Nursing Care Guidelines for Reducing Hospital-Acquired Nasogastric Tube–Related Pressure Injuries

Jessica Schroeder, BSN, RN, CWOCN
Verna Sitzer, PhD, RN, CNS

**Background.** Nurses certified in wound, ostomy, and continence monitored an increasing incidence of hospital-acquired pressure injury of the nares due to medical devices, specifically nasogastric tubes, in a metropolitan hospital. A majority of these pressure injuries occurred in patients in the intensive care unit. The organization lacked formal guidelines for preventing such injuries.

**Objective** To decrease the incidence of nasogastric tube–related hospital-acquired pressure injury.

**Methods** The organization’s process improvement model, comprising steps to define, measure, analyze, improve, and control, guided the project. The incidence rate of nasogastric tube–related hospital-acquired pressure injury before the intervention was determined for calendar year 2015 and compared with data obtained after the intervention, for calendar year 2016. An interprofessional team created, implemented, and evaluated the effectiveness of evidence-based guidelines and surveillance strategies for preventing nasogastric tube–related hospital-acquired pressure injury. The team implemented guidelines using the simple mnemonic “CLEAN”: correct tube position, stabilize tube, evaluate area under/near tube, alleviate pressure, note date and time.

**Results** The incidence rate of nasogastric tube–related hospital-acquired pressure injury (0.13 per 1000 patient days in 2015) decreased 100% (0.0 per 1000 patient days in 2016) after the guidelines were implemented in the organization. This rate was sustained for a full year, after which it increased slightly because temporary and new staff lacked knowledge of the guidelines.

**Conclusions** The creation and implementation of clear and specific guidelines for assessing and securing nasogastric tubes successfully reduced nasogastric tube–related hospital-acquired pressure injury. (Critical Care Nurse. 2019;39[6]:54-63)

Nurses often use nasogastric tubes (NGTs), or “sump” tubes, when caring for critically ill patients. Nasogastric tubes pass through a naris and into the stomach, and nurses use them to decompress the gastrointestinal system, administer medications, and perform gastric lavage. Nasoenteric tubes, also referred to as “feeding” tubes, are used for administering nutrition. Nasogastric tubes may be stiffer and have a larger diameter than nasoenteric tubes. Because of these characteristics, nasogastric and nasoenteric tubes can contribute to the development of hospital-acquired pressure injuries (HAPIs) to the epidermal tissue of the nares. For the purposes of this process improvement project, we referred to them collectively as “NGTs.”
Hospital-acquired pressure injuries are a costly and often disfiguring problem. They can cause pain and infection, increase a patient’s length of stay, and lead to litigation. The cost of treating a single HAPI can range from $21,000 to $152,000. Medical device–related pressure injuries (MDRPIs) are defined as “pressure injuries [that] result from the use of devices designed and applied for diagnostic or therapeutic purposes.” In a study of the prevalence and incidence of pressure ulcers among 2178 patients, 5.4% had a pressure injury, and 34.5% of those injuries were due to medical devices. Among stage 3 and 4 HAPIs reported in a Minnesota statewide database, 29% were due to MDRPIs. Of those, 8% were caused by NGTs. Patients in critical care units are at high risk for MDRPI because they require many devices for monitoring and treatment. In a study of patients in intensive care units (ICUs), investigators attributed 32% of all HAPIs to medical devices; of these MDRPIs, 1.6% were caused by NGTs. Health care organizations are placing more focus on safety and thus are giving greater attention to reducing preventable injuries such as MDRPIs.

In 2008, the Centers for Medicare and Medicaid Services ruled that facilities will not be reimbursed for hospital-acquired conditions, including HAPIs, and that they could in fact incur fines for stage 3 and 4 pressure injuries that develop during a hospitalization. Because of the potential financial implications, many organizations mobilized efforts and resources for surveilling and preventing HAPIs.

