



# Extending the Reach of Infection Prevention: A Nurse Link Program in Action

Presented by:

**Madhuri Sopirala, MD, MPH**

Chief, Infection Prevention, Parkland Health

Associate Professor, Infectious Diseases, UT Southwestern Medical Center

December 2023

Virginia Infection Prevention Training Center



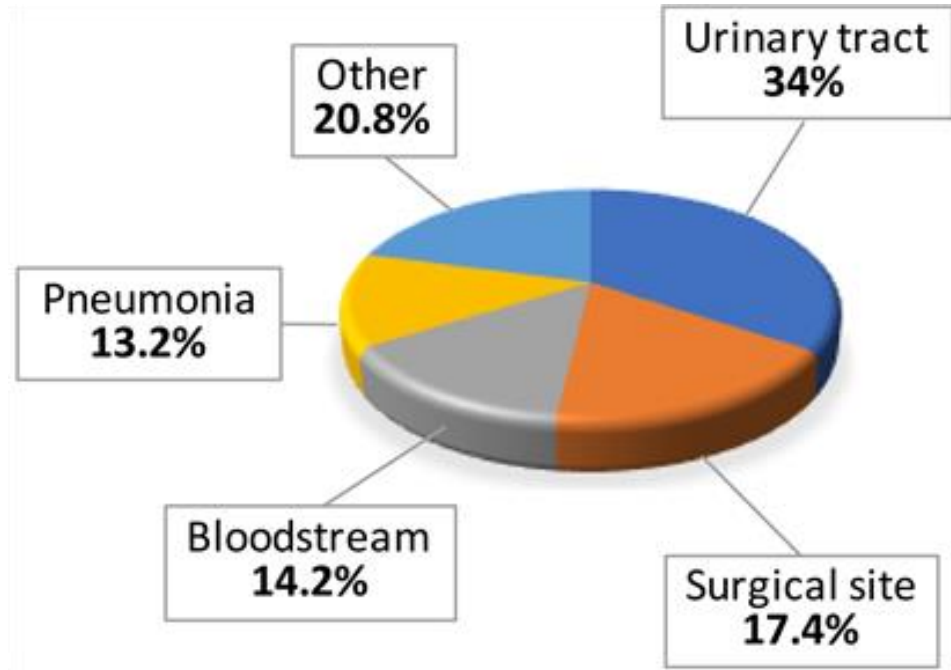
# **Financial Disclosures**

➤ No disclosures

# Objectives

- Describe the concept of Link Nurse Program
- Describe the strategies for building an effective Link Nurse Program
- Describe strategies to achieve long term success with a Link nurse program
- Describe examples of successful projects undertaken by Link Nurse programs

# Burden of Healthcare Acquired Infections (HAI)



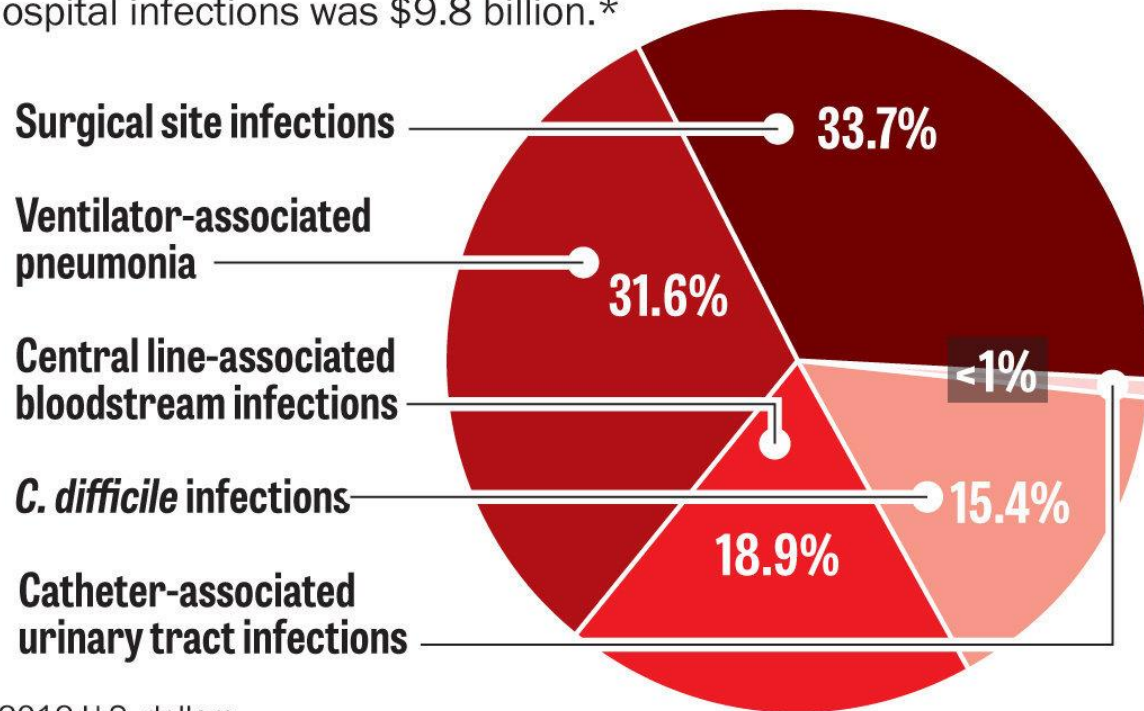
Approximately 2 million individuals are annually infected by antibiotic resistant strains

Antibiotic resistant infections cost the US healthcare system approximately \$34 billion per year

# Financial Burden of Healthcare Acquired Infections (HAI)

## TOTAL ANNUAL COSTS

The annual cost nationally for the five major hospital infections was \$9.8 billion.\*



\*2012 U.S. dollars

Source: National Institutes of Health

(Edward Riojas/MLive.com)

# Our Infection Prevention Program



# Compliance Improvement Measures

- Periodic e-mailing to all HCWs
- Reminders during grand rounds
- On the spot teaching when observed
- Signs on doors
- Hand outs
- Posters
  - All with a modest increase for a **short period of time**
- Yearly infection control tests for all employees
- Audits and feedback to unit leaders

