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The Five Pillars Of Safety In Healthcare

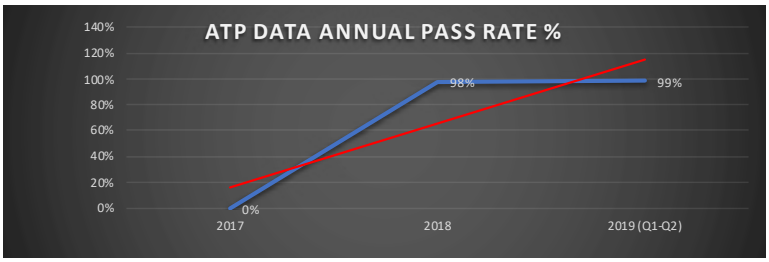
Appendix

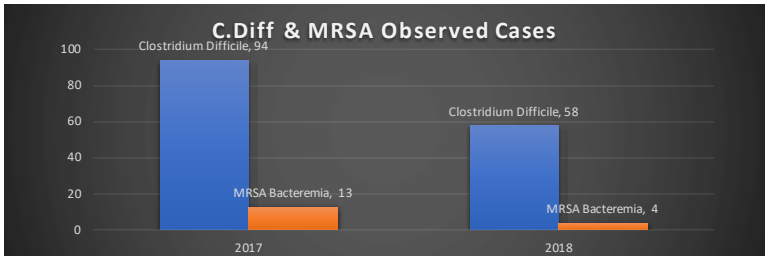
Hygiena™

Appendix

MEDSTAR GEORGETOWN UNIVERSITY HOSPITAL				
Year	Total ATP tests	Passes	Fails	Pass %
2017	0	0	0	0%
2018	2117	2073	44	98%
2019 (Q1-Q2)	2128	2099	29	99%

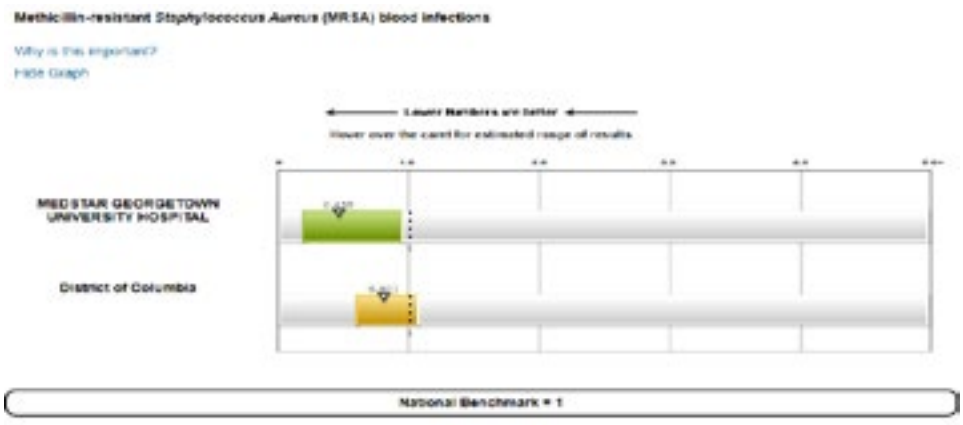
Measure Name	Compared to National	Observed Cases	Year
Clostridium Difficile (C.Diff): Observed Cases	Better than the National Benchmark	58	2018
MRSA Bacteremia: Observed Cases	Better than the National Benchmark	4	2018
Clostridium Difficile (C.Diff): Observed Cases	No Different than National Benchmark	94	2017
MRSA Bacteremia: Observed Cases	No Different than National Benchmark	13	2017
Data Source: **https://data.medicare.gov/data/archives/hospital-compare**			

