**Pressure Injury Root Cause Analysis**

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**Points criteria:**

| Criteria | Under performance<br><3 points per criteria | Basic<br>3 – 3.9 points per criteria | Proficient<br>4.0 – 4.4 points per criteria | Distinguished<br>4.5 – 5 points per criteria |
|---|---|---|---|---|
| **Required content objectives** | Content objectives are missing or sparsely covered. | Content objectives are not consistently addressed. Demonstrates minimal understanding of content. | Content objectives consistently addressed. Demonstrates understanding of content. | Content objectives consistently addressed. Demonstrates mastery of content. |
| **Academic writing standards** | Writing lacks scholarly tone & focus. Sparse content. Multiple grammatical, spelling, & factual errors. Reliance on bullet points rather than effective writing in speaker notes. 4 or more direct quotes per project. | Writing is unclear and/or disorganized. Inconsistent scholarly tone. Inadequate depth of content. Grammatical and spelling errors. No more than 3 direct quote of less than 40 words per project. | Writing demonstrates general exploration of content. Responses are clearly written using scholarly tone. Few grammatical and/or spelling errors. No more than 2 direct quote of less than 40 words per project. | Writing demonstrates comprehensive exploration of content. Responses are clearly written using scholarly tone. Rare grammatical and/or spelling errors. No more than 1 direct quote of less than 40 words per project. |
| **APA formatting** | References and citations have multiple errors or are missing. | References and citations have errors. | References and citations have few errors. | References and citations have rare errors. |

**Carefully review the above rubric on how points are awarded. Select one (not both) of the case studies listed on page three. Then, using academic writing standards and APA formatting of references and citations, respond to each of the learning objectives listed on page two. Each response should be 150-350 words in length, and should be entered below each objective on this document. Save the completed document as the assignment title with your name and submit to the dropbox.**

1. Define root cause analysis & its role in pressure injury prevention.

Healthcare-acquired pressure injuries (HAPIs) are a persistent concern in the health care system. The rates of HAPIs and associated costs to the hospital is devastating. It is believed that approximately 2.5 million individuals develop a pressure injury (PI) in the acute care setting every year in the United States (Padula & Delarmente, 2019). The US Centers for Medicare and Medicaid Services (CMS) will not provide reimbursement for these types of hospital-acquired injuries, making the hospital financially responsible (Padula & Delarmente, 2019) Depending on the severity and complexity of treatment required, the cost of treating a single HAPI can range anywhere from $500 to more than $70,000 (Padula & Delarmente, 2019). This results in an annual cost of billions of dollars. More important than the financial burden of HAPIs is the risk to patient safety and quality of life. Patients are left with chronic wounds and increased mortality rates with as many as 60,000 pressure injury-related deaths occurring every year (Padula & Delarmente, 2019). Clearly, quality improvement is needed for prevention and early detection to avoid this rapidly growing problem. This initiative involves root cause analysis (RCA). “RCA is a method of problem solving with the goal of identifying the true roots of a problem in order to understand it and prevent it from occurring again” (Black, 2019, p. 298). A 3-level RCA process can be used for HAPIs which include 1) defining and confirming the problem 2) examining the processes of care or “human roots” which closely looks at the performance of the staff caring for the patient and 3) identifying system-level processes, such as policies and procedures (Black, 2019). RCA reviews should start within 72 hours of an event (Black, 2019). RCA teams should consist of 4-6 people from all areas of the organization and having a wound care specialist for an RCA on PIs is ideal (Black, 2019). RCA plays a major role in PI prevention. Black (2019) analyzed a deep tissue pressure injury (DTPI) using the RCA process. For Level 1, the RCA team confirmed that the skin injury was truly a PI based on location of wound, medical record review, and timing of the injury. Level 2 of the process included speaking with the staff, examining the setting, and reviewing the charting. Lastly, Level 3 involved assessing the needs of the specific nursing unit and providing appropriate education. This process can be applied to other HAPIs cases. Despite the time and resources involved in performing an RCA, the goal is to identify areas of improvement to promote positive change.

2. Analyze one (not both) of the case studies from page three of this document, and describe the system failures that led to the pressure injury in that situation.

