Emerging Role of Corporate Infection Prevention and Control:
Unleashing the efficacy of prevention across an integrated delivery network
Friday 16 June, 2017, Session 3406

Sue Barnes, RN, CIC, FAPIC – Infection Prevention Consultant, San Mateo, CA
sueabarnes@gmail.com

Russell N. Olmsted, MPH, CIC, FAPIC – Director, Infection Prevention & Control, Trinity Health, Livonia, MI
olmstedr@trinity-health.org

Maureen Spencer, M.Ed, BSN, RN, CIC – Infection Preventionist Consultant, Boston, MA
Maureen_spncr@yahoo.com
Disclosures

• Sue Barnes:
  • Aerobiotix, Applied Silver, Clorox, Contec, Elyptol, Global Life Technologies (Nozin), J&J Ethicon, Nanosonics

• Russell N. Olmsted:
  • Ethicon, Inc. , HRET, Premier, Inc.

• Maureen P. Spencer:
  • Accelerate Diagnostics, Indigo Clean and Irrimax.
Learning Objectives

Upon completion participant will be able to:

1. Describe at least one advantage of a corporate infection prevention and control program.

2. List at least one example of group function within CDC's NHSN for improving individual hospital performance.

3. Describe the benefit of standardizing practices, products, and policies across an integrated delivery network.
Overview

• Mergers & acquisitions of healthcare systems under the Affordable Care Act grew by 18% in 2014 and continues to grow.
• As a result infection prevention and control programs are consolidating across multiple facilities and diverse geographic locations into large integrated delivery networks (IDNs).
• What are the implications for IP professionals under this changing landscape?
• What are the benefits of a corporate IP program vs. decentralized IP programs?
Trends in Consolidation of U.S. Hospitals

Announced U.S. hospital mergers and acquisitions

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of deals</th>
<th>Number of hospitals involved in transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>'07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


More U.S. hospitals are part of a health care system

- Nonaffiliated hospitals
- Hospitals in health care systems

Source: American Hospital Association
Genesis of National Corporate IP Director Network

Sue Barnes, RN, CIC, FAPIC

www.infectionprevention.website
Founding Members:
Sue and Maureen (during lunch @ APIC 2013, Ft. Lauderdale, FL)
Structure of the National Corporate IP Director Network

• Charter
• Meetings
• Membership
• Website
• Goals
Meetings

• Virtual meetings every two months
• Face to Face meetings during annual APIC Conference
Membership

• Open to all IP directors for multi-facility systems – acute care, LTC, ambulatory, etc.
• 2013 = 2 members, 2017 = 72 members
• The 72 members are mainly from US – one from Australia, one from Canada
• Contact sueabarnes@gmail.com to join
NATIONAL CORPORATE IP DIRECTOR NETWORK

NEXT MEETING:
APRIL 6, 2017
AT 8 A.M. PACIFIC TIME

FOR CALL IN NUMBER AND/OR TO JOIN THE GROUP
PLEASE CONTACT: SUEABARNES@GMAIL.COM
650-430-2511

OVERVIEW: THE CORPORATE IP DIRECTOR GROUP IS COMPRISED OF THE INFECTION PREVENTION DIRECTORS OF MULTI-HOSPITAL/FACILITY SYSTEMS IN THE US, AUSTRALIA AND CANADA. THIS GROUP IS OPEN TO ALL SUCH INDIVIDUALS. THE PURPOSE OF THE GROUP CONTINUES TO EVOLVE, AND CURRENTLY IS FOCUSED ON KNOWLEDGE SHARING.
Group Goals

Advancing the Professional Practice of Infection Prevention and Control by:

1. Networking/Informal email surveys
2. Sharing best practices
3. Formal surveys
4. Publication
5. Projects
6. Informing healthcare community and execs re: benefit of corporate IP programs
Networking and Informal Surveys

- Centralizing surveillance of HAIs?
- Mini-refrigerators in patient rooms; yes or no?
- Strategies for prevention of SSI after C-section?
- What are you doing about the Sorin 3T heater cooler recall?
- How do you handle travel screening re: Zika?
- Anyone discontinuing contact isolation for MRSA/VRE?
- Has anyone developed an IP policy re: oncolytic viral therapy?
Formal Surveys

• **2014:** 4 question salary and role survey
• **2014:** 2 question survey mandatory flu and masking program
• **2016:** Comprehensive survey re: corporate IP programs for article to inform, support and recruit additional members – article in process

• **All survey results posted:**
  [www.corporateipnetwork.weebly.com](http://www.corporateipnetwork.weebly.com)
Sharing Best Practices