# The Idea of Infection Prevention Champions

Infection Prevention Champions





# Decentralizing Infection Prevention

- ▶ Evidence supports spread of infection prevention (IP) knowledge beyond IP professionals to other healthcare workers (HCW) for ongoing success
- ▶ Collaboration between IP professionals and staff nurses from the individual patient care units (PCUs) to reduce HCA infections has been described in the past
- ▶ However, the strategies for carrying out the collaboration and the success of such programs were variable



**Randomized  
Controlled  
trial  
comparing  
Link Nurse  
intervention  
to no  
intervention**




American Journal of Infection Control

Volume 19, Issue 2, April 1991, Pages 86-91



Article

The enhancement of infection control  
in-service education by ward opinion  
leaders

W.H. Seto MRCP(U.K.), MRCPath.<sup>a b</sup>, T.Y. Ching RN<sup>a b</sup>, K.Y. Yuen MD<sup>a b</sup>,  
Y.B. Chu BSc<sup>a b</sup>, W.L. Seto MA<sup>a b</sup> 

# The enhancement of infection control in-service education by ward opinion leaders

- A guideline on urinary catheter care was introduced in three groups (A, B, and C) of two randomly allocated wards.
- Two opinion leaders per ward were identified by nurses in groups A and B.
  - Group A Education: in-service lectures for 30% of nurses and opinion leaders' tutorials for all nurses
  - Group B: opinion leaders' tutorials alone
- Group C: Lectures alone
- Before and after the education program, the guideline's frequency of practice was assessed by surveying 30% of randomly selected nurses and by direct observation.
- Results of the survey: comparable for groups A and B and both groups were significantly higher ( $p < 0.05$ ) than C, suggesting that informational transmission by opinion leaders was superior to that by the lecture.
- However, practices by direct observation in group A were significantly better ( $p < 0.05$ ) than those in B, indicating that staff compliance is best achieved by using both opinion leaders and lectures.
- The lecture probably endorsed the opinion leaders' leadership, enhancing their ability to influence the staff.

**Randomized  
controlled  
trial  
comparing  
Link Nurse  
intervention  
to no  
intervention**

---

**Evaluating the efficacy of the infection  
control liaison nurse in the hospital**

T Y Chung RN

*Infection Control Sister, Queen Mary Hospital*

and W H Seto MRCP(UK) MRCPPath

*Senior Clinical Bacteriologist, Department of Microbiology, University of Hong Kong,  
Queen Mary Hospital, Hong Kong*

# **The enhancement of infection control in-service education by ward opinion leaders**

- A urinary catheter care guideline on was introduced in a 1000-bed hospital in Hong Kong.
- The 27 public wards were divided randomly into a test (24 wards) and control group (three wards), and ICLNs were appointed in the test group by the nursing administration.
- For education, the ICN conducted in-service lectures for both groups, while in the test group, the ICLNs also conducted tutorials for all ward nurses.
- Before and after the education program, prevalence surveys were conducted to detect incorrect practices on urinary catheter care.
- Three practices evaluated were the securing of catheters, presence of kinking and the use of urinary bags with a drainage spigot.
- Before education, the percentage of incorrect practices in the test groups was 63%, which was comparable to the 68% of the control group (P= 0.40)
- After education, the percentage of incorrect practices in the test group (36%) was significantly lower than the 48% in the control group (P< 0 05)
- This indicates that ICLNs can indeed enhance the education program for infection control

# A Systematic Review and Meta- Analysis of Infection Control Link Nurse Programs








International Journal of  
*Environmental Research  
and Public Health*

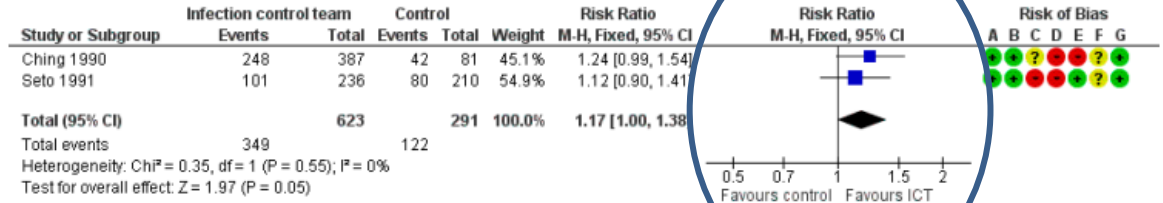


*Systematic Review*

## Effectiveness of Infection Control Teams in Reducing Healthcare-Associated Infections: A Systematic Review and Meta-Analysis

Moe Moe Thandar <sup>1</sup>, Md. Obaidur Rahman <sup>2,3</sup>, Rei Haruyama <sup>1</sup>, Sadatoshi Matsuoka <sup>1,\*</sup>, Sumiyo Okawa <sup>1</sup>,  
Jun Moriyama <sup>1</sup>, Yuta Yokobori <sup>1</sup>, Chieko Matsubara <sup>1</sup>, Mari Nagai <sup>1</sup>, Erika Ota <sup>4,5</sup> and Toshiaki Baba <sup>1</sup>

# A Systematic Review and Meta-Analysis



## Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

# Infection Control Link Nurse Program addressing health care- acquired MRSA

American Journal of Infection Control 42 (2014) 353-0



Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



Major article

## Infection Control Link Nurse Program: An interdisciplinary approach in targeting health care-acquired infection

Madhuri M. Sopirala MD, MPH<sup>a,b,\*</sup>, Lisa Yahle-Dunbar RN, CIC<sup>b</sup>,  
Justin Smyer MLS(ASCP)CM, MPH<sup>b</sup>, Linda Wellington RN, CIC<sup>b</sup>,  
Jeanne Dickman MT, CIC<sup>b</sup>, Nancy Zikri PhD, MPH<sup>b</sup>, Jennifer Martin RN, MPH<sup>b</sup>,  
Pat Kulich RN, CIC<sup>b</sup>, David Taylor PhD<sup>b</sup>, Hagop Mekhjian MD<sup>c</sup>, Mary Nash PhD<sup>d</sup>,  
Jerry Mansfield PhD<sup>d</sup>, Preeti Pancholi PhD<sup>e</sup>, Mary Howard RN<sup>d</sup>, Linda Chase PhD<sup>d</sup>,  
Susan Brown RN<sup>d</sup>, Kristopher Kipp RN<sup>d</sup>, Kristen Lefeld MHA<sup>b</sup>, Amber Myers MPH<sup>b</sup>,  
Xueliang Pan PhD<sup>f</sup>, Julie E. Mangino MD<sup>a,b</sup>

