

DRIVING

PATIENT SATISFACTION

THROUGH CREATIVE APPLICATION
OF UV-C TECHNOLOGY



EXECUTIVE SUMMARY

“Cleanliness is in the eye of the beholder”. While clean can be clinically proven by the absence of bioburden and pathogens with scientific techniques like ATP swabs, human perceptions are less predictive. The perception of a clean environment to one individual, may not be acceptable to another. Thus, it makes sense to over-compensate with clean cues to meet even the highest standards of clean perceptions. True human reaction to any event is a combination of real and perceived signals – a hospital experience is no different. A hospital event is stressful and little things can have dramatic impact on an overall judgment of that experience. Perception is reality.

Crothall Healthcare introduced a Surfacide Helios® UV-C Tower into occupied patient rooms as an additional disinfection event in the patient bathroom. The striking visual of a six foot UV-C tower, combined with specific scripting by a trained associate, increased Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Cleanliness scores.

Visual proof of aggressive disinfection protocols bolsters patient confidence. The UV-C tower, sometimes referred to as a “robot,” provided the visual trigger that confirms a greater sense of commitment to a clean and safe clinical environment. Upon entry EVS Staff shared with the patient why the UV-C system was being introduced, how it would work and the benefit to the patient, before getting approval to proceed. The combination created an experience patients remembered when rating cleanliness in their room on the HCAHPS survey.

Average 3-month HCAHPS scores increased +3.2 to +17.5 points compared to the previous 3 month period. Testing was conducted in four geographically and demographically disparate hospital locations over different time periods. One location test period was in the midst of the pandemic and also demonstrated a significant improvement in HCAHPS scores.



KEY LEARNINGS

- Patient perceptions are impacted by the visual trigger of a UV-C device
- Proper scripting by the associate enhances the “cleanliness” experience
- Improvements were realized in four geographically dispersed hospitals
- Time frames were also different canceling concerns over seasonality

Patient safety and satisfaction are always critical but heightened in a pandemic.

INTRODUCTION

Cleanliness in a clinical setting is crucial to patient safety. Patient safety and satisfaction are always critical but heightened in a pandemic. Under such circumstances it is important to understand how the use of advanced technology such as UV-C systems can impact a patient’s perception of their environment, their confidence in healthcare facilities and satisfaction with hospital services.

Crothall focuses on “cleanliness” perceptions to drive HCAHPS scores.

This is done operationally through proper cleaning and disinfection techniques, but also by increasing patient awareness and perception of room cleanliness. Recent research conducted by Crothall in partnership with Press Ganey has shown that improved patient perception of environmental factors are highly correlated to quality and experience outcomes.

HCAHPS surveys can be delivered up to 6 weeks post-discharge.

Memories of that experience are triggered by unique events and interactions that occurred during the stay, as perceived by the patient. The perceptual triggers from events, people and interactions can be the deciding factor for the hospital’s satisfaction outcomes. Patient care must be memorable to impact patient satisfaction; every interaction should truly be an experience.

The challenge for Environmental Services (EVS) is not only proper disinfection, but how to affect the patient’s perception. One way to achieve this objective is through the use of innovative technology. Utilizing technology for disinfecting and cleaning purposes is nothing new, but the impact that technology has had on patient satisfaction has not been well documented.



BACKGROUND

Crothall Operations searched for a protocol that would improve disinfection while also impacting patient satisfaction. Increased room cleaning frequency had proven to be effective in controlling pathogen transmission, and done properly provided more opportunities for housekeepers and EVS staff to interact with patients.

The Surfacide Helios® System has historically been used in discharge rooms. In a single disinfection cycle with the Surfacide Helios® System, research has shown that difficult-to-eliminate pathogens have been inactivated, creating a safer environment for healthcare staff and patients alike. The concept of using a UV-C robot to disinfect the bathroom in an occupied room was born to add yet another event to drive efficacy. UV-C exposure in the bathroom improved cleaning efficacy and created a memorable, unique event.