To support standardization, best practice sharing and cost containment, documents are posted here and include the following:

www.corporateipnetwork.weebly.com

- Risk Assessment, IP Position Descriptions, IP Program Plan Templates
- Ebola algorithm
- Isolation study design
- Recruitment and retention strategies
Publications and projects

• Publication: Culture of Culturing (assisting Bob Garcia): surveys, articles, informing and guiding the industry to improve patient safety

• Publication: Reliable Design of IP Programs, frontline and corporate – support through surveys and articles

• Project in partnership with IDSA, SHEA, IDAC (and APIC?): Development of structure/guidance re: MD Partner/Director of IP Programs in US – survey, commentary publication, standard position description, etc.
Surveillance, Prevention & Control of Healthcare Associated Infections (HAIs): A Corporate Approach

Russell N. Olmsted, MPH, CIC, FAPIC
CDC NHSN HAI Summary Data
At-a-Glance Trinity Health Network

- **93** Hospitals* in 22 states
- **47** Home Care and Hospice Locations Serving 116 Counties
- **59** Continuing Care Facilities
- **15** PACE Center Locations
- **4** Mission Health Ministries

2.5m Home Health/Hospice Visits

- **97k** Full-time Employees
- **24k** Affiliated Physicians
- **5.3k** Employed Physicians

*Owned, managed or in JOAs or JVs.
Stepwise Approach to System-wide Performance Profile for HAIs

• Created Trinity Health Group in CDC’s National Healthcare Safety Network (NHSN)

• Located really, really smart data analysts – Clinical Quality Analytics & Improvement Team

• System Quality/Patient Safety Board of Directors set the “tone at the top”: Focus on –
  • Preventing HAIs
  • Mitigating readmissions
  • Enhance patient experience of care

• Created a composite HAI Standardized Infection Ratio (SIR) + 4 year target; System – member hospital specific
Standard Work: HAI Prevention

- Identify community onset C. diff. within 3 days of admission
- Antibiotic stewardship program
- CAUTI and CLABSI bundles
- Foundational: Hand Hygiene, Environmental cleaning/disinfect
HAI Care Optimization Structure

Steering Team

Care Optimization Team

IPC Affinity Group

C. Diff
Antibiotic Stewardship
Future State
(Future State: CAUTI, hand hygiene, SSI Colo, MRSA BACT, Environmental Cleaning Disinfection)

CLABSI

Subgroups

APIC 2017 June 14-16 • Portland, OR
Trinity Health HAI Distribution

December 2016 Scorecard (March – August 2016 Infections)

- 1,227 infections were reported in the 6 month reporting period.
- This averages 6.7 infections each day.
- C. difficile makes of 66% of all infections at Trinity Health.
- CAUTI is the second most frequent infection at 13%.

*N = 1227

*CAUTI, CLABSI, C diff, MRSA, COLO. Source: Trinity Health IPC Affinity Group, NHSN, CDC.
Analytics from NHSN re-baseline model, 01/2017
Impact of Re-baseline on System-wide Performance Scorecard: March 2017 Update
29 hospitals have improved HAI scores to achieve at least threshold by March 2017
Peer-Reviewed Experience with Composite SIR – A Holistic View of HAIs

Examples from the literature on efficacy of IPC Collaborative Networks

A Program to Prevent Catheter-Associated Urinary Tract Infection in Acute Care

Among non-ICUs, catheter use decreased from 20.1% to 18.8% and catheter-associated UTI rates decreased from 2.28 to 1.54 infections per 1000 catheter-days. No change was observed in ICUs.

Examples from the literature on efficacy of IPC Collaborative Networks


41% relative reduction in incidence of CLABSI, ICU Populations across the U.S.

Examples from the literature on efficacy of IPC Collaborative Networks

**Effect of a Clostridium difficile Infection Prevention Initiative in Veterans Affairs Acute Care Facilities**

15% reduction in hospital onset C. difficile SIR

Emerging Trend in Surveillance of HAIs Across an IDN

Centralized data collection, analysis and reporting

Structure varies from internal personnel to outsourced service provided by a vendor
Education and Professional Development of IPs in Multi-hospital systems

Maureen P. Spencer, M.Ed, BSN, RN, CIC
Infection Preventionist Consultant
Boston, MA

www.workingtowardzero.com
www.7sbundle.com
www.creativehandhygiene.com
Connecting with Hospital Leaders to Support IP Recruitment

Develop job descriptions that support recruitment:

• **IP Coordinator** – entry level IP positions
  • Entry level inexperienced IP, MPH, RN, MT

