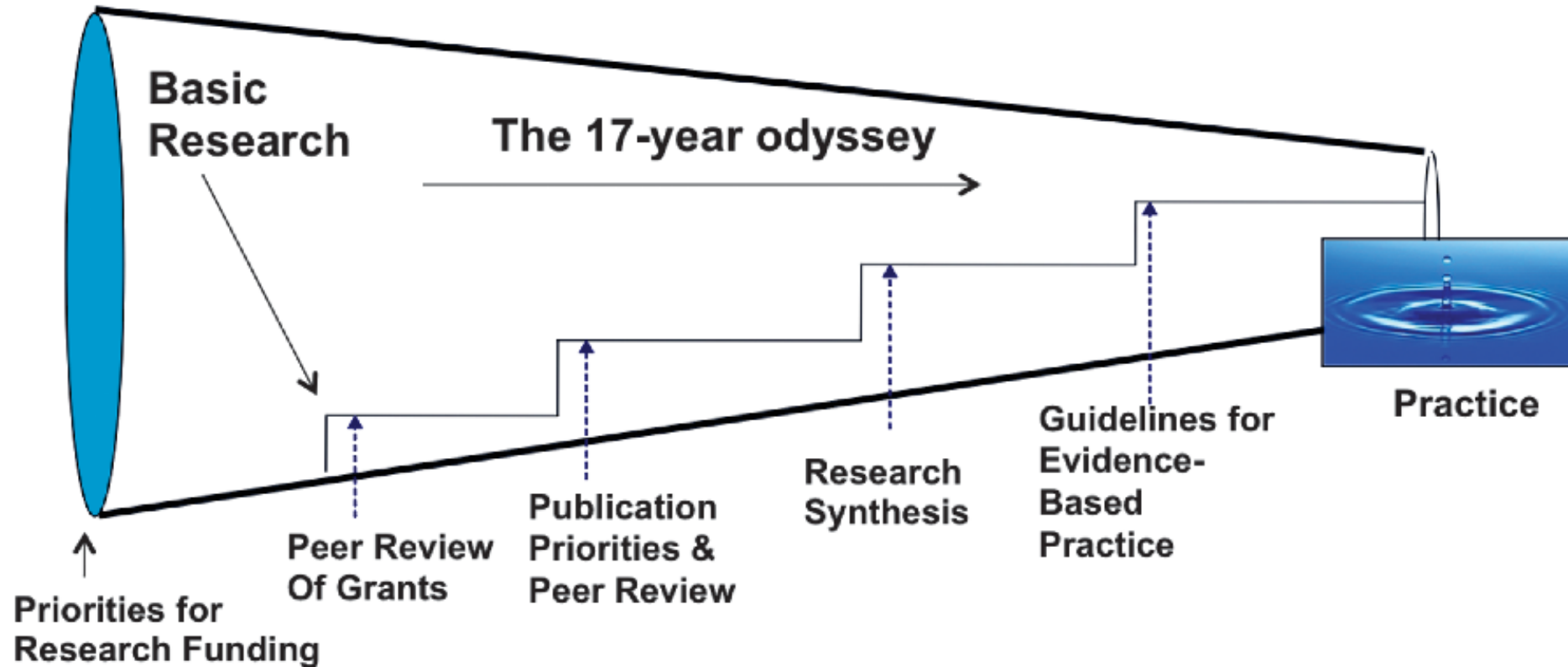
- 1999 Institute of Medicine report
- 98,000 deaths per year due to medical error in hospitals
- System issue that requires systemwide changes

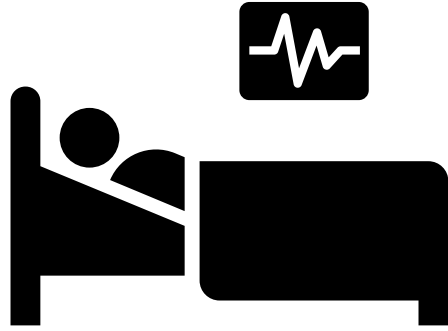


The slide features a white background with two abstract, curved shapes. One shape in the top-left corner transitions from a light tan color to a light grey color. Another shape in the bottom-right corner transitions from a light grey color to a light tan color. The text is centered in the middle of the slide.