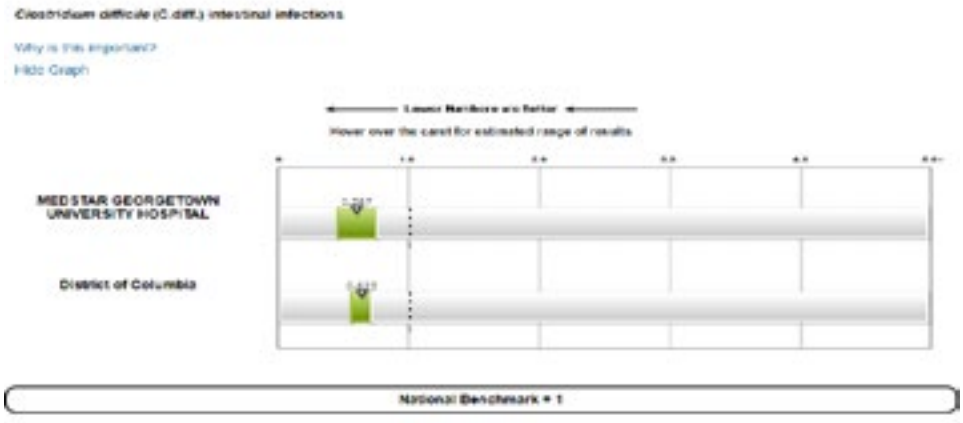




CURRENT REPORT 4/1/2018 - 3/31/2019

https://www.medicare.gov/hospitalcompare/profile.html#profTab=3&vwgrph=1&ID=090004&state=DC&lat=0&lng=0&name=MEDSTAR%20GEORGETOWN%20UNIVERSITY%20HOSPITAL&Distn=0.0

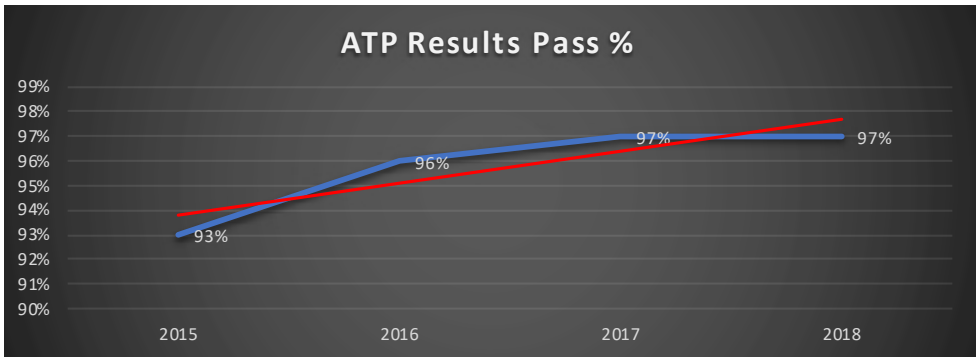


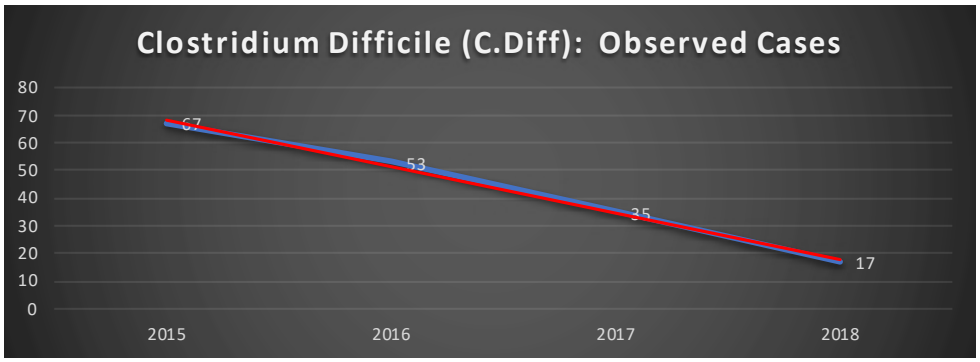


Observation:
No ATP testing data for 2017.
ATP testing introduced (or ATP data recording is introudced) in 2018 as a cleanliness verification test.
Cleaning regiments produced 98% pass rate for ATP testing and continue to improve in 2019 throuhg Q1-Q2.
In 2018 number of observed C.Diff cases decresed from 94 to 58
In 2018 number of observed MRSA cases decressed from 13 to 4
Most recent ratings for C.Diff and MRSA are below National Benchmark and better than state average.

	MEDSTAR GEORGETOWN UNIVERSITY HOSPITAL	DISTRICT OF COLUMBIA AVERAGE	NATIONAL AVERAGE
Patient survey summary star rating. More stars are better. Learn more	★★★★●		
Patients who reported that their nurses "Always" communicated well	81%	71%	81%
Patients who reported that their doctors "Always" communicated well	80%	75%	82%
Patients who reported that they "Always" received help as soon as they wanted	63%	53%	70%
Patients who reported that staff "Always" explained about medicines before giving it to them	65%	59%	66%
Patients who reported that their room and bathroom were "Always" clean	73%	65%	76%
Patients who reported that the area around their room was "Always" quiet at night	56%	56%	62%
Patients who reported that YES, they were given information about what to do during their recovery at home	80%	85%	87%
Patients who "Strongly Agree" they understood their care when they left the hospital	55%	49%	53%
Patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest)	70%	61%	73%
Patients who reported YES, they would definitely recommend the hospital	76%	61%	72%

SAINT THOMAS RUTHERFORD HOSPITAL	
Year	ATP Results Pass %
2015	93%
2016	96%
2017	97%
2018	97%