This intervention occurred in a nonprofit acute care Magnet hospital in southern California with 313 staffed beds, an emergency department, and a level II trauma center. Programs include comprehensive cardiac care, cancer treatment, orthopedics, organ transplantation, and rehabilitation. In this hospital, a team of certified wound, ostomy, and continence (WOC) nurses tracks HAPI incidence. In June 2015, the team noted an increasing trend in the incidence of MDRPIs, specifically nasogastric tube–related HAPIs (NGT-HAPIs). These NGT-HAPIs all occurred to epithelial tissue and thus were staged by using the National Pressure Ulcer Advisory Panel (NPUAP) staging system. The incidence of NGT-HAPIs was 0.09 per 1000 patient days in the previous quarter of that year, which had risen to 0.17 per 1000 patient days by June 2015. The team shared this trend and its concern with hospital leaders, including the chief nursing officer, during the hospital’s daily high-reliability and operational huddle. The daily huddle was created to identify and address safety events and operational issues that occur throughout the hospital. Identified events and issues are recorded and tracked, and trends are identified, on a whiteboard.

A process improvement (PI) work group was recommended to address the increasing number of NGT-HAPIs. The PI work group was led by a certified WOC nurse and included clinical nurse specialists (CNSs) and a regulatory nurse. All members concurred that the problem-solving format they used to guide their work would be the hospital’s current PI framework. The team applied a framework comprising 5 stages—define, measure, analyze, improve, and control—that aims to minimize variation and create more reliable processes.

In the define phase, the work group identified a goal of reducing the incidence of NGT-HAPIs to 0. The improvement question was, “Will the development and implementation of evidence-based guidelines for preventing NGT-HAPIs reduce their incidence?”

**Methods**

Process improvement projects in this hospital do not require PI teams to seek ethical approval for the use of human subjects through the organization’s institutional review board. Therefore, the PI project was exempt from institutional review board approval. Most PI projects use retrospective data and report aggregate data. Data collected and used for the purpose of this project were considered part of usual PI activities. No protected health information was included in any progress summary reports during the course of the project.

**Authors**

Jessica Schroeder is the clinical lead of the Wound Healing Department, Sharp Memorial Hospital, San Diego, California.

Verna Sitzer is the Director, Professional Practice, Research and Innovation, Sharp Memorial Hospital.

Corresponding author: Jessica Schroeder, BSN, RN, CWOCN, Sharp Memorial Hospital, 7901 Fost St, San Diego, CA 92123 (email: jessica.schroeder@sharp.com).

To purchase electronic or print reprints, contact the American Association of Critical-Care Nurses, 101 Columbia, Aliso Viejo, CA 92656. Phone, (800) 899-1712 or (949) 362-2050 (ext 532); fax, (949) 362-2049; email, reprints@aacn.org.
All members of the PI work group had the knowledge and skills to apply the 5-stage framework in addressing the increased incidence of NGT-HAPIs. During the project, the organization was continuing a journey of cultural transformation to become a “highly reliable organization.” Highly reliable organizations strive to create a culture in which providers and staff proactively address potential safety issues to prevent harm to patients and staff.\(^1\) Initiatives were under way to support continuous PI, including a daily organization-wide reliability huddle, unit-based safety huddles during each shift, PI and highly reliable organization training for all staff, and a frontline approach to problem-solving.

**Define**

Another element in defining the problem or issue was identifying the current process for preventing MDRPIs, specifically to the nares. The work group obtained and reviewed the organization’s critical care nursing guidelines for preventing HAPIs related to devices. The document contained information regarding general assessment for preventing MDRPIs but nothing specific for preventing NGT-HAPIs. In this organization, when guidelines of care are not specified, nurses use approved online nursing care references on the intranet, although these references are not specific to preventing NGT-HAPIs. According to current practice, staff move a tube slightly from side to side to assess the skin beneath it. Staff use their preferred method to secure the tube; this could include tape or a commercial product. No existing organizational guidelines specified when and how to secure an NGT.