I am choosing to analyze the second case study. There are many factors that contribute to pressure injury (PI) development, such as age, nutritional status, and extended hospitalizations (Padula & Delarmente, 2019). Comorbidities can also play a causal role. In this specific case, the patient has a history of uncontrolled diabetes. Patients with hyperglycemia are at an increased risk for developing nonhealing wounds and infections (Friedrich et al., 2022). He is diagnosed with coronary artery disease (CAD) which

reduces the blood flow to the heart. CAD can lower blood perfusion and oxygen supply to the skin and subcutaneous tissues (Wang et al., 2021). Thus, this patient's skin is already in a compromised state. There are several system failures that, in combination with his medical history, led to this patient's PI. Firstly, the patient was in a supine position for eight hours in the operating room. It is estimated that up to 45% of HAPIs can be attributed to pressure injury development in the operating room (Riemenschneider, 2018). There are many intraoperative variables to consider. Many times, these patients are sedated and therefore have limited mobility and sensation. They are required to lay on a surface in a particular position for an extended amount of time, subjecting the skin to intense and prolonged pressure. If a PI is discovered within 72 hours after surgery, there is a high likelihood that the injury occurred during surgery (Riemenschneider, 2018). In the case study, the painful, deep purple, and bruised area, characteristic of a deep tissue injury (DTI), was discovered 18 hours after surgery. It is unclear whether pressure injury preventions were in place in the operating room and postoperatively. Secondly, after the discovery of the DTI, it does not specify in the case study if other interventions were being performed for treatment of the pressure injury besides placing the patient on a specialty support mattress. Within five days, the DTI to the coccyx evolved into a full-thickness wound.

3. Based on these findings, develop a comprehensive pressure injury prevention plan for the organization.

Clearly, HAPIs are a source of significant economic burden and cause patient harm. The key to improvement is prevention. Every health care organization should have comprehensive pressure injury prevention program (PIPP) which requires the support and involvement of care providers and administrators for its success (Borchert, 2022). A PIPP is patient-focused and should revolve around the clinical condition, skin condition, pressure injury risk status, and availability of resources (Borchert, 2022). A head-to-toe skin assessment should be performed for every new patient. Additionally, routine skin care should be done by the able patient or the nurse. There are various risk assessment tools, such as the Braden Scale for Predicting Pressure Sore Risk © (Braden Scale) which focuses on six risk factors: sensory perception level, skin exposure to moisture, activity level, mobility ability, nutritional intake, and exposure to friction and shear (Borchert, 2022). If risk factors are identified, proper interventions can be implemented. For example, if a patient has limited mobility and/or activity, repositioning every two hours with foam positioning wedges will help to offload the sacrum, which is the most at-risk bony prominence in the adult population (Borchert, 2022). When allowable, the head of the bed should be elevated at or below 30 degrees to reduce pressure and shear on the coccyx and sacrum. Support surfaces in the chair and bed are also helpful to both prevent and treat pressure injuries. A PIPP specific to the operating room should include preoperative and postoperative positioning, ensuring that the patient is not lying on a medical device, repositioning during surgery if possible, using pressure redistribution surfaces, application of prophylactic dressings to protect bony prominences, and off-loading heels (Borchert, 2022). A patient's risk assessment score is likely to change from admission. Therefore, reassessment of skin and risk factors should be

performed every 24 hours for the acute care patient, following any change in condition, and on transfer to a different level of care (Borchert, 2022). The patient in the case study was assessed upon admission and found to be very low risk, however, he most likely would have scored lower following surgery and preventative measures could have been initiated at that time. In my opinion, the most important component of a successful PIPP is educating the patient, family, and staff, especially the nurses. A PIPP can be tailored to meet the needs of the individual patient and/or unit. With proper education, staff will be equipped with the knowledge and skills necessary to do this.

4. Propose a plan of care to monitor the results of the organization wide, comprehensive pressure injury prevention plan.

Developing a PIPP is a complex and evidence-based process, requiring collaboration and input from many people within the organization. It is important to monitor the results and effectiveness of a PIPP, as modifications to the PIPP can always be made. In order to do this, the organization must be able to record the incidence and prevalence of hospital-acquired pressure injuries with use of a platform that allows staff to self-report events. Incidence measures the number of new occurrences and is especially helpful in gauging how well a PIPP is working (R.B. Turnbull, Jr. MD School of WOC Nursing Education, 2023). Prevalence is defined as the number of all new and old pressure injuries of a population at a specified point in time (R.B. Turnbull, Jr. MD School of WOC Nursing Education, 2023). Incidence and prevalence should be periodically assessed, particularly by those responsible for quality of care in the organization. Additionally, the WOC nurse or manager can perform routine rounding to ensure that the staff is well-educated on wound classification and pressure injury staging and that PI prevention methods are actively being implemented. It is vital that the number of pressure injuries and whether they were present on admission or developed afterwards is as accurate as possible. The WOC nurse can assist with this by reviewing the reported HAPIs to determine that they are indeed pressure injuries and their etiology. As mentioned previously, incidence rates are the most important data for monitoring a PIPP (Borchert, 2022).