<sup>a</sup>Division of Infectious Diseases, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>b</sup>Department of Clinical Epidemiology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>c</sup>Health Systems Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>d</sup>Health Systems Nursing Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>e</sup>Department of Pathology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>f</sup>Center for Biostatistics, The Ohio State University Wexner Medical Center, Columbus, OH



# Infection Control Link Nurse Program addressing CAUTI

American Journal of Infection Control 46 (2018) 743-6



Contents lists available at [ScienceDirect](#)

American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



Major Article

Impact of a change in surveillance definition on performance assessment of a catheter-associated urinary tract infection prevention program at a tertiary care medical center



Madhuri M. Sopirala MD, MPH <sup>a,\*</sup>, Asma Syed MD <sup>a</sup>, Roman Jandarov PhD <sup>b</sup>, Margaret Lewis MSN <sup>c</sup>

<sup>a</sup> University of Cincinnati College of Medicine, Cincinnati, OH

<sup>b</sup> Division of Biostatistics and Bioinformatics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH

<sup>c</sup> University of Cincinnati Medical Center, Cincinnati, OH

# Concept of Link Nurse Program

**A Multidisciplinary Approach to Reducing Hospital Acquired Infections Utilizing the Link Nurse Program**

A Link nurse program involves nurses of each individual patient care unit (PCU) in a multi-disciplinary team

It works toward education, promotion of awareness, and reinforcement of implementation of proper infection prevention/control techniques

# Challenges in building a Link Nurse Program

- Infection preventionists and hospital epidemiologists do not have authority over hospital staff
- Funding
- Staff engagement for long periods of time
- Maintaining legitimacy for long periods of time
- Showing the worth of the program

How do we build this program and make it effective?

# Challenges in building a Link Nurse Program

- Infection preventionists and hospital epidemiologists do not have authority over hospital staff
- Funding
- Staff engagement for long periods of time
- Maintaining legitimacy for long periods of time
- Showing the worth of the program

How do we build this program and make it effective?

# Lateral Leadership



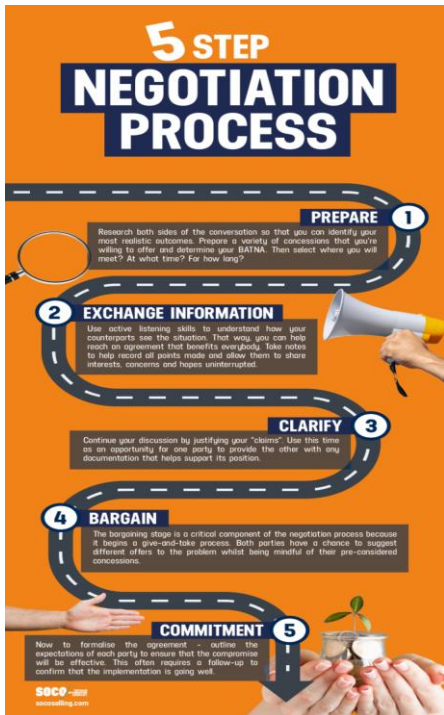
# 1. Use techniques of conversation, negotiation and decision-making

## Elements of Lateral Leadership:



# Negotiating with Nursing Leadership

## Building Link Nurse Program: Apply Principles of Lateral leadership



- Prepare to engage with HAI data and its implications
- Benefits of extending the reach of infection prevention
  - Staff better prepared
  - Better publicly reported profile
  - Contribution to special programs such as MAGNET
  - Much to gain with very little investment
- Ask for commitment (paid time) to attend the Link Nurse baseline training and to attend monthly one-hour meeting
- Clarify and address their concerns
- Bargain – offer something new that they value in exchange for their support

## 2. Legitimacy

### Elements of Lateral Leadership:





# Establish Legitimacy

## **Building Link Nurse Program: Apply Principles of Lateral leadership**

- Getting nursing leadership on board to create an unofficial hierarchy for infection prevention (in creating and running the Link Nurse Program)
- Get approval from medical leadership
  - Funding
  - Approve goals along with nursing leadership
  - Create legitimacy and unofficial hierarchy for infection prevention
  - Support with physician accountability when needed



ELSEVIER

Major article

### Infection Control Link Nurse Program: An interdisciplinary approach in targeting health care-acquired infection

Madhuri M. Soprala MD, MPH<sup>a,b,\*</sup>, Lisa Yahle-Dunbar RN, CIC<sup>b</sup>,  
Justin Smyer MLS(ASCP)CM, MPH<sup>b</sup>, Linda Wellington RN, CIC<sup>b</sup>,  
Jeanne Dickman MT, CIC<sup>b</sup>, Nancy Zikri PhD, MPH<sup>b</sup>, Jennifer Martin RN, MPH<sup>b</sup>,  
Pat Kulich RN, CIC<sup>b</sup>, David Taylor PhD<sup>b</sup>, Hagop Mekhjian MD<sup>c</sup>, Mary Nash PhD<sup>d</sup>,  
Jerry Mansfield PhD<sup>d</sup>, Preeti Pancholi PhD<sup>e</sup>, Mary Howard RN<sup>d</sup>, Linda Chase PhD<sup>d</sup>,  
Susan Brown RN<sup>d</sup>, Kristopher Kipp RN<sup>d</sup>, Kristen Lefeld MHA<sup>b</sup>, Amber Myers MPH<sup>b</sup>,  
Xueliang Pan PhD<sup>f</sup>, Julie E. Mangino MD<sup>a,b</sup>

<sup>a</sup>Division of Infectious Diseases, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>b</sup>Department of Clinical Epidemiology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>c</sup>Health System Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>d</sup>Health System Nursing Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>e</sup>Department of Pathology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>f</sup>Center for Biostatistics, The Ohio State University Wexner Medical Center, Columbus, OH

## Nursing Administration

- Select 1-2 staff nurses per unit to function as link nurses
- Allow time for link nurses to perform their duties and attend link nurse meetings



FI SFVIFR

Contents lists available at ScienceDirect

American Journal of Infection Control

Journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



Major article

Infection Control Link Nurse Program: An interdisciplinary approach in targeting health care-acquired infection