This unique disinfection event and resulting patient satisfaction translated into improved HCAHPS scores. Those units where occupied room bathrooms were being disinfected with the Surfacide Helios® System had significant HCAHPS improvement. Based on that success, the protocol was documented and a test of the concept was set in 4 other sites around the country.

Increased room cleaning frequency had proven to be effective in controlling pathogen transmission...

HYPOTHESIS

Surfacide and Crothall believed Patient perceptions of clean could be enhanced by visual confirmation of advanced technology. By introducing a single Helios® Tower into an occupied room to disinfect the bathroom, they felt it would positively impact perceptions of clean and the overall experience in the hospital. Crothall EVS is focused on impacting the reality and perception of clean through their Power of Clean program and believes it can drive the overall experience.

Patients seldom have visibility of UV technology as it is used primarily in empty discharge rooms and operating rooms. Crothall EVS teams hypothesized that the visual presence of UV-C towers, and a simple explanation of the UV-C process (scripting), would drive HCAHPS scores. The use of UV-C emitting towers would create a memorable “moment” for the patient.



METHODOLOGY

Four disparate hospitals were selected to determine proof of concept. To control variables as much as possible, these Test Unit criteria were established:

- 1) Permanent Housekeeper assigned to unit, so that score fluctuation would not be attributed to changing staff
- 2) Baseline (previous year) HCAHPS score between 50%-65% Top Box. This percentage is seen nationally as an average that is "movable." Movable defined as not so low that circumstances are in play that will prevent an increase; not so high that a score increase is unlikely
- 3) Minimum 15 survey returns per month
- 4) Adequate staffing to ensure treatment of 80% of occupied room bathrooms Monday-Friday. This was tracked along with patient satisfaction scores

Four disparate hospitals were selected to determine proof of concept.

The pilot was conducted over the course of three months at each location. Data also includes three months previous to pilot implementation, to dispel anomalies and to ensure an appropriate total survey "n" count.

The appropriate time to round on the patient unit was identified to ensure the highest likelihood of patient interaction. Crothall EVS associates and Patient Experience associates were trained on the use of the Helios® UV-C system. The EVS staff member would bring the UV-C system to the room, knock on the door and speak with the patient, offering the option for disinfection in the patient's bathroom. With the patient's consent, a five minute cycle would be completed in the secured bathroom while the EVS associate engaged the patient regarding the UV-C process. Room treatments and HCAHPS scores were monitored for consistency.

Patient reaction to the UV-C event and the interaction with the associate was strong. Patients were briefed on how the UV-C worked and its effectiveness during the cycle time. A quote from an on-site associate:

"The patients are surprised by two things: how big the machines are, and how quiet they are. Once they understand what the machine is there to do, they are always thankful. One patient asked if he could purchase one for his home!"

Proper scripting and consistent delivery was critical.

Scripting followed the standard Crothall Patient Experience introduction of entering the room respectfully and engaging the patient and visitors. Where the scripting would normally address cleaning methods and housekeeper engagement, it was modified to introduce the Helios® UV-C System and give a few key details regarding the System's purpose and safety.

- *"If you don't mind, I would like to treat your restroom with our UV-C light technology. The UV light treatment provides a safe, additional level of disinfection for you during your stay."*
- *"I will put a UV tower in the restroom and follow proper protocol to ensure the area is secure. The cycle will take 5 minutes and will disinfect the surfaces of the restroom. This treatment is meant to enhance the daily cleaning efforts of your housekeeper to keep you safe from infection."*

Associates were also trained to address visual and audible cues of the Helios® UV-C process.

Patients were informed that there would be a sound, but the hum would be no louder than a vacuum that they might use at home. It was explained that they would not be in direct contact with the UV-C light, but that traces reflecting under the door might be possible, and this is simply a sign that the machine is working. While each associate can speak to the effectiveness of the UV-C treatment, two of the test sites also produced hospital and product branded literature for the patients to take home.