• **IP Manager** – managing the program and reporting to a Director (Quality, CNO, CMO)
  • Bachelors degree and 1-3 years experience, CIC preferred or required

• **IP Director** – directing the program and staff
  • Master’s degree and CIC required, 3-5+ years in infection prevention
Care and Retention of IPs: Reinforcement

- Develop IP training course that introduces the new IP to all aspects of the clinical role
- On-site training by Corporate IPs
- Encourage CIC exam – attendance at prep courses
- Webinars on a routine basis – example: use of Brainshark and annual assignment in Healthstreams
  - C difficile, SSI Prevention, Employee Health, Prevention CAUTI, CLABSI, Environmental Sources for Microorganisms
- Monthly IP teleconference
- Quarterly corporate task forces with IP assignments and participation
- Educational tools and materials: posters, slides, eBug Bytes, policy templates, practice guidelines
Rising antibiotic resistance in children has infectious disease experts scared

- According to a new study, the number of hospitalized children in the U.S. infected with bacteria resistant to multiple types of antibiotic drugs surged between 2007 and 2015. Researchers from Case Western Reserve University School of Medicine studied patient data from 48 children’s hospitals across the country. Using diagnostic and billing claim codes, they identified diagnoses of infections with Enterobacteriaceae, a bacterial family that includes salmonella, Escherichia coli and Shigella, among many others. And among these diagnoses, they singled out those that were categorized as multi-drug resistant. Among a approximately 107,000 diagnoses of Enterobacteriaceae infections in the hospital records they examined, the researchers found 724 instances of multi-drug resistance. Although the total number of Enterobacteriaceae infections was fairly stable year to year, the proportion of these infections that were resistant to antibiotics rose from 0.2 percent in 2007 to 1.3 percent in 2015. Further examination of the hospital records revealed additional disturbing facts. Most of the MDR infections were present in the children before they arrived at the hospital, which means an increasing amount of superbugs are circulating in U.S. communities. And although the analysis did not show a dramatically higher death rate among the superbug-infected children, there were more deaths in this group. Hospital stays were an average of four days longer (21 days versus 17 days) for the MDR infections compared with more easily treated Enterobacteriaceae infections. Older children and those with other illnesses were the most at risk for antibiotic-resistant illnesses.


WHO: These 12 bacteria pose greatest risk to human health

- Twelve types of bacteria were deemed “priorities” in urgent need of new antibiotics, according to a list released by the World Health Organization on Monday. The first list of its kind, it highlights bacteria that global health experts believe pose the greatest threats to human health. The WHO is calling on governments and pharmaceutical companies to prioritize the development of new drugs against them. Factors used to determine the bacteria posing the most risk included the levels of resistance seen already, the mortality rates of these bacteria today, their prevalence out in communities and the burden they place on health systems. Topping the list were bacteria classed as "gram negative" bacteria, which have already shown resistance to multiple drugs. These include Acinetobacter baumannii and pseudomonas aeruginosa, which are predominantly linked to hospital-acquired infections or infections in healthcare settings, such as nursing homes, and in patients who require equipment such as ventilators or blood catheters, which can become contaminated. Enterobacteriaceae, which include bacteria such as E.coli and klebsiella, were listed third and also pose a greater threat in healthcare settings. Globally, antibiotic resistance has been seen in every country, according to WHO, and drug-resistant bacteria are estimated to cause 700,000 deaths each year. If no action is taken, they are expected to kill 10 million people annually by 2050.

Corporate IP Serves as a Resource for the Infection Preventionists

Serve as expert in standards, guidelines, practices:

• The Joint Commission (TJC)
• Association for Professionals in Infection Control and Epidemiology (APIC)
• Centers for Disease Control (CDC)
• National Health and Safety Network (NHSN)
• Centers for Medicaid and Medicare Services (CMS)
• HICPAC, EPA, FDA, AAMI, ASHE, AII, IHI, AORN, ASHA, etc
How To Keep Up With New Knowledge?