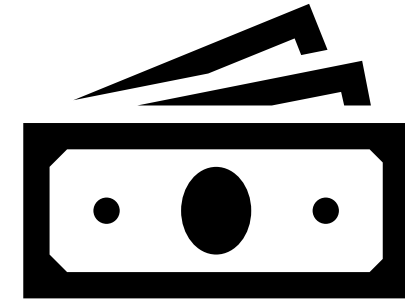
Evidence to Practice Gaps

The Gap

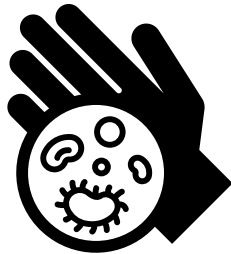




1 in 31 hospital patients have a HAI.
100,000 of whom die.

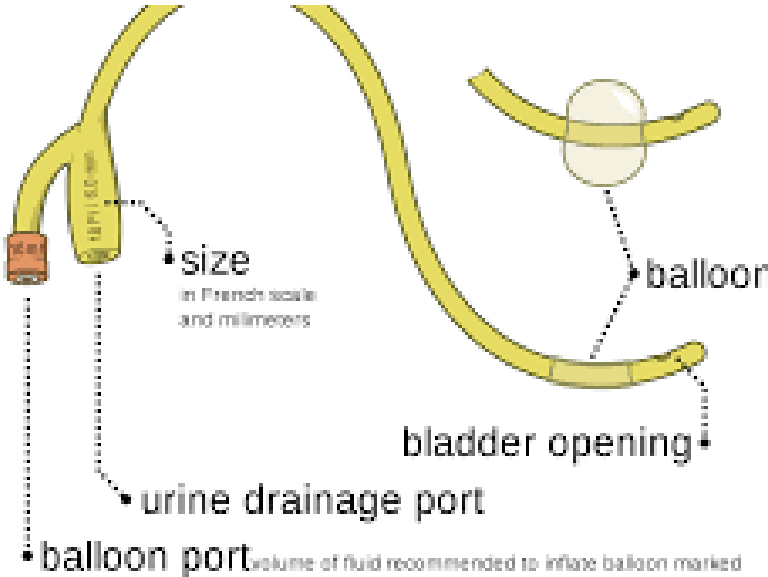


HAIs cost between \$28-45 billion
in the US, each year.



Up to 70% of these infections could be prevented if healthcare workers
followed recommended protocols.

