New Knowledge, Innovations & Improvements: Innovation

 NK4EO: Innovation in nursing is supported and encouraged.

 NK4EOa  Provide one example, with supporting evidence, of an improvement that resulted from an innovation in nursing.

Background/Problem

Device-related hospital-acquired pressure ulcers (HAPU) account for up to one-third of all HAPUs in acute care. At Massachusetts General Hospital (MGH) a significant investment has been made to eliminate all HAPUs to reinforce our commitment of delivering the highest quality care to our patients and families. Nursing Practice Specialist (NPS), Marian Jeffries, FNP-C, CWS and Clinical Nurse Specialist (CNS), Sue Gavaghan, ACNS-BC, CWS, noticed that patients with tracheostomies were developing Stage II or greater device-related pressure ulcers around their stomas in the fall of 2013.

Jeffries is the NPS on the 30-bed Thoracic Surgery & General Medicine Unit (Ellison 19). Her colleague, Gavaghan, is the CNS for the 18-bed Respiratory Acute Care Unit (Bigelow 13 formerly Bigelow 9). Both units serve adult populations with complex airways and respiratory care needs who often require the use of tracheostomies to support their care and recovery. Both units direct care toward the protection of artificial airways, yet they interface with three different surgical services: Trauma, Interventional Pulmonology, and Surgery in providing this care.

Goal Statement

The goal of this nurse-led project was to reduce the rate of device-related HAPUs Stage II or greater among tracheostomy patients admitted to the Trauma Service on Ellison 19 and Bigelow 13 through the practice innovation of using velcro-cloth ties.

Description of the Activities

In their roles, Jeffries and Gavaghan work closely with the surgical services and the clinical nurses on their respective units. In the fall of 2013, each independently began assembling information gained from these close working relationships to understand reasons for the increasing rate of these device-related HAPUs on their units. Both Jeffries and Gavaghan consulted their clinical nurses about this practice issue and learned that the presence of sutures around tracheostomy flanges prevented nurses from providing excellent skin care. Clinical nurses on each unit reported that it was difficult to fully assess tracheostomy sites, perform adequate skin care around the devices, or take measures to prevent pressure ulcers because of the presence of sutures. Jeffries and Gavaghan also individually reviewed the data for the three surgical services on their units and learned that sutures were the existing standard of care to secure the flange of all newly-placed tracheostomy tubes.
In addition to their unit-based roles, Jeffries and Gavaghan are members of the hospital’s CNS/NPS Wound Care Task Force. When the topic of device-related pressure ulcers was discussed during a meeting, Jeffries and Gavaghan each spoke about their unit’s experiences with pressure ulcers related to sutured tracheostomy flanges. After that meeting, they joined forces to address their common concern and lead the effort to influence surgeons’ practice of suturing flanges for all newly-placed tracheostomies. Their shared goal was to enable their nurses to assess the patient fully and intervene as needed to provide high quality nursing care. Influencing surgeon practice to improve skin care required innovative thinking. Jeffries and Gavaghan knew that they would need to strategize their approach and undertake careful planning because this patient care issue involved multiple disciplines and impacted patients on multiple units. They recognized that suturing fell outside the scope of nursing practice, but that didn’t stop them from identifying and proposing an innovative solution on how to secure tracheostomies while also assuring patient safety.

Jeffries and Gavaghan began their effort by approaching their colleagues in the three surgical services of Trauma, Interventional Pulmonology, and Surgery to discuss the practice of suturing newly-placed tracheostomies. They verified that surgical dissection and incision for tracheostomy placement required secure stabilization for seven or more days to allow the development of a well healed tract, whereas the percutaneous insertion technique required only five days of secure stabilization because the insertion technique employs manual dilation of the trachea that more quickly results in a well formed tract. Across the three surgical services, surgeons expressed a preference for sutures to secure new tracheostomies because it assured them a high degree of confidence that tracts would form and patients’ airways would remain protected.

Jeffries and Gavaghan were determined to improve the nursing care and outcomes for this subpopulation of patients on their units and questioned whether sutures were required. Knowing that skin care and devices to secure tracheostomy tubes were within the purview of nursing practice, they explored innovative ideas for securing tracheostomy flanges. Jeffries and Gavaghan turned to the literature to identify alternate methods for securing newly-placed tracheostomies and to examine the risks associated with using alternate methods. The literature review revealed a wealth of information concerning the types of sutures that would best secure these devices. There was a glaring paucity of literature related to alternate methods of securing newly-placed tracheostomies to provide stability and prevent pressure injury.

Jeffries and Gavaghan decided to focus their attention on Trauma Service patients because that physician team exclusively used percutaneous tracheostomy insertions because they could be done at the bedside and were associated with fewer complications. In terms of nursing care, the percutaneously dialated tract makes changing or downsizing the tracheostomy tube fairly easy to replace. In addition, intervening for tracheostomy decannulation becomes less dangerous for patients who have easy access from a well formed percutaneous tract. Testing an alternate method of securing tracheostomy tubes inserted via this method would also reduce the risk of harm to patients.
Description of the Intervention(s)/Initiative(s)/Activity(ies)

Jeffries and Gavaghan began informal efforts to build support for practice changes beginning in January 2014, by heightening awareness through discussions at interdisciplinary rounds and with clinical nurses. Jeffries and Gavaghan formally met with Dr. Marc DeMoya from the Trauma Service and the Critical Care Committee on June 20, 2014. They presented a review of the HAPU data for the 4th quarter of 2013 demonstrating that 7 of 32 (22%) of Trauma Service patients experienced Stage II or greater pressure ulcers around their sutured tracheostomies. Jeffries and Gavaghan recommended alternative securing practices for newly-placed percutaneous tracheostomies and proposed that trauma surgeons use velcro-cloth ties to secure newly-placed tracheostomies to reduce the use of sutures. DeMoya was willing to have his service change their practice.

During the subsequent months of July, August, and September 2014, which included the period where new residents and clinical fellows arrive at MGH, DeMoya worked with his surgical trauma team members to change the suturing practice, while Jeffries and Gavaghan educated nursing staff about caring for newly-placed percutaneous tracheostomies secured with velcro-cloth ties. Once training and education was completed by the end of September 2014, Jeffries and Gavaghan collected data on all Trauma Service patients receiving new tracheostomies to measure the impact of this innovative change following the intervention period. They monitored the rate of decannulation among percutaneous tracheostomies, in addition to the overall tracheostomy device-related HAPU rate. Data collection occurred for three quarters beginning on October 1, 2014 and ending on June 30, 2015.

Participants: Trauma HAPU Reduction Workgroup

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<tr>
<th>Name/Credential</th>
<th>Title</th>
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Outcomes

Jeffries and Gavaghan collected data on 113 newly-placed tracheostomies during the nine-month period (October 2014 – June 2015) to evaluate whether their efforts to innovate with an alternate method of securing these tracheostomies improved care outcomes. The Stage II or greater device-related pressure ulcer rate for Trauma Service patients with new percutaneous tracheostomies decreased from 21.9% pre-intervention,
to a range of 2.2% to 8.6% post-intervention. Of note, no decannulations occurred among the Trauma Service patients who had a percutaneously-placed tracheostomy secured with a velcro-cloth tie.