Bridging the Gap Between Research and Practice in Long-Term Care: An Innovative Model for Success
Sharon Bradley, Pennsylvania Patient Safety Authority
Broadcast live from APIC 2016 conference (www.apic.org)

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Bridging the Gap Between Research and Practice in Long-Term Care: An Innovative Model for Success

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Nothing to disclose

PATIENT SAFETY AUTHORITY
An independent agency of the Commonwealth of Pennsylvania

Objectives

- Recall multifocal methods of assessment to measure integration of best practices into infection control program and structure
- Detect opportunities for improvement to implement infection control best practices at leadership, physician, clinical, and support staff levels
- Select approaches to translate assessment results into a structured framework that incorporates infection control strategies into clinical practice

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Burden of Healthcare-Associated Infections (HAI) in Long-Term Care Facilities (LTCF)

- 1.2 - 3.8 million annual HAI
- 150,000 additional hospitalizations
- 380,000 additional deaths

(US HHS: "Long-Term")

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What Does the Research Tell Us?

- 2000-2007: study of infection control deficiency citations
  - 60,000 LTCFs nationwide
  - On average, 15% cited for infection control deficiency
- 2005: survey of 37 LTCFs
  - Significant variability in implementation of infection control methods

(Castle et al.; Mody et al.)

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What Does the Research Tell Us?

- Few peer-reviewed publications examine infection control in LTCF
- No studies have critically evaluated efficacy of infection control programs in LTCF
- Need for increased emphasis and research
- Focus on identifying barriers to implementing infection control best practices in LTCF

(Castle et al.; Mody et al.)

Research Questions

- In which infection prevention domains do nursing homes perform well or need improvement ?
- In which implementation categories are there differences between facilities or units with high or low HAI rates?
- What elements of best practice are most lacking in areas of low performance?

(Bradley et al.)

Where to Start?

- Measure integration of best practices into infection control program and structure
- Utilize multifocal methods of assessment

Assessment Tools

Identify barriers and determine compliance with infection control practices

- Interview
- Simulation
- Checklists
- Medical record review
- Clinical observation
- Process measuring worksheets

Assessment Module Design

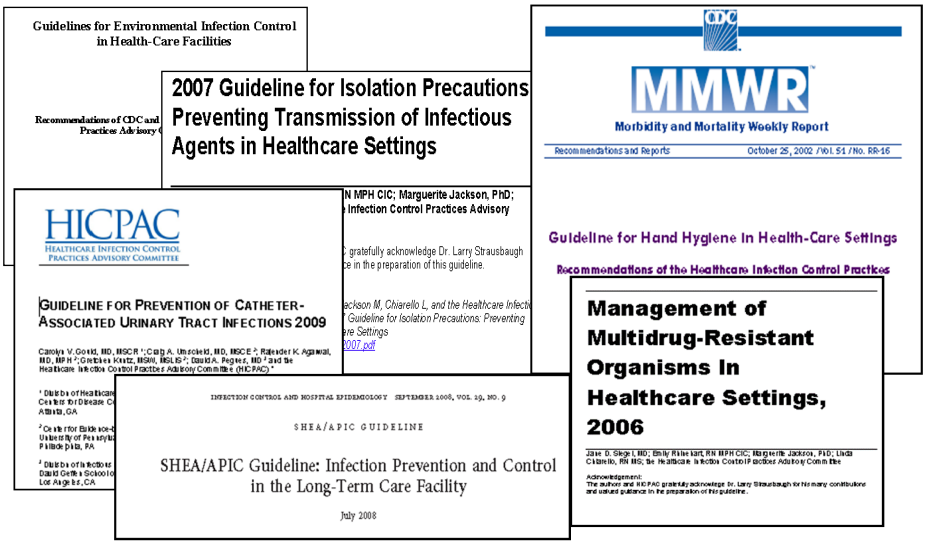
(Bradley et al.)

Assessment Module Design

- Standardized measurement tool
  - Implementation of evidence-based infection control practices
  - Secondary implementation categories
  - Scoring system to identify the level of implementation
  - Specific targets for improvement

(Bradley et al.)

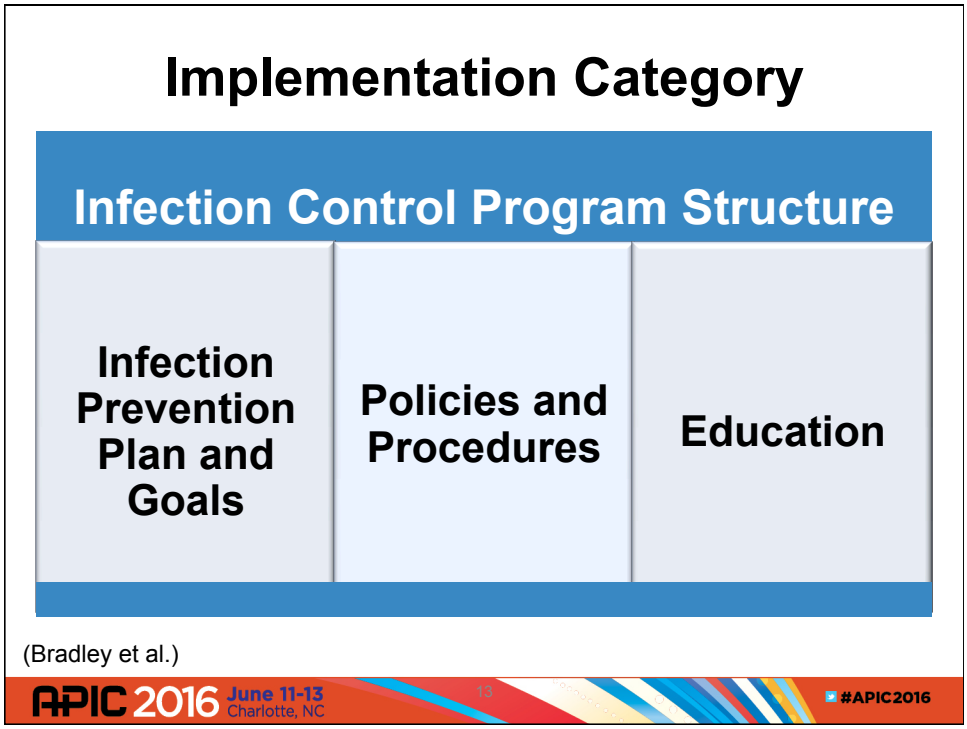
Where Is the Evidence?



