**Pressure Injury Root Cause Analysis**

Cleveland Clinic

**Name/date:** Tina Garcia Miller 09/15/2020

**Reviewed by/date:** _____

**Using academic writing standards and APA formatting of references, respond to each of the following learning objectives. Using this document, enter the responses next to the corresponding learning objective. Responses should be 150-350 words in length. Scroll down to see assignment rubric for specific details on how the project will be assessed and how points will be awarded. Save the completed document as the assignment title and submit to the dropbox.**

| Learning Objective | Response |
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| 1. Define root cause analysis & its role in pressure injury prevention. | Initially used to review industrial accidents, root cause analysis (RCA) is a problem-solving method used to examine the contributing factors and causes of adverse events or problems. The ultimate goal of a root cause analysis is to identify the primary cause of the problem and initiate change(s) at the system-level in order to prevent the event from occurring again. A root cause analysis is required by the Joint Commission for reported events and by the Department of Veterans Affairs (VA) National Center for Patient Safety for qualifying events in VA medical centers (Percarpio et al., 2008). When an event occurs because of a human error, there are always system factors that failed to prevent the error. In order to create a long-term solution, the system factors that allowed the circumstances for the error to occur must be identified and modified.<br><br>In the event of a pressure injury occurrence, the conduction of a root cause analysis within the first 72 hours can identify the area where there was a failure in the preventative process (Black, 2019). Once the incident has been verified as a pressure injury, chart review of processes can provide insight on the preventative measures that were taken, clinical area of the incident, and the equipment that was used. The last and most important step in the RCA process would be to identify and implement process changes that can prevent an event recurrence or at least reduce the severity if it were to recur. Black states in their 2019 article that "while starting with an immediate solution may be tempting, it should not be assumed that a complex problem cannot be resolved without a thorough understanding" of how it happened "(Black, 2019). What may initially present as a human error may require a longer investigation as well as a more complex resolution (Black, 2019). |
| 2. Analyze **one** of the case studies from page two (of this document). Describe the system failures that led to the pressure | **Case Study**<br>*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* |

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| injury. | *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*<br><br>*Explain what risk factors led to the sacral injury and how this should be addressed in the plan of care* (see learning objective #2).<br><br>At time of admission, the risk factors that would have contributed to the pressure injury include uncontrolled diabetes and the cumulative time spent supine (which may include time spent on the ground, time spent in EMS transit, and total time spent between the emergency room and diagnostic areas). In addition to the aforementioned risks, the 8-hour surgical procedure increased the risk to the development of the injury. While a risk assessment tool may help identify those patients that are at high risk for the development of a pressure injury, there is no evidence that indicates that the use of the scale decreases the incidence (Maklebust & Magnan, 2016) and as result, this score may have not triggered additional skin-protective interventions until the development of a problem.<br><br>While the exact time of injury is difficult to pinpoint, a perioperative pressure injury can present itself as soon as within an hour after surgery up to 4 days later (Pokorny et al., 2003). In other cases, a pressure injury may begin to form pre-operatively and then deteriorate quickly in the operating room (Gefen, 2020). Regardless of where the injury may have initiated, most intraoperative injuries are deep tissue injuries that only bevome visible after surgery (Gefen, 2020). While pressure ulcers typically develop in the operating room as a result of improper body positioning and inadequate padding, there are multiple procedure-specific factors can increase the risk of pressure injury such as positioning, length of surgery, pharmacological effects of drugs administered during the procedure, impaired regulation of body temperature, and reduced perfusion. In addition, for every 30 minutes of anesthesia that extends beyond 4-hour procedure increases the risk of pressure injury by 33% (Goudas and Bruni, 2019). For cardiovascular and orthopedic surgeries, the risk is even higher with a 1 in 3 patient prevalence (Gefen, 2020).<br><br>Whenever an event occurs it is important to identify what the organization is doing, what they were not doing, and what should have been done differently. The first system failure in the above case study was the failure to consider other risk factors outside of the initial scale/tool used and the failure to implement basic skin protective measures that were unique |

