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ENHANCING PATIENT SAFETY AND QUALITY IMPROVEMENT

Prevention of Pressure Injuries and Incontinence-Associated Dermatitis in Pediatric Medical and Surgical Patients"

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Abstract: Pressure injuries and incontinence-associated dermatitis (IAD) are significant concerns in pediatric medical and surgical patients. This Quality Improvement Project (QIP) aimed to prevent pressure injuries and manage IAD through a focused, evidence-based approach. The project involved identifying key differences between pressure injuries and IAD, implementing preventive strategies, and educating staff on effective management techniques, including the crusting technique. Results indicated no pressure injuries from January 2024 onwards, reflecting the success of the intervention.

Index Terms

- Patient Safety
- Quality Improvement Project(QIP)
- Pediatric Care
- Pressure Injuries (PI)
- Incontinence-Associated Dermatitis (IAD)
- Crusting Technique
- Skin Integrity
- Evidence-Based Practice
- Pediatric Intensive Care Unit (PICU)
- Pediatric Cardiac Intensive Care Unit (PCICU)

1 INTRODUCTION

Pressure injuries and IAD are common in pediatric patients due to their fragile skin and prolonged immobility during medical treatments. Both conditions significantly impact patient outcomes, increase healthcare costs, and prolong hospital stays. Differentiating between pressure injuries and IAD is crucial for appropriate treatment. This QIP was initiated to develop a clear protocol for the prevention and treatment of pressure injuries and IAD in pediatric patients at our hospital.

2 NEED OF THE STUDY

- ☞ Identified problem of increased number of Pressure Injury in post op pediatric patients 16 pressure injury from Jan to Dec 23.
- ☞ Lack of Standardization of pressure injury prevention guidelines.
- ☞ Lack of Knowledge amongst health care members about prevention of pressure injury.
- ☞ No standard protocol thus practices varied department wise.

Pressure injuries and IAD in pediatric patients pose significant challenges in clinical care. Existing protocols often focus on adult patients, with limited specific guidelines for children. This study addresses the gap by developing and implementing a

pediatric-focused protocol, aiming to enhance patient care, reduce the incidence of pressure injuries and IAD, and improve overall clinical outcomes.

3 METHODOLOGY

3.1 Setting and Participants:

- The project was conducted in the pediatric medical and surgical units of our hospital.
- Participants included pediatric patients at risk of pressure injuries and IAD, nursing staff, and clinical leaders.

3.2 Intervention:

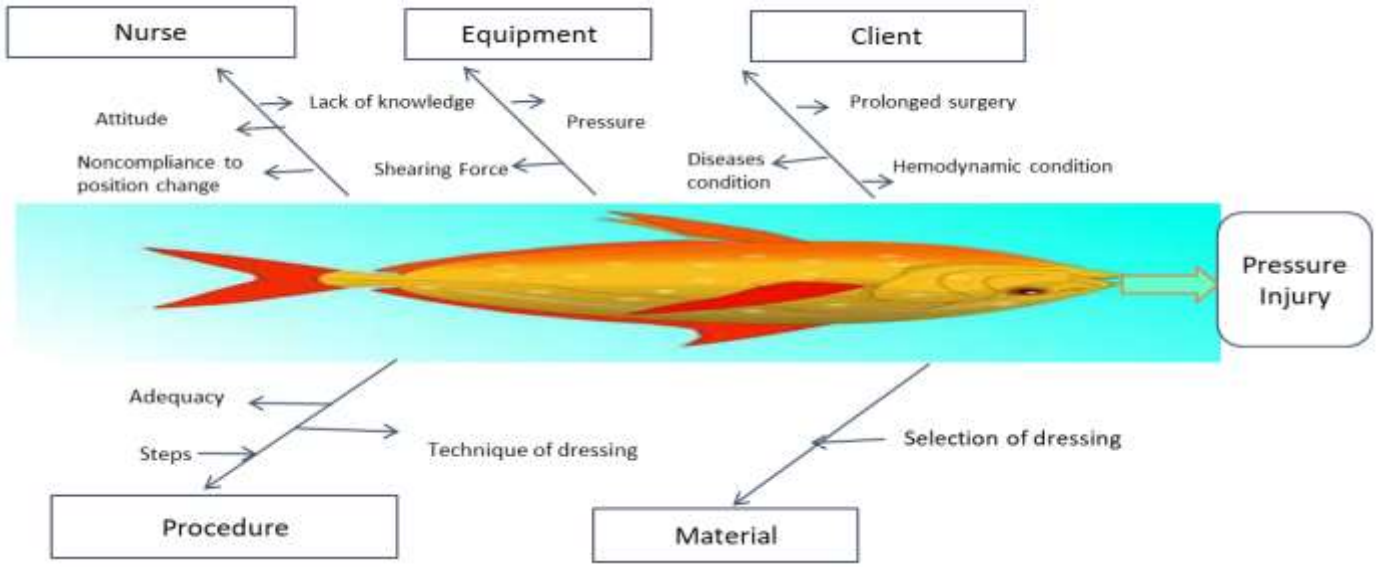
- Education sessions were conducted for staff to differentiate between pressure injuries and IAD.
- Preventive measures, including regular skin assessments, repositioning, and use of pressure-relieving devices, were implemented.
- The crusting technique was introduced for managing severe skin damage due to IAD.