Seven Assessment Domains

- Hand hygiene compliance
- Environmental control
- Outbreak control
- Prevention of:
  - Urinary tract infections (UTIs)
  - Respiratory tract infections (RTIs)
  - Gastrointestinal (GI) and multidrug-resistant organism infections (MDROs)
  - Skin and soft-tissue infections (SSTIs)

(Bradley et al.)


Implementation Category
Infection Control Program Structure
Infection Prevention Plan and Goals
Policies and Procedures
Education
(Bradley et al.)
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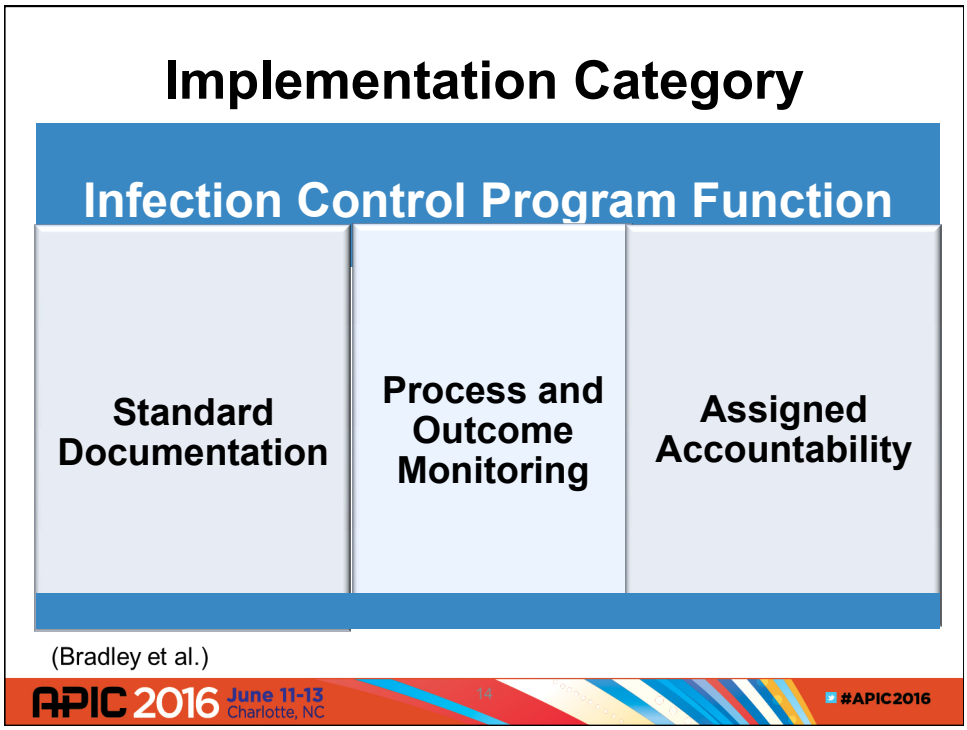
Implementation Category
Infection Control Program Function
Standard Documentation
Process and Outcome Monitoring
Assigned Accountability
(Bradley et al.)
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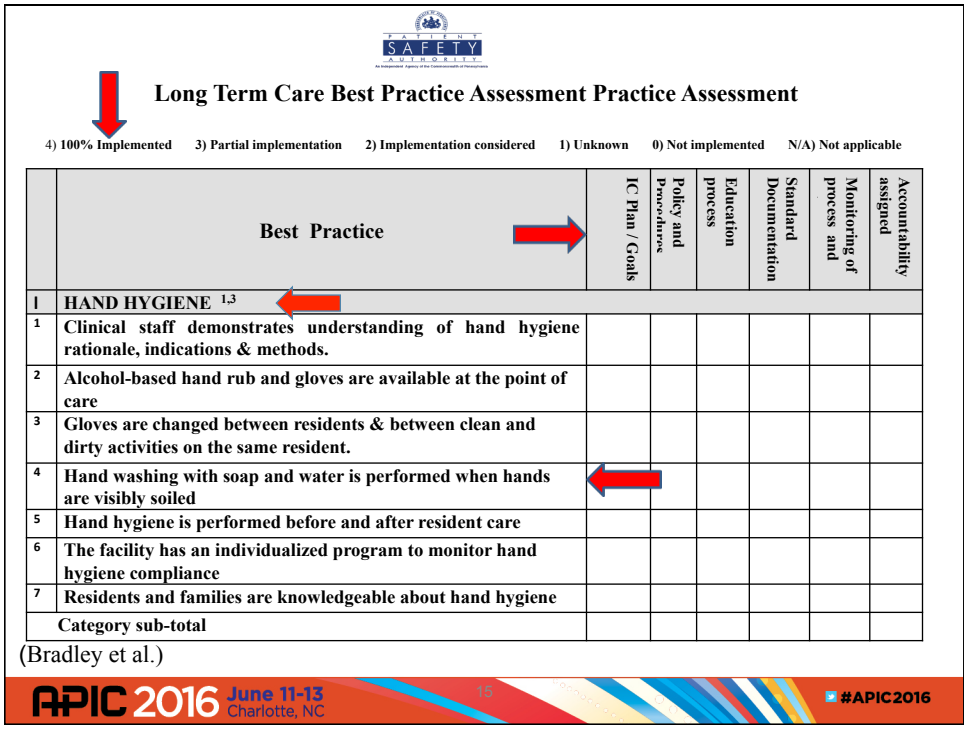