Measure Name	Observed Cases	Start Date	End Date
Clostridium Difficile (C.Diff): Observed Cases	17	1/1/18	12/31/18
Clostridium Difficile (C.Diff): Observed Cases	35	1/1/17	12/31/17
Clostridium Difficile (C.Diff): Observed Cases	53	1/1/16	12/31/16
Clostridium Difficile (C.Diff): Observed Cases	67	1/1/15	12/31/15
Data Source: **https://data.medicare.gov/data/archives/hospital-compare**			

Observation:
Outcome is focused on C.Diff Observed cases.
Increase in ATP testing readings Pass % from 2015 to 2018 = better cleaning.
Trend line correlation between ATP Pass % increase and decrease in Clostridium Difficile (C.Diff) Observed Cases.
Most recent ratings for C.Diff are below National Benchmark

CURRENT REPORT 4/1/2018 - 3/31/2019
https://www.medicare.gov/hospitalcompare/profile.html#profTab=3&ID=440053&state=TN&lat=0&lng=0&name=SAINT%20THOMAS%20RUTHERFORD%20HOSPITAL&Distn=0.0

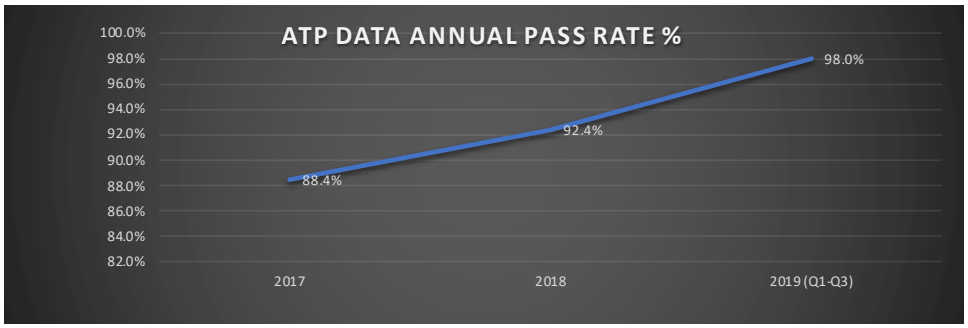
***Clostridium difficile* (C.diff.) intestinal infections**

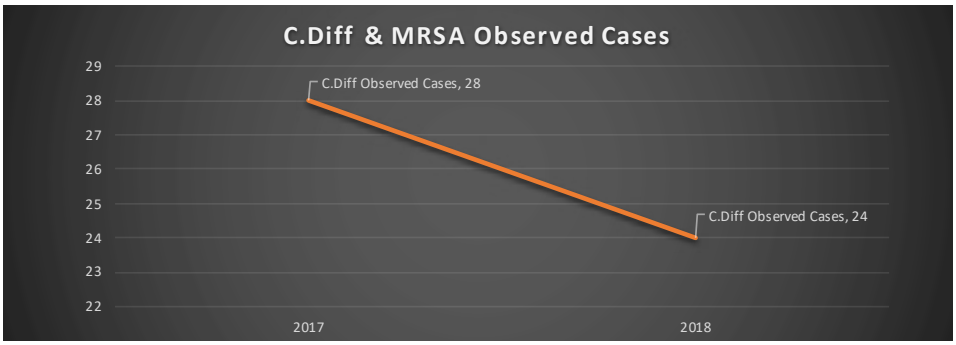
Why is this important?

Hide Graph

National Benchmark = 1

PENINSULA REGIONAL MEDICAL CENTER				
Year	Total ATP tests	Passes	Fails	Pass %
2017	1419	1255	164	88.4%
2018	1462	1351	111	92.4%
2019 (Q1-Q3)	597	585	12	98.0%