Madhuri M. Sopirala MD, MPH<sup>a,b,\*</sup>, Lisa Yahle-Dunbar RN, CIC<sup>b</sup>,  
Justin Smyer MLS(ASCP)CM, MPH<sup>b</sup>, Linda Wellington RN, CIC<sup>b</sup>,  
Jeanne Dickman MT, CIC<sup>b</sup>, Nancy Zikri PhD, MPH<sup>b</sup>, Jennifer Martin RN, MPH<sup>b</sup>,  
Pat Kulich RN, CIC<sup>b</sup>, David Taylor PhD<sup>b</sup>, Hagop Mekhjian MD<sup>c</sup>, Mary Nash PhD<sup>d</sup>,  
Jerry Mansfield PhD<sup>d</sup>, Preeti Panholi PhD<sup>e</sup>, Mary Howard RN<sup>d</sup>, Linda Chase PhD<sup>d</sup>,  
Susan Brown RN<sup>d</sup>, Kristopher Kipp RN<sup>d</sup>, Kristen Lefeld MHA<sup>b</sup>, Amber Myers MPH<sup>b</sup>,  
Xueliang Pan PhD<sup>f</sup>, Julie E. Mangino MD<sup>a,b</sup>

<sup>a</sup>Division of Infectious Diseases, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>b</sup>Department of Clinical Epidemiology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>c</sup>Health Systems Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>d</sup>Health Systems Nursing Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>e</sup>Department of Pathology, The Ohio State University Wexner Medical Center, Columbus, OH

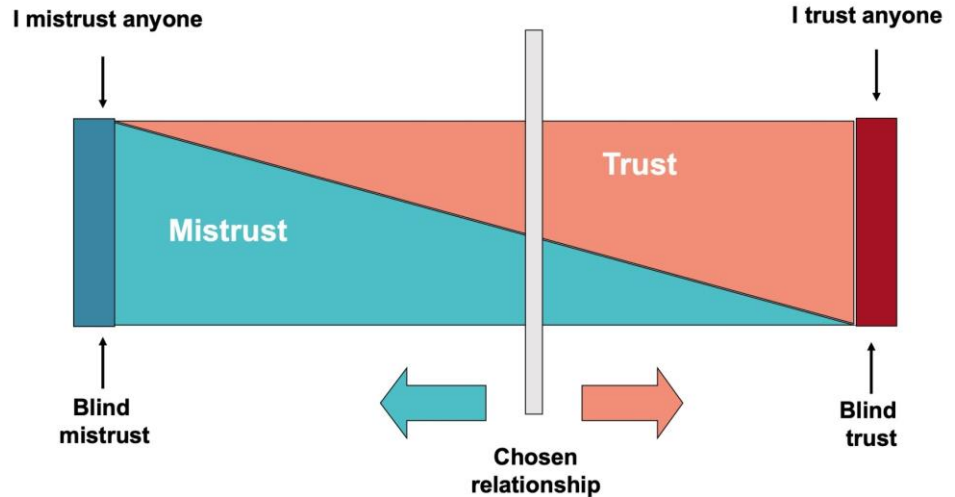
<sup>f</sup>Center for Biostatistics, The Ohio State University Wexner Medical Center, Columbus, OH

## Medical Staff Administration

- Provide funding for the link nurse training and monthly meetings
- Provide funding for the monthly incentive strategy towards improving HH and CI
- Share monthly HH compliance data with the medical staff

# 3. Balancing the tension between trust and control

## Elements of Lateral Leadership:



# Establish Trust

## **Building Link Nurse Program: Apply Principles of Lateral leadership**

- Transparency
- Visibility from executive leadership
- Make it clear that link nurses are supported in their efforts
- Follow through on meeting topics and discussions
- Provide reliable data and resources
- Maintain credibility



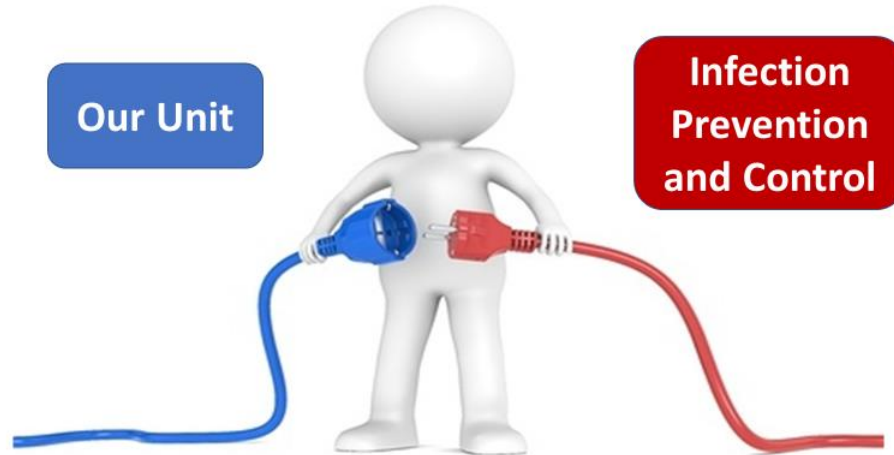
You are our Link  
Nurse...  
What does that  
mean?

Prepare a job description

# Duties of Link Nurse...

Link nurses essentially serve as the link between patient care units and the infection preventionists

I am a liaison between...



# Duties of Link Nurse...

- Monitoring and reinforcing infection prevention/control measures
- Reporting events and allowing for feedback to allow for strategies for improvement in infection prevention/control measures



Image: <https://study.com/academy/lesson/community-health-definition-care.html>



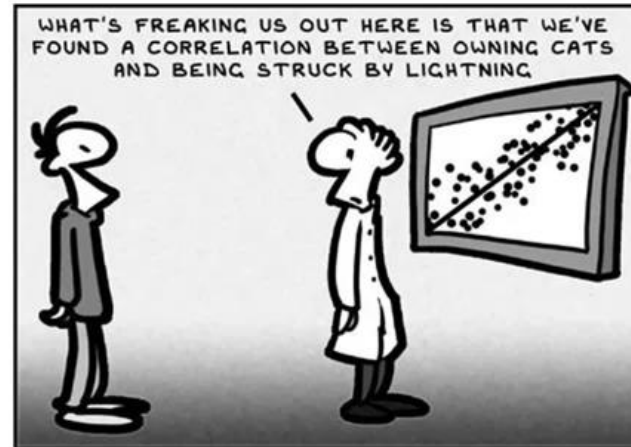
shutterstock - 38472400



# Duties of Link Nurse...

Duties involve sharing information, data, and propagating infection prevention principles with their staff in their patient care unit