Long Term Care Best Practice Assessment Practice Assessment

4) 100% Implemented 3) Partial implementation 2) Implementation considered 1) Unknown 0) Not implemented N/A) Not applicable

	Best Practice	IC Plan / Goals	Policy and Procedures	Education process	Standard Documentation	Monitoring of process and	Accountability assigned
I	HAND HYGIENE [1,3]						
1	Clinical staff demonstrates understanding of hand hygiene rationale, indications & methods.						
2	Alcohol-based hand rub and gloves are available at the point of care						
3	Gloves are changed between residents & between clean and dirty activities on the same resident.						
4	Hand washing with soap and water is performed when hands are visibly soiled						
5	Hand hygiene is performed before and after resident care						
6	The facility has an individualized program to monitor hand hygiene compliance						
7	Residents and families are knowledgeable about hand hygiene						
	Category sub-total						

(Bradley et al.)

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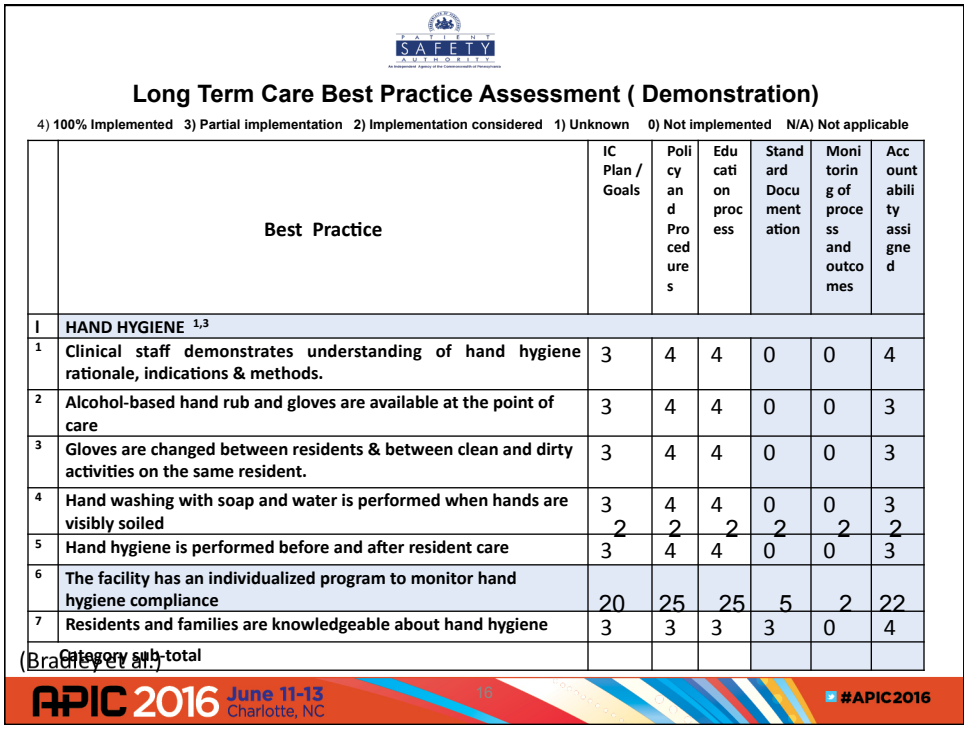

Long Term Care Best Practice Assessment (Demonstration)

4) 100% Implemented 3) Partial implementation 2) Implementation considered 1) Unknown 0) Not implemented N/A) Not applicable

	Best Practice	IC Plan / Goals	Policy and Procedures	Education process	Standard Documentation	Monitoring of process and outcomes	Accountability assigned
I	HAND HYGIENE [1,3]						
1	Clinical staff demonstrates understanding of hand hygiene rationale, indications & methods.	3	4	4	0	0	4
2	Alcohol-based hand rub and gloves are available at the point of care	3	4	4	0	0	3
3	Gloves are changed between residents & between clean and dirty activities on the same resident.	3	4	4	0	0	3
4	Hand washing with soap and water is performed when hands are visibly soiled	3 2	4 2	4 2	0 2	0 2	3 2
5	Hand hygiene is performed before and after resident care	3	4	4	0	0	3
6	The facility has an individualized program to monitor hand hygiene compliance	20	25	25	5	2	22
7	Residents and families are knowledgeable about hand hygiene	3	3	3	3	0	4
	Category sub-total						

(Bradley et al.)

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Detect Opportunity for Improvement

- Clinical observation tool
- Pre and post-intervention self-assessment
- Overall performance of unit/facility/group
- Multidisciplinary-level barriers

(Bradley et al.)

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DOMAIN	Education		Documentation		Monitoring	
* PI: Process Improvement	A WING	B WING	PRE-PI *	POST-PI *	YEAR 2013	YEAR 2014
Hand hygiene	73%	76%	77%	85%	84%	83%
Environmental control	88%	74%	96%	98%	85%	98%
Urinary tract infection	75%	32%	79%	86%	89%	80%
Respiratory tract infection	79%	52%	85%	92%	91%	89%
Gastrointestinal/multi-drug-resistant organism Infections	78%	78%	90%	90%	91%	90%
Skin and soft-tissue infection	84%	30%	95%	95%	98%	96%
Outbreak control	71%	84%	84%	84%	80%	87%

(Bradley et al.)

