



From Chaos to Consistency: The Power of Standardized Cleaning Protocols

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From Chaos to Consistency: The Power of Standardized Cleaning Protocols

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Speakers



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Agenda

1 Healthcare trends and impacts to HAIs and patient safety

2 Nursing Homes and Outpatient Care
Infection Prevention: why a focused effort is overdue

3 Transition of healthcare: Why are clinical areas held to a higher standard than non-critical?

4 Why standardize support services like environmental services across the continuum of care

5 In-depth comparison of standardized environmental services in healthcare systems vs. non-standardized

Key trends impacting care, HAIs and patient safety



Growth in
aging population



Higher acuity patients,
longer stays, greater
risk of HAIs



Clinical labor shortages,
increase in transient
workforce



Cognitive overload risks,
need to reduce non-
clinical activities



Regulatory environment
and impacts to
reimbursement and
penalties



Negative outcomes impact
bottom line



Growth in M&A,
ambulatory sites
and SNFs



Increases risk of
variation in care and
care support

All contribute to risk to outcomes and patient safety

Everything is increasing!

- Older Americans have greater healthcare needs and are more likely to have chronic conditions that require long-term care.
- As insurers respond to higher healthcare expenses, premiums for private healthcare plans may increase.
- Government-funded Medicare will face increased strain as more baby boomers become eligible for services. Increase in un-insured and under-insured patients will add additional pressure to Medicare.
- In this unstable economy, most baby boomers with fixed retirement funds might find it hard to deal with healthcare bills.

Sources: 1-3

Poll Question

How many Boomers will be living with chronic conditions by 2030?

A: 10

B: 21

C: 37

D: 42

Multiple conditions can lead to increased length of stay and HAIs

Patients with MCCs have longer stays versus those with only 1 or none

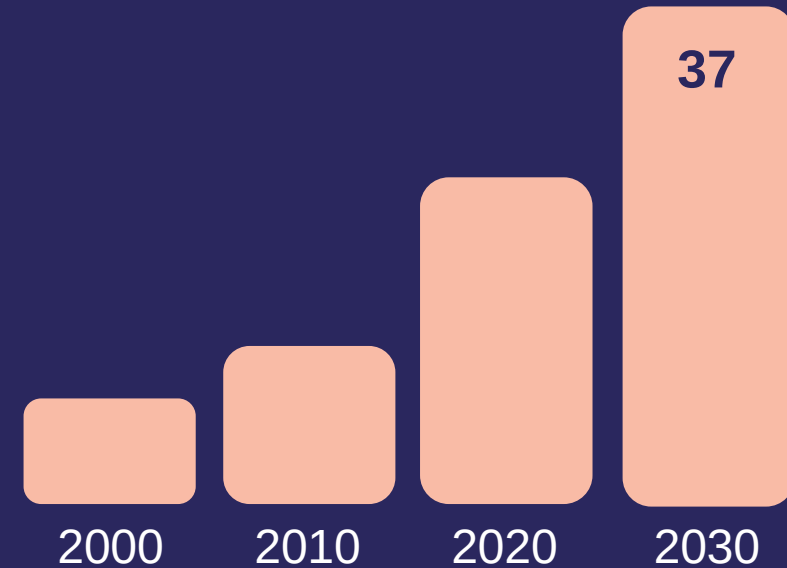
+11% for 2-3 MCCs
+21% for 4-5 MCCs
+27% for 6 or more MCCs

Patients with HAIs have 3-fold higher LOS than those without

C. diff infections increase stays by 6 days on average

Sources: 4-7

Boomers Living with Multiple Chronic Conditions (in millions)

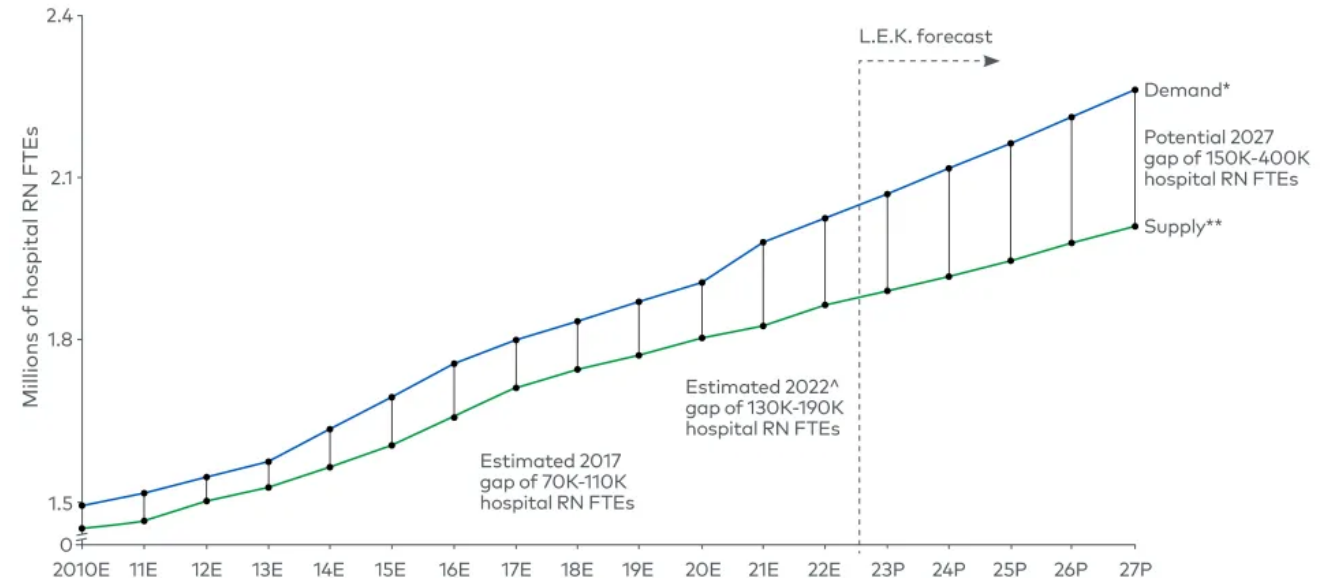


Source: When I'm Old: How Boomers Will Change Health Care, AHA, First Consulting Group, 2007

The gap for RN FTEs expected to be 150k to 400k

Potential Effects:

- Increased “task saturation”
- Non-clinical task load
- Risk of error
- Impact to patient safety & experience



*Demand line represents the average of the 2.0% and 2.5% annual growth scenarios

**Supply line represents the average of the 2.7% and 4.3% exit rate scenarios

^2022 demand is projected because AHA hospital data that informs demand has not been released at time of publication

Note: RN=registered nurse; FTEs=full-time equivalents; E=estimated; P=projected

Source: L.E.K. analysis of Bureau of Labor Statistics data (2010-22); American Hospital Association Annual Survey data (2010-21); National Council of State Boards of Nursing data (2010-22); Staffing Industry Analysts data (2020-22); and L.E.K. intellectual property

Regulatory and reimbursement landscape is toughening

Less Revenue...