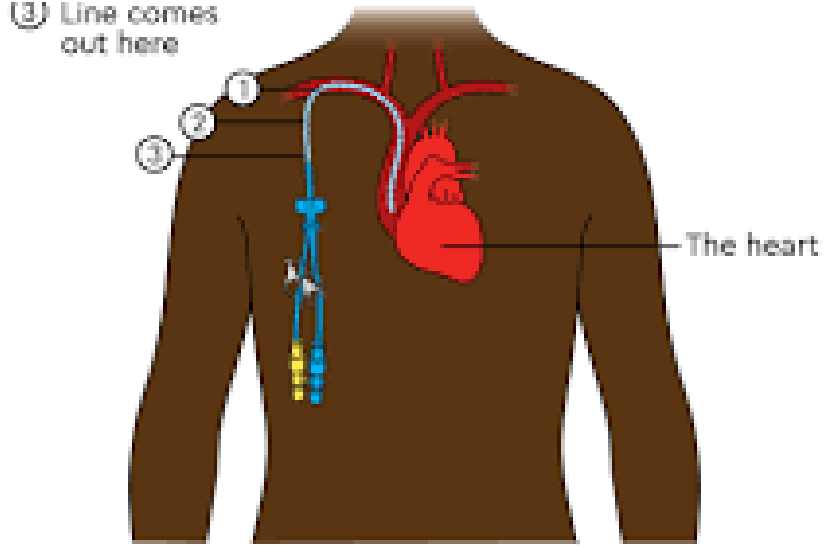
Medical Devices



Urinary Catheter



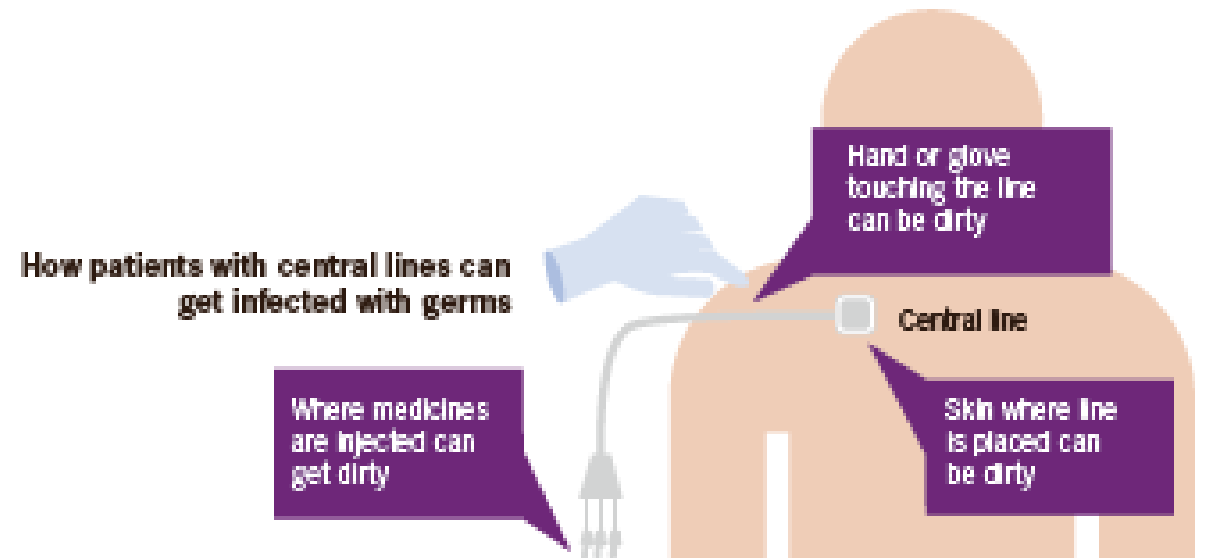
Ventilator



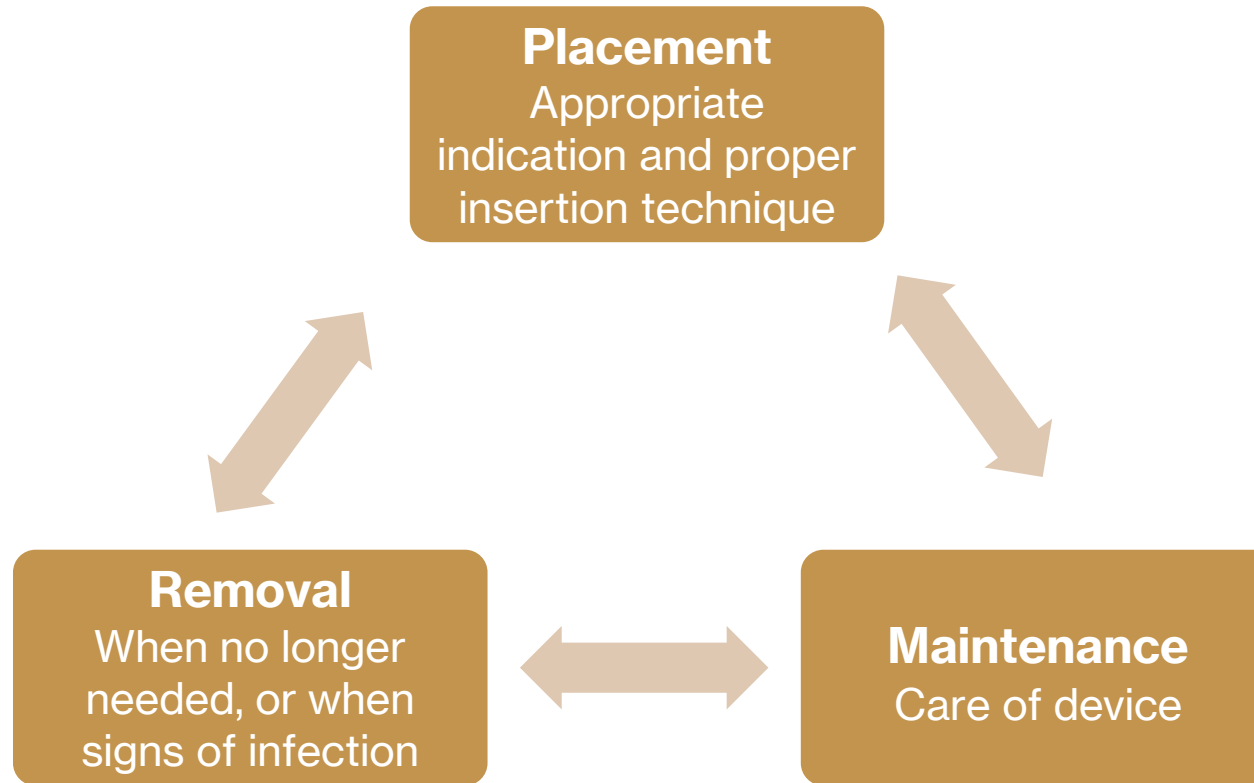
Central Line

Device-related Infections

- Central line-associated bloodstream infections (CLABSIs)
- Ventilator-associated events (VAEs)
- Catheter-associated urinary tract infections (CAUTIs)



Prevention of Device-related Infections




Central Line Infection Prevention Care Bundle

