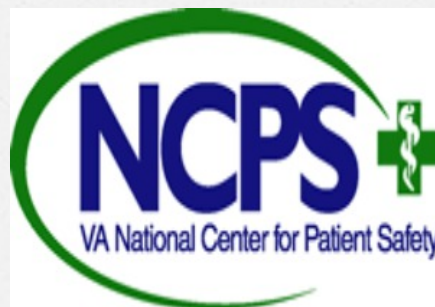# Conducting an Infection Prevention
Needs Assessment

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)

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

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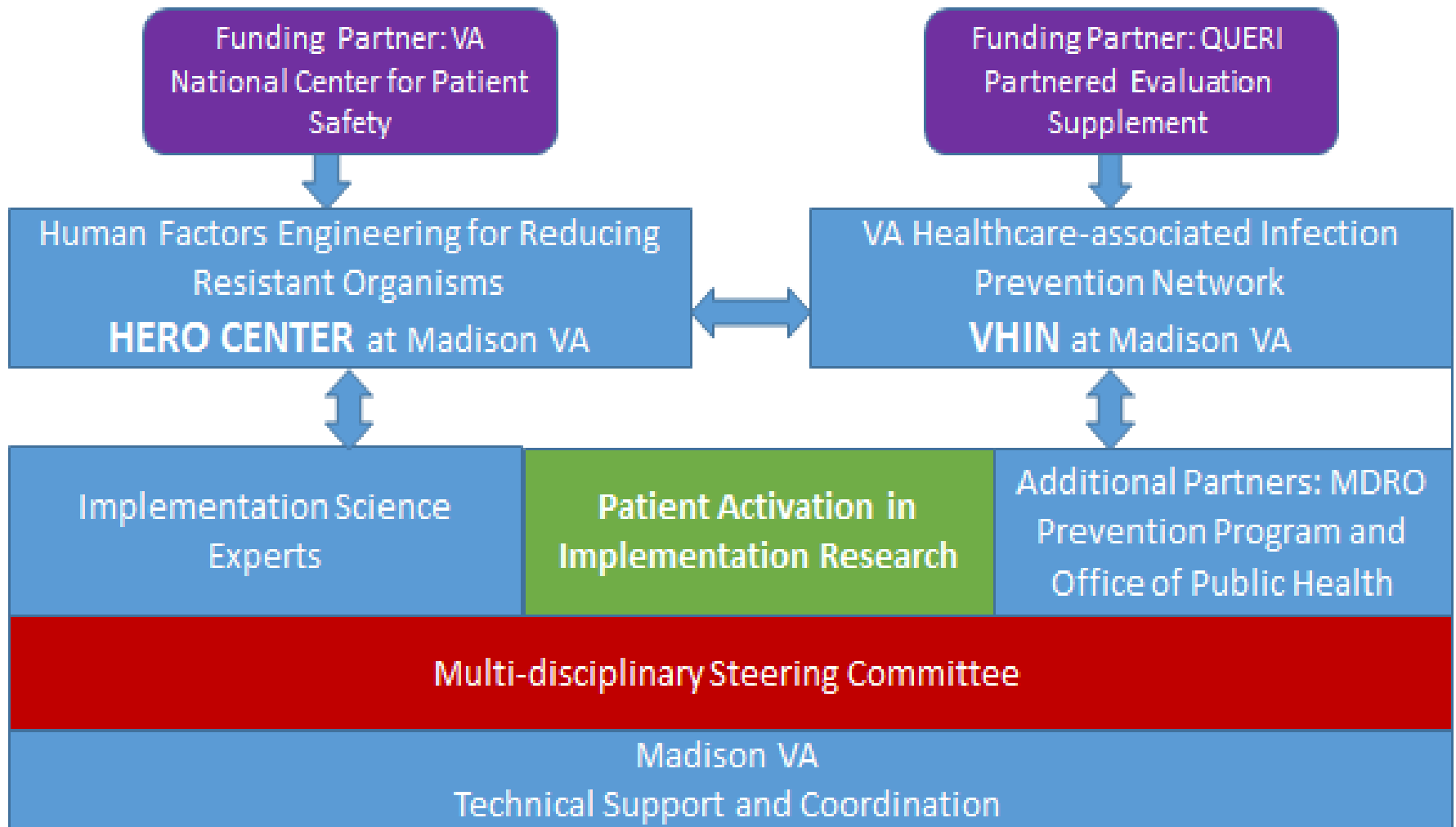
Healthcare-Associated Infection