2022 Medicare payments at **record low** (82 cents on each dollar spent on care); insufficient 2024 increases

...Yet Greater Costs



National Healthcare Safety Network (NHSN) providing new “baselines” for HAIs, reinstating HAC penalty payments



The average hospital will need to reduce its costs by 24%, just to break even



Outpatient infections could account for >150,000 hospitalizations each year and \$673 million in added costs



Per CDC, the majority of outpatient 30-day readmissions are due to HAIs – leading to increased costs to treat without CMS reimbursement

Source: 8

Poll Question

What is the average cost of an inpatient *C. diff* HAI?

A: \$7000

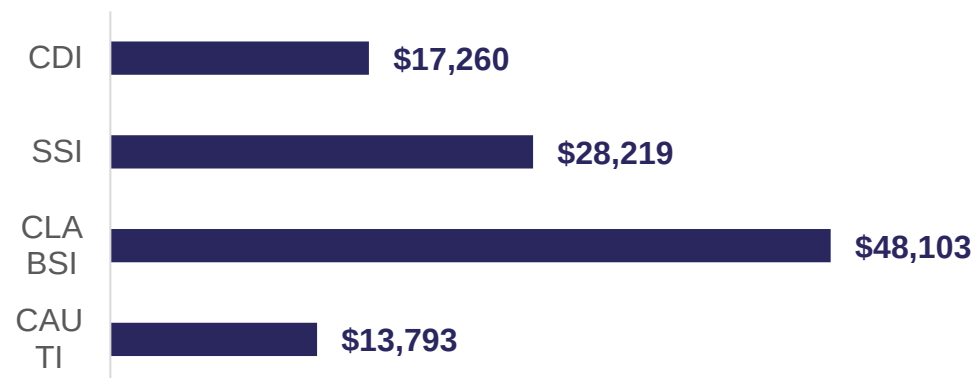
B: \$11,000

C: \$15,000

D: \$17,000

HAIs take a significant toll on patients and hospitals

Est. Cost Per Case



HAI-Associated Impacts

	Pre-Discharge Costs	Odds of Readmission	Post-Discharge Readmission Charges
Any HAI	\$28,412	46.3%	\$16,049
CDI	\$27,136	42.9%	\$13,659
SA	\$55,232	80.4%	\$21,691

System growth in number of hospitals and ambulatory, non-acute sites

Key growth metrics for acute and non-acute settings*

Site of care	Current # facilities (2022)	Forecast facility growth annually	Forecast patient growth annually
Hospital/health system	~6k hospitals	# staffed hospital beds: 0 to -1%	# inpatient days / patient admissions: -1-2%
ASC	~6k Medicare-certified ASCs	# ASCs: + 1-2%	# ASC procedures: +4-6% p.a.
Urgent care clinic	~6k Urgent care clinics	# UCCs: +6-8%	# patient visits: +10-12% p.a.
MOB	~210k Physician offices (~20-40k MOB properties)	# physician offices: ~0%	# patient visits: -1%

Care setting growth

Increasing

Decreasing



Transfer of patients from outpatient sites to hospitals creates ongoing risk



Per CDC Of 112,800 cases of Senior outpatient onset *C diff* nationally:

- 28% of these patients were admitted to the hospital within 7 days of the positive specimen
- With 19% recurrence of infection
- And 8% mortality rate within 30 days



CMS estimates that infections in the outpatient population may account for...

- 150,000 hospitalizations annually
- +\$673 million in costs



Geriatric patients are frequently moved between facilities and wards, resulting in...

- Interruptions in care
- Compromised effectiveness of treatment
- Pathogen transfer from setting-to-setting and person-to-person

Characteristics of senior facilities also play a role

Several provider characteristics are also related to HAIs:

- Staffing levels (e.g., high turnover, low staff-to-resident ratios, etc.)
- Facility structure (e.g., national chain membership, high occupancy rates, etc.)
- Infection surveillance and prevention policies in place or not

Review of the DOH websites reveal that **only 29 states (57%) had Senior facility-specific training materials on HAI reduction; 25% of states had no training materials.**

Sources: 12-14



Poll Question

Are you currently working in a health system with integrated facilities, such as SNFs, LTACs, or Senior facilities?

Yes

No

Get ahead and take the steps to PREVENT vs control HAIs

- 1** We know frequent transport of senior residents from outpatient to inpatient facilities bring MDROs into hospitals and back to outpatient sites
- 2** We know residents colonized or with previous history of infection with MDROs or CDI can shed bacteria and spores into the environment and onto high-touch surfaces
- 3** We know HAIs in senior facilities are going to increase as populations increase

If clinical care is held to a certain level of standardization, why shouldn't outpatient care be held to the same standards?

What does all this mean for patient safety and experience?



Higher risk of safety issues due to decreased labor pools



Incomplete visibility into Patient Safety and Quality programs and outcomes due to multiple care areas



Excess costs for treatment and extended length-of-stay



Increased burden on nurses to care for a growing Senior population



Inconsistency of care and variation of healthcare environments can lead to higher readmissions



The case for standardization



Poll Question

What is the average number of ambulatory/non-acute sites per Integrated Delivery Network (IDN)?

A: 92

B: 116

C: 153

D: 178

Growth in outpatient care has translated to a proliferation of non-hospital sites linked to systems