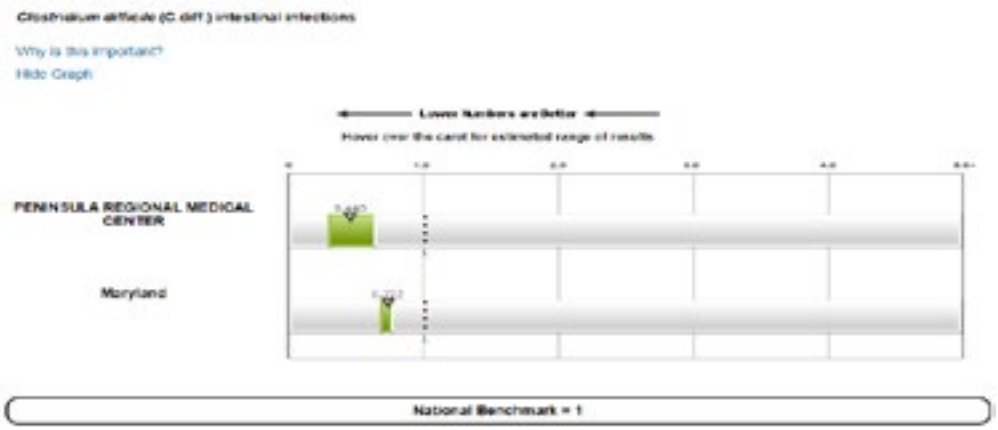


Measure Name	Observed Cases	Start Date	End Date
Clostridium Difficile (C.Diff): Observed Cases	24	1/1/18	12/31/18
Clostridium Difficile (C.Diff): Observed Cases	28	1/1/17	12/31/17
Data Source: **https://data.medicare.gov/data/archives/hospital-compare**			

Observation:
Increase in ATP testing readings Pass % from 2017 to 2019 and continued to improve in 2019 throuhg Q1-Q3
Trend line correlation between ATP Pass % increase and decrease in Clostridium Difficile (C.Diff) Observed Cases.
Most recent ratings for C.Diff are below National Benchmark and better than state avergare.

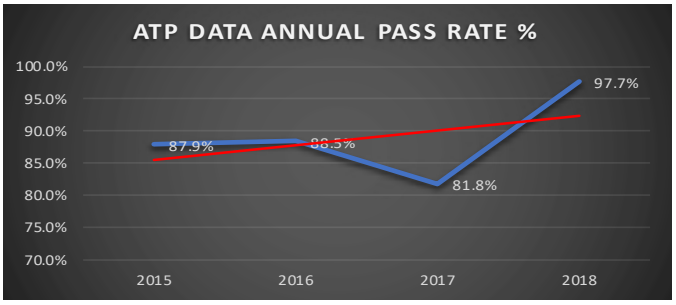
CURRENT REPORT 4/1/2018 - 3/31/2019

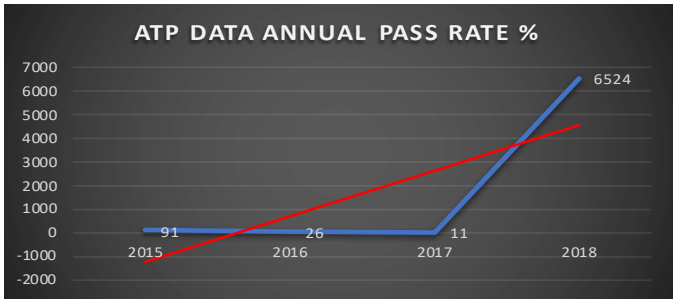
https://www.medicare.gov/hospitalcompare/profile.html#vwgrph=1&profTab=3&ID=210019&state=MD&lat=0&lng=0&name=PENINSULA%20REGIONAL%20MEDICAL%20CENTER&Distn=0.0

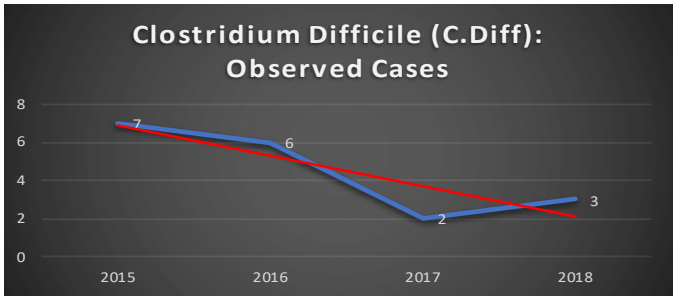


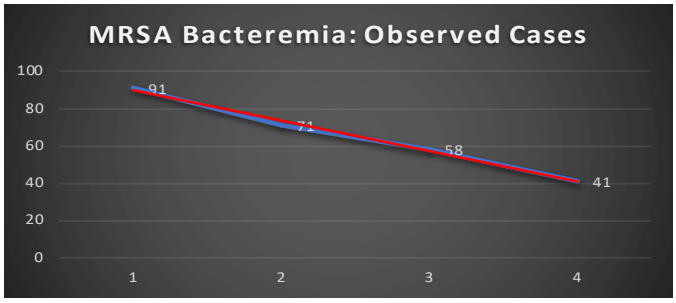
	PENINSULA REGIONAL MEDICAL CENTER	MARYLAND AVERAGE	NATIONAL AVERAGE
Patient survey summary star rating. More stars are better. Learn more	★★★●●		
Patients who reported that their nurses "Always" communicated well	79%	78%	81%
Patients who reported that their doctors "Always" communicated well	77%	77%	82%
Patients who reported that they "Always" received help as soon as they wanted	62%	61%	70%
Patients who reported that staff "Always" explained about medicines before giving it to them	64%	61%	66%
Patients who reported that their room and bathroom were "Always" clean	75%	70%	76%
Patients who reported that the area around their room was "Always" quiet at night	53%	56%	62%
Patients who reported that YES, they were given information about what to do during their recovery at home	88%	87%	87%
Patients who "Strongly Agree" they understood their care when they left the hospital	52%	49%	53%
Patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest)	71%	66%	73%
Patients who reported YES, they would definitely recommend the hospital	70%	66%	72%