**Measure**

Certified WOC nurses track, identify trends in, and report all HAPIs that occur in the organization. Although it would be convenient to report these occurrences as counts, it is important to provide incidence data to give context and allow comparison with other data. The NPUAP prefers incidence density, or the number of patients who develop a HAPI divided by 1000 patient days, as the measure of quality improvement.\(^1\) Thus the PI work group retrospectively reviewed HAPIs occurring during 2014 to determine the percentage of MDRPIs caused by NGTs. In 2014, 33 of the 85 HAPIs (38.8%) were MDRPIs. Of these MDRPIs, 10 (30.3%) were attributed to NGTs. The incidence of NGT-HAPI was 0.11 per 1000 patient days. In the beginning of July 2015, 16 of 47 HAPIs (34%) were MDRPIs, 6 (37.5%) of which were due to NGTs. The incidence of NGT-HAPI had risen to 0.13 per 1000 patient days.

The facility has 2 ICUs, 1 medical and 1 surgical, each with 24 beds. The mean length of stay is 3.2 days for patients in both ICUs. Of the 10 NGT-HAPIs that occurred in 2014, 7 (70%) occurred in the ICUs. By July 2015, that value was at 50% (3 of 6 HAPIs). Establishing a baseline was essential for determining the effectiveness of the improvement efforts.

**Analyze**

The PI work group analyzed the root cause of all NGT-HAPIs (n = 16) from January 2014 to June 2015. Although NGT-HAPIs occurred at all levels of care, 50% (n = 8) occurred in the surgical ICU. Timing of the discovery of an NGT-HAPI varied: 2 were discovered more than 1 month into the patients’ hospitalizations, 9 were found within a few days, and 4 were identified after 1 week. One NGT-HAPI was discovered in just more than 24 hours after the NGT had been inserted. These NGT-HAPIs were discovered during nurse assessments, and WOC nurses were then consulted to accurately stage the injuries. Of the 16 NGT-HAPIs, 6 (38%) were staged as deep-tissue injuries.

The root cause analysis revealed several inconsistencies regarding the nursing management of NGTs. Documentation in the electronic medical record often did not reflect that the skin beneath the devices had been assessed at regular intervals. How the tube was secured and how often it was changed varied. Case review also revealed that nurses or physicians placed 7 NGTs contributing to an NGT-HAPI in the emergency department, and an anesthesiologist placed 2 in the operating room. Knowing the point of care where NGTs were initially inserted and secured helped the team determine the scope of the project and identify which departments and providers would need to be included in the improvement project.

Members of the PI work group interviewed physicians and nurses to obtain their perspectives on NGT management and potential causes of NGT-HAPI. Interviews of providers who recently cared for patients who sustained...
an NGT-HAPI revealed common themes. Some physicians lacked awareness of or concern for this type of injury, as they perceived it to be a minor issue when compared with the complex problems critically ill patients experience. Some nursing staff throughout the hospital shared this sentiment. Many nurses described discomfort and uncertainty regarding how to properly secure an NGT without dislodging it. Staff interviews revealed a lack of clarity regarding expectations for when tape should be used to secure an NGT or when a device should be changed.

On the basis of root cause analysis, the work group identified a need for specific guidelines for the nursing care provided to patients with an NGT. The guidelines would include expectations for preventing NGT-HAPI, including method of securement, frequency of assessment and resecurement, and documentation.

**Improve**

**Guideline Development.** The PI work group reviewed the current literature to obtain MDRPI prevention recommendations.7,8,13-16 (see Table). Team members also networked with other hospitals within and outside the health care system to determine practices for preventing NGT-HAPI. Through this information gathering, the team discovered that no established community standards existed for the type of securement device, the

