Minnesota Hospital Association

MHA/OHA HIIN Antibiotic Stewardship/MDRO Collaborative

May 9, 2017

CENTERS FOR MEDICARE & MEDICAID SERVICES
PARTNERSHIP FOR PATIENTS

OHIO HOSPITAL ASSOCIATION

Reminders

- For best sound quality, dial in at **1-800-791-2345** and enter code **11076**
- Mute your phone during the presentation
- Don’t put the call on hold
- Please use the chat box to ask questions!

Please note – this webinar is being recorded.

Housekeeping

- Education Credit
  - Nursing Education Credit – 1 hour
  - Pharmacy Education Credit – 0.1
    - Pharmacists, please list your license number on the sign-in sheet to receive credit

Agenda

- Welcome
- Presentation:
  - Environmental Interventions to Reduce *Clostridium difficile* by Jessica Nerby, MPH, CIC, CLS
- Questions/discussion
- Wrap-up

Environmental Interventions to Reduce *Clostridium difficile*

Angus Hayes (Environmental Services)
Carol Nassif (Infection Prevention)
Jessica Nerby (Infection Prevention)

Objectives

- Identify recommendations for preventing *Clostridium difficile (C. difficile)* infections
- Describe the importance of the environment in controlling *C. difficile* infections
- List the SHEA environmental control recommendations for *C. difficile*
- Summarize the Abbott Northwestern Hospital environmental interventions and important learnings

C. difficile Background

- 453,000 cases annually
- 29,000 deaths
- Attributable costs $6.3 billion
- Clinical manifestation range from self-limiting diarrhea to toxic megacolon and sepsis
- Hospital stays for *C. difficile* have increased 3-fold over the last decade

C. difficile Infection Prevention

- Appropriate antibiotic use
- Contact precautions for infected patients
- Educate staff, providers, patients and their families
- Measure compliance with hand hygiene
- Ensure cleaning and disinfection of equipment and the environment

The Environment and *C. difficile*

- Patients admitted to a *C. difficile* room are at higher risk of getting *C. difficile*[1,2]
- Improving environmental cleaning decreases the rate of *C. difficile* room contamination[3] and rates of hospital acquired *C. difficile*[4,5]

1. Mitchell BG. J Hosp Infection 2015
2. Shaughnessy. Infect Control Hosp Epidemiol. 2011
3. Sitzlar. Infect Control Hosp Epidemiol. 2013
4. Orenstein Infect Control Hosp Epidemiol. 2011
5. Mayfield. Clin Infect Dis 2000

SHEA Recommendations - Cleaning

- Ensure cleaning and disinfection of equipment and the environment
- Consider using 1:10 dilution of bleach or other product with EPA approved claim for *C. difficile* sporicidal activity in outbreak and hyperendemic setting
- Develop and implement protocols for disinfection of equipment and the environment
  - Assess adherence to protocols on routine basis
  - Assess adequacy of cleaning before switching to new product
  - Educate EVS personnel on cleaning and disinfection technique
- Clean shared equipment between patients and ensure all room dedicated equipment is cleaned on patient discharge

Dubberke. Infect Control Hosp Epidemiol. 2014

Abbott Northwestern Background

- 630 bed hospital in Minneapolis, MN
- 62 ICU beds
- 6,000 staff, serving 200,000 patients annually
- Magnet Recognition Program Status since 2009

ANW *C. difficile* Reduction

- Multidisciplinary *C. difficile* taskforce formed in 2010
  - Infection Prevention
  - Nursing leadership and bedside nursing
  - Physicians (hospitalists and ID)
  - Performance Improvement/Quality
  - Environmental services
  - Pharmacy
- Subgroups
  - Education
  - Cleaning
  - Antibiotic Stewardship
- Reports to Infection Prevention and Control Committee

Environmental Services Work

- 2010
  - Allina group of IP and EVS meet to develop standardized cleaning protocols
  - Assessment of all items in a patient room/on unit
  - Implement the use of 2 color microfiber cleaning cloths
  - Standardize bleach cleaning for *C. difficile* rooms
  - Standardized UV gel testing procedure
- 2011
  - Day-long EVS staff training with return demo room cleaning
  - Unit cleaning responsibilities outlined
  - Development of one page high touch surface cleaning cards