9

Average number of hospitals per IDN today

153

Average number of non-acute/ambulatory sites* per IDN today

16.6

Average number of non-acute/ambulatory sites* per hospital

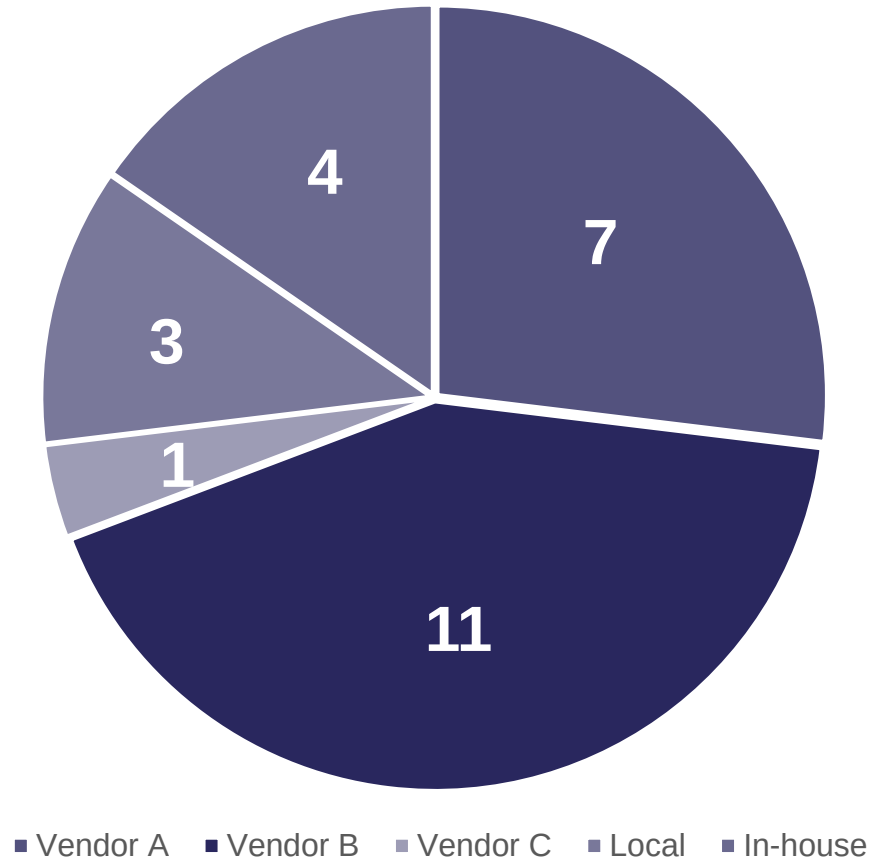
Source: Definitive Healthcare

An example: large hospital system

Number of Facilities in System

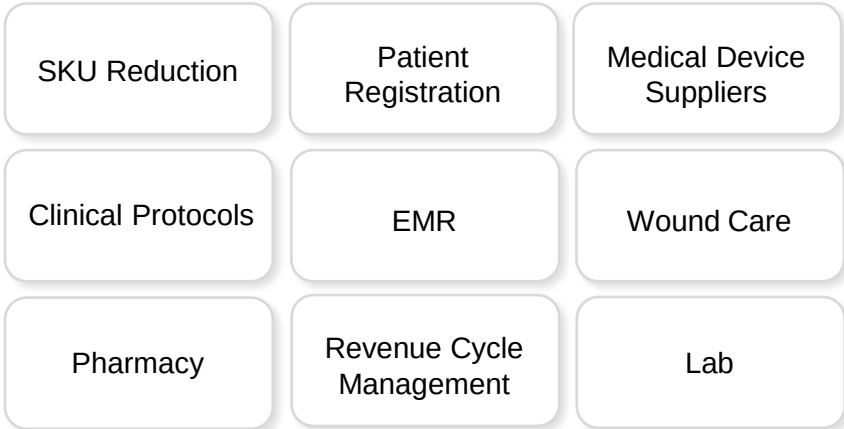
Hospital	26
Ambulatory Surgery Center	9
Skilled Nursing Facility	14
Assisted Living Facility	2
Imaging Center	35
Urgent Care Clinic	18
Rural Health Clinic	76
Physician Group	9
Specialty Pharmacy	2
Home Health Agency	16
Hospice	7
Total	214

EVS Vendors for Hospitals Only

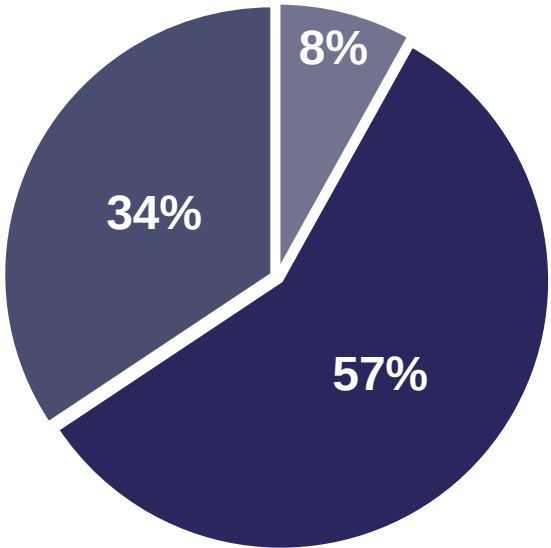


Progress in standardizing some areas, but not as much in purchased support services

Most systems have standardized in clinical care, IT & products



Yet most systems have yet to standardize non-clinical services



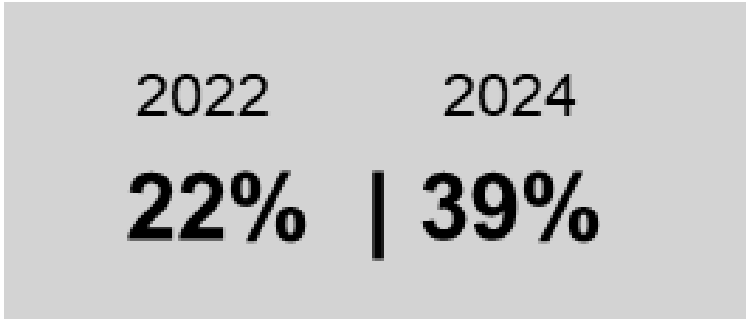
Characterization of non-clinical outsourced supplier usage (2022)
Percent of total sites (N = 84**)

■ Use 1 Supplier ■ Use 2-3 Suppliers ■ Use Many Suppliers

Standardizing support / purchased services – the next frontier

Reducing variation is a top goal for hospitals

% of Respondents Citing Streamlining Operations through Standardization as a Priority (Source: Sodexo Customer Needs Survey)

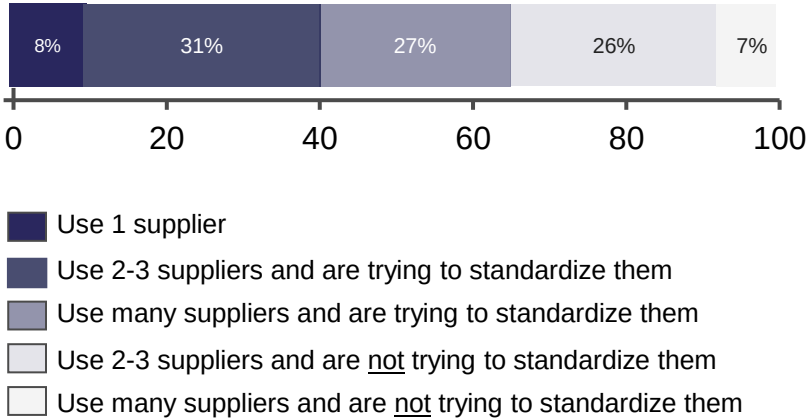


“... The priority right now is to standardize services across hospitals in a health system. An outsourcing decision is implemented for one of the services and then replicated for the rest. The shift towards standardization across non-acute settings is going to take place in the next 5-7 years, and you do not want to be left behind when that happens ...”
Health System President



Two-thirds of systems are looking to standardize purchase services

Characterization of non-clinical outsourced supplier usage (2022)
Percent of total sites (N = 84**)



73% of survey respondents believe it’s somewhat to very important that an EVS vendor can service non-acute / ambulatory sites.

Source: Sodexo LEK

The case for standardization of environmental services across the continuum of care

Saeb, et. al. conducted a survey of cleaning procedures across senior facilities and concluded that:

- There is great variation in the responsibilities of the cleaning staff.
- Facilities reported different product, time and sequence when cleaning rooms *with contact precautions*.
- The amount of training and continued education for environmental service employees varied across facilities as well as between what the supervisor and the staff reported.

The CDC Infection Control Assessment of ASCs found that the average ASC performs 210 procedures per month

- 12 of 62 facilities surveyed (19.4%; 95% CI, 10.9%-30.6%) were noted to have a lapse in adherence to hand hygiene or appropriate use of personal protective equipment (i.e., gloves).
- 12 of 64 facilities (18.8%; 95% CI, 10.6%-29.7%) did not appropriately clean high-touch surfaces in patient care areas.
- 12 of 68 facilities (17.6%; 95% CI, 9.9%-28.1%) had lapses identified in 3 or more of the 5 infection control categories evaluated by surveyors.