3.3 Project Execution:

Project was executed in two phases.

1. Standardization of practices
2. Prevention, early detection & treatment of pressure injury

3.4 CAUSE & EFFECT



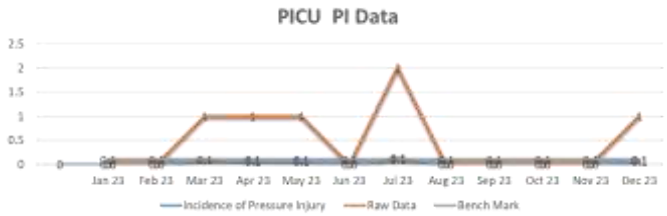
3.5 Tools

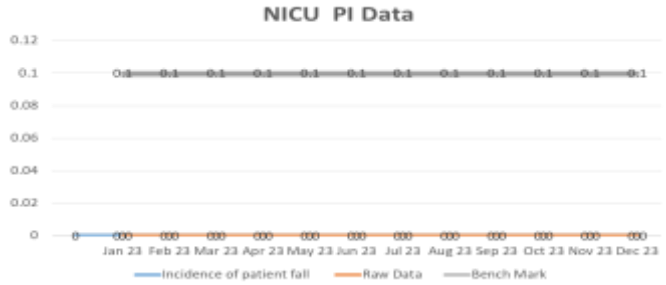
QIP Tool: PDCA cycle

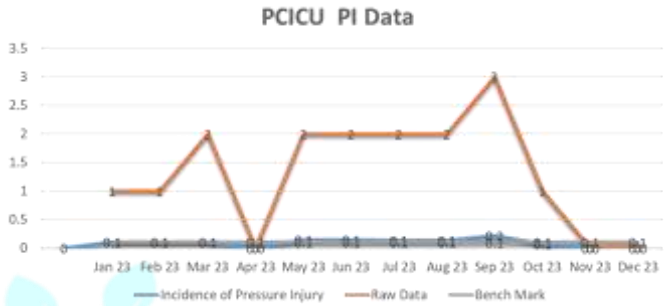
PLAN	✓ Differentiation between lAD & Pressure injury. ✓ Pressure Injury Prevention guidelines to be standardized. ✓ Training programme for Nurse Mangers I Team leaders. ✓ Monitoring numbers of Pressure injury & newly formed IAD.
DO	✓ Meeting with Quality head, OT in charge, Infection control nurse, wound care nurse & pediatric intensive care nurse manger. ✓ Consensus on selection criteria of patients in anticipation of risk to develop pressure injury. ✓ Development of guidelines to be followed. ✓ Guidelines to be made standardized across pediatric OT & pediatric ICUs.
CHECK	✓ Monitoring for IAD rates. ✓ Monitoring for IAD Category. ✓ Monitoring for days of healing. ✓ Monitoring for Pressure injury rates. ✓ Monitoring for after admission Pressure injury rates. ✓ Monitoring of post-operative patients developing pressure injury. ✓ Monitoring for worsening of existing Pressure injury rates. ✓ Monitoring for days of healing.
ACT	✓ Re-evaluate the plan & re audit.

