Conducting an Infection Prevention Needs Assessment

Nasia Safdar MD, PhD
April 18, 2017
VA Healthcare-Associated Infection Prevention Network (VHIN)
Who We Are
Useful Acronyms

CDI  Clostridium difficile infections
CFIR  Consolidated Framework for Implementation Research
CHG  Chlorhexidine gluconate
CRE  Carbapenem-resistant Enterobacteriaceae
HAI  Healthcare-Associated Infection
HERO  Human-factors Engineering to Prevent Resistant Organisms
ICPs  Infection control Preventionists
IPEC  Inpatient Evaluation Center
MDRO  Multi-drug resistant organisms
NCPS  VA National Center for Patient Safety
PCORI  Patient-Centered Outcome Research Initiative
QI  Quality Improvement
QUERI  Quality Enhancement Research Initiative
SEIPS  Systems Engineering Initiative for Patient Safety
VA  Veteran Affairs
VHIN  VA Healthcare Infection Prevention Network
Objectives

O Describe the process of developing and deploying an assessment on HAI prevention

O Describe data decisions and data sources used in an HAI prevention needs assessment.

O Identify practice variations between sites, as well as barriers and facilitators to the implementation of HAI prevention practices.
Poll Question #1

What is your role in research and/or quality improvement?

A. Principal investigator/Co-PI

B. Research staff (Project Coordinator, Data Manager, Statistician, Programmer)

C. Clinical staff

D. Operations staff

E. Other—Please describe via the Q & A function
VA Healthcare Infection Prevention Network (VHIN)

- VA Quality Enhancement Research Initiative (QUERI) partnered evaluation plan

- A practice-based quality improvement network with an established patient advisory council, developed to address HAI prevention
Healthcare-Associated Infection

O HAI is a major cause of morbidity and mortality In Veterans.

O HAI is associated with significant patient safety impact
  • Increased readmissions and mortality rates
  • estimated annual burden of 722,00 HAI¹
  • 75,00 deaths in U.S acute care centers ¹
  • Costing almost $6 billion per year²

O Prevention of HAI is incorporated into the VA Blueprint for Excellence as a performance component of the organization healthcare chain

Partnerships

O Patient-Centered Outcome Research Initiative (PCORI), a Eugene Washington PCORI Engagement Awards designed to build a panel of older rural Wisconsin patients and caregivers with personal HAI experiences

O National Center for Patient Safety (NCPS) that created the Patient Safety Center of Inquiry; Human-factors Engineering to Prevent Resistant Organisms (HERO Centre)
VHIN Infrastructure

- Funding Partner: VA National Center for Patient Safety
  - Human Factors Engineering for Reducing Resistant Organisms
    - HERO CENTER at Madison VA

- Funding Partner: QUERI Partnered Evaluation Supplement
  - VA Healthcare-associated Infection Prevention Network
    - VHIN at Madison VA

- Implementation Science Experts
  - Patient Activation in Implementation Research
  - Additional Partners: MDRO Prevention Program and Office of Public Health

- Multi-disciplinary Steering Committee
  - Madison VA Technical Support and Coordination
**VHIN infrastructure began with the creation of:**
- Steering Committee (members from 5 VA facilities)
- Coordinating Center (located at the Madison VA Hospital)

**VHIN capabilities:**
- Connects investigators
- Provides technical assistance for QI projects
- Helps apply SEIPS model and human factors approach
- Helps determine site-specific QI requirements
HAI Needs Assessment

- A primary goal of VHIN is to conduct an assessment of current practices for prevention of HAIs across VA.

- Completion of the needs assessment will:
  - Assist the MDRO Program Office in setting an agenda for infection prevention QI
  - Serve as a tool for dissemination of evidence-based practices
Goals of Needs Assessment

- Document and disseminate current HAI prevention practices from a wide range of VA medical facilities

- Identify practice variations between sites, as well as barriers and facilitators to implementation of HAI prevention practices

- Inform future infection prevention QI projects for VHIN members and set strategic priorities for the network

- Secondary goal: Use the needs assessment process to engage and recruit members to the network
HAI Prevention Needs Assessment

- Key informant Interviews
- Self-administered online questionnaire
- In-depth post-survey interviews
HAI Prevention Needs Assessment

Key informant Interviews

Self-administered online questionnaire

In-depth post-survey interviews
Key Informant Interviews

Goals, guiding principles, & sample

- Goal was to ensure that our online needs assessment “hit the mark” on the most critical issues of HAI prevention practices.