ST VINCENT'S MEDICAL CENTER				
Year	Total ATP tests	Passes	Fails	Pass %
2015	91	80	11	87.9%
2016	26	23	3	88.5%
2017	11	9	2	81.8%
2018	6524	6377	147	97.7%







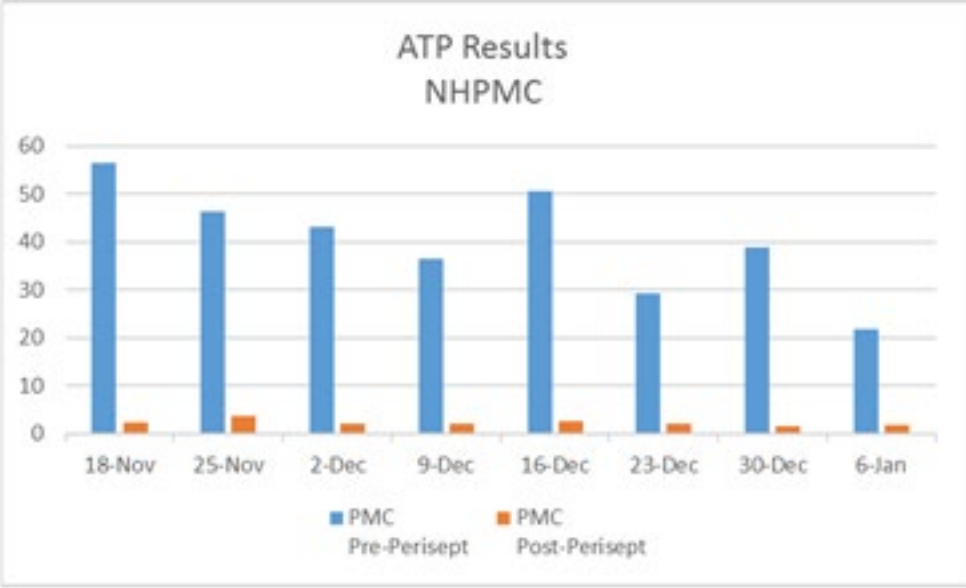


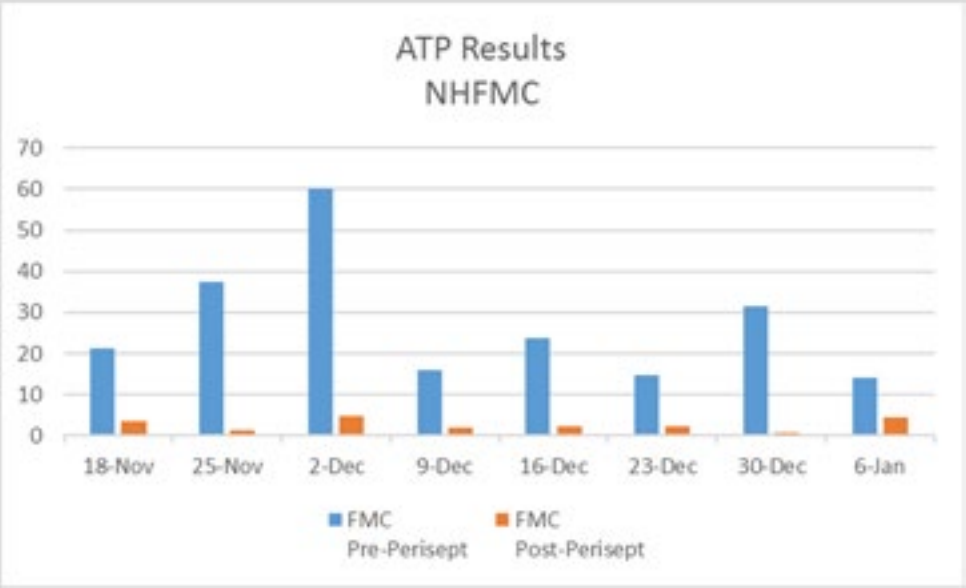
Measure Name	Observed Cases	Year
Clostridium Difficile (C.Diff): Observed Cases	41	2018
MRSA Bacteremia: Observed Cases	3	2018
Clostridium Difficile (C.Diff): Observed Cases	58	2017
MRSA Bacteremia: Observed Cases	2	2017
Clostridium Difficile (C.Diff): Observed Cases	71	2016
MRSA Bacteremia: Observed Cases	6	2016
Clostridium Difficile (C.Diff): Observed Cases	91	2015
MRSA Bacteremia: Observed Cases	7	2015
Data Source: **https://data.medicare.gov/data/archives/hospital-compare**		

