



Pressure injury prevention and management in cardiothoracic surgical patients: A family-centered approach

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Purpose

The purpose of this project is to introduce an educational tool for primary care providers to utilize with patients and family members in the Cardiovascular Intensive Care Unit (CICU) to prevent pressure injuries. The tool empowers patients and families by providing an educational aid to prevent pressure injuries with a family-centered care approach to care.



Background

- Healthcare-associated pressure injuries annually cost approximately \$9.1-\$11.6 million in the United States (AHRQ, 2014). A patient's cost for each pressure ulcer is about \$20.9-151.7 thousand (AHRQ, 2014).
- Patients in a critical area are 3.36 times more likely to develop a hospital-acquired pressure injury than other patients throughout the hospital (Kriesberg-Lange et al., 2018).
- Pressure injuries can lead to mortality, increased length of healthcare, and emotional strain on patients and their caregivers (Primiano et al., 2011).

Review of Literature

Causes of Pressure Injuries

Pressure—described as perpendicular pressure applied to an area of the body (Dealey et al., 2015; McInnes et al., 2015).

Shear—described as the friction of tissues against a bony prominence (Dealey et al., 2015; Moore & Cowman, 2015).

Microclimate—If the skin is excessively warm, moist or dry, the skin becomes more vulnerable to injury (Coleman et al., 2013; Dealey et al., 2015).

Risk Factors— Including altered skin status, limited mobility, poor nutrition, impaired perfusion, and impaired sensory perception (Dealey et al., 2015; Edsberg et al., 2014).

Prevention of Pressure Injuries

Assessment—Comprehensive skin assessments could identify areas of high pressure before injury occurs (Dealey et al., 2015; Kriesberg-Lange et al., 2018).

Repositioning— Every two hours or as indicated for patient need while offloading pressure from bony prominences (Kriesberg-Lange et al., 2015; Moore & Cowman, 2015; EPUAP et al., 2019)

Pressure Redistribution Products— Foam overlay dressings wick away moisture and reduce pressure/sheer (Kriesberg-Lange et al., 2015). Prophylactic dressings under a medical device can help prevent pressure injury (EPUAP et al., 2019).

Review of Literature Continued

Family-Centered Care (FCC)

Information sharing— The exchange of timely, accurate, unbiased, and objective information between the healthcare team, patient, and family in a format the family understands (Davidson et al., 2017; Hill et al., 2018; Kuo et al., 2012).

Respect/Dignity— Respecting the patient and family on the skills and knowledge they bring to the collaboration, respecting cultural and family traditions, and respecting the patient's needs (Kuo et al., 2012; Meert et al., 2013).

Collaboration/Participation—Families should be involved in treatment and care discussions with the healthcare team (Davidson et al., 2017; Hill et al., 2018; Kuo et al., 2012). All parties should be willing to negotiate and compromise to find a common treatment plan (Kuo et al., 2012). Families should be included to participate in developing programs, education, and creating policies (Hill et al., 2018; Kuo et al., 2012; Meert et al., 2013).

Cost-Benefit Analysis

QUANTITATIVE ANALYSIS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
BENEFITS						
IMPLICIT BENEFIT	\$ 65,400.00	\$ 134,440.00	\$ 127,536.00	\$ 121,323.00	\$ 115,730.00	\$ 564,429.00
EXPLICIT BENEFIT	\$ 27,010.00	\$ 61,554.00	\$ 92,643.00	\$ 120,624.00	\$ 145,755.00	\$ 447,586.00
TOTAL BENEFITS	\$ 92,410.00	\$ 195,994.00	\$ 220,179.00	\$ 241,947.00	\$ 261,485.00	\$ 1,012,015.00
COSTS						
EXPLICIT COSTS	\$ 5,616.00	\$ 277.00	\$ 277.00	\$ 277.00	\$ 277.00	\$ 6,724.00
IMPLICIT COSTS	\$ 694,007.00	\$ 621,360.00	\$ 559,224.00	\$ 503,301.00	\$ 452,971.00	\$ 2,830,863.00
TOTAL COSTS	\$ 699,623.00	\$ 621,637.00	\$ 559,501.00	\$ 503,578.00	\$ 453,248.00	\$ 2,837,587.00
NET BENEFIT	\$ (607,213.00)	\$ (425,643.00)	\$ (339,322.00)	\$ (261,631.00)	\$ (191,763.00)	\$ (1,825,572.00)

A cost-benefit analysis was completed based on basic costs in 2021. The analysis was based on a 10% reduction of pressure injuries each year. Over five years, a family-centered approach to preventing pressure injuries could have a cost benefit of over \$1 million with cardiothoracic surgical patients. The cost of the educational tool was approximately \$140. If the incidence of injury decreased greater than 10% in the CICU, the cost benefit would be even greater.