Item Accountability Audit

Cleaning Step **Please indicate ALL that apply. Document routine PRACTICE and not policy.**	Frequency D= Daily T= Terminal P= After each Use U=Unknown NA – Item not used in your area	Process vary by unit or day of week? Y/N/U	Who does the task?					
			Env Service	Unit Support	Patient care staff	Central Equipment	Don' t Know	Other
10. Patient Equipment								
10a. commode								
10b. BP cuff								
10c. Thermometer								
10d. Leads								
10e. Oximeter								
10f. Wheelchair								
10g. flashlight								
10h. IV pump								
10i. Safe patient moving								
10j. Slip sheets								
10k. Glucometers								
10l. Electronic monitors								

Remember to Clean These High-Touch Surfaces:

In the Bathroom

- Sink and handles
- Toilet flush
- Toilet hand rails
- Commode (and hand rails)
- Toilet seat
- Light switches
- Door handles

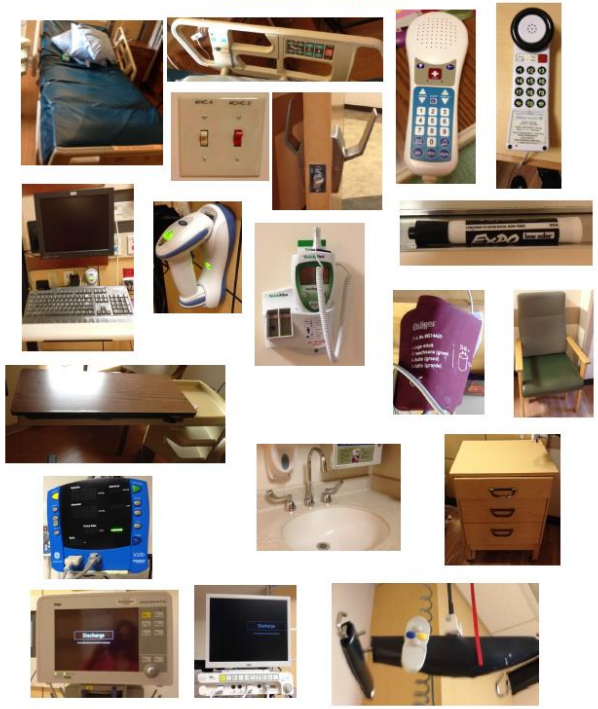
In the Patient Room

- Overbed Table
- Bed rails
- Patient phone
- Remote/Call box
- Blood pressure cuff
- Side table
- Patient/visitor chairs
- In-room sink (Heart Hospital)
- Computer Keyboard
- Light switches
- Door handles
- Bedside Barcoder
- Careboard Marker
- Patient lift remote
- Patient monitors
- Thermometers

High Touch Surfaces Cleaning Reminders

Patient Rest Room

Patient Room



Results from Initial EVS Work

Item Audited	Location of Mark	% Cleaned pre training	% Cleaned post training
Toilet Seat	Top of seat	85%	85%
Toilet Flush	On flush	29%	68%
Toilet Hand Rails	On hand rail	50%	62%
Bathroom Sink	On faucet handle	68%	79%
Bathroom Light Switch	On light switch	6%	40%
Bathroom Door Handles	On door handle	42%	56%
Bed Rails	Upper bed rail on top	79%	79%
Bedside Table	Middle of table	88%	75%
Telephone	Back of telephone	68%	83%
Call Box/Remote	Middle of Remote	65%	60%
Tray Table	Middle of table	95%	91%
Patient Chair	Arm	71%	68%
Room Door Handles	On door handle	16%	41%
Room Light Switch	On light switch	0%	48%
Keyboards	On H or J Key	27%	60%
Commode	Hand Rails	17%	100%
BP Cuff	Ball	33%	54%
In Room Sink	On faucet handle	42%	64%

Example Reports

Allina Infection Prevention Environmental Services Flash Report Reporting Period: Jan—Mar 2017 **Goal: 80%** Analysis Completed by: Jessica Jensen, MPH

