

Intraoperative Skin Risk Assessment

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DESCRIPTION OF TEAM

An interprofessional perioperative team consisted of a group of expert perioperative nurses, senior nurse scientist, wound care specialists and data analyst.

PREPARATION AND PLANNING

Our institution uses the Braden Scale to determine pressure injury (PI) risk; however, it does not address the unique risk factors associated with the surgical process. Project planning commenced due to an increase in perioperative skin injuries including PI's spanning several years. Despite various educational initiatives, the problem persisted. These findings prompted our interprofessional team to identify risk factors that our patients encounter during surgery and to develop a risk assessment protocol.

ASSESSMENT

After evaluating intraoperative risk assessment tools available, we made the decision to assess the risk factors seen in our patient population and create a distinct risk assessment protocol. Based on literature, age, body mass index (BMI), estimated surgery time, skin condition and American Society of Anesthesiologist (ASA) score are significant risk factors.

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IMPLEMENTATION

A risk assessment protocol was developed in March 2021 to identify patients at high risk for PI's before surgery utilizing the DMIAC (Define, Measure, Analyze, Improve and Control) model. We extracted data from the Electronic Health Record (EHR) on 442 patients and evaluated 5 units (total of 50 operating rooms) over 3 phases. At the end of each phase, the risk assessment protocol was re-evaluated and revisions were made including changes to BMI score, defining previous skin condition and adding documentation instructions. Post-operative documentation was reviewed for signs of skin injury immediately post operatively, 24 hours, 48 hours and 72 hours after surgery.

RISK ASSESSMENT PROTOCOL

Intraoperative Skin Risk Assessment Protocol		
Age	≥ 65 years old = yes	Yes/No
Skin Condition	Any of the conditions below =yes (Please check all that apply) o Moisture o Skin Tear/Wound o Edema o Incontinence o Chronic Skin Condition o History/presence of pressure injury	Yes/No
Estimated Surgery Time	≥4 hours= yes	Yes/No

A **YES** to any one of these risk factors identifies the patients as at risk for skin injuries, particularly PI's.

OUTCOMES

Documented Post Op Skin Issue: **35/442 patients (7.9%)**
No Skin Post Op Skin Issue: **344/442 patients (77.8%)**
Post- Op Skin Assessment NOT documented: **63/442 (14.3%)**

A logistic regression of patients with a post op skin issue revealed age, skin condition and surgery time were significant variables.

Data analysis from chart audits revealed three distinct risk factors to our patient population. Our final risk assessment protocol addresses the identified risk factors.

Analysis of Maximum Likelihood Estimates

Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-3.6402	0.4120	78.0836	<.0001
age_score	1	1	1.0147	0.4103	6.1153	0.0134
bmi_score_new	1	1	-0.1557	0.4426	0.1237	0.7251
ASA	1	1	-0.4643	0.4400	1.1138	0.2913
skin	1	1	1.9933	0.6266	10.1197	0.0015
PI_score	1	1	-1.3883	1.2969	1.1459	0.2844
surgery_time	1	1	2.4578	0.4231	33.7502	<.0001

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IMPLICATIONS FOR PERIOPERATIVE NURSING

Early identification and prevention is critical in reducing the likelihood of skin injuries. Our findings reinforced the need for an appropriate risk assessment protocol for surgical patients, which will alert the perioperative team to high-risk patients. This alert will help facilitate interventions to protect this high-risk group from developing PI's and other skin injuries. Our next steps include efforts aimed at educating staff on the protocol as well as the importance of documentation of all prevention efforts. We will also be working with informatics technology to incorporate the protocol into EHR.

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(Additional references available)