RESULTS

The following charts provide monthly and 3 month average HCAHPS scores for each unit. All four facilities showed significant score improvements on the pilot units. For comparison the same 3 month data and averages are included as the base period before introduction of the Surfacide Helios® System. Data shows that the use of UV-C robots in patient bathrooms and proper scripting improved the patient's overall experience as indicated by increased HCAHPS scores. When comparing three-month average previous and prior averages, the following point improvements were noted:

- **Midwestern University: Unit 1** + 13.1 points
- **Midwestern University: Unit 2** + 13.0 points
- **Midwestern University: Unit 3** + 3.2 points
- **Mid-Atlantic University: Unit 1** + 5.5 points
- **Great Plains System: Unit 1** + 17.5 points
- **West Coast Private Hospital: Unit 1** + 6.7 points

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Midwestern, 800+ Bed University Medical Center

2018-2019	September	October	November	Total n count: 103
Unit 1	72.7%	69.4%	67.6%	69.9%
	December	January	February	Total n count: 103
	80.6%	84.6%	83.9%	83%
				+13.1 points

Midwestern, 800+ Bed University Medical Center

2018-2019	December	January	February	Total n count: 50
Unit 2	57.1%	48.1%	54.5%	53.2%
	March	April	May	Total n count: 56
	75%	60%	63.6%	66.2%
				+13.0 points

Midwestern, 800+ Bed University Medical Center

2018-2019	November	December	January	Total n count: 96
Unit 3	82.8%	69.8%	66.7%	73.1%
	February	March	April	Total n count: 88
	81.5%	77.4%	70%	76.3%
				+3.2 points

Mid-Atlantic, 500+ Bed University Medical Center

2018-2019	December	January	February	Total n count: 99
Unit 1	65.9%	58.3%	64.5%	65.9%
	March	April	May	Total n count: 103
	66.7%	61.1%	86.5%	71.4%
				+5.5 points

Great Plains Region, 300+ Bed Health System

2019	March	April	May	Total n count: 96
Unit 1	56.5%	57.8%	73.5%	62.6%
	June	July	August	Total n count: 100
	72%	77.7%	90.6%	80.1%
				+17.5 points

West Coast, 250 Bed Private Hospital

2020	June	July	August	Total n count: 95
Unit 1	68.6%	51.7%	62.5%	60.9%
	September	October	November	Total n count: 80
	45.9%	74.4%	82.8%	67.6%
				+6.7 points

P A N D E M I C

PANDEMIC IMPLICATIONS

Patient concerns about cleanliness have been heightened during the COVID-19 Pandemic. Three of the Test Units were completed before the onset of COVID-19. Given the greater pressure on perceptions of cleanliness in a hospital during the pandemic, it was decided to proceed with the UV-C event test in the 4th location in California beginning in September of 2020.

The decision to launch during the pandemic was based on the premise that testing the marriage of patient safety and patient satisfaction could not be timelier. By providing a clear understanding of the function of virus-killing technology at the bedside, EVS associates would be simultaneously working to increase patient satisfaction outcomes, while providing peace of mind during uncertain times. The 4th test site realized a 6.7 point HCAHPS average increase on the hospital's test unit at the completion of the pilot. Possibly even more encouraging, the final month of the pilot saw this unit achieve an all-time high score of 82.8% - a 21.9 point increase from the pre-pilot three-month average.

On location EVS Management commented:

"We have yet to treat a bathroom where a patient wasn't grateful for the extra steps that the hospital is undertaking to keep them safe. The appearance of the machine, and the education that we provide, makes the patient feel safe. First, they ask if the machine will give them a tan, then they thank us."

"We have yet to treat a bathroom where a patient wasn't grateful for the extra steps that the hospital is undertaking to keep them safe."

E M M I C

Increases in HCAHPS scores at all four test locations over the course of two years has clearly shown that one way to achieve this memorable experience is through the use of UV-C technology and proper scripting.

CONCLUSION

EVS must meet industry standards for cleanliness, but to drive patient satisfaction a department must elevate the perception of those basic functions. By creating a memorable experience with visual triggers and associate interaction, a memory can resonant with the patient long after they are discharged. Increases in HCAHPS scores at all four test locations over the course of two years has clearly shown that one way to achieve this memorable experience is through the use of UV-C technology and proper scripting.

UV-C TECHNOLOGY