- Perform hand hygiene
- Use maximal sterile barrier precautions
- Clean skin with chlorhexidine prior to insertion
- Avoid the femoral site for catheter insertion, if possible
- Remove unnecessary catheters as soon as possible

Device Related Infection Rates – 2020-2021

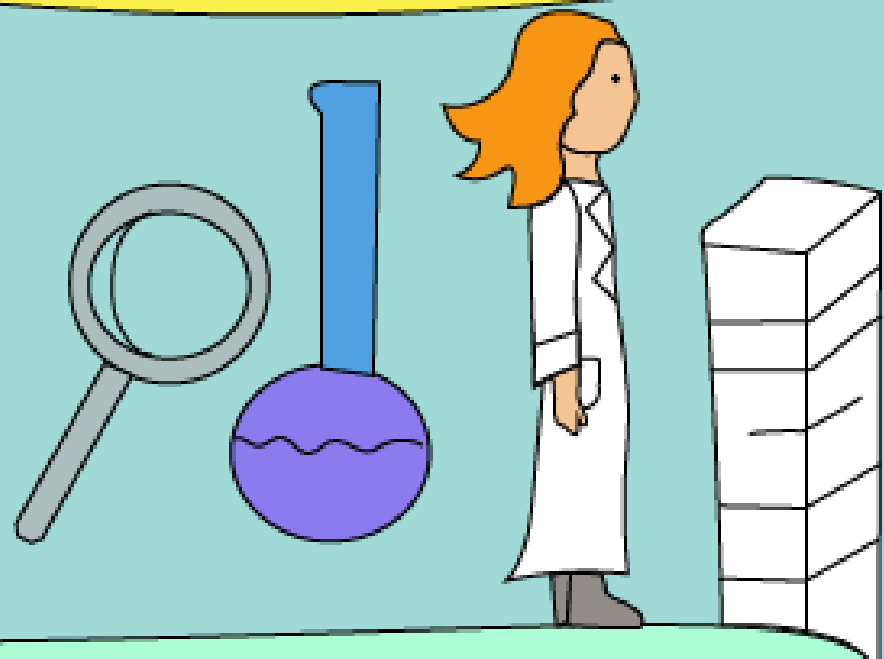
- Overall, in U.S. hospitals:
 - 7% increase in CLABSIs
 - 5% increase in CAUTIs
 - 12% increase in VAEs