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 HAI[1]
  - 75,00 deaths in U.S acute care centers [1]
  - Costing almost $6 billion per year[2]

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

[1]Magill SS, Edwards JR, Bamberg W, et al. Multistate point-prevalence survey of healthcare-associated infections. *N Engl J Med* 2014; 370:1198-208. The full report is also found on the CDC website for HAI Prevalence Survey [2]Scott RD II. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention. Centers for Disease Control and Prevention, Mar 2009. Publication No.CS200891. Available at the CDC website addressing HAIs, Scott Cost Paper
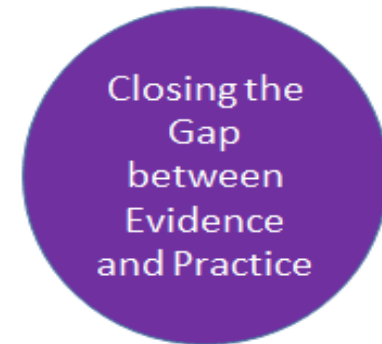
Partnerships

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

Funding Partner: QUERI Partnered Evaluation Supplement

Human Factors Engineering for Reducing Resistant Organisms **HERO CENTER** at Madison VA

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

VA Facilities

Closing the Gap between Evidence and Practice

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

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

O 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

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

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

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

O 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

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HAI Prevention Needs Assessment

Key informant Interviews

Self-administered online questionnaire

In-depth post-survey interviews

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Key Informant Interviews
Goals, guiding principles, & sample

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

O Phone interviews guided by SEIPS model and CFIR

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

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

Key Informant Interviews

Content areas

O Specific content areas explored:

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

O Subdivisions for each content area:

- People
- Tasks
- Tools and technology
- Environmental
- Organizational

Responses & influence on the development of the questionnaire

O **General:** All respondents gave great feedback and it was clear they were very thoughtful in their comments

O **Chlorhexidine Gluconate (CHG) Bathing:** "Clarify that this excludes surgical populations (pre-op protocols) refers to inpatient units" to the background section on CHG

O *C. difficile* **Infection Prevention Practices:** "Add Lack of private rooms and bathrooms" included barriers to use of *C. difficile bundle at your facility*

O **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

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Goals of Data Collection

O Document HAI prevention practices related to:

- Daily chlorhexidine gluconate (CHG) bathing
- Prevention of Clostridium difficile infections (CDI)
- Prevention of Carbapenem-resistant Enterobacteriaceae (CRE)

O Identify key barriers to infection control implementation at all VA medical facilities.

Self-Administered Online Questionnaire
Format & Target Audience

O 54 questions covering 4 content areas

- Open response
- Multiple choice
- Yes/No

O Survey duration was 20 to 50 minutes

O *Target audience*: Infection control personnel or hospital epidemiologists from VA healthcare facilities

- 1 participant per VA facility

Self-Administered Online Questionnaire
Review Process

O Obtained feedback from colleagues

O 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 the 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

Respondents	Veterans Integrated Service Networks (VISN)
5	VISN 1: VA New England Healthcare System
10	VISN 2: New York/New Jersey VA Health Care
8	VISN 4: VA Healthcare - VISN 4
6	VISN 5: VA Capitol Health Care Network
7	VISN 6: VA Mid-Atlantic Health Care Network
7	VISN 7: VA Southeast Network
7	VISN 8: VA Sunshine Healthcare Network
5	VISN 9: MidSouth VA Healthcare System
10	VISN 10: VA Healthcare System

