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HOW A SMART BED INCONTINENCE DETECTION SYSTEM PROTECTS COVID-19 PATIENTS FROM PRESSURE INJURIES AND PRESERVES THEIR DIGNITY AT BAYSTATE HEALTH

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As hospital patients get older and sicker, they become more susceptible to hospital-acquired pressure injuries (HAPIs). According to the Joint Commission:¹

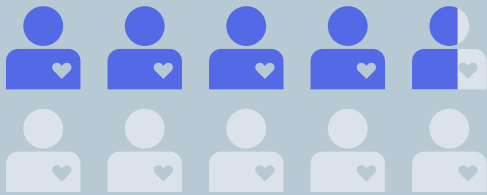
- Pressure injuries affect more than 2.5 million patients in U.S. acute-care facilities each year and lead to complications resulting in 60,000 deaths.
- The cost of treating a single full-thickness pressure injury can be as high as \$70,000, and US hospitals spend \$11 billion annually to treat these injuries.
- Although the incidence rate for all hospital-acquired conditions decreased by 13% from 2014-2017, HAPI rates increased by six percent.

In many cases, HAPIs are preceded by patients' prolonged exposure to moisture caused by incontinence. The pandemic has further exacerbated this threat because 1) COVID-19 patients typically have characteristics and conditions (old age, immobility, comorbidities and low skin integrity) that increase their vulnerability to pressure injuries, and 2) COVID-19 safety protocols limit how often nurses can check patients for incontinence.

Last December, Baystate Health, a 716-bed independent academic medical center in Springfield, Mass., installed the WatchCare® Incontinence Management System on 42 Hillrom™ Smart+ Beds in our D6B Intercare unit for both COVID and non-COVID patients. By sharing our experiences acquiring, implementing and using this system, we hope to help other hospitals learn how they might take advantage of Smart Bed technology to improve patient care and caregivers' efficiency and effectiveness.

THE PERNICIOUS MOISTURE-TO-HAPI PATHWAY

The primary goals of this Smart Bed initiative were to reduce patients' exposure to moisture and help them maintain their dignity. Here are four reasons why early detection and mitigation of incontinence is so important.



ONE STUDY OF MORE THAN 5,300 ADULT HOSPITAL PATIENTS FOUND THAT NEARLY HALF (46.6%) HAD URINARY, FECAL OR DUAL INCONTINENCE.²

1. Incontinence episodes occur more frequently than you might expect. One study of more than 5,300 adult hospital patients found that nearly half (46.6%) had urinary, fecal or dual incontinence.²
2. Research suggests that prolonged exposure to moisture is the most important factor for the development of incontinence-associated skin damage.³
3. Research also shows that, even in hospitals that use a premium pad with wicking technology, exposure to urine can break down skin in just 15 minutes;⁴ in one study, incontinent patients on average were exposed to moisture for more than two hours.⁵
4. If not quickly detected and mitigated, an incontinent event often leads to incontinence-associated dermatitis (IAD). One study showed IAD was prevalent among 45.7% of patients with incontinence and was 3.56 times more likely to result in a pressure injury.³

SETTING THE STAGE: BED STANDARDIZATION

Although traditional hourly rounding will not always detect incontinence before it causes skin damage, this practice was discontinued on our Intercare Unit because of COVID-19 safety protocols. Fortunately, we had a better alternative, thanks to an initiative to standardize our specialty beds as part of a hospital-wide effort to provide our patients with the best technology.

Our five-year bed standardization plan had three key goals:

1. Give the right bed to the right patient at the right time
2. Minimize bed-related delays in patient care
3. Greatly reduce or eliminate increasing costs associated with unnecessary bed rentals.

Baystate Health's Operational Excellence and Patient Care Services teams took the lead in designing a comprehensive Bed Management program that began with a five-day workout—a problem-solving approach involving a cross-functional team with representatives from nursing, environmental services, clinical engineering, facilities engineering, materials management and information

technology. The team evaluated processes related to bed allocation, identified breakdowns and redesigned these processes to eliminate waste and support the efficient delivery of Smart Beds to patients in need.