<table>
<thead>
<tr>
<th>Source</th>
<th>Purpose</th>
<th>Methods</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black et al.,7 2010</td>
<td>To quantify the extent and nature of, and identify risk factors for, MDRPI and to explore potential preventative strategies in hospitalized patients</td>
<td>Secondary data analysis from point prevalence studies conducted in a medical center</td>
<td>Frequent assessment for change in condition (edema causes increased risk for pressure) Keep area dry (moisture increases risk for pressure) Interdisciplinary collaboration (necessary for MDRPI prevention)</td>
</tr>
<tr>
<td>Apold and Rydrych,8 2012</td>
<td>To describe how data was used to identify trends in root causes for MDRPI and to develop best practices for prevention</td>
<td>Secondary analysis of data submitted to a statewide database</td>
<td>Routinely inspect and properly fit devices Create clear best practice guidelines for prevention</td>
</tr>
<tr>
<td>Fletcher,13 2012</td>
<td>To increase awareness and prevention of MDRPI</td>
<td>Review of the literature</td>
<td>Appropriately fixate and stabilize devices Use thin barrier products to protect skin beneath a device Repeatedly and thoroughly assess skin beneath a device Loosen device at least once per shift for assessment</td>
</tr>
<tr>
<td>NPUAP et al,14 2014</td>
<td>To provide evidence-based recommendations for preventing and treating pressure ulcers</td>
<td>Comprehensive review and appraisal of available evidence at the time of literature search</td>
<td>Identify risk for MDRPI (patient with devices are at risk) Select devices that causes least amount of pressure Secure devices to avoid dislodgment and additional pressure Choose correct size of device (to reduce pressure) Inspect skin around device twice daily Reposition the device to decrease shear and redistribute pressure Cushion and protect skin with dressings Remove or move device daily to assess skin</td>
</tr>
<tr>
<td>Coyer et al,15 2014</td>
<td>To describe characteristics of MDRPI in adult patients in the intensive care unit</td>
<td>Prospective, repeated-measure design using data collected from 2 metropolitan medical centers</td>
<td>Systematically assess high-risk areas daily Reposition devices daily</td>
</tr>
<tr>
<td>Dyers,16 2015</td>
<td>To provide tips for prevention of MDRPI</td>
<td>Review of the literature</td>
<td>Assess risk Reposition device regularly, when possible Carefully fixate device while reducing pressure Create clear expectations Remove device as early as medically possible Monitor the appearance of skin and the presence of pain</td>
</tr>
</tbody>
</table>

Abbreviations: MDRPI, medical device–related pressure injury; NPUAP, National Pressure Ulcer Advisory Panel.
frequency of assessment, or how often a securement device was changed.

In an effort to address the NGT itself, a work group member reached out to the manufacturer of the NGT to determine whether a softer, more pliable alternative was available. No such tube was currently available from that manufacturer. The team member identified a vinyl-based product, but it was more expensive and staff would require special training on insertion. The PI work group decided to continue with the current product and to focus efforts on managing the medical device to prevent NGT-HAPI.

A valuable resource in establishing a standard of care for preventing MDRPI was the NPUAP. The work group used the NPUAP recommendations and other best practices described in the literature to draft the hospital’s guideline for preventing NGT-HAPI. The guideline targeted many of the practice inconsistencies uncovered during the root cause analysis, such as a lack of standardization of the securement device, skin assessment, resecurement frequency, positioning of the NGT within the naris, and documentation requirements.

To facilitate knowledge and implementation of the new guidelines, the work group developed the mnemonic “CLEAN”: correct tube position, stabilize tube, evaluate area under/near tube, alleviate pressure, note date and time. These guidelines included a recommendation to reapply the NGT securement device every 24 hours, which would allow nurses to thoroughly assess the skin beneath or in contact with the NGT and an opportunity to reposition the tube to alleviate pressure and to provide nares hygiene (if needed). To address a concern about the potential for “critical” NGTs (difficult placement or medical condition) to become dislodged, the team added a statement to the CLEAN guideline related to the recommendation to reposition the tube: “Unless otherwise specified by physician’s order.”