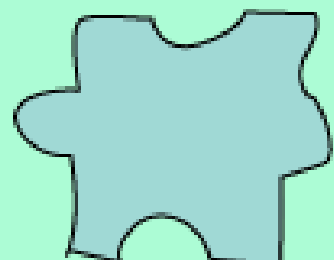
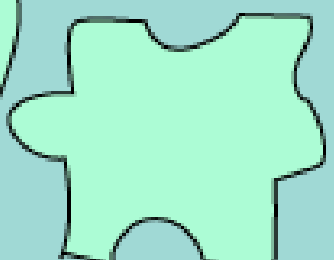
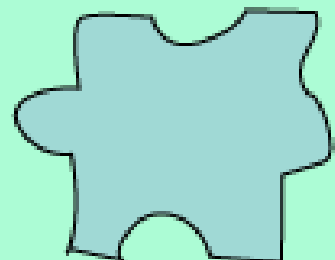
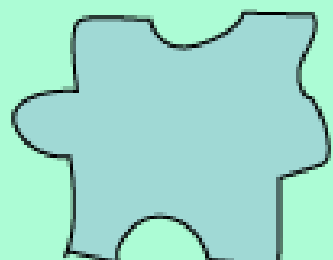
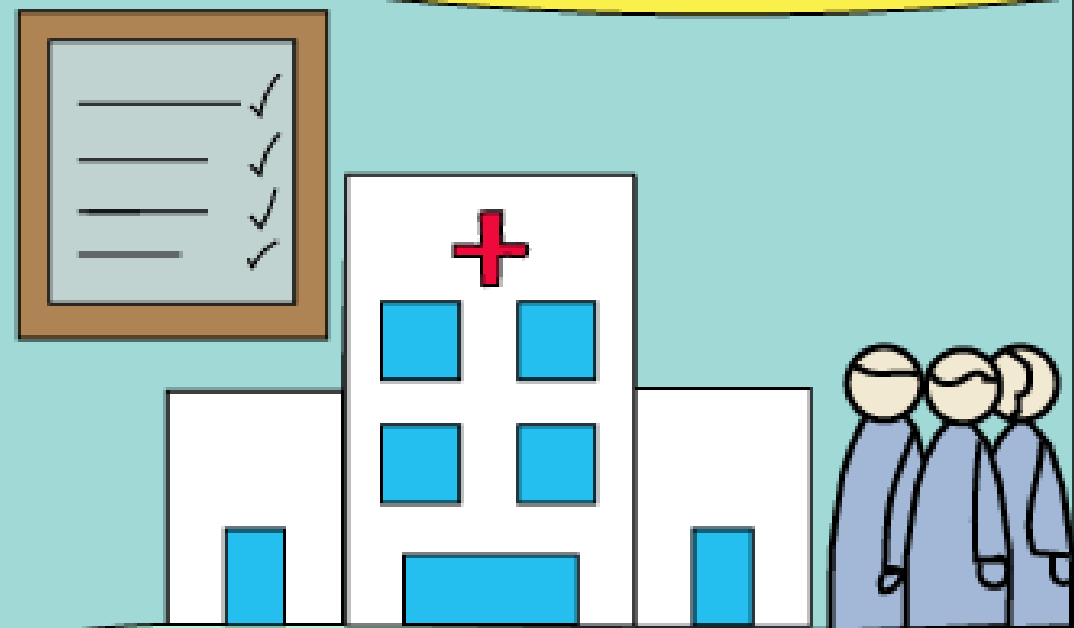
“The fact that the pandemic degraded patient safety so quickly and severely suggests that our healthcare system lacks a sufficiently resilient safety culture and infrastructure.”