- Phone interviews guided by SEIPS model and CFIR

- Sampled the VHIN Steering Committee and VA-wide infection preventionists interested in joining the network

- 30-minute interviews were conducted a week after interviewees received draft version of the assessment questionnaire
Key Informant Interviews

Content areas

Specific content areas explored:
- General
- Chlorhexidine Gluconate (CHG) Bathing
- C. difficile Infection (CDI) Prevention Practices
- Carbapenem resistant /producing Enterobacteriaceae (CRE/CPE) Prevention Practices

Subdivisions for each content area:
- People
- Tasks
- Tools and technology
- Environmental
- Organizational
Responses & influence on the development of the questionnaire

- **General:** All respondents gave great feedback and it was clear they were very thoughtful in their comments.
- **Chlorhexidine Gluconate (CHG) Bathing:** “Clarify that this excludes surgical populations (pre-op protocols) refers to inpatient units” to the background section on CHG.
- **C. difficile Infection Prevention Practices:** “Add Lack of private rooms and bathrooms” included barriers to use of C. difficile bundle at your facility.
- **Carbapenem resistant /producing Enterobacteriaceae (CRE/CPE) Prevention Practices:** “CRE and CPE are all the same.”
HAI Prevention Needs Assessment

- Key informant Interviews
- Self-administered online questionnaire
- In-depth post-survey interviews
Goals of Data Collection

- Document HAI prevention practices related to:
  - Daily chlorhexidine gluconate (CHG) bathing
  - Prevention of Clostridium difficile infections (CDI)
  - Prevention of Carbapenem-resistant Enterobacteriaceae (CRE)

- Identify key barriers to infection control implementation at all VA medical facilities.
Self-Administered Online Questionnaire

*Format & Target Audience*

- 54 questions covering 4 content areas
  - Open response
  - Multiple choice
  - Yes/No

- Survey duration was 20 to 50 minutes

- **Target audience**: Infection control personnel or hospital epidemiologists from VA healthcare facilities
  - 1 participant per VA facility
Self-Administered Online Questionnaire

Review Process

- Obtained feedback from colleagues
- Integrated feedback into the questionnaire
  - to improve layout, programming and data quality
  - reduce potential for bias
Self-Administered Online Questionnaire

**Timeline**

**December 2016:** Piloted the questionnaire within 6 VA medical facilities (VISN #s):

- Iowa City (636): 23
- Madison (607): 12
- Milwaukee (698): 12
- Portland (648): 20
- Hines (578): 12
- Maryland (512): 5

**January 2017:** Deployed the needs assessment to all VA facilities with acute care settings.
Self-Administered Online Questionnaire

Survey Form

VA Healthcare-associated Infection (HAI) Prevention Practices in Acute Care Settings Needs Assessment Questionnaire

You are being asked to complete this needs assessment as a member of your VA healthcare system’s infection control team that participates in the implementation of infection control interventions. Although you may be individually completing the needs assessment, we encourage you to seek input from other staff for those questions you are unfamiliar with or unable to answer. The time requirement for completing the survey depends on your familiarity with the questions and will take between 20 to 50 minutes.

The goal of this needs assessment is to gather information on the current state of implementation of infection prevention activities related to preventing emerging and multidrug-resistant organisms (MDROs). The results will guide both the VA MDRO Program Office and the VA Healthcare-associated Infection Prevention Network (VHIN) prioritization for developing infection control implementation tools and strategies.

VISN number: (1-23) Facility and station number: (Choose one from list)

Name of individual completing this survey: ________________________________
127 respondents
from VA in-patient acute care facilities

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Veterans Integrated Service Networks (VISN)</th>
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<tbody>
<tr>
<td>5</td>
<td>VISN 1: VA New England Healthcare System</td>
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<td>VISN 6: VA Mid-Atlantic Health Care Network</td>
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<td>7</td>
<td>VISN 7: VA Southeast Network</td>
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<td>5</td>
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<td>VISN 10: VA Healthcare System</td>
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(continued on next slide)
127 respondents
from VA in-patient acute care facilities

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<th>Respondents</th>
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<td>VISN 15: VA Heartland Network</td>
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<td>6</td>
<td>VISN 21: Sierra Pacific Network</td>
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<td>VISN 22: Desert Pacific Healthcare Network</td>
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<td>8</td>
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The Inpatient Evaluation Center (IPEC)
What is IPEC?

- IPEC Data Management System contains self-reported data on infections and compliance,

- Other data include falls, rapid response systems, stroke etc.
IPEC Data on *Clostridium Difficile Infection (CDI)*: Madison WI

### CDI in Acute Care Facilities

**time interval**: quarterly; **network**: 12 Great Lakes; includes: data values, notes

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<th>FQTR2</th>
<th>FQTR3</th>
<th>FQTR4</th>
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<th>12.607 Madison, WI</th>
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<td>5625.00</td>
<td>5646.00</td>
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<td>(02) number of bed days of care (BDOC) for facility for month</td>
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**Facility Admission Prevalence Measure**

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**Incidence Measures**

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<td>13.00</td>
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IPEC Data on *Clostridium Difficile Infection*(CDI): **National Aggregate**