(continued on next slide)

127 respondents
from VA in-patient acute care facilities

Respondents	Veterans Integrated Service Networks (VISN)
8	VISN 12: VA Great Lakes Health Care System
7	VISN 15: VA Heartland Network
6	VISN 16: South Central VA Health Care Network
5	VISN 17: VA Heart of Texas Health Care Network
8	VISN 19: Rocky Mountain Network
5	VISN 20: Northwest Network
6	VISN 21: Sierra Pacific Network
9	VISN 22: Desert Pacific Healthcare Network
8	VISN 23: VA Midwest Health Care Network

The Inpatient Evaluation Center (IPEC)

What is IPEC?

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

O 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

FQTR1	FQTR2	FQTR3	FQTR4	FY16	12.607 Madison, WI
Basic Measures					
1052.00	999.00	1090.00	1045.00	4186.00	(01) number of admissions to the facility for the month
5340.00	5416.00	5625.00	5646.00	22027.00	(02) number of bed days of care (BDOC) for facility for montl
Facility Admission Prevalence Measure					
10.00	5.00	5.00	7.00	27.00	(04) # of non-duplicate positive CDI LabID Events collected
0.95	0.50	0.46	0.67	0.65	(05) % admission prevalence rate
Incidence Measures					
13.00	16.00	10.00	24.00	63.00	(06) # of all positive CDI LabID Events (ex. mental health)
1.00	0.00	1.00	2.00	4.00	(07) # of (06) with another positive CDI LabID Event collecte
6.00	5.00	4.00	6.00	21.00	(08) # of (06) non-dup/non-recur, & occurred in CO <em>tim
1.00	2.00	1.00	1.00	5.00	(09) # of (08) that occurred ? 28 days after discharge
5.00	3.00	3.00	5.00	16.00	(10) community onset, not healthcare facility associated CDI
0.00	6.00	2.00	5.00	13.00	(11) # of (06) that non-dup/non-recur, occur > 48 hrs after ac