Data Interpretation

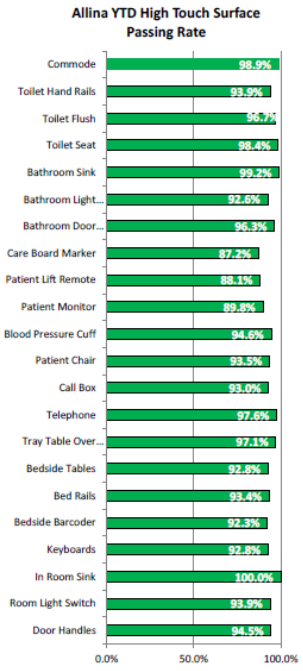
- Goal changed from 90% in 2014-2015 to 80% in 2016 for all metrics
- All high touch surfaces had passing rate of 80% or higher YTD
- In Q1 all sites with audits met 80% of rooms passing (at 80% or higher)
- Allina-wide % of rooms passing (at 80% or higher) for Q1 was 94%
- No Q1 data for BUF
- 2016 data was updated for all sites

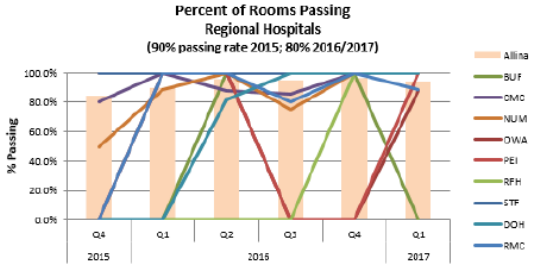
Conclusion

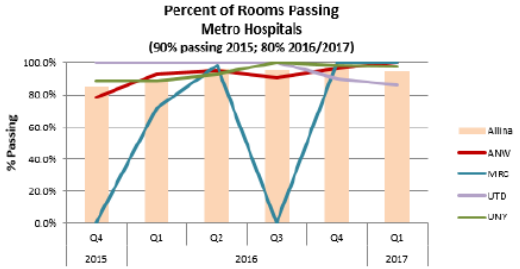
- Passing rate goal (80%) met for all high touch surfaces
- Allina met goal for percent of rooms passing in Q4 and YTD

Action Step(s) / Key Activities

- Post new video edits for EVS orientation on cleaning procedures
- Work with EVS supervisors to complete required UV audits each quarter







Number of UV Audits Completed by Site						
	2015	2016				2017
	Q4	Q1	Q2	Q3	Q4	Q1
ANW	69	96	60	67	131	73
BUF	0	0	3	2	9	0
CMC	5	5	25	14	15	9
DOH	NA	NA	11	4	3	8
MRC	1	82	62	0	28	12
NUM	6	17	7	4	2	6
OWA	10	8	6	0	0	8
PEI	0	8	6	0	0	6
RMC	0	2	4	10	3	9
RFH	0	0	0	0	5	3
STF	14	11	18	19	16	8
UTD	7	80	64	43	61	91
UNY	72	61	71	64	57	41
Allina	184	372	337	227	330	274

EVS: % of Rooms Passing at 80% or Higher January - March 2017					
	Q1	Q2	Q3	Q4	YTD
ANW	100%				100%
BUF	N/A				N/A
CMC	100%				100%
DOH	100%				100%
MRC	100%				100%
NUM	100%				100%
OWA	88%				88%
PEI	100%				100%
RMC	89%				89%
RFH	100%				100%
STF	100%				100%
UTD	86%				86%
UNY	98%				98%
Allina	94%				94%