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Detect Opportunity for Improvement

- Leadership
- Physicians
- Clinicians
- Support staff

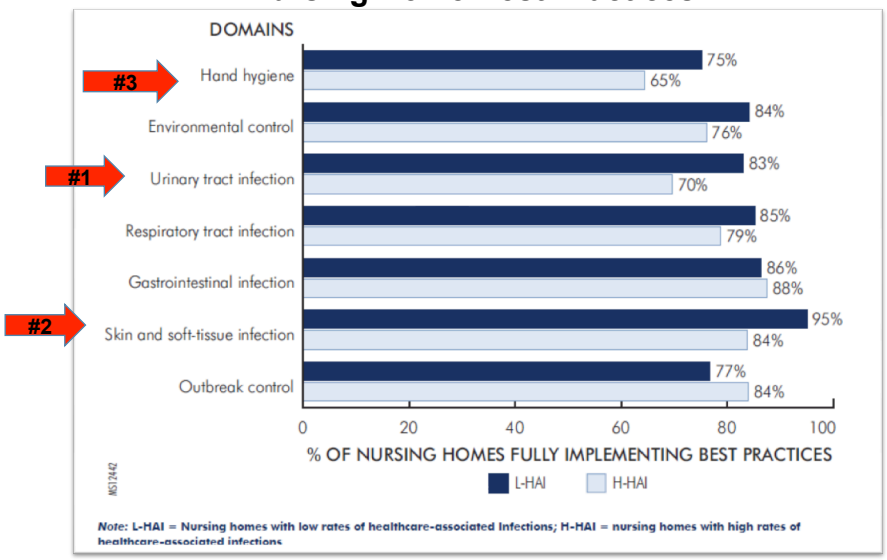
(Bradley et al.)

PA Patient Safety Authority Outreach Project 2010-2012

- Comparison of implemented infection prevention best practices
- Model and assessment tool utilized
- 20 nursing homes visited
  - 10 LTCFs with high HAI rates
  - 10 LTCFs with low HAI rates

(Bradley et al.)

Difference in Percentages of Full Implementation of Nursing Home Best Practices



(Bradley et al.)

Implementation of Structure Categories

DOMAIN	Plan		Policy/ goals		Education	
	L-HAI	H-HAI	L-HAI	H-HAI	L-HAI	H-HAI
Hand hygiene	73%	76%	84%	77%	84%	83%
Environmental control	**88%**	74%	98%	96%	85%	**98%**
Urinary tract infection	**75%**	32%	86%	79%	89%	80%
Respiratory tract infection	**79%**	52%	91%	85%	91%	89%
Gastrointestinal/multidrug-resistant organism Infections	78%	78%	91%	90%	91%	90%
Skin and soft-tissue infection	**84%**	30%	95%	95%	98%	96%
Outbreak control	71%	**84%**	84%	84%	80%	87%

L-HAI = Nursing homes with low HAI rates H-HAI = Nursing homes with high HAI rates
Yellow cells- higher % of implementation; Bolded cells- 10% higher implementation

(Bradley et al.)

Implementation of Function Categories

DOMAIN	Documentation		Monitoring		Accountability	
	L-HAI	H-HAI	L-HAI	H-HAI	L-HAI	H-HAI
Hand hygiene	**61%**	37%	**66%**	31%	84%	83%
Environmental control	**65%**	28%	70%	63%	100%	98%
Urinary tract infection	**82%**	72%	76%	70%	90%	84%
Respiratory tract infection	**84%**	74%	71%	79%	95%	94%
Gastrointestinal/ multidrug-resistant organism Infections	91%	88%	78%	85%	91%	95%
Skin and soft-tissue Infection	97%	95%	97%	90%	98%	96%
Outbreak control	80%	86%	64%	**74%**	80%	87%

L-HAI = Nursing homes with low HAI rates H-HAI = Nursing homes with high HAI rates
Yellow cells- higher % of implementation; Bolded cells- 10% higher implementation

(Bradley et al.)

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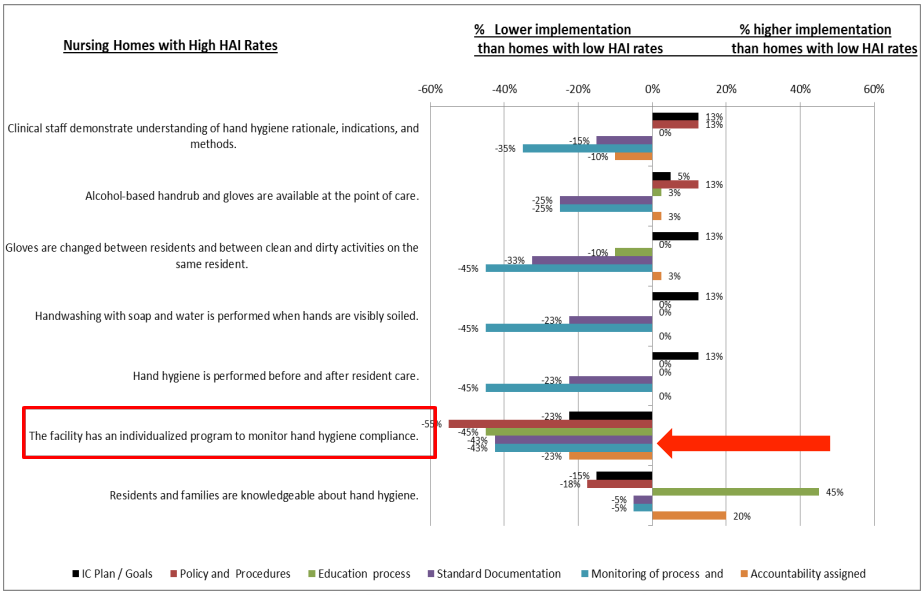
Hand Hygiene Best-Practice Implementation