A Bed Management team was created within our Environmental Services department to optimize the allocation of resources. We also upgraded and acquired more Centrella® and Progressa® Smart Beds to reduce rental expenses and take advantage of their patient monitoring technologies. Soon after its launch, the Bed Management program saved Baystate Health more than \$176,000 in bed rental expenses during July and August of 2020.

TECHNOLOGY ASSESSMENT

Since Baystate Health now had 120 Centrella® and 99 Progressa® Smart Beds with the WatchCare® system, we activated this technology on the D6B unit. A key factor in our decision to quickly implement the WatchCare system to monitor COVID-19 patients was its simplicity and ease of use.

The system operates by using sensors installed under the mattress and in absorbent smart pads, which are placed under the patient. As soon as a pad detects moisture, it signals the bed's lighting system to illuminate the floor near the footboard – a quiet, discrete notification that nurses can easily see from outside patients' rooms.

Our technology assessment also included a review of WatchCare system studies at other hospitals. For example, one study in a med-surg unit found that the average time of moisture exposure for patients monitored by the WatchCare system was 18.9 minutes compared to 123 minutes for those not using the system.

IMPACT ON WORKFLOW, NURSING STAFF AND USE OF PPE

After a successful pilot study with favorable feedback from the nursing staff, we installed the system on all beds on the D6B unit and three other units. After only a few days, every nurse on the D6B unit was using the WatchCare system and taking advantage of its real-time notifications.

“As soon as I saw the light, I could gather the supplies I needed for other tasks such as taking vitals and grabbing linens,” said Mariah Blum, BSN, RN. “It helped me prioritize my actions and manage my time in patient rooms.”

Staff members quickly grasped how the system worked, which was a key benefit given how frequently new nurses came to the unit. The only hiccup during implementation was underestimating the amount of absorbent smart pads, which were in short supply for several weeks. Baystate Health has since improved its product ordering and distribution processes and makes sure each bed comes with an adequate supply of smart pads.

The incontinence management system also enabled the D6B Intercare unit to preserve PPE. In the week after the unit began using the system, its use of N95 masks declined by 50%.



90% OF RESPONDENTS INDICATED THAT WATCHCARE IMPROVED THEIR ABILITY TO DO THEIR JOBS

In a survey of the unit's nurses and patient care technicians, nearly 90% of respondents indicated that WatchCare improved their ability to do their jobs and indicates that Baystate wants to support their efforts. As one nurse noted, “the new technology shows that Baystate “values the time nurses spend doing patient care and rounds.”

PRESERVING PATIENTS' PRIVACY AND DIGNITY

Unit nurses also reported that, in addition to reducing incidents of skin irritation and painful IAD, the system provided psychological and emotional benefits to highly stressed patients who often felt scared and alone.

“With WatchCare, I didn’t have to violate patients’ space by turning them on their sides to see if their underpads were wet,” said Patient Care Technician Alexander Agnitti. **“Instead, I could come into their rooms and chat awhile before changing the pads. This is a more compassionate way to provide care.”**

Adds Chelsea Kirkbride, RN, “I work the night shift, and now I don’t have to wake up patients to check their pads.”

By serving as the patient’s “voice” that calls for help, the system sends a message that Baystate Health is committed to keeping them healthy and comfortable. This could help raise Baystate Health’s HCAHPS scores, which typically improve when patients feel hospitals are meeting their basic needs for care and comfort.⁶

LESSONS LEARNED

For hospitals considering the use of an incontinence management system with underpads embedded with sensors that alert caregivers when an incontinent episode occurs, here are some tips based on our experiences.

- Involve representatives from multiple disciplines, especially the supply chain and information technology, to develop an implementation plan that identifies and addresses operational, technology and workflow challenges.
- Establish risk stratification criteria to determine which patients will be monitored.
- Develop asset management protocols to track and manage the use of the SmartBeds.
- When implementing the system, order more smart pads than you think you will need.

An imperative for quality care at the bedside is choosing equipment and devices that deliver value for both patients and staff and taking full advantage of their capabilities.

“The system helps our staff quickly address patients’ needs and streamline their work processes to ensure that they are delivering the best possible care. If you already have Centrella® SmartBeds and are not using the WatchCare® smart pads, you’re missing a big opportunity.”

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