Allina Health

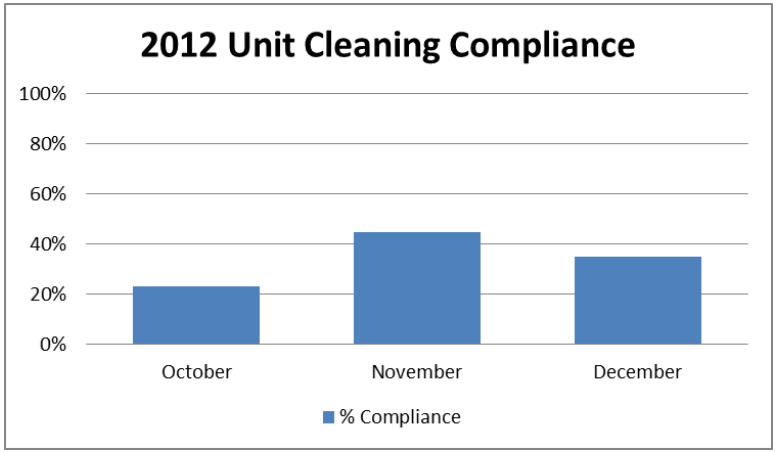
Unit Cleaning Checklist

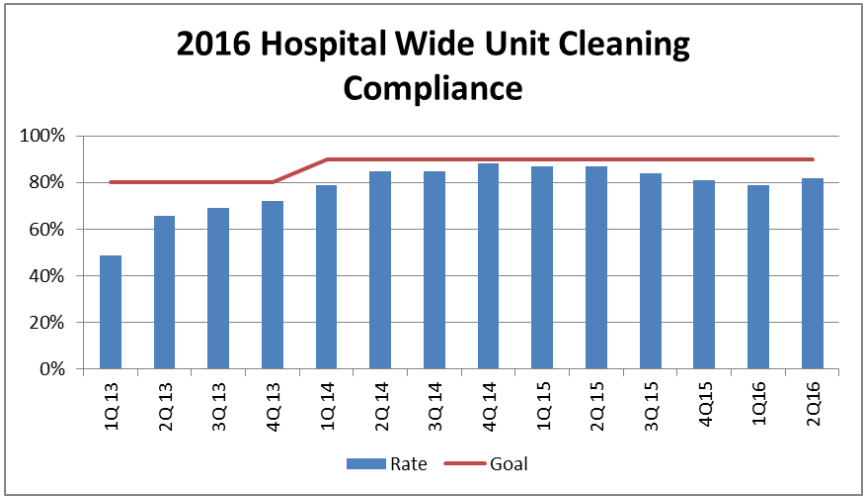
To record results:
Yes=UV mark disturbed or removed
No=UV mark still intact

Unit Cleaning Checklist Audit Tool

Date: _____ Location of Audit (Unit): _____

Item				
	Location Marked	Result	Location Marked	Result
Keyboard				
Keyboard				
Keyboard				
Keyboard				
Keyboard				
Keyboard				
Keyboard				
Phone				
Phone				
Phone				
Phone				
Phone				
Phone				
Phone				
Barcode Scanner				
Bladder Scanner				
BP Monitor				
BP Monitor				
Doppler				
EKG				
Glucometer				
Glucometer				
Glucometer				
Pulse Ox				
Pyxis				
Scale				
Thermometer				
Tube Station Keypad				
Tube Station Keypad				
Tube Station Keypad				
Ultrasound				
Other				
Other				
Other				