Guideline Implementation. To facilitate guideline implementation, the work group incorporated the CLEAN mnemonic into a nares HAPI prevention slogan: “Is your patient’s nose CLEAN?” The work group leader contacted and partnered with the selected securement device manufacturer to create an educational poster of the guidelines. The poster includes the slogan, a detailed description of the CLEAN mnemonic, and step-by-step instructions for applying the commercial securement device (Figure 1).

The surgical ICU CNS work group member had assumed responsibility for educating staff and implementing the guidelines in the unit. As the surgical ICU had the highest incidence of NGT-HAPI, an expectation was established for assessment and resecurement of NGTs every 12 hours. Patient care during rounds focused on assessing the naris beneath an NGT and ensuring that securement devices were changed and labeled with the date and time.

Because NGTs are omnipresent throughout the organization, the PI work group determined that widespread education was needed. The work group leader assumed responsibility for educating the organization’s stakeholders, who include frontline care providers, CNSs, and physicians. The work group leader presented to the organization-wide interprofessional clinical practice council to raise awareness of the problem and educate staff on the new evidence-based guidelines. Every care provider has an opportunity to observe a patient’s face and nose during their interactions and can thereby assist by speaking up if they recognize what might be an injury. Care providers such as registered dieticians, physical therapists, and occupational therapists were encouraged to speak up when they noticed that an NGT was improperly positioned or appeared to be pulling or causing patient discomfort. Clinical nurse specialists throughout the organization also received the new guideline information so they could educate the nurses in their respective units.
Evidence-Based Practice for Preventing Nares HAPUs

Is your patient’s nose CLEAN?

C: Correct tube position
L: stabilize tube
E: Evaluate area under/near tube
A: Alleviate pressure
N: Note date and time of tape

1. Thoroughly prep application area per hospital protocol. Allow to dry completely. Position securment device behind tubing (Figure 1).
2. Remove liner from first tab and adhere to nose (Figure 2).
3. Remove liner from second tab and adhere to nose (Figure 3).
4. Remove remaining liner from bottom tab and adhere tab to back of tube (Figure 4).
5. Wrap around tube and pinch the two halves together, adhesive to adhesive (Figure 5).
6. Nasogastric tube is now fully secure (Figure 6).

EVERY SHIFT: Keep nose CLEAN

Correct tube position
• Ensure tube free flowing in naris

stabilize tube
• Ensure tube secured properly

Evaluate area under/near tube
• Look for discoloration, abrasion, blister, etc.

Alleviate pressure
• Reposition tube if not free flowing*

Note date & time
• Place on tape and in Corner when retaped or repositioned

*Unless otherwise specified by physician’s order

Figure 1 CLEAN guidelines.
For anesthesiologists, a presentation was provided at the monthly supervisory committee meeting and included case studies and the new guidelines of care. In addition to the education, the work group leader partnered with the operating room educator to ensure all intubation carts contained the recommended NGT securement device. The work group leader reviewed case studies and the CLEAN mnemonic/guideline with emergency department leadership, giving particular attention to tube placement and securement.

Arrangements were made with the commercial securement device representative to provide in-service training on appropriate application of the device. Having the commercial device representative available helped to address nurses’ discomfort regarding proper securement. The representative was able to provide training in all areas, including the emergency department and operating room.

**Control**

The PI work group identified strategies to monitor the implementation and effectiveness of the new guidelines. One strategy involved working with a clinical informaticist to create a report from the electronic medical record, which compiled a list of all hospitalized patients with an NGT. This report was sent each morning to the certified WOC nurse team, which reviewed the list for accuracy, created an audit slip for each unit, and distributed the appropriate audit slip to the charge nurse of each unit (Figure 2). Creating daily audit sheets raised awareness of the issues with NGT-HAPI and reminded nursing leadership to pay particular attention to NGTs as high-risk medical devices.

Because the certified WOC nurse team monitored and analyzed trends in the incidence of all pressure injuries, they became the process owners for the PI project surveillance. During routine consultations for other wound and ostomy issues in patients with an NGT in place, certified WOC nurses reinforced or provided education on the guidelines. Together with the bedside nurses, they ensured that patients’ noses were “CLEAN.” By owning the surveillance process, the certified WOC nurse team validated the implementation and effectiveness of the guidelines in preventing NGT-HAPI.