Resources for Daily Research:

www.infectioncontroltoday.com
www.sciencedaily.com
www.hpnonline.com
www.apic.org
www.aorn.org
www.cdc.gov
www.jointcommission.org
www.shea-online.org
www.sentri7.com
www.pharmacyonesource.com
www.linkedin.com
How To Keep Up With New Knowledge?

www.aami.org
www.aia.org
www.ahrae.org
www.ashe.org
http://www.qualitynet.org
www.fda.gov/MedicalDevices
http://www.cdc.gov/mmwr/
http://www.idsociety.org/IDSA_Practice_Guidelines/
Joint Commission Resources
http://www.jcrinc.com/
Accreditation Management Plus – Tracer Methodology for IP rounds

✓ Operating Room
✓ Central Sterile Supply
✓ Endoscopy reprocessing and cultures
✓ Wound Care Unit
✓ ICUs and Nursing Units
✓ Transesophageal echocardiogram
✓ Vaginal Probe Ultrasound Reprocessing

✓ Respiratory Therapy
✓ Radiology and Cath Lab
✓ Surgical site infection bundle tracer
✓ CLABSI bundle tracer
✓ CAUTI bundle tracer
✓ VAP bundle tracer
✓ Heater Cooler maintenance and cultures
✓ Disinfection and Sterilization
Corporate Epidemiologist
NHSN Data Analysis

- Manage corporate analysis of HAIs entered into NHSN
- Provides consultation and on-site visits to facilities and IPs
- Conduct webinars and teleconferences for training
- Train new IPs in data systems and HAI dashboard
  - Cerner, EPIC
  - Midas
  - NHSN
  - Surveillance software
Standardization of HAI Surveillance

- Surveillance definitions – use of algorithms
- Standardized methodology for corporate dashboard and entry of cases in NHSN
- Electronic medical record implementation and IC module
- Healthcare acquired conditions (HACs) versus NHSN defined HAIs
## Example of Corporate HAI Dashboard

### Denominators and Numerators

**Denominators**

<table>
<thead>
<tr>
<th>Item</th>
<th>2015</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td># Total Pt days w/ baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Total Pt days w/out baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Pt days IRF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HPRO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># KPRO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># COLO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HYST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># C-Sec</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FUSN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CBGB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Vent days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CL days ICU&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CL days M/S&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FC days ICUs&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FC days M/S&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Numerators**

<table>
<thead>
<tr>
<th>Item</th>
<th>2015</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td># FacWideln HO CDI LabID Events&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HO IRF CDI LabID Events&lt;sup&gt;5&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FacWideln HO MRSA BSI LabID Events&lt;sup&gt;6&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HPRO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># KPRO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># COLO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HYST SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># C-Sec SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FUSN SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CBGB SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># PVAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CLABSI ICU&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CLABSI M/S&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CAUTI ICU&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CAUTI M/S&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI MRSA&lt;sup&gt;8&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI VRE&lt;sup&gt;8&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI CRE&lt;sup&gt;8&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI MDR-Acinetobacter&lt;sup&gt;8&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example of Corporate HAI Dashboard: Calculation of Rates

<table>
<thead>
<tr>
<th>Reporting Metric</th>
<th>2015</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td># FacWideln HO CDI LabID Events⁴</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HO IRF CDI LabID Events⁵</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FacWideln HO MRSA BSI LabID Events⁶</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HO IRF MRSA BSI LabID Events⁷</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HPRO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># KPRO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># COLO SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HYST SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># C-Sec SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># FUSN SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CBGB SSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># PVAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CLABSI ICU³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CLABSI M/S²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CAUTI ICU³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># CAUTI M/S²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI MRSA⁸</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI VRE⁸</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI CRE⁸</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># HAI MDR-Acinetobacter⁸</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Calculate HAI-SIRs by facility and Compared to National Data from NHSN

**Hospital A**: If the 95% confidence interval crosses over the Reference Line of 1.0, the hospital’s infection rate is not different than national experience.

**Hospital B**: If the 95% confidence interval falls completely below Reference Line of 1.0, the hospital’s infection rate is better (lower) than national experience.

**Hospital C**: If the 95% confidence interval falls completely above the Reference Line of 1.0, the hospital’s infection rate is worse (higher) than national experience.
## Example of SIR Corporate Presentation

### YTD Standardized Infection Ratio (SIR)

<table>
<thead>
<tr>
<th>Reporting Metric</th>
<th>Infection Count</th>
<th>Number Expected</th>
<th>Cost Avoidance</th>
<th>UHS SIR</th>
<th>National SIR</th>
<th>% SIR Difference</th>
<th>SIR p-value</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI - Abdominal Hysterectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI - Colon Surgery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI - CABG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. difficile HO LabID Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRSA bacteremia HO LabID Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLABSI - ICU/Med Surg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAUTI ICU/Med Surg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Statistically Significant** (p < 0.05) 3
- **Not Statistically Significant** (p = 0.05) 2
- **Not Statistically Significant** (p > 0.05) 1

- **UHS SIR**
  - Green: # of Infections is below expected
  - Yellow: # of Infections is equal to expected
  - Red: # of Infections is above expected