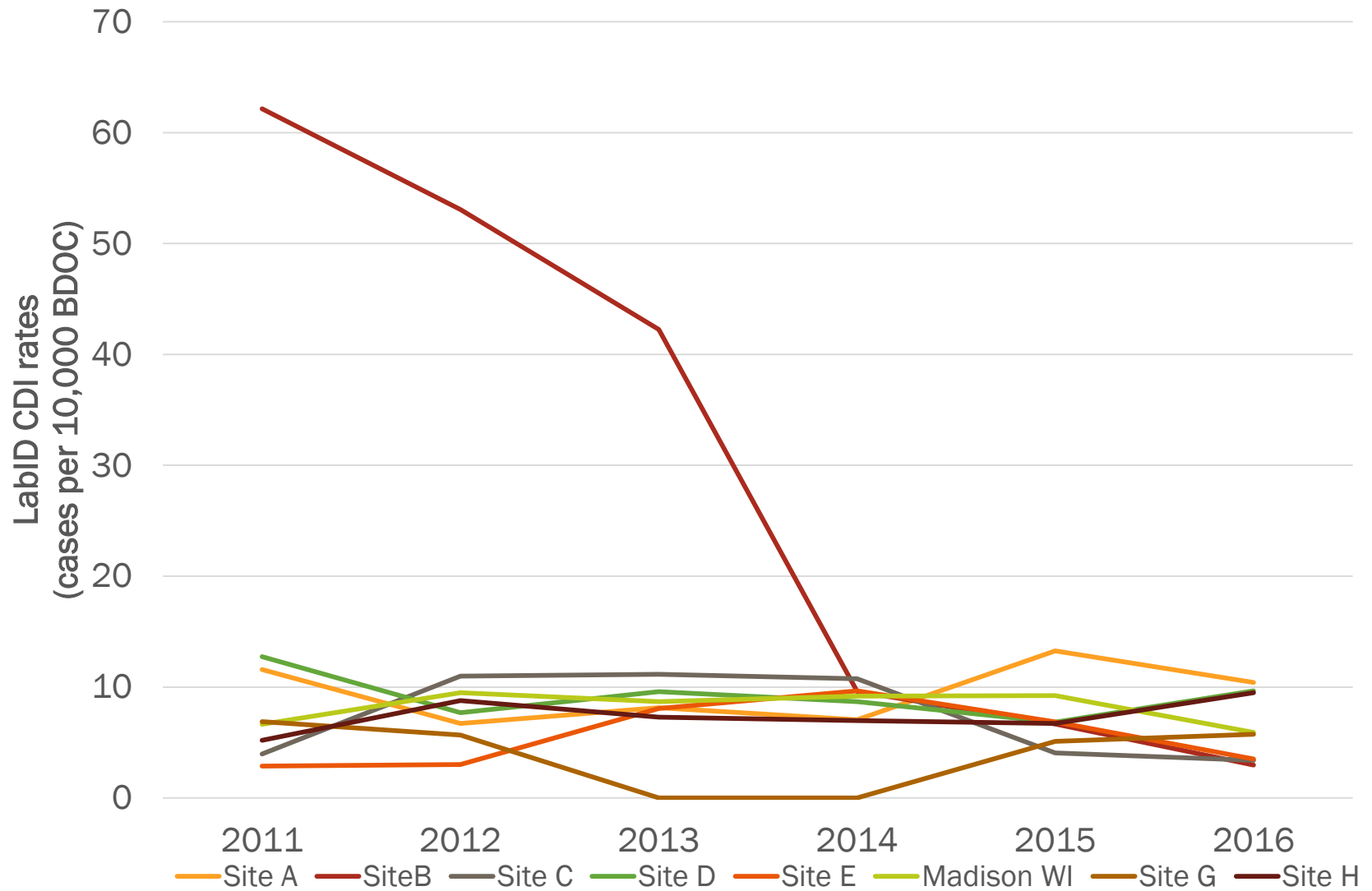# IPEC Data on *Clostridium Difficile* Infection(CDI): National Aggregate
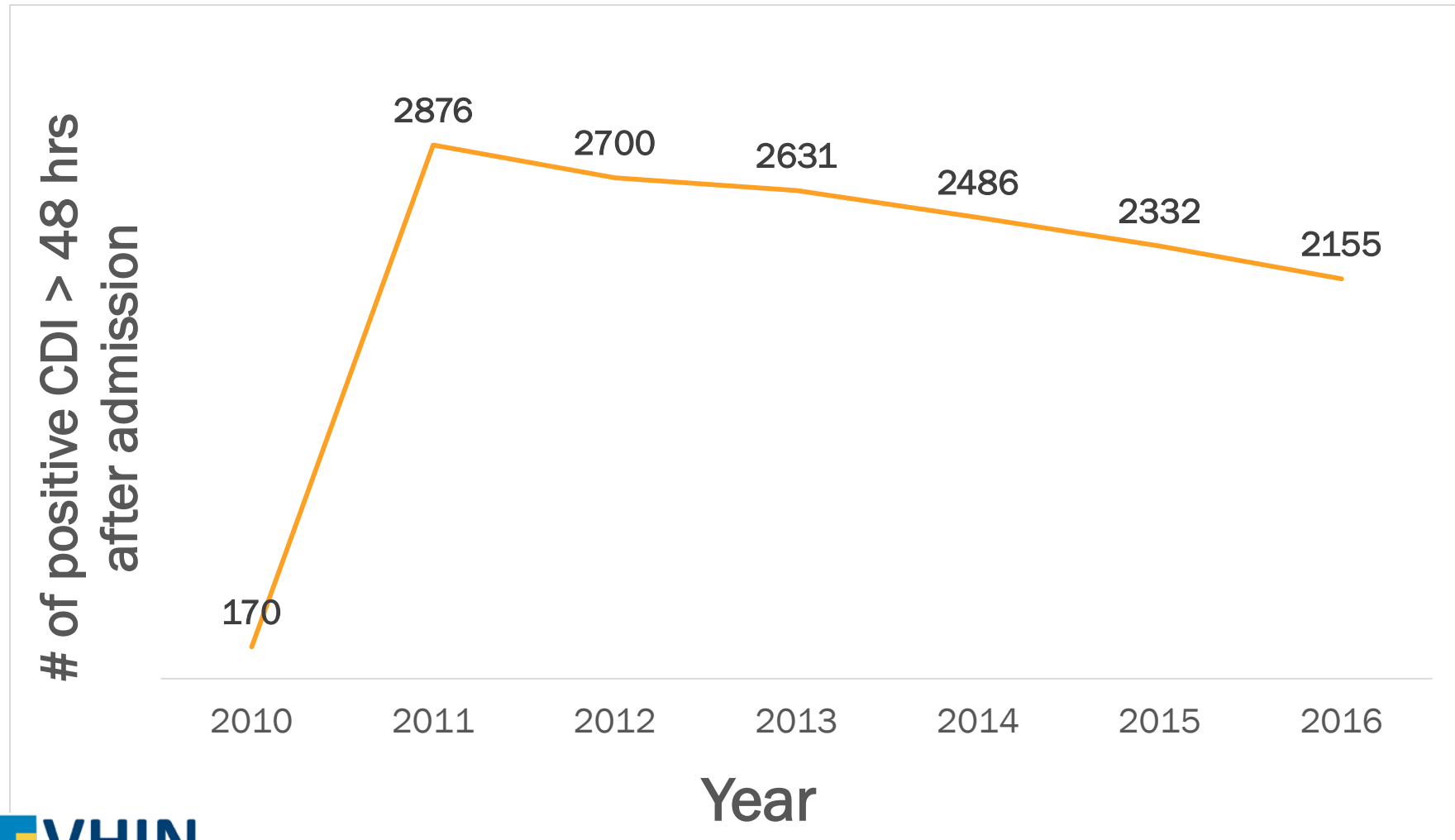