**Results**

By the end of 2015, the guidelines had been fully implemented, and the incidence of NGT-HAPI immediately decreased to 0 in the ICUs and, consequently, throughout the entire organization. The incident rate of NGT-HAPI in the organization decreased 100% (0.13 per 1000 patient days in 2015 to 0.0 per 1000 patient days in 2016), and this decrease was sustained throughout 2016 (Figure 3). The initial and sustained success was attributed to increased awareness, standardized expectations, a simple yet catchy mnemonic, and the surveillance process. Attaining an NGT-HAPI incidence of 0 through this PI project greatly contributed to decreasing the MDRPI and overall HAPI incidences in the organization (Figure 4). The organization achieved a 56.4% change in all HAPI from 2014 to 2016, and a 44.6% change from 2015 to 2016. The incidence of NGT-HAPI increased slightly in 2017 (Figure 3). Only 1 of the 4 NGT-HAPI in 2017 occurred in an ICU. During root cause analysis of 3 of these NGT-HAPIs, the PI work group discovered that new or temporary staff had not followed the CLEAN guidelines. The fourth case involved a critical NGT that could not be repositioned or resecured. These cases highlight the need for continued education and surveillance outside the ICU and for all new and temporary staff.

**Discussion**

The outcome attained from the PI project highlights the need for guidelines based on the best available evidence for the care of patients with a medical device, particularly those with an NGT in an ICU. A prospective study of 175 patients in an ICU found that 40% developed an MDRPI. In another prospective study, although the
The prevalence of MDRPI was just 3.1%, 40% of those injuries were caused by NGTs.15 Our PI project revealed similar high percentages of NGTs contributing to MDRPI. In 2014, 33 of 85 HAPIs (38.8%) were MDRPIs, of which 10 (30.3%) were due to NGTs. In 2015, 27 of 69 HAPIs (39.1%) were MDRPIs, of which 12 (44.4%) were due to NGTs. Focusing specifically on preventing NGT-HAPI is critical. Nurses in the ICU must be aware of the increased risk for all MDRPIs among their patient populations and should implement preventive measures, such as those developed and presented in this PI project, for managing NGTs for NGT-HAPI.

The guidelines established expectations based on several inconsistencies found in practice. It was important to standardize the method of securement, and we chose a commercial device that was available in the organization. Use of a commercial securement device has decreased NGT-HAPI incidence.18 After choosing a standardized device, we reviewed the device manufacturer’s guidelines to determine the frequency of resecurement. In the absence of a clear recommendation from the manufacturer, we adapted the general NPUAP best practice recommendations for medical devices to apply to NGT management.14

This PI project created a process for using the best evidence to improve nursing practice. A statewide database
revealed that 63% of MDRPIs had no evidence of regular skin assessment or repositioning to redistribute pressure. Three-quarters of these MDRPIs were full-thickness upon discovery. Creating expectations for care and documentation in order to prevent NGT-HAPI contributes to the dearth of information and specific recommendations currently available in the literature.

Organizational complexity contributed to some difficulty in developing and implementing these guidelines. Because our organization is part of a health care system, proposed additions or revisions to nursing guidelines of care require approval from a system-wide CNS group. This process can lengthen the overall timeline for an improvement project. However, innovations from one hospital can affect others. The CLEAN guidelines were distributed to the other hospitals in the system to assist with their education efforts. One hospital that implemented the CLEAN guidelines as a component of its MDRPI prevention process also saw a reduction in the incidence of NGT-HAPI.

To address perceptions regarding the presumed insignificant nature of NGT-HAPI, organizational case studies and a photograph of a patient with an NGT-HAPI were presented with the new guidelines (Figure 5). The deidentified photograph was powerful in changing clinician perceptions because the case had occurred within the organization. The presumed insignificance of NGT-HAPI is consistent with findings from a prospective study of 606 nurses that addressed perceptions of MDRPI. In that study, 53% of nurses did not believe that NGTs posed a risk for pressure injury. The strategy of including actual organizational case studies with the new guidelines addresses the need for nurses to receive education about the risk for NGT-HAPI and what specifically they can do to prevent them.