I will bring back education and data from  
IPC to you



# Duties of Link Nurse...

Eyes and ears to IPC and bring back ideas and concerns from the unit

I bring concerns or ideas from you to Infection Prevention and Control (IPC) and vice versa... I will work with you and IPC to address those



# Create a Job Description

## The Link-Nurse (LN) Job description

### Purpose of Implementation of the Link-Nurse (LN) System

Link nurse system objectives are to prevent or minimize risks of healthcare-associated infections (HAIs) for patients, personnel, and visitors at The OSUMC facilities. In a hospital with a large size, it is important to have continued presence of infection control through out the hospital in all patient care units to ensure maximum effort towards prevention of HAIs. Infection control link nurses serve as a link between their own patient care units and the infection control team (ICT). Infection control link nurses are structured with their role to own the infection control issues in their units and motivate staff to improve practice and increase awareness among them. They are empowered to identify and report the non-compliance issues associated with infection control practices. Accordingly, they play a pivotal role in the linkage of existing and essential measures: feedback and reporting processes, and other traditionally advocated methods such as hand-hygiene and contact isolation compliance.

### Overall Goals of the Link-Nurse (LN) Curriculum

A link nurse will have the following characteristics:

- Preferably an “opinion leader” or respected person
- Sufficient standing to have authority with managers and colleagues
- Open to approaching others
- Communicative
- Comfortable with feedback

After undergoing the formal training offered by The Department of Epidemiology, she/he will have

- Ability to act as a link between clinical areas & ICT
- Ownership of infection control in the unit
- Basic and up-to-date knowledge and skills of hospital infection control in instructing colleagues and other healthcare personnel in his or her ward or unit.
- Ability to be an educational role model of healthcare personnel for routine infection control practice in his or her ward or unit.
- Ability to identify and plan to solve issues concerning infection control in his or her ward or unit in accordance with ICT.

- Ability to implement new infection control interventions with an understanding of unit-specific challenges, and ability to promote strategies that are most likely to be successful in his or her ward or unit.

### Responsibilities of the LN

The day-to-day tasks of a LN, while maintaining the primary role as bedside caregiver on his or her unit include

- Monitor compliance with hand hygiene and isolation.
- Ensuring prompt isolation of infected patients in collaboration with the charge nurse of his or her unit in accordance with hospital policy.
- Share data provided by ICT with staff periodically.
- Assist in early detection of outbreaks by reporting unusual occurrences.
- Planning to avoid spread of outbreak pathogens such as MRSA in his or her own ward or unit, under the supervision of ICT members.
- Propagate infection control principles among staff on the units on a periodic basis by ongoing education.
- Remind staff/physicians of compliance on a day-to-day basis and on the spot.
- Report non-compliant staff/physicians to the Medical Director of Epidemiology and/or the respective infection control practitioners (ICPs).
- Act under the supervision of the ICP as a resource and role model for colleagues.
- Monitoring by observation that hygiene maintenance or usage of environment and equipment in his or her unit are being carried out in accordance with hospital policy.
- Casual interactions with ICP (during ICP rounds)
- Formal meeting with ICP each month to report any problems
- Meeting with all link nurses and ICPs every 3 months

### Educational Programs

A training program for LN includes:

Training in basic infection control and learn practical infection control on the job through having frequent communication with members of the ICT.

Examples of subjects of lectures;

1. Principles of hospital acquired infections and their control.
2. Basic bacteriology for antimicrobial-resistant bacteria.
3. Interpretation of microbiological data.
4. Identify the beginning of an outbreak.

# Challenges in building a Link Nurse Program

- Infection preventionists and hospital epidemiologists do not have authority over hospital staff
- Funding
- Staff engagement for long periods of time
- Maintaining legitimacy for long periods of time
- Showing the worth of the program

How do we build this program and make it effective?

# Responsibilities of Infection Prevention Team

## Clinical Epidemiology\*

- Annual new link nurse training
- Organize monthly link nurse meetings
- Provide weekly HCA-MRSA data to the link nurses
- Provide monthly HH and CI data to the link nurses
- Address issues/barriers to optimizing compliance with HH and CI identified by link nurses
- Follow-up of physician breaches by the Infectious Diseases / Clinical Epidemiology physicians

\*Infection  
Prevention  
and Control



# Link Nurse Training

- › Classroom lectures detailing principles of infection prevention, microbiology lab tour, real-time role play scenarios for non-compliance
- › Create semi-experts in infection prevention

## AGENDA FOR INFECTION CONTROL LINK NURSE TRAINING

# Training Agenda

<b>8:00-8:15</b>	<b>Welcome and Pre-Test</b>
<b>8:15-8:55</b>	<b>Healthcare Acquired Infections</b>
<b>8:55-9:30</b>	<b>Culture of Safety</b>
<b>9:30-10:00</b>	<b>Germ Theory and The Importance of Hand Hygiene</b>
<b>10:00-10:15</b>	<b>Break</b>
<b>10:30-11:10</b>	<b>Basic Microbiology and Common Hospital Organisms</b>
<b>11:20-12:00</b>	<b>Lab Tour and Workflow</b>
<b>12:00-12:30</b>	<b>LUNCH</b>
<b>12:30-1:30</b>	<b>Multidrug Resistant Organisms - Types of Isolation</b>
<b>1:30-2:30</b>	<b>Healthcare Acquired Infections</b>
<b>2:30-2:45</b>	<b>Break</b>
<b>2:45-3:30</b>	<b>Healthcare Acquired Infections</b>
	<b>Prevention Strategies Part II</b>
<b>3:30-4:00</b>	<b>Review/Role Playing and Post-Test</b>

## **Microbiology and Link Nurse**

### **Clinical Microbiology Laboratory**

- Overview of Microbiology Lab Testing (individual workstations)
- Specimen collection and rejection policies
- Communication of significant lab results including multidrug resistant organisms