- **SIR p-value**
  - Green: C. diff SIRs calculated quarterly
  - Yellow: SIR not calculated when Expected < 0
Quarterly Corporate HAI Task Forces with Facilities

• Purpose: Share prevention and control measures, report action plans to reduce HAIs

Task Forces:
• Clostridium difficile – if rate > 5/10,000 patient days or SIR > 1
• CLABSI – if SIR > 1
• Colon SSI – if SIR > 1
• Hand Hygiene
Implementation Science, Research, Product Evaluations

• Collaborate with Value Analysis Managers
• Examples of product evaluations:
  • UV room decontaminator robots to combat MDROs, CDI
  • UV “white light” fixtures for OR
  • UV air filtration ceiling lights for ICUs, EDs
  • Copper surfaces in ICU setting: bedside tables, bedrails, counters, nursing station
  • Wound closure devices – antimicrobial sutures, skin adhesives
  • CHG irrigation solution – 0.05% for colon, C sections, hysterectomy
  • Silver lined bath basins – evaluate potential to return to water bathing
  • Alcohol impregnated injection port caps – for central lines
  • Foley catheter systems and urinal holders at bedside
  • Oral care kits with CHG rinse for ventilated patients
  • Alcohol nasal antiseptic for pre-op and possible study in ICU
How to Leverage IP in Research

• Collaborate with perioperative nurses and surgeons on SSI prevention
• Collaborate with ICU Directors and Hospitalists on prevention of CLABSI, VAP, CAUTI
• Collaborate with nursing on patient care procedures or products
• Collaborate with EVS on room disinfection
• Collaborate with ancillary departments with tracers
**Reduction in Colon Surgical Site Infections using CHG Irritant Solution**

Maurice Spencer, RN, BS, MEd, CIC | Jacqueline Christe, RN, BSN, MPH, CIC

**Establishing a Culture of Safety: USING A 7'S BUNDLE APPROACH FOR THE PREVENTION OF SSI**

Patricia Tyrell, RN, BSN, CNOR

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>100</td>
<td>120</td>
<td>150</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
<td>300</td>
<td>320</td>
</tr>
</tbody>
</table>

**Summary of Results**

- **CHG Irritant Solution**
  - **Implementations**
    - **Catheter Change Perioperative Practices**
      - Significant reduction in infection rates.
    - **Hand Hygiene Improvement**
      - Enhanced adherence to CHG irrigation protocols.
    - **Postoperative Care Standards**
      - Improved outcomes and reduced hospital stays.

**Impact of CHG Irritant Solution**

- Reduced infection rates by 30% compared to baseline.
- Improved patient satisfaction and trust.
- Cost savings for healthcare facilities.

**Conclusion**

The use of CHG Irritant Solution in perioperative practices has shown significant benefits in reducing colon surgical site infections, improving patient outcomes, and optimizing resources for healthcare providers.
IPs Pursuing Advanced Degrees

• Encourage IPs to obtain advanced degrees to meet IP job description requirements (Bachelor, Masters)
• Career Ladders
• IP online certificate programs:
  • [https://sph.umich.edu/infectioncontrol](https://sph.umich.edu/infectioncontrol)
  • [http://www.gundersenhealth.org/for-clinicians-professionals/infection-prevention-control-training-program](http://www.gundersenhealth.org/for-clinicians-professionals/infection-prevention-control-training-program)
Use Principles of Social Learning Theory for Theoretical Foundation

- **Albert Bandura, PhD**
  - Role Modeling (Unit Based Champions)
  - Self-Efficacy (Posters, abstracts, lectures)

- **BF Skinner, PhD**
  - Reinforcement (Consistent education, webinars, emails)
  - Contracting (Risk Assessments, IP Plans)
  - Reciprocity (Job Descriptions, IC Summit, IC Training and CIC Prep Course)

- [https://www.psychologytoday.com/basics/social-learning-theory](https://www.psychologytoday.com/basics/social-learning-theory)
Benefits of Corporate IP Director

• Standardization of practices and programs
• Standardization of infection prevention products
• Cost containment/cost avoidance/return on investment
• Design of facilities – participation at corporate level
• Corporate team surveys (TJC, CMS for continued readiness)
• Education – Brainshark, Annual IP Course
• Monthly Teleconferences
• Frequent webinars for training and education of IPs
• Educational support materials and tools
IT TAKES INSPIRATIONAL LEADERSHIP

"The task of the leader is to get his people from where they are..."

"...to where they have not been."

- Henry Kissinger
Spreading knowledge.
Preventing infection.