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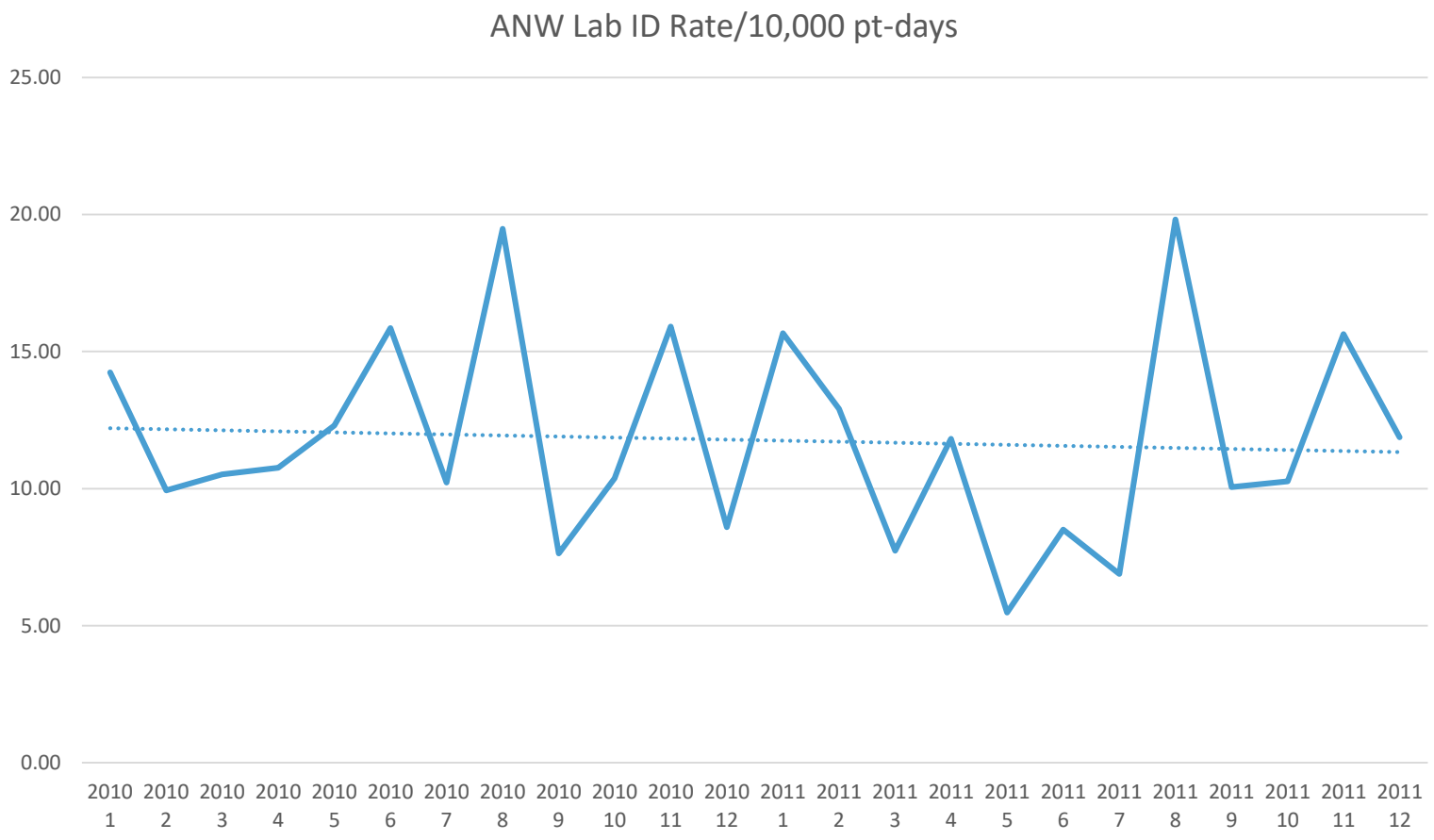
Additional Interventions

- Additional hand hygiene sinks added 2012
- UV light treatment added 6/2012 (2nd machine added 1/13)
- Provider and staff education
- Infectious Disease pharmacist conducting antibiotic stewardship audits

C. difficile rates



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Adjunct Room Cleaning Technologies

- Rationale for using
  - Hospital rooms may not be thoroughly cleaned between discharges leading to increase risk of infection for the next patient
  - 13 studies published demonstrating no-touch technology decreases incidence and/or prevalence of MDROs
- Types
  - UV
  - Hydrogen peroxide
    - Aerosolized HP
    - H_2O_2 vapor systems

References

1. Weber. Am J Infect Control 2016
2. Weber. Curr Opinion Infec Dis 2016
3. Anderson. Lancet 2017
4. Passaretti. Clin Infect Dis 2013
5. Pegues. Infect Control Hosp Epidemiol 2017

UV Systems

- Mechanism of action – UV breaks molecular bonds in DNA
- Efficacy dependent on
  - Organic load
  - Type of pathogen
  - Light intensity and dose
  - Exposure time
  - Direct line of sight or shaded
  - Room size/shape and type of surfaces
- Study results
  - >3 log10 reduction in vegetative organisms (varied exposure times dependent on device type: 5-25 minutes)
  - Requires more time and energy to kill spores/spore forming organisms
  - Level of inactivation in direct line of sight may be up to 2 log10 more compared to *C. difficile* not in direct line of sight
- Advantages – shorter treatment time
- Disadvantages – only inactive in direct or indirect line of sight. Log reduction less than that of HP