VISN 12 Infection Cases Across Sites: 2011-2016
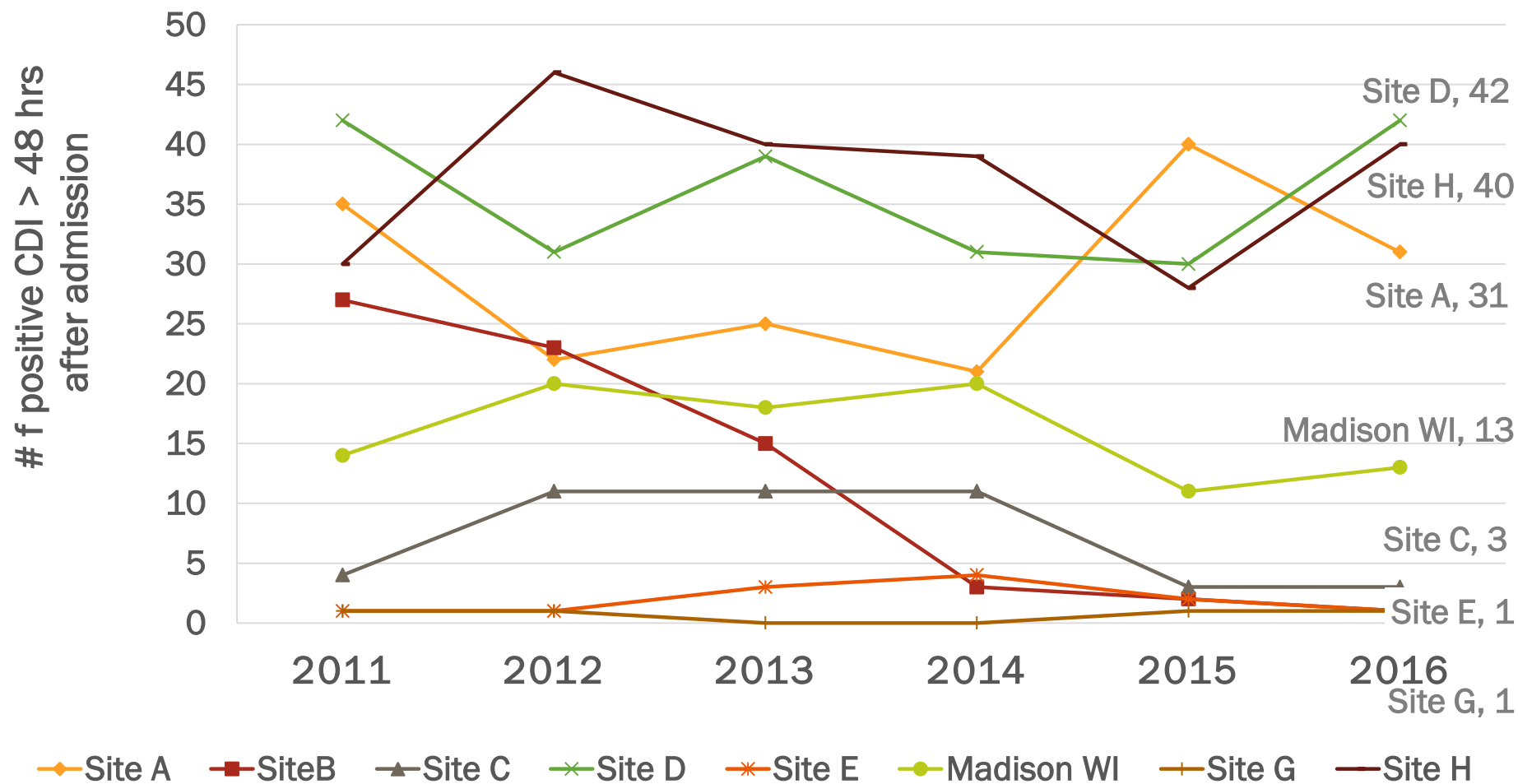
VISN 12 Sites: # of Positive CDI >48 hrs after admission