Ethical Considerations

Autonomy—Educating patients and families through FCC enables autonomy to make educated medical decisions

Justice—Justice is at risk due to the format of the educational tool. It places illiterate or non-English speaking patients at a deficit

Nonmaleficence—Nonmaleficence is at risk with this education and patient population on the intervention. CICU patients are critically-ill and a helpful family member may place the patient at increased harm by attempting to help.

Nursing Theoretical Framework

Balance Theory of Coordination Between Bureaucratic Organizations and Community Primary Groups

- The healthcare team is the bureaucratic organization while the patient and family are the community groups.
- The two parties must work closely together while not butting against each other to provide the best care for the patient.
- It is described as a fine line between working too far apart from each other and likely interfering with each other work and working too close together and impeding on the goal.



Family Educational Tool

- An analyzed literature review was used to develop an evidence-based family education tool
- The poster was divided into three sections: definition and causes of pressure injury, areas of high risk for pressure injury, and basic prevention measures
- An image guide is used to show areas at high risk for pressure injury
- It is a cost-effective resource. Approximately \$2.30 each
- It was presented in a printed poster, laminated, and placed in CICU patient rooms
- The tool was created without medical jargon, written in English, and at 4th grade reading level

Pressure Injury Prevention

What is it? A pressure injury is a skin and tissue injury caused by:



Where does it happen? It often occurs on bony areas like the back of the head, back, top of the buttocks, elbows and heels. It can also occur if a medical device is causing pressure to one area for a long time



How do I help prevent it?

Look at your child's skin.

- Is there a pink, red, or bruise-like spot that is new or does not go away?
- Is there a medical device causing pressure to one area for a long time?
- Help keep your child's skin dry

Together, we can prevent pressure injuries!

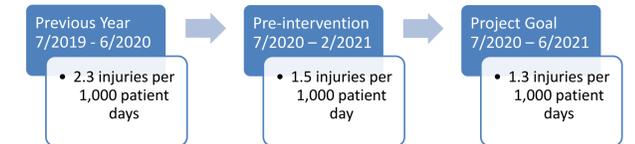
Help Reposition

- If your child is not able to reposition on their own, they will need assistance moving
- Help reposition your child every 2 hours or as needed
- It can be as simple as adding a small pillow under their side
- Help pad bony areas

Ask your nurse if any area on your child's skin is new or concerning.
Call your nurse to help you move your child.

Outcomes and Evaluations

The goal of this evidence-based practice change was to lower the incidence of pressure injuries through a family-centered care approach in cardiothoracic surgical patients.



- Evaluation was completed by comparing pressure injury data from pre-intervention to post-intervention injuries per 1,000 patient days
- Outcomes were unremarkable upon evaluation
- Limitations: organizational barriers, time constraints of the intervention and evaluation period
- Longer intervention and evaluation periods are needed

Implications for APRN and Family Practice

Prevention measures cost substantially less than treating a pressure injury for the healthcare system and the patient (Nguyen et al., 2015; Padula et al., 2019).

Education will aid the patient and family during their outpatient or in-home management of care and reduction of pressure injury risk.

Reducing the incidence and severity of pressure injuries will aid APRNs and other providers with the chronic management of a patient's holistic healthcare.

Providing education, collaboration, and participation to the patient and family will aid in a family-centered care approach to care (Davidson et al., 2017; Hill et al., 2018; Kuo et al., 2012).

Conclusion

The intention of this project was to develop an evidence-based practice change initiative to prevent pressure injuries in cardiothoracic surgical patients through a family-centered approach. The research showed the main causes of pressure injuries were pressure, shear, and microclimate of the skin. In addition, the main prevention strategies were thorough skin assessments, repositioning, and redistribution products. FCC was found to be a beneficial practice approach to care. FCC requires respect, collaboration, participation, and information sharing. The researcher collected scholarly research on pressure injuries and the FCC to create an educational tool for patients and families to work toward the common goal of preventing pressure injuries.