3.6 Data and Sources of Data

- Data on the incidence of pressure injuries and IAD were collected before and after the intervention.
- Staff compliance with the prevention protocol and patient outcomes were monitored.







3.7 Theoretical Framework

3.7.1 Pressure Injury Vs Incontinence Associated Dermatitis

	Pressure Injury	Incontinence Associated Dermatitis
Cause	Pressure & Shear must be present.	Moisture must be present. (For example, look for shining, wet skin, caused by urinary incontinence or diarrhea.
Location	A wound over bony prominence is likely to be pressure injury.	IAD may occur over bony prominence, however pressure & shear should be excluded as causes & moisture should be present.
Shape	If the lesion is limited to one spot it is likely to be pressure ulcer.	Diffuse, different superficial spot are more likely to be IAD.
Depth	Partial thickness skin loss & full thickness skin loss	Superficial (partial thickness skin loss).
Necrosis	A black necrotic scab on a bony prominence is a pressure ulcer grade 3 or 4.If there is no or limited muscular mass underlying the necrosis, the lesion is pressure ulcer grade 4.	No necrosis.
Edges	Distinct Edges	Diffuse or irregular edges.
Color	If redness is non blanchable (redness will not disappear even after applying thumb pressure over area), this is most likely grade 1 pressure ulcer.	Redness is blanchable.

3.7.2 Crusting Technique

3.7.2.1 What is crusting?

Crusting refers to a skin care procedure where a "crust" is made using an ostomy powder and an alcohol-free barrier film. The crust helps protect the skin from stool and urine.

3.7.2.2 When is it used?

When skin is severely damaged or in other words, when skin is wet, weeping and denuded. In this situation, most barrier creams and ointments will not work because they cannot adhere to a wet surface. Crusting may also be used for periostomal skin damage.

3.7.2.3 How do I apply a crust?

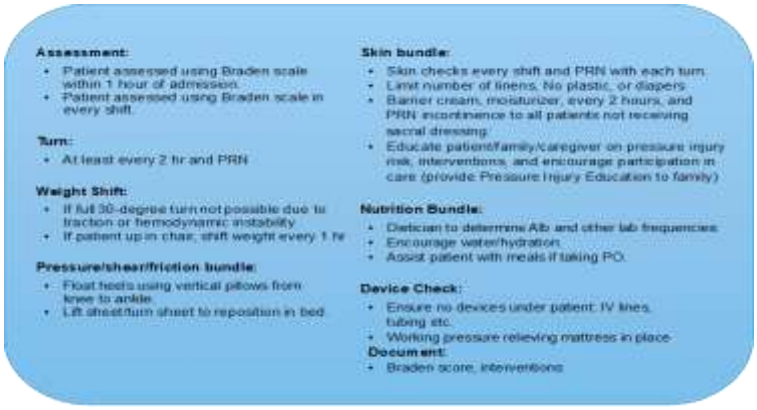
Procedure for crusting:

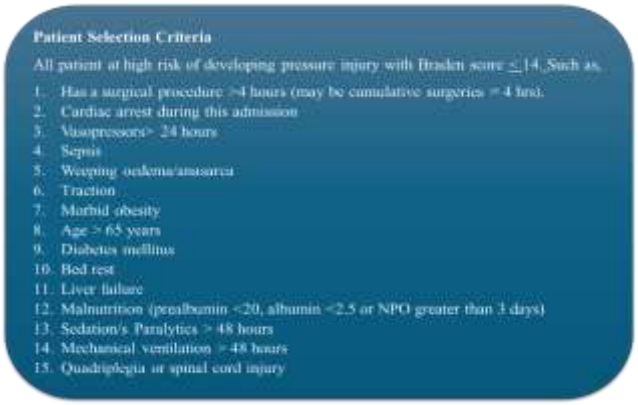
1. Clean skin gently with Normal Saline.
2. Sprinkle a layer of ostomy powder over area to be treated. Gently brush off excess powder using 4x4 gauze. You want a thin layer of powder completely covering the moist area.
3. Spray Cavilon No Sting Barrier Film over powder. Allow barrier film to dry. If an area is missed, allow the entire area to dry first, then go back and spray the area that was missed.
4. Reapply daily or as directed.

