


INTRAOPERATIVE PRESSURE INJURY PREVENTION AT VA PORTLAND

Background



Origin of pressure injuries is always difficult to determine

Origin of intraoperative pressure injuries even harder to determine


- * brief surgical duration
- * OR nurses have extremely brief time for physical assessment

Rapid-turnover environment of OR


- * PACU nurses best choice for initial risk assessment and preventive intervention

VAPORHCS PACU has a poster in Sharepoint, but charting doesn't reflect triggers


Summary of Relevant Literature



Preoperative sacral dressing placement is an efficacious intervention for reducing incidence of intraoperative PI.



Implementation of a multidisciplinary skin bundle appears to be the gold standard, but it is extremely time- and resource-intensive.



The Scott Triggers Tool is an effective predictive resource for gauging patient risk of intraoperative PI.

Table of Evidence

Author	Year	Design	Level of Evidence	Sample / Settings	Findings	Study Limitations	Application to Practice
Engels, D., Austin, M., McTisch, L., Fenc, J., Gupta, S., & Kazi, H.	2016	retrospective chart review conducted to determine risk factors for intraoperative PI; sacral dressing protocol implemented but not evaluated	nonexperimental, retrospective chart review	tertiary health care network in Southeastern USA, 2,293 >3h procedures annually	major risk factors for intraoperative PI include temperature, duration of procedure, Braden score, incontinence, sepsis	limited data strength due to use of retrospective review; no data on efficacy of sacral dressing protocol intervention	current PACU standards already address several key risk factors for intraoperative PI
Riemenschneider, K.	2018	sacral dressing applied to vascular surgery patients	quasi-experimental	700-bed Level I trauma center in Northeastern USA (81 patients)	Placement of sacral dressing reduced incidence of intraoperative PI	Study only evaluated sacral dressing efficacy in vascular procedures	Sacral dressing placement reduces incidence of intraoperative PI
Kirney, D.	2019	multidisciplinary, nurse-driven skin bundle implemented to prevent intraoperative PI	quasi-experimental	176-bed acute care facility with 10 Operating rooms in Pennsylvania (~6,000 invasive procedures per year)	Multidisciplinary skin bundle implementation led to 50% reduction in intraoperative PI in year 1 and zero incidence in years 4-5	lack of data on number and range of procedures performed	Skin bundle implementation led to significant drop in incidence of intraoperative PI
Park, S. K., Park, H. A., & Huang, H.	2019	comparison of three predictive models for intraoperative PI	retrospective case-control study	286 data on 433 operative care patients in South Korean acute care hospital	Braden Scale showed weakness as predictive model for incidence of intraoperative PI; Scott Triggers Tool showed better predictive value; addition of more risk factors did not materially improve Scott predictive capacity	Retrospective data only; no evidence on efficacy of interventions; limited to operative care patients referred to neuro and hematology/oncology providers	Scott Triggers Tool is an effective tool for predicting risk of intraoperative PI; Scott parameters reflected in PACU sacral dressing poster

Portland VA Medical Center - PACU Sacrum Guide

Mepilex® Border Sacrum for Prevention® Application Guide

High Risk Inclusion Criteria:

Apply Mepilex® Border Sacrum if patient meets **any** of the following criteria:

- Surgical procedure expected to last > 3 hours
- ASA 3 or greater
- BMI < 19 or > 40
- Albumin Level < 3.5 g/L
- Open heart procedures

Apply Mepilex® Border Sacrum if patient meets **3 or more** of the following criteria:

- Age > 62
- BMI ≥ 35
- Braden Score ≤ 18
- Diabetes
- Liver or Renal failure
- Mechanical ventilation > 48 hours
- Quadriplegia or spinal cord injury
- Previous history of pressure injury
- Weeping edema/Anasarca

Initial PICOT Question

- Among surgical patients undergoing procedures longer than four hours in duration, does PACU charting reflect national standards for comprehensive skin assessment?

Revised PICOT Question

Do PACU nurses apply preoperative sacral dressings in accordance with VAPORHCS parameters?

Data Collection & Analysis Process

- **Collection**
 - One week of surgical procedures, November 2023 > 83 cases (collected using Surgery Viewer tool)
 - All cataract & other procedures under 2 hours removed > **56 cases**
- **Analysis**
 - Mepilex documentation? Surgery Holding Note (PACU)
 - Triggers data (CPRS > pre-anesthesia evaluation, problems sheet, labs, shift assessments, skin notes)
 - Positioning info (Intraoperative Plan of Care Note)

CAVEATS: - Absence of charting does not necessarily mean dressing was not applied
- Positioning for some procedures obviates sacral dressing
- Some surgical services apply dressings in OR
- Some dressings applied in OR per informal communication

Data Analysis – Examples

PTT ID	MEPILEX?	EXPECTED DURATION > 3h	ASA ≥/≥ 3	BMI <19 or >40	ALBUMIN <3.5	OPEN HEART	AGE > 62	BMI ≥/≥ 35	BRADEN <= 18	DIABETES	LIVER / KIDNEY FAILURE	MECH VENT >48h	QUAD / SCI	Hx PI	WEEPING EDEMA / ANASARCA	SERVICE EXCEPTION	POSITIONING EXCEPTION	FINDING ?
xxxx	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	N/A	N/A	NO
xxxx	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	N/A	N/A	NO
xxxx	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	N/A	NO
xxxx	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES (prone)	NO
xxxx	NO	NO	YES	YES	NO	NO	YES	YES	NO	YES	YES	NO	NO	NO	NO	NO	NO	YES

Overall Findings (n=56)

Mepilex Documentation per Protocol

Response	Percentage	Count (n)
Yes	48%	27
No	46%	26
Ambiguous / Could Not Be Determined	5%	3

Frequency of Triggers (n=44)

Trigger	Count (n)	Percentage
ASA	24	54%
Duration	10	23%
Minor Triggers	5	11%
Albumin	5	5%
Open Heart	2	5%
BMI	1	2%

Triggers per Finding (n=26)

Number of Triggers	Count (n)	Percentage
1	13	50%
2	9	35%
3	3	10%
4	1	5%

Why it Matters

- 92% of patients with findings had ASA 3 or greater
- VAPORHCS patient population is physiologically vulnerable
- Pressure injuries are expensive to treat
- One facility's skin bundle program reduced incidence from 3.37% to 0.89%, producing estimated savings of \$1.4 million in one year
- Evolving conversation on science, policy, risk & liability

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