Source: 12



**10–30
minutes to clean
one room**

The number of rooms assigned to each employee ranged from **7– 23 rooms** and the time spent to clean each room ranged from **10– 30 minutes**



Benefits of standardization



Same chemicals and standard operating procedures used in all care areas – increased savings from one provider



Decrease compliance risk when staff are using less chemicals for daily cleaning and disinfection



Decreased rates of readmission due to HAIs



Increased positive patient outcomes



Quality assurance checks can be utilized at any site to verify cleaning and staff compliance



Increased patient satisfaction

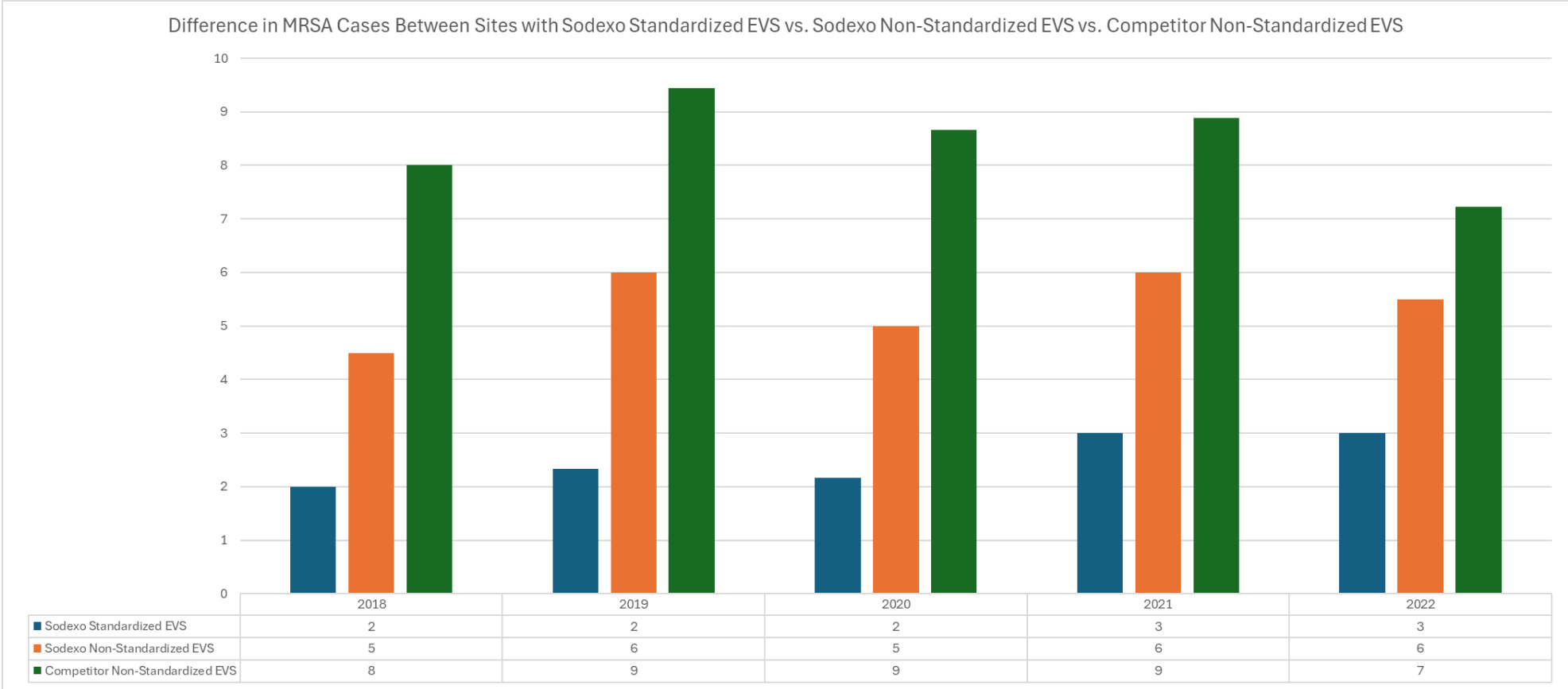


Lowered inpatient census - better for nursing to patient ratios

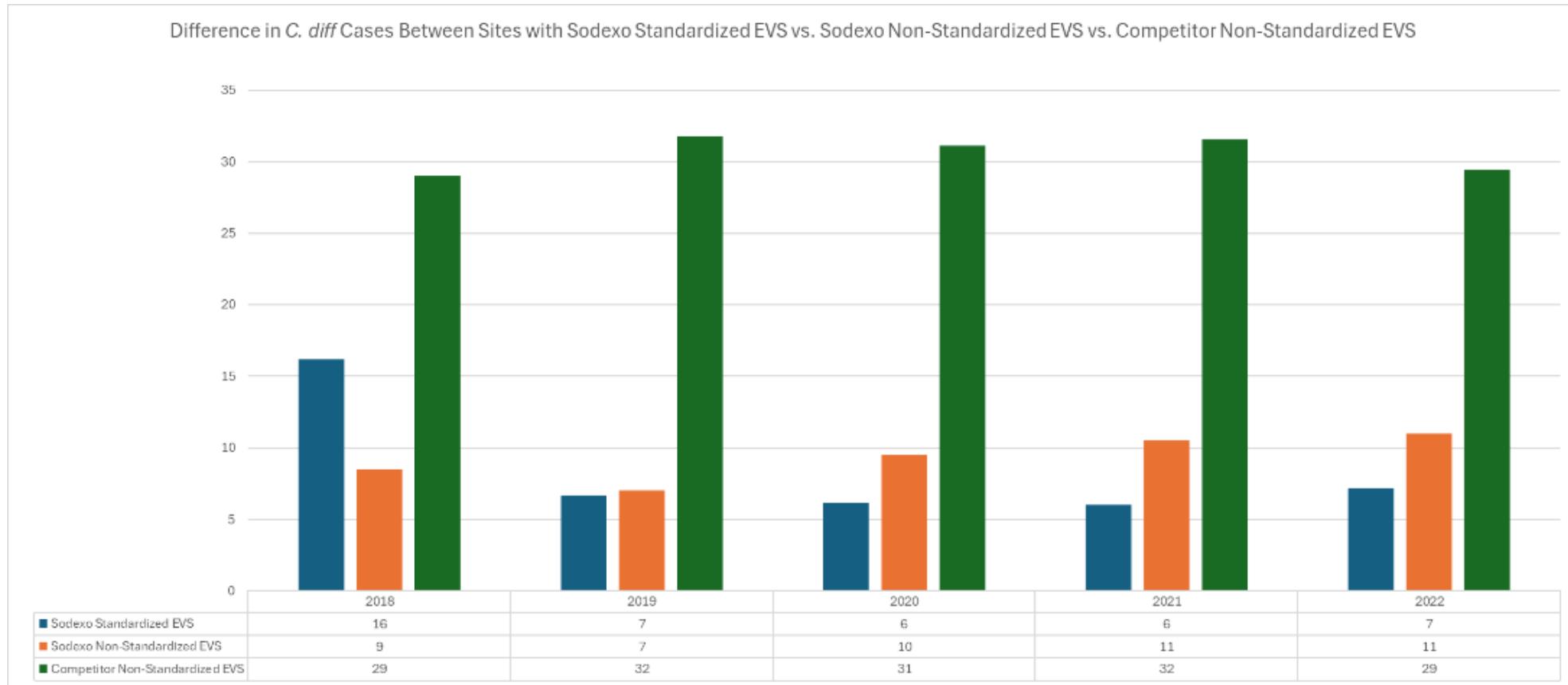


Management of all sites within the healthcare system – operational efficiency

MRSA HAI comparison with standardized vs. non-standardized EVS

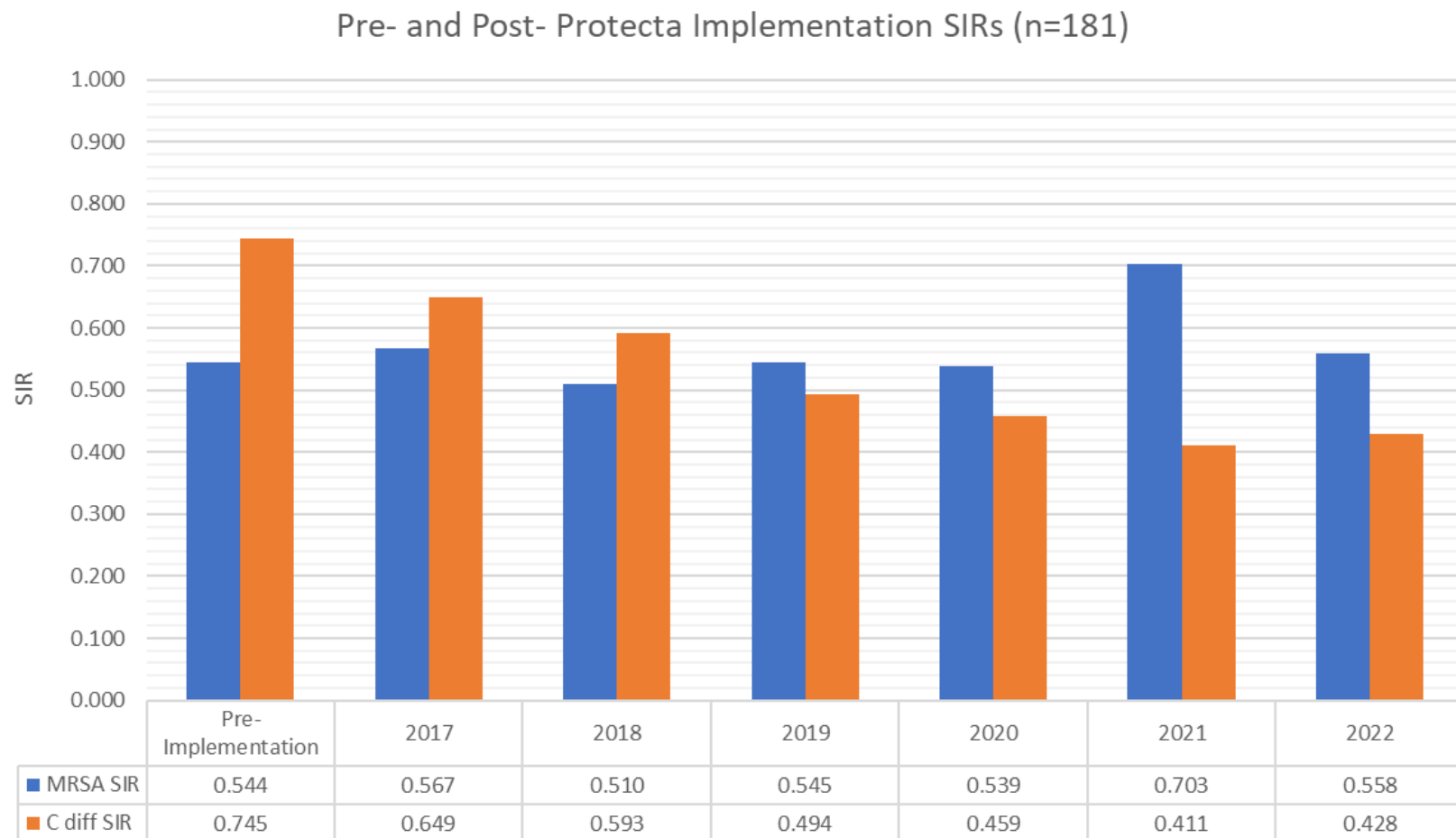


C. diff HAI comparison with standardized vs. non-standardized EVS



Clinical evidence of efficacy in lowering HAIs

SIR is calculated by the # observed cases/# expected cases; expected cases are pre-determined by CMS



Standardizing environmental infection prevention involves much more than product



Consistent repeatable results:

- Higher quality of cleaning and disinfection with less variation
- Greater efficiency and room turns
- Employee engagement and satisfaction
- First line of defense

**Improved
patient
safety and
experience**

Recap

The landscape of healthcare will drastically change in the coming decades, putting emphasis and stress on consistency and standardization of clinical and non-clinical care.



HAIs in senior living facilities are driving readmissions for treatment, often leading to decreased quality of life, increased mortality, and overprescription of antibiotics



Standardization of EVS at non-acute care facilities can help prevent HAIs



Surveillance of senior patients with MDROs to and from acute care facilities is difficult