Fleisher et al., 2022

WHAT WE KNOW

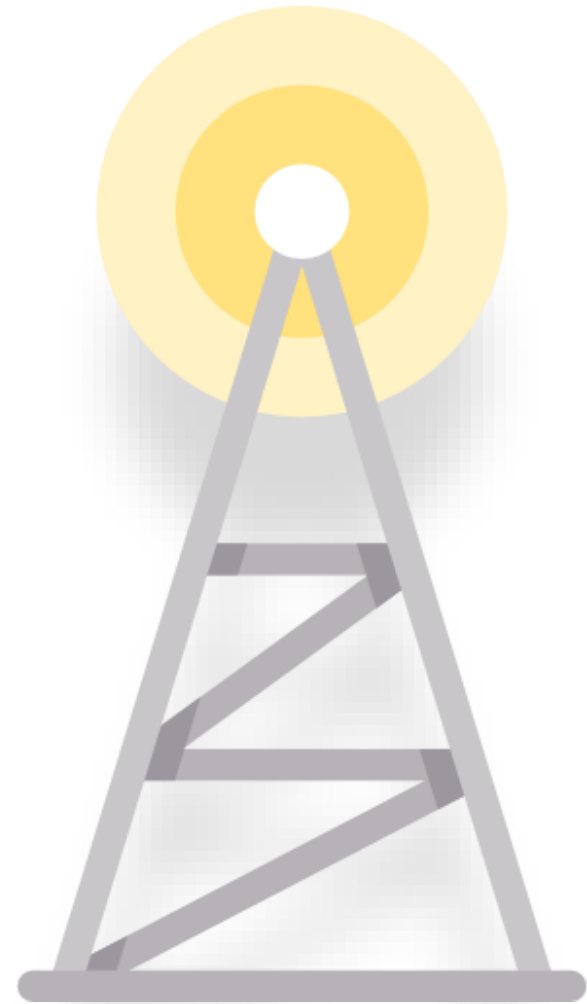


WHAT WE PRACTICE



Dissemination

*The action of spreading something,
especially information, widely*



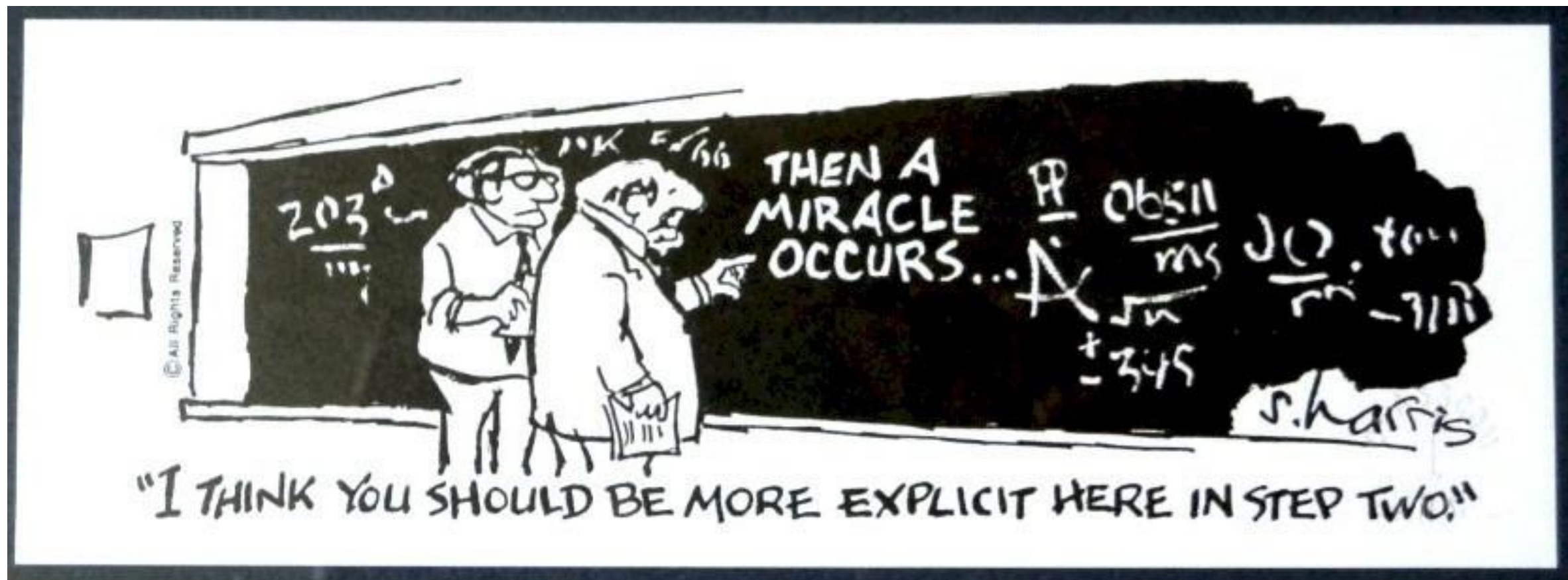
Implementation

“An *effort* specifically designed to get best practice findings... into routine and sustained use via appropriate *uptake interventions*.”