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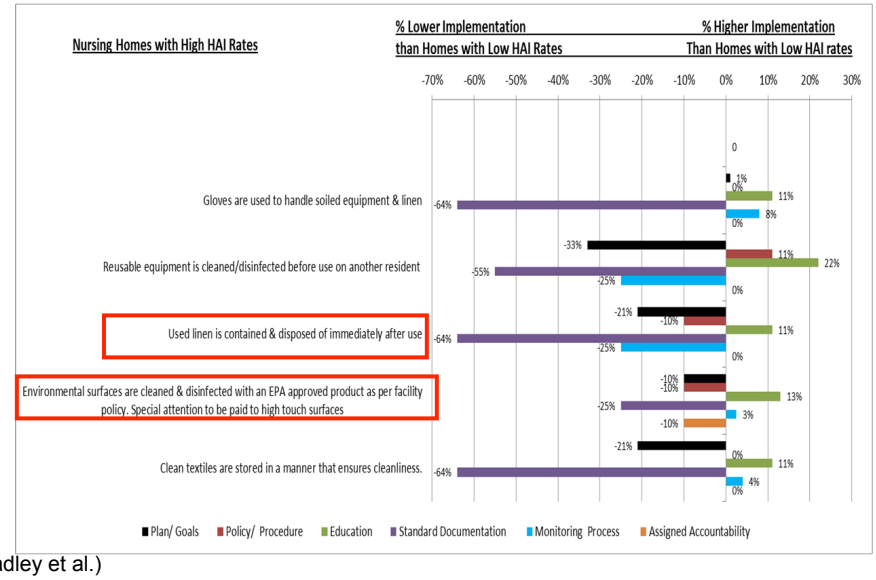
Environmental Control Best-Practice Implementation



(Bradley et al.)

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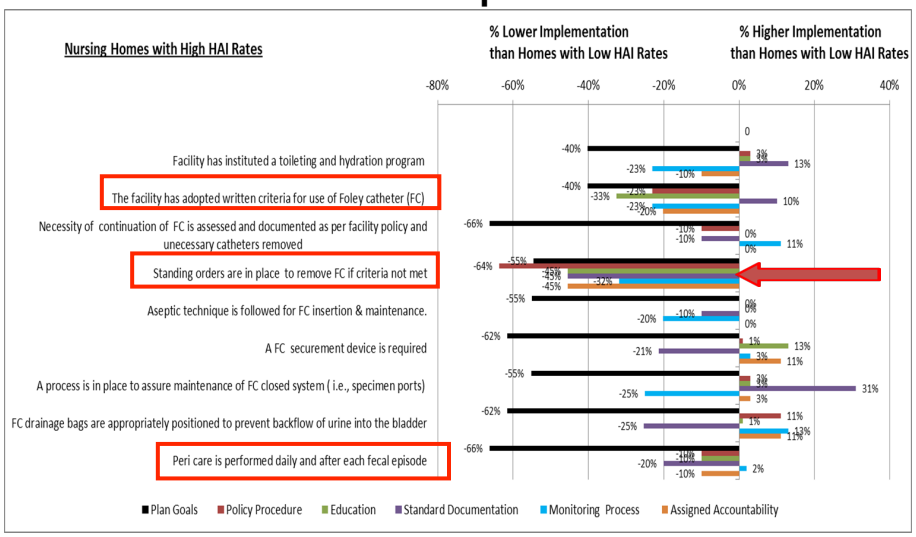
Urinary Tract Infection Prevention Best-Practice Implementation



(Bradley et al.)

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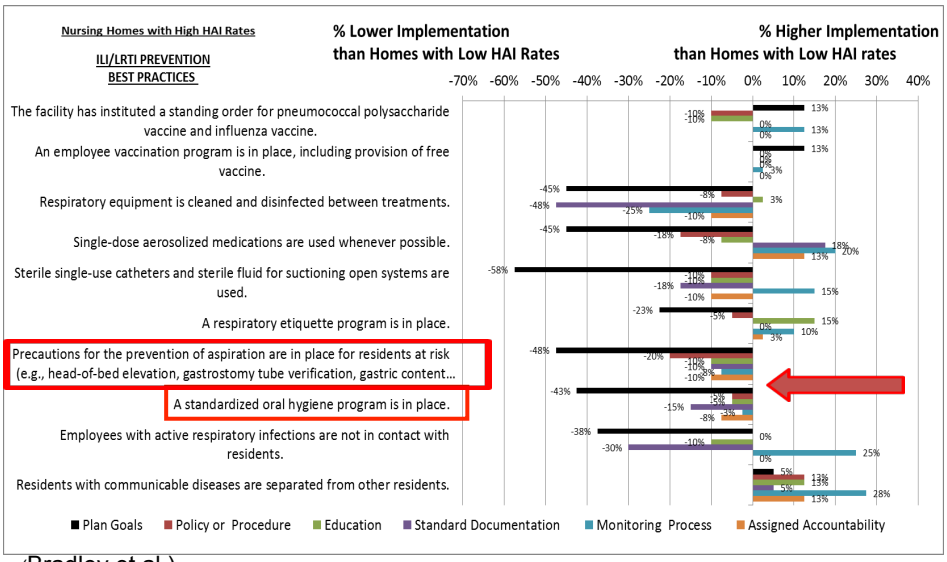
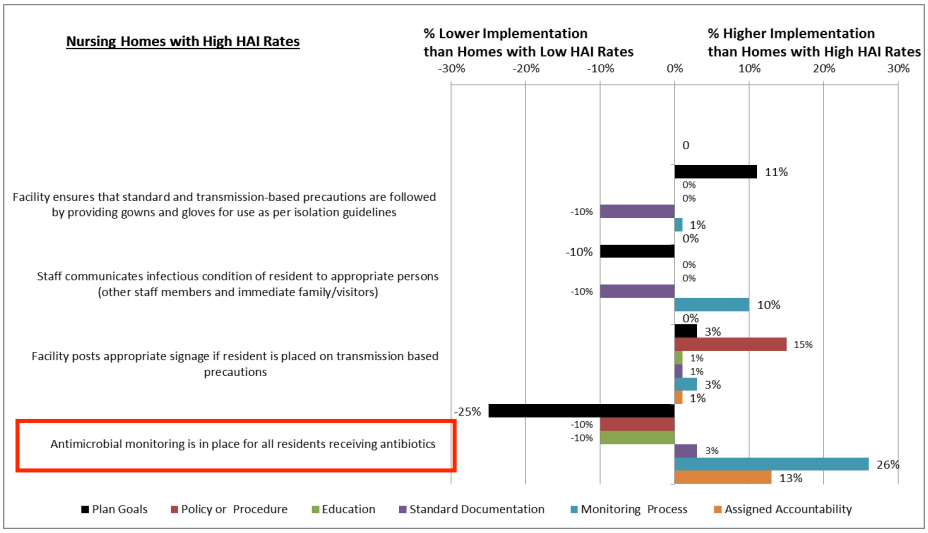
Respiratory Tract Infection Prevention Best-Practice Implementation