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| | to the patient's condition. The second system failure was lack of implementation of skin pressure reducing measures pre-operatively (like a foam dressing to the sacrum or a pressure reducing overlay). The third system failure was the failure to offload in the operating room. While it is typically not possible to reposition a patient during a procedure, the 2" elastic low-profile padding that is commonly used in the operating room as well as multiple layers of of linen or warming devices compromises the ability to effectively offload high-pressure areas. The fourth system failure was failing to implement a means to offload high pressure areas immediately after surgery. The lat system failure that presented in multiple areas was lack of hand off highlighting the potential skin risks with each transfer of care. |
| 3. Based on these findings, develop a comprehensive pressure injury prevention plan for the organization. | Every facility must identify the factors that contribute to the development of pressure injuries in their population of patients and develop a plan to mitigate risk from the time of admission up through the time of discharge. The last and most important step in the RCA process is identifying and implementing process changes. This effort must be one that is wholly collaborative involving all members of the healthcare team and must be revisited and reevaluated daily and with any change in patient condition. In addition, each implementation must have a means in which to measure and monitor its effectiveness. While a validated tool such as the Braden scale may flag certain high-risk patients, additional risk factors may not be captured such as sepsis, procedural time, other disease states, and decreased body temperature (Stechmiller et al., 2016).<br>New protocols for procedural areas should include making a skin risk assessment part of preoperative, perioperative, and postoperative handoff as well as the implementation of pressure offloading measures as a standard for all surgical patients. Patients that meet high risk criteria such as BMI <19 or >40, history of pressure ulcer, procedural time > 3 hours, and those undergoing procedures that have a high risk of incidence should be considered for additional interventions. Providence Health Center in Santa Monica CA implemented the use of the CMUNRO SCALE© mnemonic which calculates a risk level for each phase of surgery. Preoperatively, the scale measures (C) comorbidities, (M) mobility, (U) under the age of 60, (N) nutrition, (R) recent weight loss, and (O) overweight. Intraoperatively, the scale measures (S) systolic BP and surface, (C) core temperatire, (A) ASA score and anesthesia type, and (L) laying position/laying moisture. Postoperatively, the scale measures (L) LOS and (E) estimated blood loss (Goudas & Bruni, 2019). Additionally, EMR documentation should include per shift assessents as well as hand off assessments. Other areas of prevention include floating all heels of high-risk patients during transport, offloading high-pressure areas during diagnostic procedures (such as MRI), and sheer-preventing methods of patient transfer. The use of thermal imaging may also help in predicting a pressure injury in early stages. Education should be geared towards risk assessment, exceptions to patients that present as "low risk", implementation of protective measures in every aspect of care, and including skin risks as a part of patient hand off between areas and staff. |

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| 4. Propose a plan to monitor the results of objective #3. | For each implementation, there needs to be a means to measure either process or outcome. Data collected on prevalence days and random audits will provide a means for the monitoring. Monitoring should include incidents in which a pressure injury was acquired during the admission, the area in which the injury was nost likely acquired, and the gaps in care that failed to mitigate the risk to the patient. If effective, the collected information should reflect a decrease in pressure injury as well as an increase in the implementation of interventions (such as nutrition, offloading, protective foam dressings, and consults) as well as improved interdepartmental communication and competence. |
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| List at least three current references that support your responses (textbook required as one of the references), and include the citations in the body of the written responses. | Gefen, A. (2020). Minimising the risk for pressure ulcers in the operating room using a specialized low-profile alternating pressure overlay. Wounds International, 11(2), 10-16.<br><br>Goudas, L. & Bruni, S. (2019). Pressure injury risk assessment and prevention strategies in operating room patients – findings from a study tour of novel practices in American hospitals. Journal of Perioperative Nursing 32(1). https://doi.org/10.26550/2209-1092.1040 https://www.journal.acorn.org.au/jpn/vol32/iss1/6<br><br>Maklebust, J. & Magnan, M. (2016). Pressure ulcer prevention – specific measures and agency-wide strategies. In Doughty, D. & Nichol, L. (Eds.), *WOCN®Core curriculum: Wound management* (pp. 340-357). Wolters-Kluwer<br><br>Percarpio, K. B., Watts, B. V., & Weeks, W. B. (2008). The effectiveness of root cause analysis: What does the literature tell us?. Joint Commission journal on quality and patient safety, 34(7). https://doi.org/10.1016/s1553-7250(08)34049-5<br><br>Pokorny, M.E., Koldjeski, D., & Swanson, M. (2003). Skin care interventions for patients having cardiac surgery. *American Journal of Critical Care,* 12(6), 535-544. https://doi.org/10.4037/ajcc2003.12.6.535<br><br>Stechmiller, J.K., Cowan, L., and Oomens, C.W. (2016). Bottom-up (pressure sheer) injuries. In Doughty, D. & Nichol, L. (Eds.), WOCN®Core curriculum: Wound management (pp. 323-326). Wolters-Kluwer |

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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 |
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| **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. |