Patient Transportation ATP Measurement

Each location randomly selected 5 wheelchairs per week in the hospital lobby. Each wheelchair was then swabbed and tested for the RLU reading. After the ATP test was conducted the wheelchair was cleaned with Perisept and then ATP tested again. The results are below. As you will see there was an obvious and dramatic difference in the Pre-Perisept and Post-Perisept readings. What we found interesting were the RLU readings for the Pre-Perisept cleaning. Our understanding is that anything with a reading of 50 or below is considered clean. If that is the case I am actually surprised the Pre-Perisept number wasn't higher considering the chairs were in a public lobby and are open for free access at all times. Our team ensures we clean after each use and there is a partnership with the volunteers in these lobbies to keep these chairs sanitized which appears to be working very well.

Let us know if you have any questions or additional insight on the results below. I've copied in Nicholas and Lee (Forest) who led the trial at these facilities.





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Brief Report

Reducing environmental surface contamination in healthcare settings: A statewide collaborative

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Key Words:
Environmental cleaning
Surface contamination
ATP monitoring
Clostridium difficile
HAI
Maryland Patient Safety Center

To help reduce healthcare-associated infection (HAI) rates across the state, the Maryland Patient Safety Center's Clean Collaborative (Collaborative) supported 17 acute care hospitals, 3 long-term care facilities, and 4 ambulatory surgical centers in improving environmental surface cleaning, with the goal of reducing rates of *Clostridium difficile* infection, which the Collaborative team selected as a proxy for HAIs. Eighty-eight percent of participating facilities achieved the program goal of a 10% reduction in relative light units from the baseline month to the final month of the Collaborative. In addition, participating facilities achieved a 14.2% decrease in *C. difficile* rates compared to only a 5.9% decrease among non-participating facilities (in Maryland).

To help reduce healthcare-associated infection (HAI) rates across the state, the Maryland Patient Safety Center's Clean Collaborative (Collaborative) supported 17 acute care hospitals, 3 long-term care facilities, and 4 ambulatory surgical centers in improving environmental surface cleaning, with the goal of reducing rates of *Clostridium difficile* infection (CDI), which the Collaborative team selected as a proxy for HAIs.[1-3] Facilities collected and reported data for the 12-month period of April 2016 through March 2017. The Collaborative goals were to achieve a minimum of 10% improvement in cleanliness and to simultaneously decrease CDI rates.

METHODS

The Collaborative team took the following steps:

1. Selected an adenosine triphosphate (ATP) monitoring validation technology system to measure cleaning effectiveness.[4,5]
2. Created a web-based portal for inputting participant data and for distributing forms, educational materials, and fact sheets.
3. Created an advisory board that included representatives from the Maryland state health department, Maryland hospital systems, and industry.
4. Developed a list of sampling locations and protocols for collecting samples in patient rooms and public areas, based on industry guidelines.[6] Acute care hospitals and long-term care facilities collected 100 swabs per month, and ambulatory surgical centers collected 25 swabs per month.
5. Trained participants using ATP monitoring validation technology and conducted bi-monthly webinars on topics such as surface cleaning, surface disinfection, and product selection.
6. Analyzed 12 months of facility data. CDI rates were determined by National Healthcare Safety Network definitions.[7] ATP monitoring validation technology results were reported as relative light units (RLUs) to measure cleanliness of surfaces. RLU measurements were used as a proxy for the effectiveness of surface cleaning. Lower RLU results indicated less effective cleaning measures.

RESULTS

Twenty-one of the 24 participating facilities (88%) achieved a 10% reduction in RLUs from the baseline month to the final month of the Collaborative. Seventy-five percent of participating facilities exceeded this goal by reducing average RLUs by more than 50%.

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E-mail address: joan@pliskosolutions.com (J.D. Plisko).
Conflicts of interest: None to report.