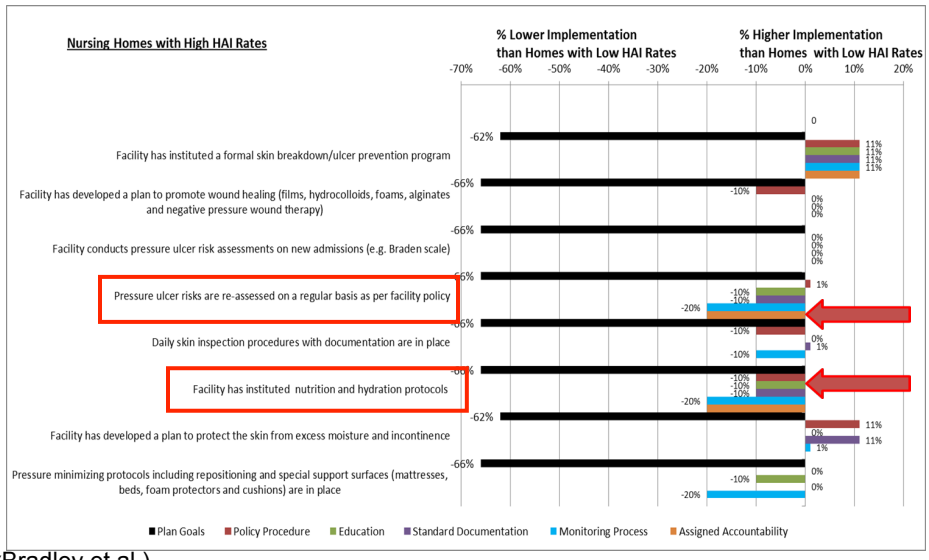
(Bradley et al.)

Gastrointestinal and Resistant Organism Infection Prevention Best-Practice Implementation



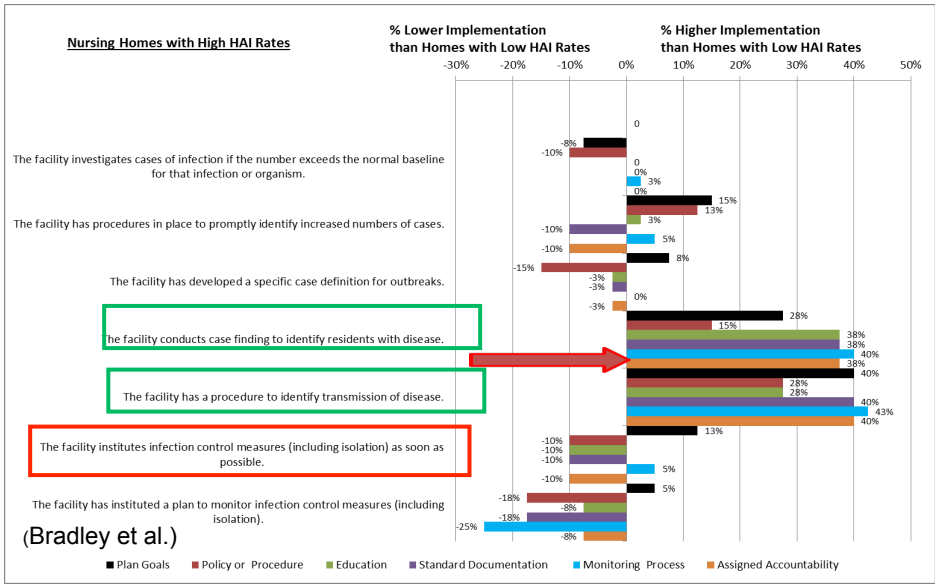
(Bradley et al.)

Skin and Soft-Tissue Infection Prevention Best Practice Implementation



(Bradley et al.)

Outbreak Control Best Practice Implementation



(Bradley et al.)

Practice Barriers Identified

- Unavailability of hand sanitizers
- Antimicrobial monitoring by pharmacy only
- Lack of aspiration prevention strategies
- Routine Foley changing/irrigation
- Physician refusal to remove Foley
- Limited separation of clean/dirty workspace
- Lack of family/resident education

(Bradley et al.)

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Organizational Barriers Identified

- Lack of trained infection preventionist (IP)
- IP has multiple roles/campuses
- High acuity, low staffing, limited consultation
- Reactive versus proactive response
- Lack of administrative support
- Lack of root-cause analysis (RCA)
- Absence of structured documentation process
- Inadequate communication protocols

(Bradley et al.)