Management of off-site, related care areas – who cleans what, when, and how?



Benefits of standardization of EVS with an outside service provider, such as Sodexo



Same pathogens are in both areas – should standardize cleaning to use the same items from acute care into outpatient care

Q&A



Thank You

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Case Study

Sodexo's Protecta® Environmental Infection Prevention supports ECU Health with exceptional patient care by managing hospital-acquired infections

OVERVIEW:

ECU Health adds Protecta® Infection Prevention program to its Sodexo system-wide Environmental Services and Food and Nutrition Services

The ECU Health (ECU Health) hospital system has eight hospitals, plus numerous outpatient facilities, home health, hospice, and wellness centers, reaching more than 1.4 million people across 29 counties. Its local hospitals are community cornerstones, and they stimulate local economies; often they are among the largest employers in their communities. With more than 1,700 beds, it aims to be the national model for rural health and wellness by creating a premier, trusted health care delivery and education system.

Sodexo—a leading provider of integrated food, facilities management and additional services that enhance organizational performance, contribute to local communities and improve quality of life—has partnered with this hospital system since 2014, providing Food and Nutrition Services along with Environmental Services. ECU Health added the Protecta Environmental Infection Prevention program from Sodexo in January 2020, enhancing its rigorous cleaning at the

hospital to help reduce hospital-acquired infection (HAI) rates. As of spring 2020, all of its affiliated hospitals have implemented the full Protecta program.

Due to nationwide CMS reporting suspensions caused by the COVID-19 pandemic, Protecta results data focuses on the ECU Health Medical Center this data was provided to Sodexo by the infection prevention team at the site.