5. List the references used & cited in this assignment.
    a. *See the course syllabus for specific requirements on references for all assignments.*

Black, J. (2019). Root cause analysis for hospital-acquired pressure injury. *Journal of Wound, Ostomy and Continence Nursing, 46* (4), 298-304. https://doi.org/10.1097/WON.0000000000000546

Borchert, K. (2022). Pressure injury prevention: Implementing and maintaining a successful plan and program. In L.L. McNichol, C.R. Ratliff, & S.S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp. 396-424). Wolters Kluwer.

Friedrich, E., Posthauer, M. & Dorner, B. (2022). Nutritional strategies for wound management. In L.L. McNichol, C.R. Ratliff, & S.S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp. 116-135). Wolters Kluwer.

Padula, W. V., & Delarmente, B. A. (2019). The national cost of hospital-acquired pressure injuries in the United States. *International Wound Journal*, *16*(3), 634–640. https://doi.org/10.1111/iwj.13071

R.B. Turnbull, Jr. MD School of WOC Nursing Education. (2023, June 11). *Pressure injury pathology*. [PowerPoint slides]. Vimeo@CCF.

Riemenschneider, K. (2018). Prevention of pressure injuries in the operating room. *Journal of Wound, Ostomy and Continence Nursing, 45* (2), 141-145. https://doi.org/10.1097/WON.0000000000000410

Wang, Y., Chen, R., Ding, J., Yang, L., Chen, J., & Huang, B. (2021). Predictive value of pressure ulcer risk for obstructive coronary artery disease. *Nursing Open*, *8*(4), 1848–1855. https://doi.org/10.1002/nop2.835

**Select just one (not both) to respond to the learning objectives listed on page two.**

a. A patient is admitted to home care after a cauda equina injury. The injury occurred 2 weeks ago at her home and she was then admitted to the hospital for severe lower back pain and numbness in the lower extremities. During the hospitalization, she developed urinary and fecal incontinence. Surgery was performed to repair the injury and after an unremarkable recovery, she is referred to home health care for physical therapy and skilled nursing care. The surgical site is well approximated without drainage. She has a comorbid condition of diabetes, continues to have numbness in the lower extremities along with urinary and fecal incontinence, and spends most of her day in a recliner chair. On admission to home care she has no skin conditions noted and her blood sugar is 165 mg/dL. After 2 weeks she develops a fever of 100.8 F. After 3 weeks of home care a 2.5cm length x 3.0cm width area of thick, dense eschar is noted over her sacral area, and she is referred to the WOC nurse for evaluation. Explain what risk factors led to the sacral wound and how you would set up her plan of care.

b. A 58 year old patient with a history of uncontrolled diabetes is admitted to the ED. He was discovered unconscious in his back yard by neighbors who called 911. He was transported to the ED of Acme Hospital where he regained consciousness. His blood glucose was 220 mg/dL, and his HbA1c is 13.2%. He is also experiencing mild chest pain, nausea, and tingling in his left arm. He is admitted to the hospital to rule out MI and to gain control of his blood glucose level. On admission, his risk assessment for skin breakdown indicated a 20 or very low risk. After several tests to determine the cause of his chest pain, he is diagnosed with coronary artery disease and is in need of bypass surgery to open three coronary arteries. He goes to surgery on day three of his admission and is in the OR for 8 hours in a supine position. 18 hours after surgery, his nurse notices he has a painful deep purple bruised area in the coccyx region and contacts the WOC nurse to evaluate the lesion. At this point the patient is placed on an active alternating pressure powered air mattress. Five days later the bruised area in the coccyx begins to show evidence of an open wound, with measurements of 4.0 length x 1.0 cm width, and deep in the natal cleft there is dense slough with mild serous drainage. The surrounding skin is indurated with redness and evidence of a resolving bruise. Explain what risk factors led to the sacral injury and how you would set up his plan of care.