# Monthly Meetings



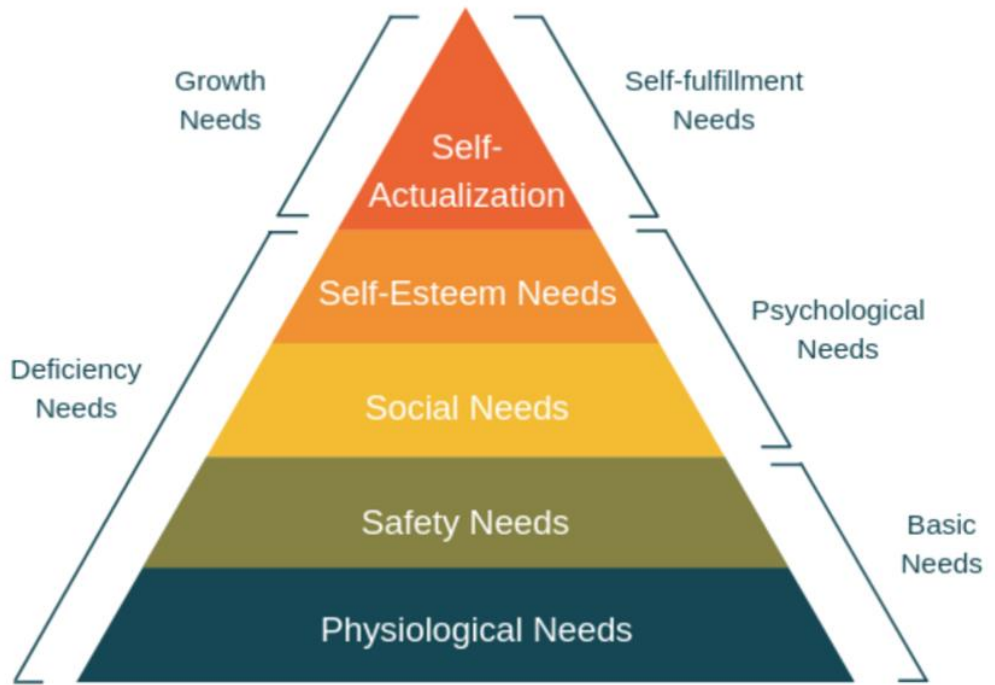
- Provide a support system
- Provide a way to communicate openly
- Provide follow up on concerns brought up by link nurses
- Provide continued education
- Make it interactive

# Agenda for monthly meetings

- Provide unit specific data – selective infection data and corresponding process measure data
- Collate and present audit data if link nurses are conducting audits
- Short education on the topic the link nurse program is currently addressing
- Assign tasks and provide resources
- Breakout sessions into small groups with respective infection preventionists (encourages active participation)

P. S. Provide lunch – ours was always pizza and salad

# Maslow's Hierarchy of Needs: These must be met for successful commitment



## Your program has to:

- Provide safe space for open discussions
- Create an environment where they feel they are part of a group and are being supported
- Conduct interactive meetings that provide followup on issues discussed with so that they feel they are being part of something important, feeling a sense of contribution and being valued and they are being agents of change
- Provide ways to realize self fulfillment and personal growth – e.g., clinical ladder opportunities, showcasing their work at regional or national meetings etc.

# Challenges in building a Link Nurse Program

- Infection preventionists and hospital epidemiologists do not have authority over hospital staff
- Funding
- Staff engagement for long periods of time
- Maintaining legitimacy for long periods of time
- Showing the worth of the program

How do we build this program and make it effective?

# Link Nurse Projects



Specific

Measurable

Attainable

Realistic

Timely



# Infection Control Link Nurse Program addressing health care- acquired MRSA

American Journal of Infection Control 42 (2014) 353-0



Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



Major article

## Infection Control Link Nurse Program: An interdisciplinary approach in targeting health care-acquired infection

Madhuri M. Sopirala MD, MPH<sup>a,b,\*</sup>, Lisa Yahle-Dunbar RN, CIC<sup>b</sup>,  
Justin Smyer MLS(ASCP)CM, MPH<sup>b</sup>, Linda Wellington RN, CIC<sup>b</sup>,  
Jeanne Dickman MT, CIC<sup>b</sup>, Nancy Zikri PhD, MPH<sup>b</sup>, Jennifer Martin RN, MPH<sup>b</sup>,  
Pat Kulich RN, CIC<sup>b</sup>, David Taylor PhD<sup>b</sup>, Hagop Mekhjian MD<sup>c</sup>, Mary Nash PhD<sup>d</sup>,  
Jerry Mansfield PhD<sup>d</sup>, Preeti Pancholi PhD<sup>e</sup>, Mary Howard RN<sup>d</sup>, Linda Chase PhD<sup>d</sup>,  
Susan Brown RN<sup>d</sup>, Kristopher Kipp RN<sup>d</sup>, Kristen Lefeld MHA<sup>b</sup>, Amber Myers MPH<sup>b</sup>,  
Xueliang Pan PhD<sup>f</sup>, Julie E. Mangino MD<sup>a,b</sup>

<sup>a</sup>Division of Infectious Diseases, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>b</sup>Department of Clinical Epidemiology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>c</sup>Health Systems Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>d</sup>Health Systems Nursing Administration, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>e</sup>Department of Pathology, The Ohio State University Wexner Medical Center, Columbus, OH

<sup>f</sup>Center for Biostatistics, The Ohio State University Wexner Medical Center, Columbus, OH

# Link Nurse Responsibilities...

## Link Nurse

- Monitor HCW hand hygiene and contact isolation compliance during their scheduled shift
- Educational activities sharing information provided by Infection Prevention Department
  - Short presentations at staff meetings. Information bulletins, in-service education, one-on-one education to the staff
  - Identify issues/barriers related to optimizing compliance with hand hygiene and contact isolation on their units

# Hand Hygiene Competition – an example of things you could do

## Date:

## Judges:

- › Chief Nursing Officer
- › Associate Chief Nursing Officer
- › Director of Nursing Education

## Guideline:

Our unit will be judged on two aspects:

- › Staff engagement: Excitement, innovation and extent on staff involvement (including medical staff and your unit's EMS staff)
- › Power Point Slide Presentation displaying and describing your unit's effort (5 min) – quality of the presentation, quality of work done on the unit including reminders, prompts, posters