About the hospital

- More than 1,700 beds in eight hospitals
- Includes seven community hospitals and ECU Health Medical Center
- 64,333 admissions in FY2019
- Mission: To improve the health and well-being of its region

CHALLENGE:

Further reducing HAI cases at ECU Health

HAIs, like MRSA and *Clostridioides difficile* (*C. diff*), can be one of the biggest challenges for healthcare organizations. Not only can HAIs negatively affect patient health as well as re-admission rates and associated costs, they also can impact Medicare reimbursements, patient satisfaction scores, and a hospital's reputation through grades and reviews easily available to the public.

One of the culprits—a bacterium called *C. diff*—is particularly dangerous because it can live on surfaces for five months and spread easily from person to person through direct contact or indirect contact with a contaminated environment or equipment. Determined to reduce *C. diff* HAI cases along with related costs—ECU Health turned to its trusted partner, Sodexo, for help.





SOLUTION:

Drive a decrease in HAIs with a standardized, multi-layer approach to infection prevention to ensure a safe environment for patients and employees

A safe, clean hospital environment is critical to quality of care, patient experience, and employee morale. Sodexo's comprehensive, proprietary environmental infection prevention solution, called Protecta, supports excellence in patient care and adds value to the healthcare system's daily operations. Protecta is an integrated, bundled approach, incorporating effective training, proven protocols, and state-of-the-art standardized disinfecting chemicals and cleaning products.

Additionally, Protecta includes analytics, infection preventionist support, and technology.

When fully implemented, Protecta® can have a statistically significant impact in reducing infections as well as decreasing costs associated with HAIs.

Patients with HAIs during their admission are more likely to be readmitted within 90 days due to complications from the infections. Patients with HAIs also have longer lengths of stays, resulting in increased levels of care, medications, labor, and supplies—all of which Protecta aims to reduce.

Sodexo began implementing Protecta at ECU Health in January 2020. This timing just ahead of the COVID-19 pandemic was fortuitous as it put it ahead of the curve in having best-in-class—and



Environmental Protective Agency (EPA) listed or registered—tools and processes in place to provide the strongest defense against the virus, while decreasing the healthcare system's variable HAI rates.

To get started, Sodexo's Environmental Services team worked with the hospital infection prevention team to develop a specific risk profile for individual areas within the hospital's. Then, Sodexo and the hospital agreed to a cleanliness and infection prevention policy to ensure clarity on areas of responsibility, frequency of reporting systems, as well as audit and quality protocols.

Standard Operating Procedures (SOPs) support the risk framework, covering each type of location and asset, as well as current infection status. The work of Sodexo's team is dictated by SOPs for a given level of activity and risk, enabling predictable outcomes and the flexibility to adjust quickly in a controlled way when the need arises. Leveraging data from its 3,000 healthcare sites across the globe, Sodexo has established a comprehensive knowledge base, geared to the effective management of healthcare environments.

Published audit and inspection methodologies and frequencies give the hospital system confidence in Sodexo's efforts. Quality assurance auditing with fluorescent blacklight technology is completed on a rotating set of surface types and areas within patient care environments.

To ensure day-to-day management of risk, activity, and outcomes, Sodexo uses specially adapted workforce resource management solutions. These solutions not only manage assignment of training, compliance, and other activities, but they also capture hospital reporting on both visual and microbiological standards with links to track the level, type, and location of any hospital-acquired infections.

Labor management systems and processes link to Sodexo's dashboard and assist with the efficient deployment and utilization of monitoring solutions.



The standardized training for team members, disinfecting chemicals, disposable items, and processes included with Protecta aim to provide more consistent, reliable results, giving team members one less item to worry about while working on other preventative measures.

The combination of cleaning products includes a ready-to-use, fast-acting accelerated hydrogen peroxide disinfectant that is effective against a multitude of bacteria and viruses—including COVID-19 and fungi—as well as NaDCC, a non-bleach sporicidal. Based on evidence, this combination of chemicals is highly effective in breaking through biofilm and leaving pathogens with less surfaces to hide. Sodexo team members also use disposable wipes and mops that decrease microorganisms and reduce cross-contamination.

On top of the standard Protecta program, Sodexo further enhances infection prevention and addresses specialized needs with the next-level technology and service of Protecta® Plus. This additional program includes UV-C disinfection.



Disinfecting
Chemicals



Tools and
Processes



Employee
Training



Technology

Protecta® uses a holistic multi-layered approach to deliver predictable results:

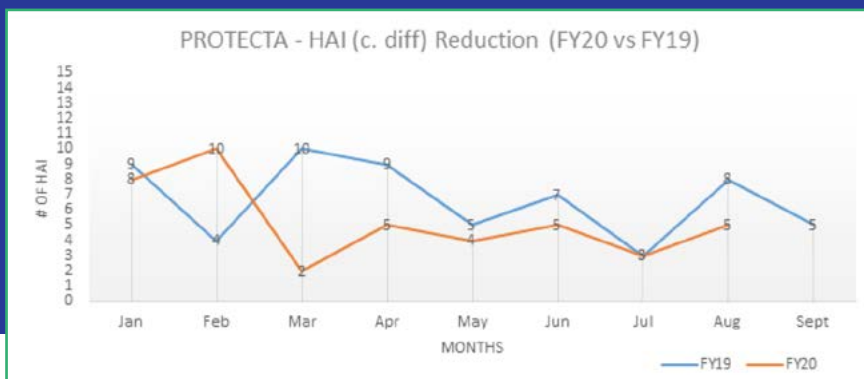
- Foundational cleaning
- Best practices and training
- Standardized products
- Monitoring and analytics through our SMS (site management system)
- Infection prevention specialist support

RESULTS:

Reduction in HAIs and delivery of more predictable outcomes

From January 2019 through August 2020, ECU Health was able to achieve a 30% decrease in *C. diff* cases.

Prior to the implementation of Protecta®, ECU Health was experiencing a fluctuation in monthly *C. diff* HAI cases. The standardized disinfecting chemicals, disposable items, training, and processes included with Protecta aim to provide more consistent and reliable results.



From January-August 2019 versus January-August 2020, reductions in *C. diff* cases resulted in more than \$314,000 in cost avoidance.



\$24,206

The hospital's *C. diff* HAI cost per case for FY2019

HAI Reduction and Cost Avoidance Comparison Between Jan-Aug 2019 and Jan-Aug 2020

Month	FY19	FY20	Diff	Cost Avoidance
Jan	9	8	-1	-\$24,206.00
Feb	4	10	6	\$145,236.00
Mar	10	2	-8	-\$193,648.00
Apr	9	5	-4	-\$96,824.00
May	5	4	-1	-\$24,206.00
Jun	7	5	-2	-\$48,412.00
Jul	3	3	0	\$0.00
Aug	8	5	-3	-\$72,618.00
Total	55	42	-13	-\$314,678.00

With a track record of excellence in Food Services and Environmental Services, the hospital system asked Sodexo to expand its services to include the Protecta Infection Prevention program.

“When a patient visits our hospital, they expect to receive high-quality care in a safe and loving environment. By partnering with Sodexo in the Protecta program, we have further enhanced the safety of our clinical environments and developed proven disinfection solutions that will serve us well now and into the future.”