HP Systems

- Mechanism of action – high reactive hydroxyl radicals attach DNA, membranes, lipids
- Effectiveness well studied >6 log10 reduction of sporicidal organisms; >4 log10 reduction of MRSA, VRE, MDR-Ab
- Advantages – demonstrated activity including against spore forming bacteria
- Disadvantages: Usually required HVAC system to be sealed, longer treatment time vs UV (1.5-8 hours)

Considerations Prior to Use

- Not a substitute for good room cleaning practices (still need mechanical removal of soil)
- Choose systems that have demonstrated ability to decrease HAIs
- Weigh advantages/disadvantages of systems
- Determine if additional FTE resources are needed to operationalize use and include in your request for purchase

Best Laid Plans

- Change in EVS management 10/2011
- Varied practice between IP and EVS managers for UV audit collection
  - Size and placement of marks
  - Interpretation/grading

EVS vs IP Audit Results

	IP Audits	EVS Audits
Overall Room Pass Rates	62%	93%
Bedside Table	88%	97%
Bed Rails	63%	91%
Toilet Flush	89%	97%
Toilet Seat	85%	93%
Bathroom Light Switch	75%	88%
Bathroom Door Handle	74%	93%
Patient Room Light Switch	68%	90%
Patient Room Door Handle	70%	90%

EVS Interventions

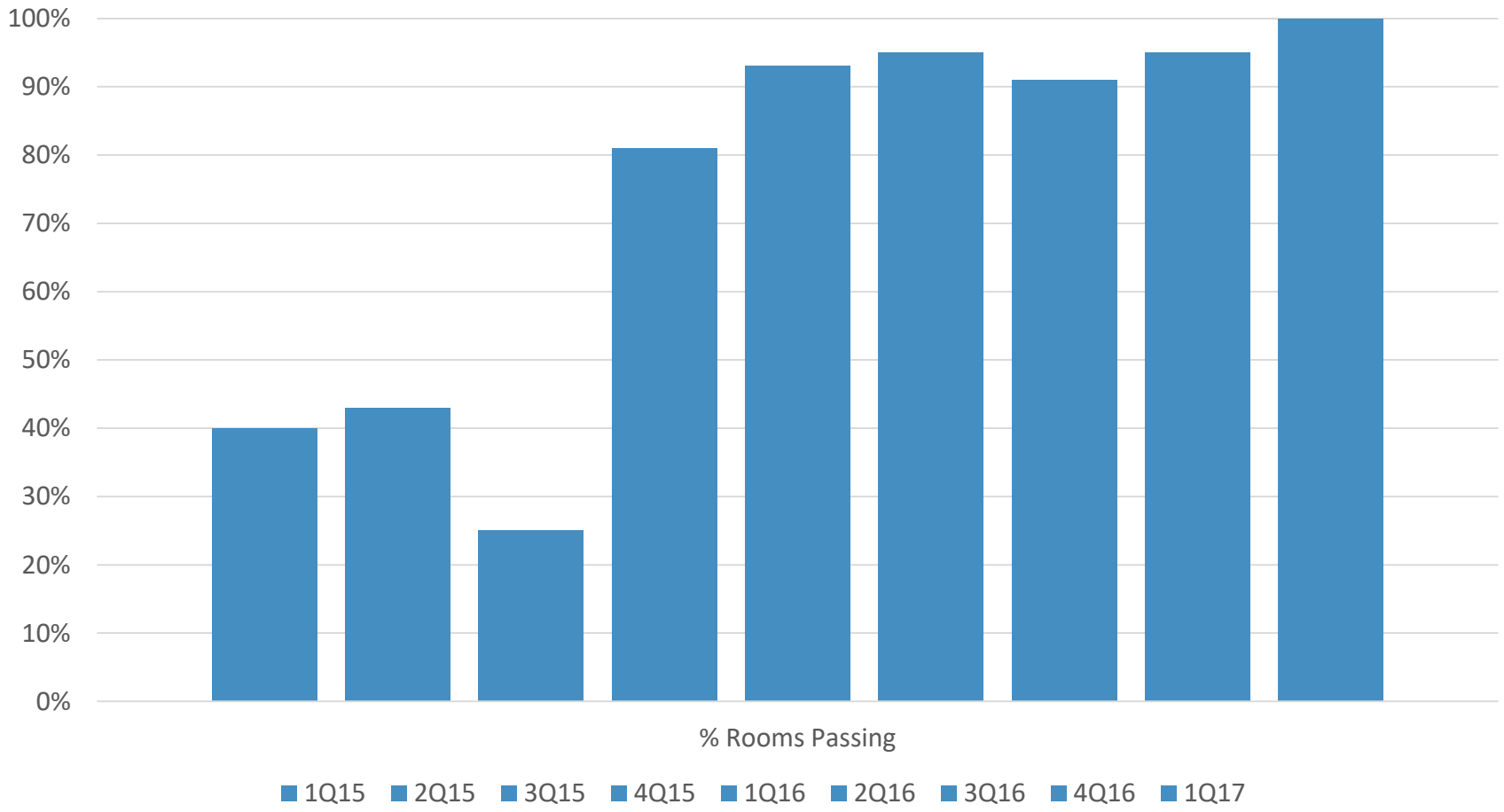
- Multiple training for EVS leaders around how to conduct UV gel testing
- Asking for follow-up with EVS staff person that cleans non-passing room