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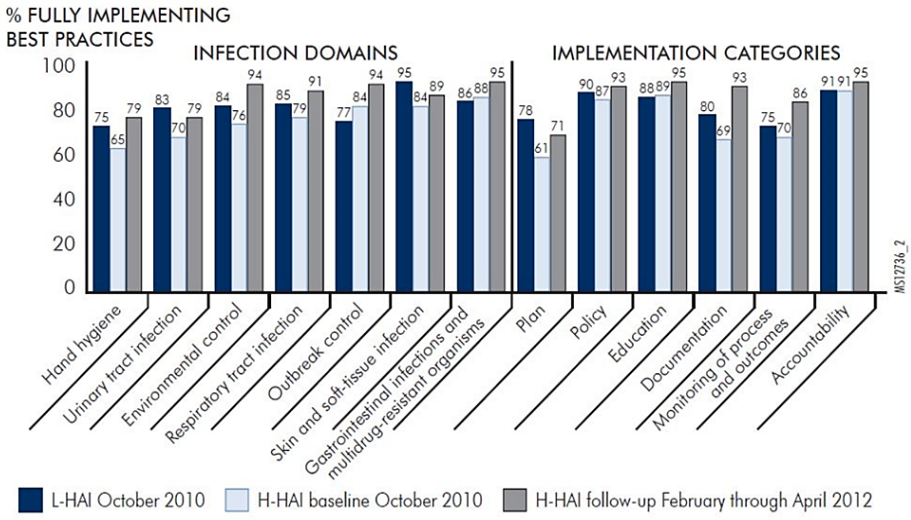
High-HAI NH Follow-Up

- Pre to post intervention quarters:
  - Improved in all domains and implementation categories
  - 16% significant decrease in mean overall HAI rate (P value <0.05
  - 8:10 improved infection rates
  - 18.8% combined decrease in number of HAIs
  - 9% decrease in overall costs for GI infections, RTIs, SSTIs, and symptomatic UTIs

(Feil et al.)

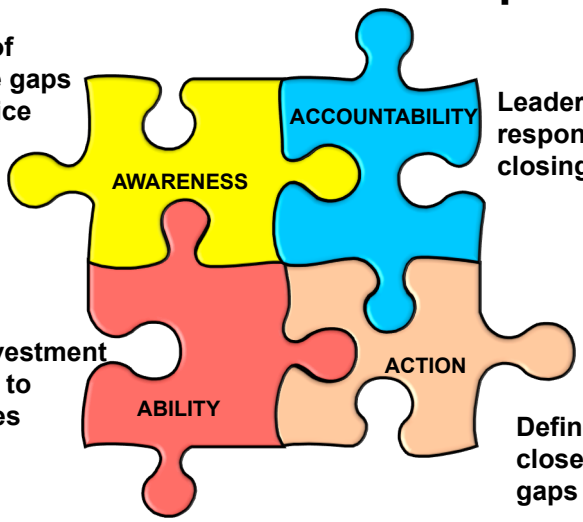
Implementation Improvement



(Feil et al.)

Barriers to Practice Adoption

Awareness of performance gaps before practice adoption



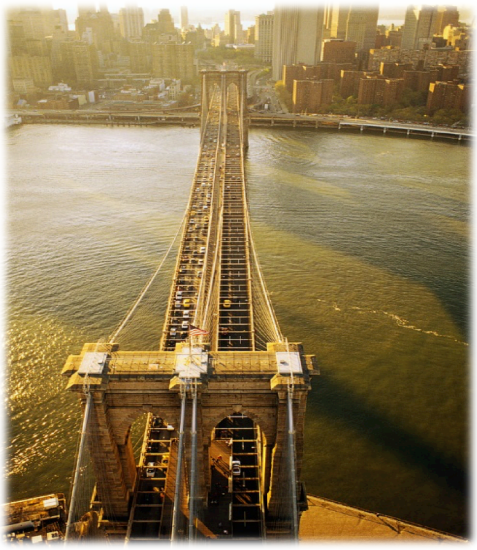
Leadership directly responsible for closing gaps

Resource investment and capacity to make changes

Define targets to close performance gaps

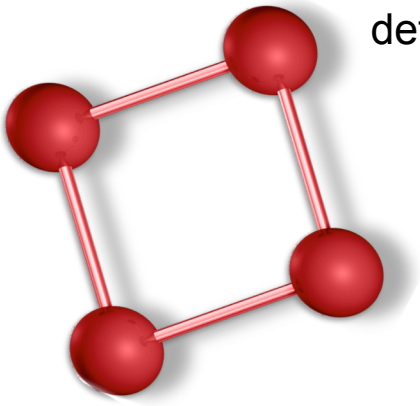
(Denham: Patient Safety)

Bridging the Gap



- Translate assessment results into a structured framework
- Incorporate infection control strategies into clinical practice

Structured Framework

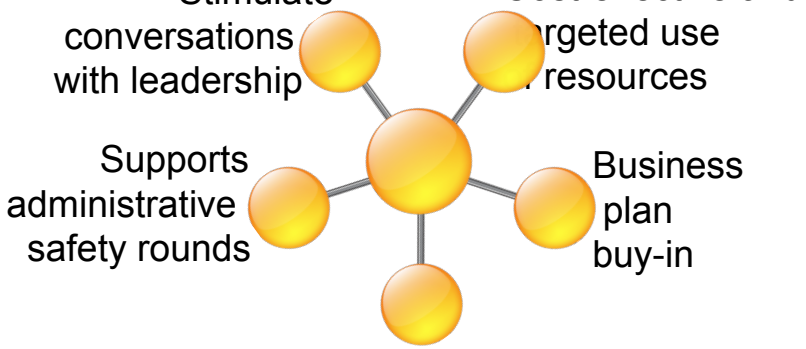


Provides a snapshot of level of current barriers and defects:

- Domain
- Implementation category
- Implementation level
- Specific best practice

(Bradley et al.)

Structured Framework



Display ready for committee and administrative review

(Bradley et al.)

Approaches to Integrate Strategies into Clinical Practice

- Increase awareness
  - Engage
  - Educate
- Oversee compliance
  - Execute
  - Evaluate

(US Department of Health and Human Services: CUSP Toolkit)

"Bundled" Infection Practices

IV	INFLUENZA LIKE ILLNESS / LOWER RESPIRATORY TRACT INFECTION
1	The facility has instituted a standing order process for pneumococcal polysaccharide vaccine and influenza vaccine.
2	An employee vaccination program is in place, including provision of free vaccine.
3	Respiratory equipment is cleaned and disinfected between treatments.
4	Single-dose aerosolized medications are used whenever possible.
5	Sterile single-use catheters and sterile fluid for suctioning open systems are used.
6	A respiratory etiquette program is in place.
7	Precautions for the prevention of aspiration are in place for residents at risk (e.g., head-of-bed elevation, gastrostomy tube verification, gastric content aspiration, feeding protocols).
8	A standardized oral hygiene program is in place.
9	Employees with active respiratory infections are not in contact with residents.
10	Residents with communicable diseases are separated from other residents.