- Chief Experience Officer

Protecta® Achieved:

- From January 2019 through August 2020, ECU Health was able to achieve a 30% decrease in *C. diff* cases
- From January-August 2019 versus January-August 2020, reductions in *C. diff* cases resulted in more than \$314,000 in cost avoidance
- Improvement in employee job satisfaction resulting from the implementation of an efficient cleaning process
- Increased confidence among employees that they are working in a safe environment

Sodexo’s standardized infection prevention in conjunction with ECU Health’s protocols helped further reduce *C. diff* cases.

Factors in addition to the Protecta Environmental Infection Prevention program that contributed to the *C. diff* reduction at ECU Health:

- Lower census
- Decreased visitation due to visitor restrictions
- Lower discharge/transfer volume
- Increased awareness of PPE donning/doffing
- Heightened awareness of hand hygiene
- Clinical team’s active disinfection of high-touch surfaces in conjunction with Sodexo Environmental Services team

Sodexo's Environmental Services and Infection Prevention team members appreciate the efficiency of Protecta®, leading to job satisfaction and team member confidence in safety and cleanliness. The standardized process and predetermined set of products allow team members to put everything they need on their carts, creating a routine that makes it easier for them to do their jobs.

For example, disposable mops eliminate the need to drag a wet mop through the unit and disposable wipes decrease washing, thereby eliminating laundry challenges and reducing water usage. The accelerated hydrogen peroxide disinfectant provides a reduced wet contact time, which often saves team members a second wipe to maintain the wet surface to achieve minimum dwell time.

Armed with their own confidence in Protecta, Sodexo team members are able to help alleviate patients' heightened sensitivity about cleanliness due to the pandemic by showing and communicating what they are doing to create a safe environment.

"Continuing to see *C. diff* HAI reduction year-over-year, especially in the midst of an on-going pandemic, validates that the Protecta program helps us provide the highest quality of service for the hospital system and its patients. Our team members also appreciate Protecta's efficiency and effectiveness."

- Sodexo General Manager
of Environmental Services

"Protecting our environment is one of the most important things we can do for our patients, their families, and our team members. Creating a truly safe environment takes collaboration from nurses, infection control, and environmental services all working towards the common goal. Through our partnership with Sodexo in the Protecta program, we've enhanced our *C. diff* safety protocols and discovered solutions that ensure the safety of those we serve."

- VP, Office of Experience

"Having used many different disinfectants in my career, I appreciate the reduced dwell time of our fast-acting accelerated hydrogen peroxide disinfectant as well as our non-bleach sporicidal—particularly as we continue to see a fluctuation in COVID-19 cases and increased patient volume at our facility. I hear positive feedback from our patients, as they are impressed with our infection control protocols and have comfort knowing that our team is working to keep them safe every day."

- Sodexo Operations
Manager of Environmental Services

CONCLUSION:

Sodexo partnered with the hospital system to tackle the challenge of unstable HAI rates by enhancing its rigorous cleaning with the Protecta® program's proven disinfection solution. The result was a sizeable decrease in HAIs in just one year and, overall, more consistent outcomes.



Challenge:

ECU Health sought to further reduce *C. diff* HAI cases.

Solution:

Sodexo implemented Protecta Environmental Infection Prevention—an integrated, bundled approach incorporating standardize training, proven protocols and state-of-the-art disinfecting chemicals and cleaning products—to provide more consistent and reliable results.

Results:

Sodexo's Protecta program helped lower HAIs to support ECU Health's excellence in patient care. The efficiency of the program's protocols also led to improved employee satisfaction and confidence in the safety of their workplace environment. Additionally, the reduction in HAIs resulted in more than \$314,000 in cost avoidance.



HAIs and HCAHPS; are they connected?



One would expect that the number of hospital-acquired infections (HAIs) reported at a hospital would correlate with the results of the hospital's HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) surveys, where a lower number of HAIs would seemingly be associated with higher patient satisfaction scores and vice versa. But data does not necessarily support this hypothesis. To better understand the relationship between HAIs and HCAHPS, we have analyzed the data and provided recommendations on how a hospital environmental services program can successfully address each.

HAI reporting and HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) surveys both provide measurements to help assess how hospitals are performing. HAI data informs whether hospitals are providing a safe environment for patient care, while HCAHPS surveys aim to measure patients' perceptions of their hospital experience to better understand the quality of care provided. While the CMS (Centers for Medicare and Medicaid Services) penalize the lowest-performing 25% of all hospitals in HAIs each year under the Hospital-acquired Conditions (HAC) Reduction Program, it conversely rewards hospitals with high HCAHPS scores with higher reimbursements.

About the HAC Reduction Program

Launched in 2015, CMS's HAC Reduction Program assesses the performance of hospitals based on specific measures related to patient safety as compared to other hospitals. HACs include harmful conditions that patients may develop while in the hospital receiving treatment for something else, such as falls, air embolisms and HAIs. Hospitals with scores in the bottom-performing quartile are subject to a penalty of up to 1% of their Medicare payments for the year based on the following:

One claims-based composite measure of patient safety:

- Patient Safety and Adverse Events Composite (CMS PSI 90)

Five chart-abstracted measures of HAI submitted to the Centers for Disease Control and Prevention's National Healthcare Safety Network:

- Central Line-Associated Bloodstream Infection (CLABSI)
- Catheter-Associated Urinary Tract Infection (CAUTI)
- Surgical Site Infection (SSI) for abdominal hysterectomy and colon procedures
- Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia
- *Clostridioides difficile* Infection (CDI)¹

Assumptions

One could assume that HAIs and HCAHPS would correlate – that when a hospital performs well in one area, their overall efforts would lead to positive performance in the other, and vice versa. One particular area in which one might assume that HAIs and HCAHPS would overlap is in the HCAHPS “cleanliness” question: “During this hospital stay, how often were your room and bathroom kept clean?”

What data shows

In 2020, a study of New York acute care hospitals found that hospitals experienced 0.031 fewer cases of *C. diff* infections per 1,000 discharges for every percentage point increase in the HCAHPS cleanliness score.² A broader analysis by Deloitte in 2017 showed a positive association between patient experience and central line-associated bloodstream infections (CLABSI) in ICUs and select wards (in which higher patient experience correlated to improved HAI performance), but no association at all between patient experience ratings and CAUTI in ICUs and select wards, nor surgical site infections from colon surgery or abdominal hysterectomy.³

Some studies have also looked at other dimensions of HCAHPS aside from cleanliness to establish a link between patient experience and HAIs more broadly. One found that lower HAC scores were modestly associated with a better patient experience.⁴ Looking at staff responsiveness, a separate study found inpatients' hospital experiences were significantly associated with an increased risk of ICU-reported CLABSI.⁵

Studies show mixed results at best in any correlation at all between HAIs and HCAHPS.

Likelihood to recommend has also scored higher for patients who do not contract an HAI compared to patients who did develop an HAI. This suggests the directionality of the HCAHPS-HAI relationship may be that experiencing an HAI leads to poorer retrospective assessment of their experience. However, another study found the opposite; development of a HAC was not associated with decreased satisfaction scores in a population of orthopedic surgery patients at a private, university-affiliated specialty center.⁶

Sodexo Healthcare commissioned an independent review and analysis of public data to determine the possible correlations between HAI and HCAHPS. The findings, as detailed in Table 1, show that *C. diff* is the only HAI where a decrease in infections is correlated with an increase in HCAHPS cleanliness scores.