	IP Audits	EVS Audits
Overall Room Pass Rates	81%	96%
Bedside Table	94%	98%
Bed Rails	68%	92%
Toilet Flush	90%	97%
Toilet Seat	93%	99%
Bathroom Light Switch	79%	91%
Bathroom Door Handle	90%	94%
Patient Room Light Switch	89%	92%
Patient Room Door Handle	84%	94%

Environmental Cleaning 2.0

- New EVS leadership (1/2015)
- New product (universal sporicidal use 9/15)
- Re-training (3Q 15)
- Emphasis on employee accountability (4Q15)
- EVS manager auditing (4Q15)
- EVS manager training (1Q16)
- Creating of daily and terminal cleaning videos
- New patient privacy curtains and exchange schedule

Cleaning Compliance Results



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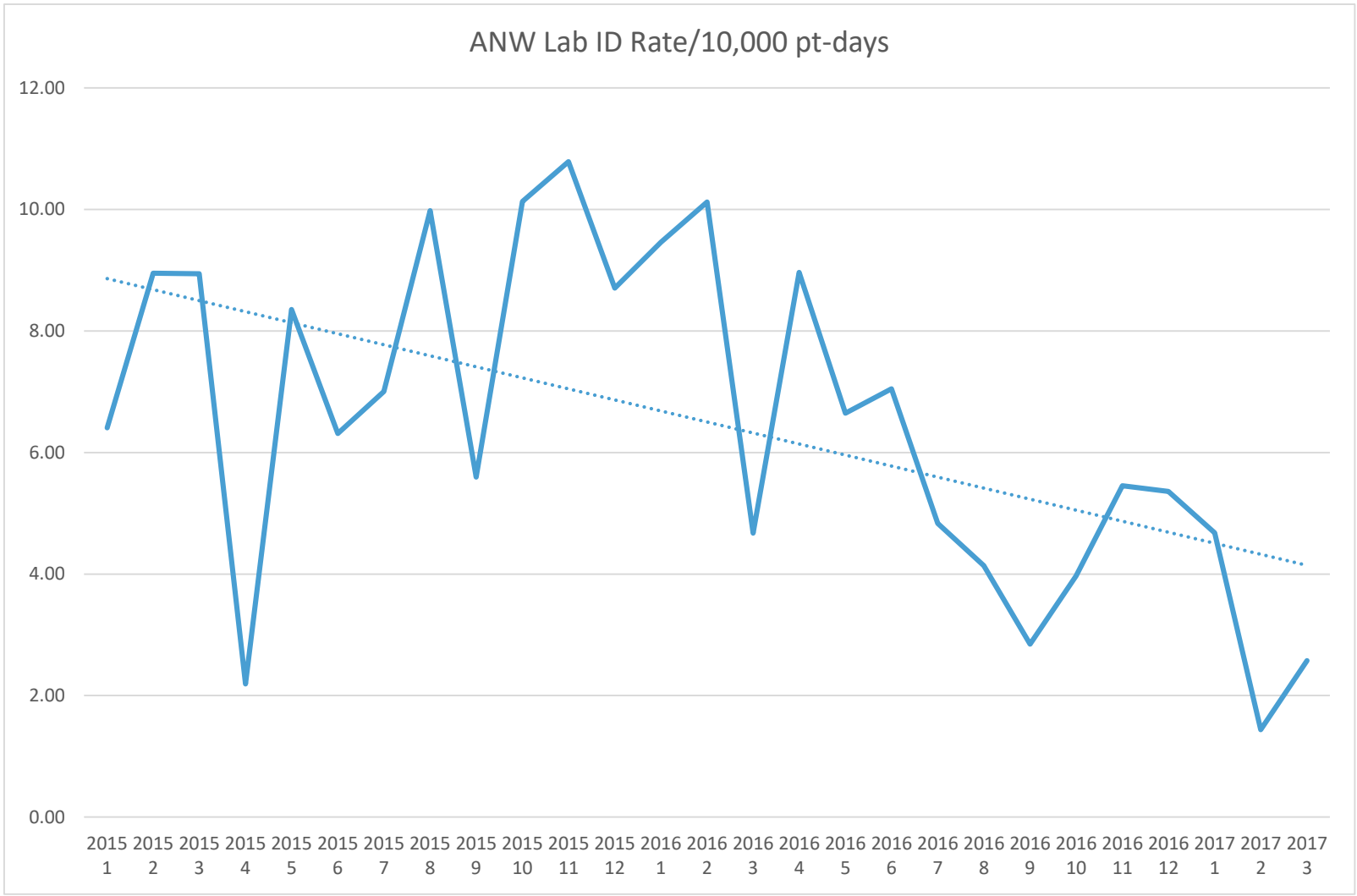
Additional Interventions