The organization’s journey to become highly reliable created a culture in which safety issues could be identified and proactively addressed. The structure of a daily reliability huddle led by administrators and attended by interprofessional leaders provided a platform that paved the way for creating awareness of the issue and assigning process improvement, ownership, and accountability for resolving the problem. Favorable outcomes in preventing pressure injuries necessitate the involvement of an interprofessional team. A work group with the right members and skill sets to lead PI projects promotes a culture of continual improvement.

A certified WOC nurse led and championed the PI project. In our organization, a team of certified WOC nurses is assigned to oversee wound and ostomy care on specific units. For this PI project, certified WOC nurses provided ongoing surveillance, and they reinforced the CLEAN guidelines with staff in their assigned units. The framework of certified WOC nurses collaborating with administrators and frontline staff has been described as a matrix of hierarchical leadership integral in translating evidence into practice.

**Limitations**

This PI project was conducted in a hospital with a high reliability culture and appropriate and adequate resources. The intent of the project was to improve practice related to NGT management in preventing pressure injury by using a particular PI framework, which limits the generalizability to other organizations. Although an increased number of NGT-HAPIs was noticeable within the organization, accounting for 12 of the 69 HAPIs (17%) in 2015, it was a relatively small sample. Root cause analysis of a small sample may not include all possible patient and caregiver factors that could contribute to injury.

The literature inconsistently classifies pressure injuries to the nares as either mucosal or epithelial. Mucosal injuries are described by NPUAP as “pressure ulcer[s] found on mucous membranes with a history of a medical device in use at the location of the ulcer.” Mucosal injuries cannot be described by using the classic staging
definitions, as mucosal tissue is histologically different than epithelium. When a pressure injury occurs to epithelial tissue, it is to be staged according the classic NPUAP staging definitions, which describe depth. One survey asked certified WOC nurses to classify photos of injuries caused by NGTs at nares openings; the results indicated that up to 69% of respondents categorized the injuries as mucosal. Development of medical devices that allow for clinicians in consistently and accurately describing NGT-mucosal tissue, and were staged appropriately. It can be difficult to ascertain exactly where the mucosal tissue of the inner nares ends and the skin begins. In this PI project, all injuries that occurred along the edge of or outside the opening of a naris were skin begins. In this PI project, all injuries that occurred where the mucosal tissue of the inner nares ends and the skin begins. In this PI project, all injuries that occurred along the edge of or outside the opening of a naris were not classified as mucosal, as they were not present on mucosal tissue, and were staged appropriately.

Future research and guidelines are needed to assist clinicians in consistently and accurately describing NGT-HAPIs as either mucosal or classic epithelial pressure injuries. Development of medical devices that allow for easier assessment of the underlying skin and are made of products less harmful to tissue will be essential in reducing NGT-HAPIs in the future.

During root cause analysis, it was evident that many of the patients who developed an NGT-HAPI were in critical condition and had multisystem organ failure. In these cases, the development of HAPIs seemed unavoidable, and current staging classifications do not allow for this type of formal designation. As organizations move toward a goal of 0 HAPIs, future research and guideline formation are necessary regarding unavoidable pressure injuries.

Conclusion

This PI project demonstrates how culture, leadership, and PI focused on safety can attain a goal of 0 injuries to patients and can support an organization’s quest to become highly reliable. The commitment of administrative leadership to support a frontline PI work group allowed us to create and implement guidelines for preventing NGT-HAPIs in the ICUs and throughout the organization. Understanding and addressing root causes was necessary to establish an effective strategy. Ownership and accountability were key in achieving the goal of 0 injuries to patients. CCN

Financial Disclosures
None reported.

See also


References