Year		Site B		Site D		Madison WI		Site G
2011		27		42		14		30
2012		23		31		20		46
2013		15		39		18		40
2014		3		31		20		39
2015		2		30		11		28
2016		1		42		13		40

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VISN 12 CDI Rates by Site: 2011-2016

Legend: Site A, SiteB, 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)

Year		Site B		Site D		Madison WI		Site G
2011		62.15		12.73		6.65		5.2
2012		53.07		7.69		9.49		8.79
2013		42.25		9.58		8.68		7.28
2014		9.61		8.68		9.18		6.98
2015		6.66		6.83		9.24		6.71
2016		2.96		9.66		5.9		9.49

HAI Prevention Needs Assessment

Key informant Interviews → **Self-administered online questionnaire** → **In-depth post-survey interviews**

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In-depth Post-Survey Interviews
Respondents & Progress

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

O Interviews in progress (within 2 months of questionnaire completion)

In-depth Post-Survey Interviews
Goals & Format

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

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

O The CFIR Interview Guide will be used to structure the interviews.

Project Summary

O The results of the needs assessment will inform future infection prevention QI projects

O The results will be used to set strategic priorities for the VA MDRO Program and VHIN.

O 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

O Quality Enhancement Research Initiative (QUERI) Partnered Evaluation Initiative *"Building Implementation Science for VA- Healthcare-Associated Infection Prevention Network (VHIN)"*

O VA National Center for Patient Safety (NCPS)

O MDRO Program Office

O National Patient Safety Center of Inquiry, *"Human-factors Engineering to Prevent Resistant Organisms (HERO)"*

O *VHIN Steering Committee*

O Healthcare Analysis and Information Group (HAIG)

O University of Wisconsin Survey Center (UWSC)

VHIN Steering Committee

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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