Note: do not substitute corn starch, bath powder or baby powder for the ostomy powder.

3.8 Protocol Design

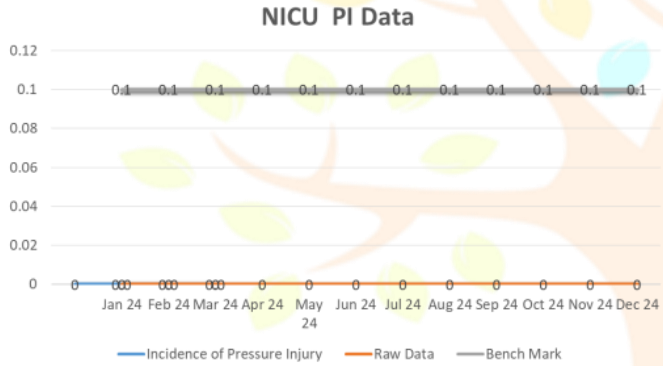
PRESSURE INJURY PREVENTION PROTOCOL

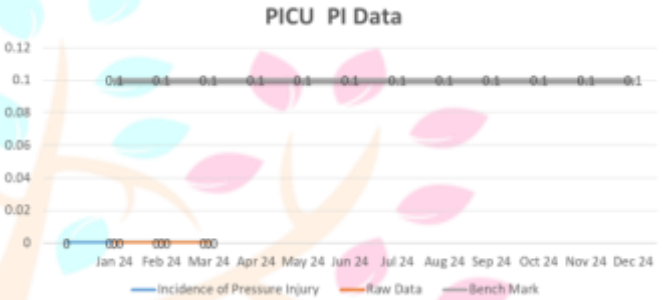


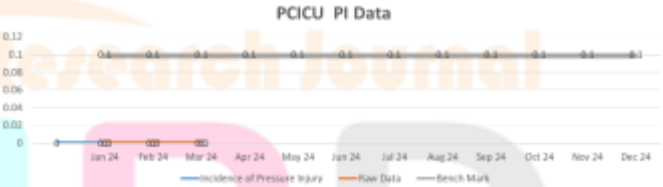


3.9 Analysis:

- The incidence rates of pressure injuries and IAD before and after the intervention were compared.
- Feedback from staff and patient outcomes were analyzed to assess the effectiveness of the intervention.







4 RESULTS AND DISCUSSION

- ✓ No pressure injuries were observed from January 2024 onwards.
- ✓ A significant reduction in the incidence of IAD was noted.
- ✓ Staff reported increased confidence in managing and preventing pressure injuries and IAD.
- ✓ Positive feedback was received from the heads of the Operating Theater (OT) and Critical Care units regarding the protocol's effectiveness.

The successful implementation of the QIP demonstrates the importance of a focused, evidence-based approach in preventing pressure injuries and managing IAD in pediatric patients. The differentiation between pressure injuries and IAD, coupled with targeted interventions like the crusting technique, proved effective in reducing the incidence of these conditions. Continuous education and empowerment of nursing staff are crucial in maintaining the protocol's success and ensuring high-quality patient care.

5 CONCLUSION

- ☞ Focused approach towards IAD & pressure injury prevention helped to device clear protocol of Prevention & Treatment.
- ☞ Pressure injury results supported to gain confidence of OT & Critical care heads & autonomy to Nursing staffs to decide prevention & treatment of IAD & pressure injury.

☞ The QIP significantly reduced the incidence of pressure injuries and IAD in pediatric patients, improving patient outcomes and staff confidence. The clear protocol for prevention and treatment serves as a model for other healthcare institutions aiming to enhance pediatric patient care.