- Additional FTE for antibiotic stewardship (2015)
- New antibiotic stewardship team (2016)
  - Additional MD members
  - Reporting through P/T
- Unit huddles around *C. difficile* testing (2016)
- Emphasis rejection of non-liquid stools (4Q15)
- IP protocol to cancel uncollected tests at 48 hours

C. Difficile rates



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Summary of Key Environmental Cleaning Interventions

- Standardization of cleaning process with training and test of knowledge
- Implementation of cleaning monitoring (EVS and unit cleaning)
- UV room disinfection as adjunct to standard cleaning processes
- Implementation of universal sporicidal disinfectant

Environmental Cleaning Key Learnings

- Assign accountability for cleaning items
- Consistent training in how to conduct audits between IP and EVS leaders
- Staff training and expectations
- Holding staff accountable for results
- Getting EVS the right equipment to do the job
- Share results and celebrate successes

C. difficile Reduction Key Learnings

- Multiple interventions needed to impact rates
- Multidisciplinary taskforce allowed for cross reporting and planning

Minnesota Hospital Association resources

- Example education slides for EVS staff
- Example EVS cleaning guidebook
- UV gel “how to” presentation and testing procedures
- Example UV gel audit tool
- EVS room cleaning training certificate

http://www.mnhospitals.org/controllingcdi#/videos/list

Questions


(c) GiggleMed.com
HAND WASHING
Because C.diff Tastes Even Worse Than It Smells

ASP 101

- New offering from MHA/OHA HIIN!
- Intended for small hospitals working to meet CDC Core Elements for an ASP
- June – December 2017
- Stay tuned for registration details

MHA/OHA HIIN Contacts

- OHA
  - James Guliano, Vice President Quality Programs
  - Rosalie Weakland, Senior Director Quality Programs
  - Subcontractor – HSAG
    - Christine Bailey, Director, Quality Improvement and Patient Safety
- MHA
  - Tania Daniels, Vice President, Quality and Patient Safety
  - Lali Silva, Senior Director Quality and Process Improvement
  - Susan Klammer, Quality/Safety Project Coordinator

Thank you for joining us!

Next Webinar:

Wednesday, June 14 at 8:00am CST/ 9am EST

[Webinar details will be sent at a later date]