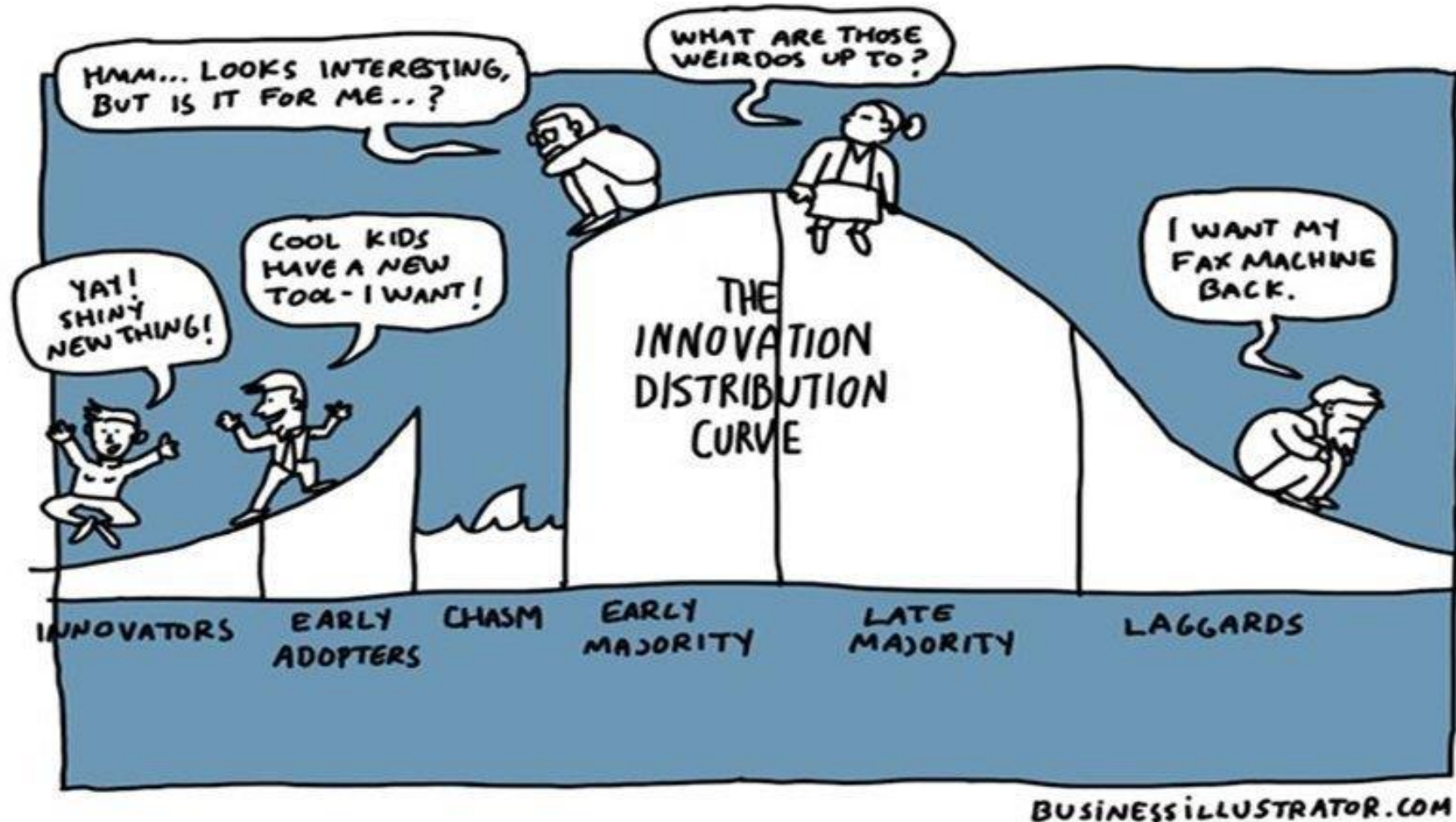
Dissemination & Implementation Science (D&I)

“The scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care.”