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https://doi.org/10.1016/j.ajic.2018.03.016

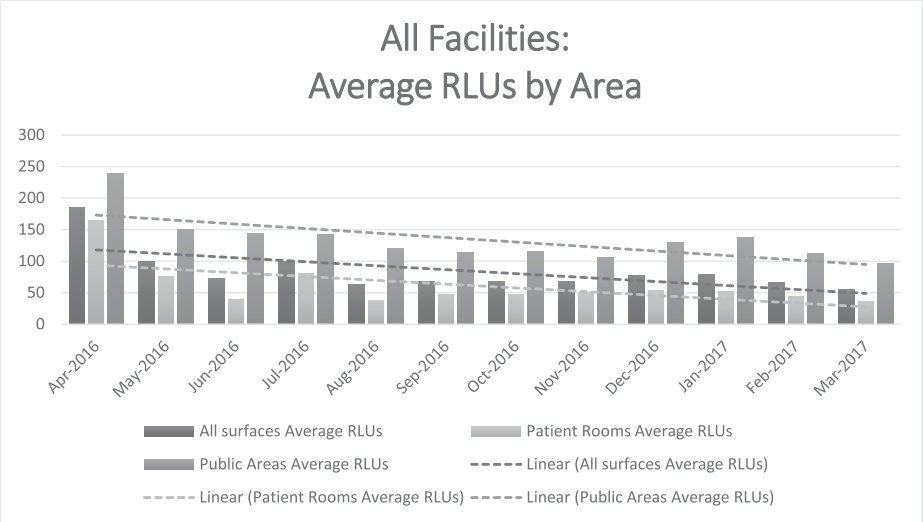

Fig 1. Average RLUs for all surface and facility types from the baseline month to the final month.

As shown in Figure 1, from the baseline month to the final month of the Collaborative, for all facility types and all surface types, facilities achieved a 70% decrease in average RLUs; for patient room surfaces, facilities achieved a 79% decrease in average RLUs; and for public surfaces, facilities achieved a 59% decrease. When assessing average RLUs for patient room surfaces across the different types of facilities, acute care hospitals, ambulatory surgical centers, and long-term care facilities decreased average RLUs by 69%, 84%, and 88%, respectively.

As shown in Figure 2, the Collaborative team ranked average RLUs by surface type. Observations included: (1) public surfaces had higher RLUs than those of patient rooms; (2) in patient rooms, window sills had the highest average RLUs; (3) surfaces closer to the patient frequently had higher RLU measurements than those farther away from the patient; (4) the call box/button had higher RLUs than bathroom surfaces; and (5) public cafeteria tables had higher average RLU measurements than public restroom door handles.

The Collaborative team compared the CDI rates of participating acute care facilities with the CDI rates of facilities in Maryland that did not participate in the Collaborative. They found that, from the baseline month to the final month, participants in the Collaborative achieved a 14.2% decrease in CDI rates compared to only a 5.9% decrease among non-participating facilities. However, study design limitations prevented a sufficiently powered statistical analysis to detect a relationship between RLUs and CDI.

DISCUSSION

The most improvement in average RLUs from the baseline month to the final month of the Collaborative was observed in patient room surfaces as compared to public area surfaces. The Collaborative team recognizes that the Hawthorne effect[8] may have played a role in the reduction of RLUs. Another plausible reason for the reduction of RLUs may have resulted from participants sharing ideas in educational sessions regarding different best practices. In addition, facilities that provided immediate feedback to environmental services professionals were able to revise and enhance existing processes in their facilities in a timely manner. Many participating facilities employed engineering controls, such as automatic doors, more strategically placed hand sanitizers, and automatic flushers. Additionally, environmental services teams partnered with other

Surface	Average RLUs
Public café table	181
Public break room table	178
Public elevator button	155
Public bathroom door handle	151
Public lobby seating	134
Public break room seat	125
Public information desk	110
Window sill	106
Public café seating	102
Public bathroom faucet	85
Public soap dispenser	84
Call box/button	81
Room in door knob	77
Chair	76
Telephone	74
Toilet seat	73
Bathroom in door knob	63
Toilet flush handle	60
Bathroom sink	59
Bed rails/controls	57
Blood pressure cuff	57
Room sink	56
Room outer door knob	49
Bathroom light switch	48
Bathroom hand rails	48
Tray table	46
Monitor	46
Bed rails/stretcher	44
Room/bath sink	41
Bedside table handle	40
IV pole (grab area)	35
Overhead pull-down light	25
Room light switch	20

Fig 2. Average RLUs by surface type: April 2016-March 2017, all facility types.

departments, such as the security department, to have lobby desk workers clean public surfaces at the beginning of their shift.

Overall, the program goal of a 10% reduction in RLUs from the baseline was achieved. Participants in the Collaborative achieved a 14.2% decrease in CDI rates compared to only a 5.9% decrease among non-participating facilities. Moreover, the collaborative process was an excellent tool for fostering teamwork between environmental services professionals and infection preventionists.

Acknowledgements

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Recommended Utilization & Frequency
ATP/Food Tray Carts

30 Day Analysis

Recommended start date would be first of the month. Daily testing outline suggestions are noted below.