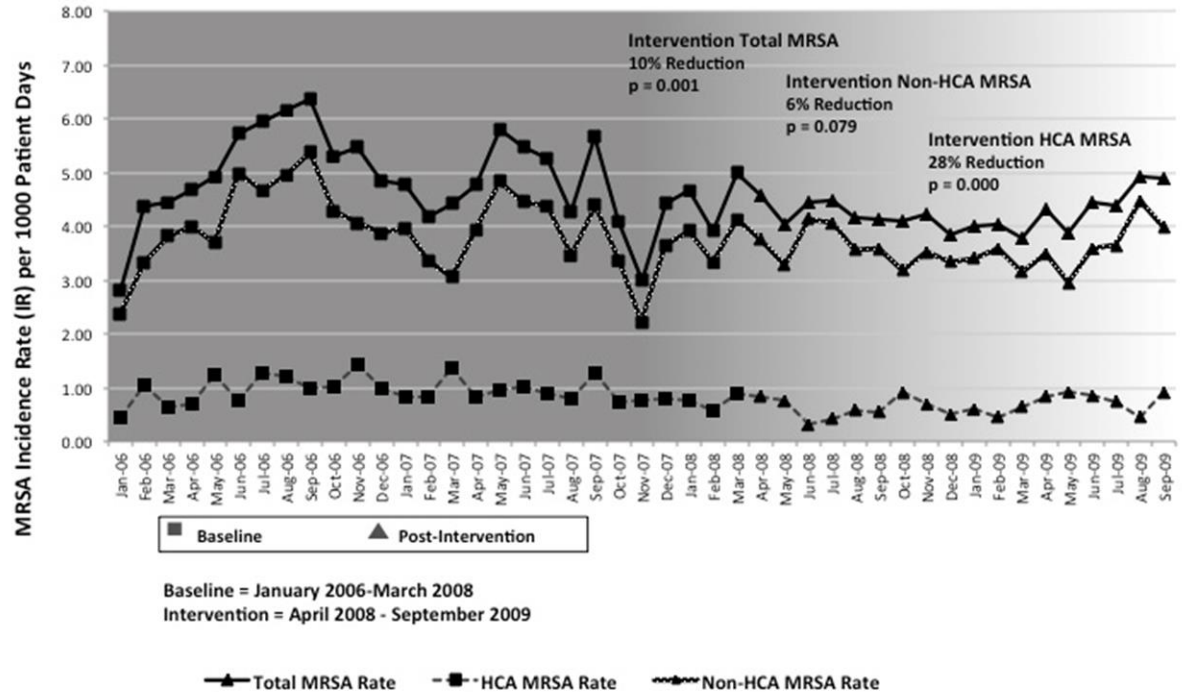
Note: Make sure regulations are followed when posting reminders, prompts or posters on the unit (make sure to get verbal approval from your manager)



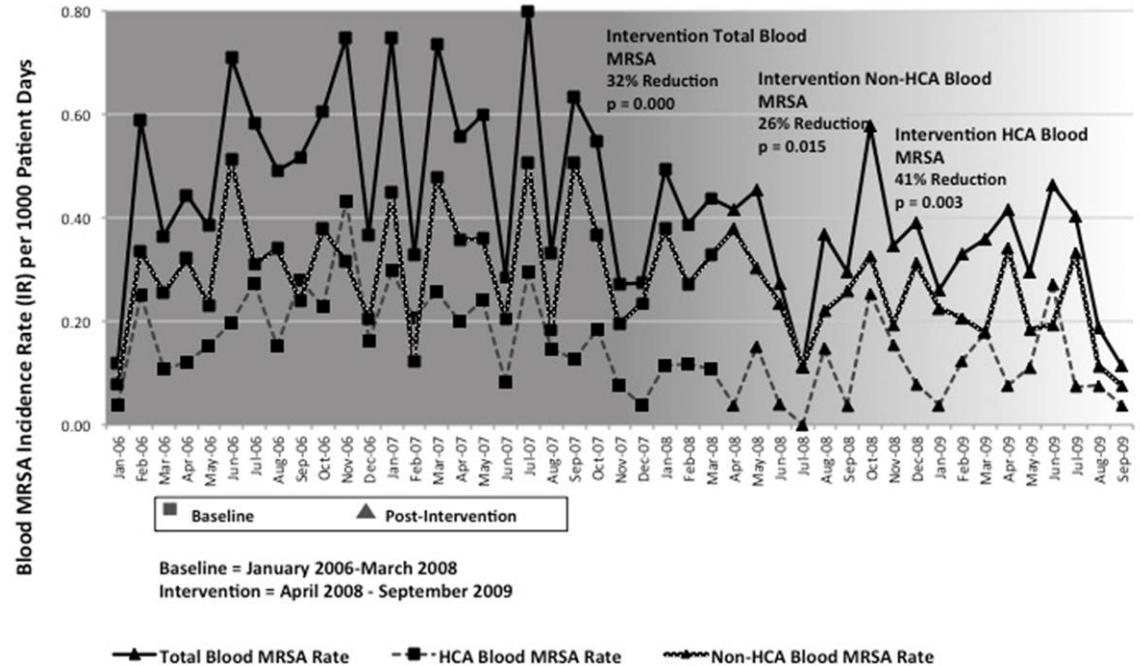
## Outcome Measures

- Primary outcome measure was HCA-MRSA incidence per 1,000 patient-days Total MRSA incidence rate
- Non-HCA-MRSA incidence rate
- Total MRSA bacteremia incidence rate
- HCA-MRSA bacteremia incidence rate
- Non-HCA-MRSA bacteremia incidence rate
- Hand soap/sanitizer use per month
- Hand hygiene compliance

# Total MRSA, Non-HCA and HCA MRSA



# Total Blood MRSA, Non-HCA Blood and HCA Blood MRSA



# Outcome Measures

Hand soap and sanitizer usage in the intervention period compared with baseline period

	Surveillance period	Soap and hand sanitizer usage	Standard deviation (range)	P value
Monthly mean of soap and hand sanitizer usage	Baseline Intervention	19,301 31,794	5,559 (2,232-27,000) 6,962 (20,354-47,245)	- < .001

# Infection Control Link Nurse Program



ELSEVIER

American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



Major Article

Impact of a change in surveillance definition on performance assessment of a catheter-associated urinary tract infection prevention program at a tertiary care medical center



Madhuri M. Sopirala MD, MPH <sup>a,\*</sup>, Asma Syed MD <sup>a</sup>, Roman Jandarov PhD <sup>b</sup>,  
Margaret Lewis MSN <sup>c</sup>