![Graph showing the number of positive CDI > 48 hrs after admission from 2010 to 2016. The data points are as follows:
- 2010: 170
- 2011: 2876
- 2012: 2700
- 2013: 2631
- 2014: 2486
- 2015: 2332
- 2016: 2155]
VISN 12 Infection Cases Across Sites: 2011-2016

# of positive CDI > 48 hrs after admission

- Site A, 31
- Site B, 1
- Site C, 3
- Site D, 42
- Site E, 1
- Madison WI, 13
- Site C, 3
- Site E, 1
- Site G, 1
- Site H, 40


Site A  Site B  Site C  Site D  Site E  Madison WI  Site G  Site H
### VISN 12 Sites: # of Positive CDI >48 hrs after admission

<table>
<thead>
<tr>
<th>Year</th>
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<th>Site D</th>
<th>Madison WI</th>
<th>Site G</th>
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</thead>
<tbody>
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<td>27</td>
<td>42</td>
<td>14</td>
<td>30</td>
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<td>2015</td>
<td>2</td>
<td>30</td>
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<td>28</td>
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<tr>
<td>2016</td>
<td>1</td>
<td>42</td>
<td>13</td>
<td>40</td>
</tr>
</tbody>
</table>
VISN 12 CDI Rates by Site: 2011-2016

LabID CDI rates (cases per 10,000 BDOC)

- Site A
- Site B
- Site C
- Site D
- Site E
- Madison WI
- Site G
- Site H
## VISN 12: LabID Hospital-onset CDI Rates by Site
(cases per 10,000 BDOC)

<table>
<thead>
<tr>
<th>Year</th>
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<th>Site D</th>
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<td>62.15</td>
<td>12.73</td>
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<td>5.2</td>
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<tr>
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<td>53.07</td>
<td>7.69</td>
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<td>8.79</td>
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<td>2013</td>
<td>42.25</td>
<td>9.58</td>
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<td>2014</td>
<td>9.61</td>
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<td>2015</td>
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<td>6.83</td>
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<td>6.71</td>
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<td>2016</td>
<td>2.96</td>
<td>9.66</td>
<td>5.9</td>
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HAI Prevention Needs Assessment

- Key informant Interviews
- Self-administered online questionnaire
- In-depth post-survey interviews
In-depth Post-Survey Interviews

Respondents & Progress

- A subset (10-15) of questionnaire respondents will be selected, based on the need for more details collected in the survey.

- Interviews in progress (within 2 months of questionnaire completion)
In-depth Post-Survey Interviews

Goals & Format

- Obtain qualitative information about barriers and facilitators of HAI infection prevention practices, organizational leadership and culture of safety at their facilities.

- Semi-structured survey questions will be developed based on key themes identified from the self-administered online questionnaires.

- The CFIR Interview Guide will be used to structure the interviews.
Project Summary

- The results of the needs assessment will inform future infection prevention QI projects.
- The results will be used to set strategic priorities for the VA MDRO Program and VHIN.
- Completion of the needs assessment will build relationships within VHIN, facilitating practice and resource sharing among VA-ICPs with the ultimate goal of improving patient care.
Lessons Learned

O Developing questionnaire items:
  • VHIN steering committee,
  • Template surveys including The VA medical center’s (VAMC) Hand Hygiene Survey

O Logistics and questionnaire distribution mechanism:
  • Healthcare Analysis and Information Group (HAIG),
  • VA Organizational Assessment Sub-Committee,
  • University of Wisconsin Survey Center (UWSC)
Acknowledgements

- VA National Center for Patient Safety (NCPS)
- MDRO Program Office
- National Patient Safety Center of Inquiry, “Human-factors Engineering to Prevent Resistant Organisms (HERO)”
- VHIN Steering Committee
- Healthcare Analysis and Information Group (HAIG)
- University of Wisconsin Survey Center (UWSC)
VHIN Steering Committee

Nasia Safdar, MD, PhD$^{1,2}$; Linda McKinley, BSN, MPH$^2$; Mary Jo Knobloch, PhD, MPH$^{1,2}$; Charlesnika Evans, PhD, MPH$^3$; Eli Perencevich, MD, MS$^4$; Daniel Morgan, MD, MS$^5$; Heather Reisinger, PhD, MAA$^4$; Katie Suda, PharmD, MS$^3$; Peter Mills, PhD, MS$^6$; Martin Evans, MD$^7$; Christopher Crnich MD$^{1,2}$; Dan Livorsi, MD$^4$; Marin Schweizer, PhD$^4$

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HERO
A Patient Safety Center of Inquiry

VHIN
A QUERI PARTNERED INITIATIVE
Next QUERI Presentation

Tuesday, June 20, 2017 at 12pm Eastern

Using VA Data to Characterize Health and Healthcare Disparities in VA

Donna L. Washington, MD, MPH
VA Greater Los Angeles Healthcare System