*If the capability to test and analyze during weekend, the evaluation should include the consecutive 30 day period, effective from the first day of the calendar month.

*If capability to test and analyze is specific to Monday – Friday, the evaluation should include 6 consecutive Monday – Friday sequences, effective from the first day of the designated calendar month through the beginning of the immediate following month.

Clean Tray Cart ATP testing:

1) Tray Cart is cleaned and sanitized
2) Tray Cart is completely dry
3) Daily ATP Test Clean Tray Cart as follows:
    a. Swab test internal tray rail (1 top)
    b. Swab test internal tray rail (1 middle/bottom)
    c. Swab test internal tray wall surface (middle area)
    d. Swab test external tray wall side 1
    e. Swab test external tray wall side 2

Soiled Tray Cart ATP Testing

1) Upon return of tray cart from food delivery process
2) Note designated unit of food delivery of cart
3) Daily ATP Test Soiled Tray Cart as follows:
    a. Swab test internal tray rail (1 top)
    b. Swab test internal tray rail (1 middle/bottom)
    c. Swab test internal tray wall surface (middle area)
    d. Swab test external tray wall side 1
    e. Swab test external tray wall side 2

	Clean Cart				Soiled Cart			
Date	Nursing Unit	Location in cart /ATP results	Location in cart /ATP results	Initials	Nursing Unit	Location in cart /ATP results	Location in cart /ATP results	Initials
10/23/19	3100/3200	left top shelf-----1	right bottom shelf-0	JB	3400/3300	bottom left shelf--2	top right shelf----1	JB
10/24/19	2100/2200	left bottom shelf-5	right middle shelf--3	JB	3100/3200	middle left shelf--0	middle right shelf-12	JB
10/25/19	3400/3300	left second shelf---0	right bottom shelf-3 JB	JB	2100/2200	left middle shelf--3	right bottom shelf--0	JB
10/30/19	4100/4200	left top shelf---1	right bottom shelf--2	JB, MH	3100/3200	left top shelf--6	right bottom shelf--0	JB,MH
10/31/19	3100/3200	left middle shelf--0	right bottom shelf--3	JB, MH	2100/2200	left middle shelf--7	right top shelf---7	JB,MH
11/1/19	2100/2200	left bottom shelf--3	right middle shelf--0	JB, MH	4100/4200	left top shelf--10	right middle shelf--2	JB,MH
11/6/19	4100/4200	left middle shelf--0	right top shelf--0	JB, MH	3400/3300	left bottom shelf--0	right to[shelf--1	JB,MH
11/7/19	3400/3300	left top shelf---2	right middle shelf--0	JB, MH	3100/3200	left middle shelf--2	right top shelf--5	JB
11/8/19	2100/2200	left top shelf---0	right middle shelf--0	JB	4100/4200	left top shelf--12	right middle shelf--1	JB
11/13/19	3100/3200	left middle shelf--3	right middle self--2	JB	2100/2200	left top shelf--3	right bottom shelf--2	JB
11/14/19	2100/2200	left bottom shelf--0	right bottom shelf--0	JB	3400/3300	left bottom shelf--2	right middle shelf--0	JB
11/15/19	4100/4200	left top shelf--0	right middle shelf--0	JB	2100/2200	left middle shelf--3	right top shelf--5	JB,MH
11/20/19	3100/3200	left top shelf--7	right bottom shelf3	JB	3100/3200	left bottom shelf--8	right middle shelf--11	JB,MH
11/21/19	4100/4200	left bottom shelf--0	right top shelf--2	JB,MH	2100/2200	left bottom shelf--1	right bottom shelf--1	JB
11/22/19	3400/3300	left middle shelf--0	right top shelf--1	JB	4100/4200	left top shelf--0	right middle shelf--1	JB
11/24/19	3100/3200	left middle shelf--1	right middle shelf--0	JB	3400/3300	left middle shelf--2	right bottom shelf--5	JB
11/25/19	2100/2200	left bottom shelf--1	right top shelf--0	JB	3100/3200	left bottom shelf--1	right top shelf--1	JB
11/26/19	3100/3200	left top shelf--1	right bottom shelf--0	JB	2100/2200	left bottom shelf--9	left middle shelf--4	JB

Data is collected on the designated three days each week, for six weeks. As scheduled, two tray rails in one clean cart and two tray rails in one soiled cart are swabbed. Use different levels in the cart for each of the two tray rails. The location in the cart is described as being the left or right tray rail, and whether the rail is at the top, middle, or bottom of the cart. When swabbing the soiled cart, the tray rail selected must have been used to return a tray to the dishroom. Following the location of the tray rail, write the number from the ATP testing device. Initials of person who collected the data.

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