<sup>a</sup> University of Cincinnati College of Medicine, Cincinnati, OH

<sup>b</sup> Division of Biostatistics and Bioinformatics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH

<sup>c</sup> University of Cincinnati Medical Center, Cincinnati, OH

## **Outcome measures**

**Objective:** Reduce CAUTI rates in the ICU by implementation of the Link nurse program

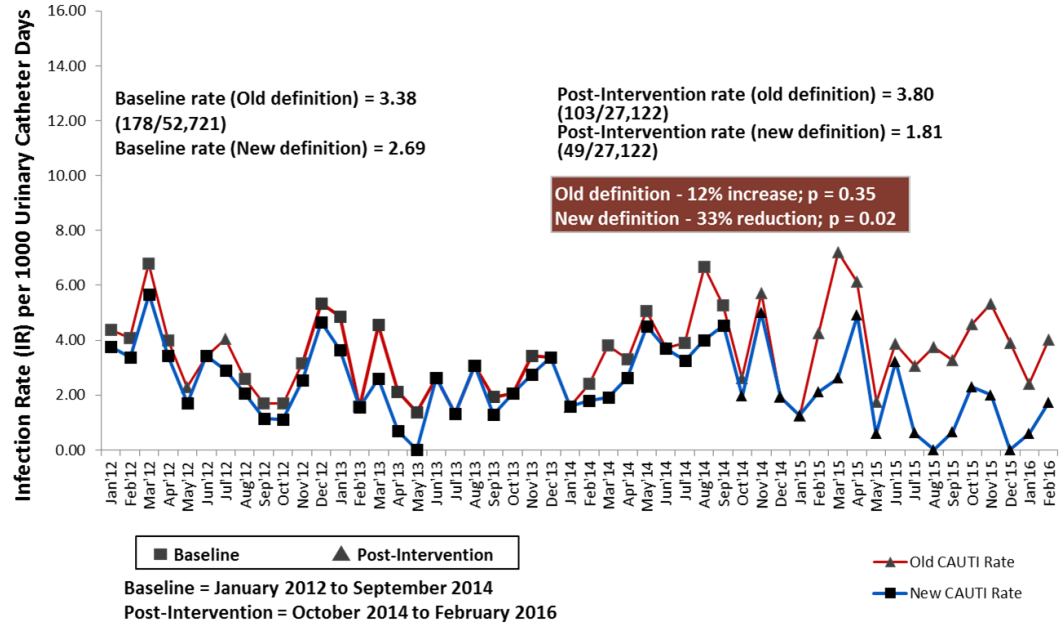
**Outcome measure:**

- Monthly CAUTI incidence

# Monthly education and activities of Link Nurses who were focused on CAUTI prevention during the intervention period

Intervention Month	Link Nurse Meeting Activity
September 2014	8-hour infection prevention training for Link Nurses
October 2014	Link Nurse return demonstration training of urinary catheter maintenance
November 2014	Cross-sectional audit of all urethral catheters in the hospital
December 2014	<ul style="list-style-type: none"> <li>• Link Nurse training on collection of urine cultures</li> <li>• Shared urethral catheter audit results</li> <li>• Link Nurse self-commitment to 3 action items for their units based on the audit results</li> </ul>
January 2015	<ul style="list-style-type: none"> <li>• Sharing of unit-based CAUTI prevention activities by Link Nurses</li> <li>• Specific instructions for urine culture collection shared with Link Nurses</li> </ul>
February 2015	<ul style="list-style-type: none"> <li>• Foley insertion competency training using mannequin</li> <li>• Assignment to Link Nurses to perform competency training on their units for urinary catheter insertion and maintenance</li> </ul>
March 2015	CAUTI prevention objectives and strategies engaging patients and family members shared with Link Nurses to be disseminated on their units
April 2015	Catheter insertion competencies on units completed by Link Nurses and shared at the meeting
May–July 2015	Link Nurses shared their unit-based activities
August 2015	Roll out of urinary catheter kit to standardize step-by-step process of insertion; Link Nurses educated on the kit and helped with the roll-out
September 2015–February 2016	Link Nurses shared their unit-based activities

# Reduction in CAUTI





# Challenges

- The large size of our health care system and the diversity of our hospitals posed a challenge.
  - Clinical Epidemiology obtained support from the individual nursing leaders at each of these hospitals, who were engaged from the beginning. This approach helped us overcome local obstacles within the hospitals.
- Another challenge was maintaining the interest of link nurses over long periods of time.
  - We addressed this by making the sessions interactive, by dividing link nurses into small groups for a part of every monthly meeting, by pairing small groups of link nurses with infection preventionists for one-on-one sessions, by organizing lectures based on the interests of link nurses, and by providing regular, monthly feedback on their unit-specific performance.
  - Our infection preventionists also developed an ongoing working relationship with their link nurses and approached them with questions and any issues originating from their PCUs.
- Maintaining credibility for the program is a challenging task.
  - We achieved this by addressing every question or issue brought up by the link nurses.
  - We shared the experience with the group to facilitate group learning from individual experiences.
  - Clinical Epidemiology maintains ownership of the data feedback, conduct of the training sessions and monthly meetings, and addressing the issues suggested by the link nurses.

# Avoided Cost

- Using the mean attributable cost for MRSA infections (\$35,367 per case)
- The number of HCA-MRSA cases for intervention period was projected using the rate from baseline period and period's actual PDs
- We calculated that the number of infections avoided over the 2-year period was 198 with an avoided cost of \$7,002,666

# Our experience

- Significant decrease in two different healthcare acquired infections (HAI) in two different academic health systems demonstrated with implementation of Link nurse program
- Can be used to target other HAI

# Summary

In summary,

- Infection prevention Link Nurse programs have been shown to be successful when robust training and follow up is involved
- Since infection prevention programs do not have hierarchal authority over hospital staff, it is important to apply principles of lateral leadership for building a link nurse program
- Choose projects with SMART goals so that they are specific, measurable, attainable, realistic and timely
- Always be sure to show the effect of your program to all stakeholders so the program benefits from continued resources and funding

# Questions?

Please direct questions to:

Madhuri M. Sopirala, MD, MPH

E-mail: [madhuri.sopirala@UTSouthwestern.edu](mailto:madhuri.sopirala@UTSouthwestern.edu)