(Bradley et al.;CDC;CMS)

Complements Quality Assurance Performance Improvement Work

- Fresh perspective on effectiveness of (QAPI) strategies
- Identify and learn from defects
- Data for monitoring or evaluation tools
- Enhance annual infection control risk assessment
- Demonstrate compliance with regulations
- Less time commitment than a failure mode and effects analysis (FMEA)

(Bradley et al.)

Facilitators for Success

- Supportive/engaged leaders
- Education, checklists, monitoring
- Multidisciplinary teamwork
- Root Cause Analysis for adverse events
- Administrative partnership units
- Accessibility of supplies at point of care
- Sharing process outcome data with staff

(Bradley et al.)

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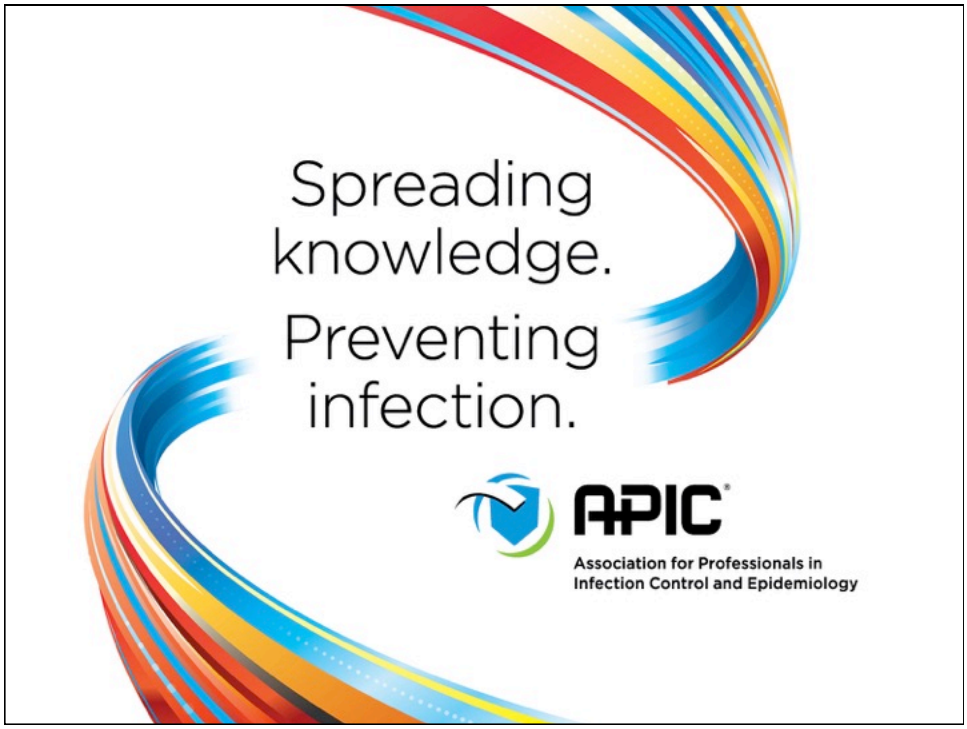

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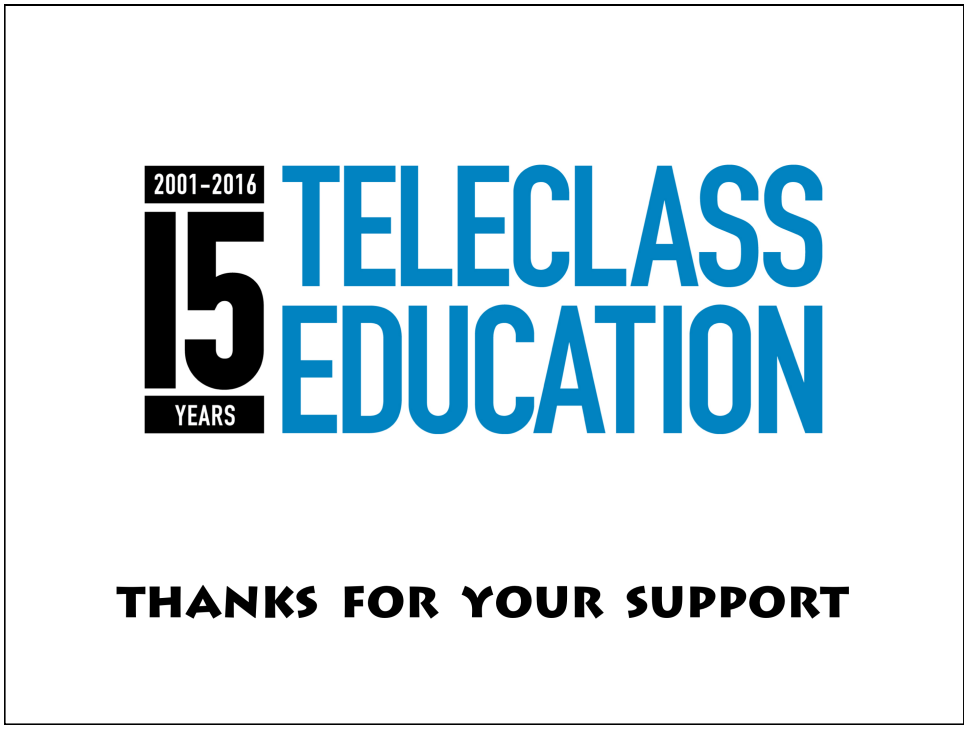
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