Table 1. Univariate OLS Regression Coefficients - HCAHPS Dependent, HAI Independent, 01/01/2019 - 12/31/2019

Dependent Variable	Regression Coefficients Q4 2019	Independent Variable					
		CLABSI	CAUTI	SSI Colon	SSI Hysterectomy	MRSA	C. diff
	Nurse Communications	-0.45***	-0.02	0.06	-0.05	-0.69***	0.41**
	Doctor Communications	-0.07	0.05	0.14	0.08	-0.50***	0.18
	Staff Responsiveness	-0.72***	-0.27	-0.19	-0.22	-0.63***	0.90***
	Medicine Communications	-0.13	-0.11	-0.13	-0.14	-0.63***	0.38*
	Discharge Information	-0.40***	0.14	0.22**	-0.15	-0.92***	0.56***
	Care Transition	-0.47**	0.09	0.29*	-0.04	-1.00***	0.16
	Cleanliness	-0.52**	-0.28	-0.27	-0.54**	-0.86***	0.63**
	Quiet	0.45	-1.02***	-0.38	-0.07	0.25	-0.49
Overall Hospital Rating	-0.68**	0.19	0.25	-0.33	-1.57***	0.39	
Likely to Recommend	-0.87***	0.53	0.52*	-0.39	-1.77***	-0.04	

* p<0.1, ** p<0.05, *** p<0.01; models are univariate only, without controlling for additional factors

While one might expect that an increase in a particular HCAHPS score would correlate to a decrease in HAIs, the data in Table 2 shows the opposite

Instead, some of the factors are both positive, showing an increase in certain HAIs correlated with an increase in certain HCAHPS scores, or both negative, showing a decrease in certain HAIs to be correlated with a decrease in certain HCAHPS scores. MRSA shows the most statistically significant results, but the correlation is still extremely weak; *C. diff* has significant results with several HCAHPS metrics, but all are positively correlated, meaning when one increases, so does the other.

Table 2. HCAHPS and HAI Correlations 01/01/2019 - 12/31/2019

Dependent Variable	Pearson Correlation Coefficients Q4 2019	Independent Variable					
		CLABSI	CAUTI	SSI Colon	SSI Hysterectomy	MRSA	C. diff
	Nurse Communications	-0.07***	-0.00	0.01	-0.01	-0.11***	0.04**
	Doctor Communications	-0.01	0.01	0.03	0.02	-0.09***	0.02
	Staff Responsiveness	-0.08***	-0.02	-0.02	-0.04	-0.07***	0.06***
	Medicine Communications	-0.02	-0.01	-0.02	-0.03	-0.10***	0.03*
	Discharge Information	-0.08***	0.03	0.05**	-0.05	-0.19***	0.07***
	Care Transition	-0.05**	0.01	0.04*	-0.01	-0.13***	0.01
	Cleanliness	-0.06**	-0.03	-0.03	-0.09**	-0.10***	0.04**
	Quiet	0.04	-0.07***	-0.03	-0.01	0.02	-0.03
Overall Hospital Rating	-0.04**	0.01	0.02	-0.05	-0.14***	0.02	
Likely to Recommend	-0.06***	0.03	0.04*	-0.05	-0.14***	-0.00	

* p<0.1, ** p<0.05, *** p<0.01

Table 3 shows a correlation between *C. diff* and HCAHPS scores for Nurse Communication, Staff Responsiveness, Medicine Communication, Discharge Information and Cleanliness. However, coefficients are almost always 0.00, suggesting a very small impact. Despite statistical significance, most of the coefficients are less significant, hovering around 0.00-0.02. This suggests only marginal improvements in HAI Standard Infection Ratio associated with increases in HCAHPS performance.

Table 3. Univariate OLS Regressions Coefficients - HAI Dependent, HCAHPS Independent 01/01/2019 - 12/31/ 2019

Dependent Variable	Independent Variable										
	Regression Coefficients Q4 2019	Nurse Communication	Doctor Communication	Staff Responsiveness	Medicine Communication	Discharge Information	Care Transition	Cleanliness	Quiet	Overall Hospital Rating	Likely to Recommend
	CLABSI	-0.02	-0.02	0.06	-0.05	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**
	CAUTI	-0.07	0.05	0.14	0.08	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**
	SSI Colon	-0.02	-0.27	-0.19	-0.22	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**
	SSI Hysterectomy	-0.13	-0.11	-0.13	-0.14	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**
	MRSA	-0.02	0.14	0.22**	-0.15	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**
C. diff	-0.47**	0.09	0.29*	-0.04	-0.02	-0.02	-0.02	-0.02	-0.02	0.41**	

* p<0.1, ** p<0.05, *** p<0.01; models are univariate only, without controlling for additional factors

Why is there so much variation in the correlation data?

The following aspects of the HCAHPS cleanliness question may suggest why we see no consistent correlation between patient experience scores and HAIs:

- There are 10 questions on the HCAHPS survey with minimal focus on assessing cleanliness and the environment.
- The cleanliness question pertains only to the patient's room and bathroom, not the overall hospital environment where pathogens can be transferred.
- The cleanliness question is worded to measure perceived cleanliness and frequency of cleaning rather than actual cleanliness; for instance, normal wear and tear of flooring and outdated facilities can have an unclean appearance but still be properly disinfected.
- The cleanliness question only offers four answer options: Never, Sometimes, Usually, Always; therefore, there is no way of knowing what aspect of cleanliness the patient felt was lacking.

Based on these factors, it could be argued that the cleanliness question measures patient interactions with environmental services staff more than actual cleanliness. This also explains the correlation between a reduction in cases of *C. diff* and an increase in HCAHPS cleanliness scores while other HAIs did not; the key measures to prevent the spread of *C. diff*, proper handwashing and surface disinfection, offer patients visual cues that can lead to perceived cleanliness reported on their HCAHPS surveys.





Conclusion

Both HAIs and HCAHPS are important metrics for measuring hospital performance, however, evidence suggests that a hospital's performance on one cannot reliably predict the other. Managing HAIs is reliant on a consistent Infection Prevention strategy, while improving patient experience is reliant on identifying the expectations of patients and addressing their concerns before they complete post-discharge surveys. Therefore, hospitals require a two-prong approach that supports proper disinfection as well as patients' perceptions of cleanliness to address each.

Addressing both HAIs and HCAHPS

Preventing HAIs is important for the safety of staff and patients, while providing a positive patient experience enhances a hospital's reputation and standing in the community.

75,500 deaths each year in the U.S. from preventable HAIs

\$45,000 on average from just one HAI in penalties

When it comes to addressing the cleanliness question on the HCAHPS survey, involving the environmental services team in patient engagement in the following ways can help secure high HCAHPS scores:



Have environmental services staff introduce themselves to patients or families



Ensure staff can be observed cleaning by the patient



Communicate what cleanliness measures the patient can expect



Leave messages in patient rooms stating when and how the room was cleaned

Sodexo Healthcare has two service offerings - Protecta® and Experiencia® - that, in tandem, can address both HAIs as well as enhance patient experience while patients are still in the hospital.

Visit us.sodexo.com/healthcare or talk to your Sodexo Client Executive to learn more.

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