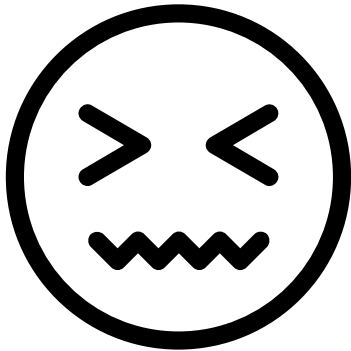
"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

Diffusion of Innovation



IMPLEMENTATION STRATEGIES

- The actions taken to enhance adoption, implementation, and sustainability of evidence-based interventions



EVIDENCE-BASED INTERVENTIONS

- Programs, practices, principles, procedures, products, pills, or policies that have been demonstrated to improve health behaviors, health outcomes, or health-related environments

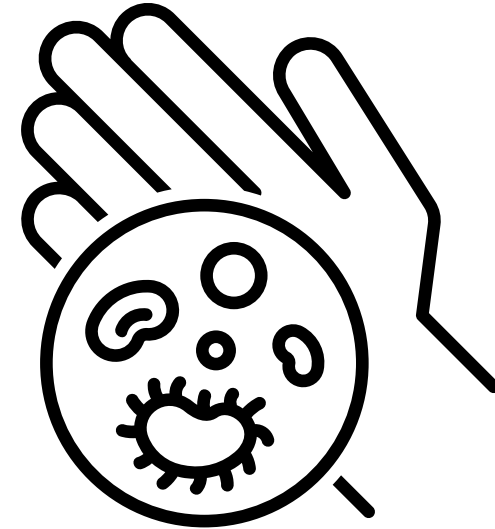
Simple Language....

- Hand hygiene is ***THE THING***
- Implementation strategies are the ***stuff we do*** to try to help people ***do the thing.***



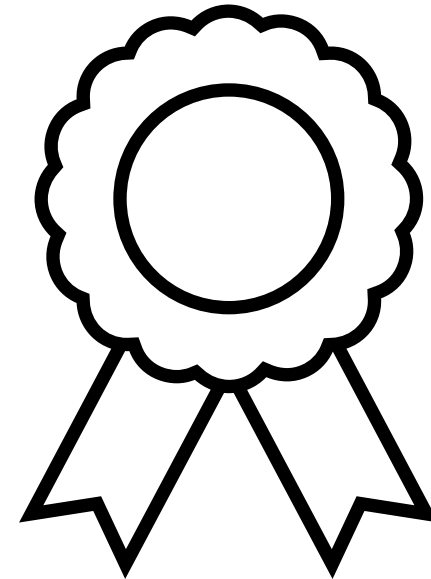
Hand Hygiene Barriers

1. Lack of knowledge
2. Incorrect behavior patterns
3. Insufficient training
4. Heavy workloads
5. Products not available at point of care
6. Low-quality products



Implementation Strategies

1. Clinical supervision
2. Identify champions
3. Audit and feedback
4. System redesign
5. System review
6. Facility product review



Choosing Implementation Strategies

Ask Staff



Contents lists available at [ScienceDirect](#)

American Journal of Infection Control

journal homepage: www.ajicjournal.org



Brief Report

Utilization of a novel humble inquiry interview approach in assessing implementation barriers to a nurse-driven *Clostridioides difficile* test order set

Shelley Kon MD^{a,b,*}, Sara Fisher RN, BSN^a, Nhi Ngo RN^a, Randi Craig MSN, RN, CIC^a, Christine Gunter RN, BSN^a, Mary Bessesen MD^a, Heather Gilmartin PhD, NP, CIC, FAPIC^{c,d}

Choosing Implementation Strategies

Talk to Colleagues & Review the Literature

Pilot randomised controlled trial
to improve hand hygiene through
mindful moments

Heather Gilmartin,¹ Sanjay Saint,^{2,3} Mary Rogers,^{2,3} Suzanne Winter,^{2,3}
Ashley Snyder,^{2,3} Martha Quinn,³ Vineet Chopra^{2,3}

Choosing Implementation Strategies

Select a D&I Model or Framework

American Journal of Infection Control 47 (2019) 688–692



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Contents lists available at [ScienceDirect](#)

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State of the Science Review

Dissemination and implementation science for infection prevention:
A primer

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