

# PREVENTING PRESSURE INJURIES IN THE INTENSIVE CARE UNIT USING A BUNDLED SKINCARE ALGORITHM



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## Introduction & Background

- Critically ill patients are disproportionately affected by hospital-acquired pressure injury (HAPI) compared with general inpatients<sup>1,2,3,4</sup>
- HAPIs are associated with increased pain, infection, prolonged length of stay, healthcare costs, caregiver burden, and patient mortality<sup>5</sup>
- HAPIs effects ICU patients globally, nationally, and locally
- HAPI prevalence at the studied facility averaged 16% from 2019-2020, above the national benchmark of 5.2%

## Purpose & Aims

Decrease the prevalence of HAPI in the ICU after implementing a HAPI prevention bundled skincare algorithm along with staff education.

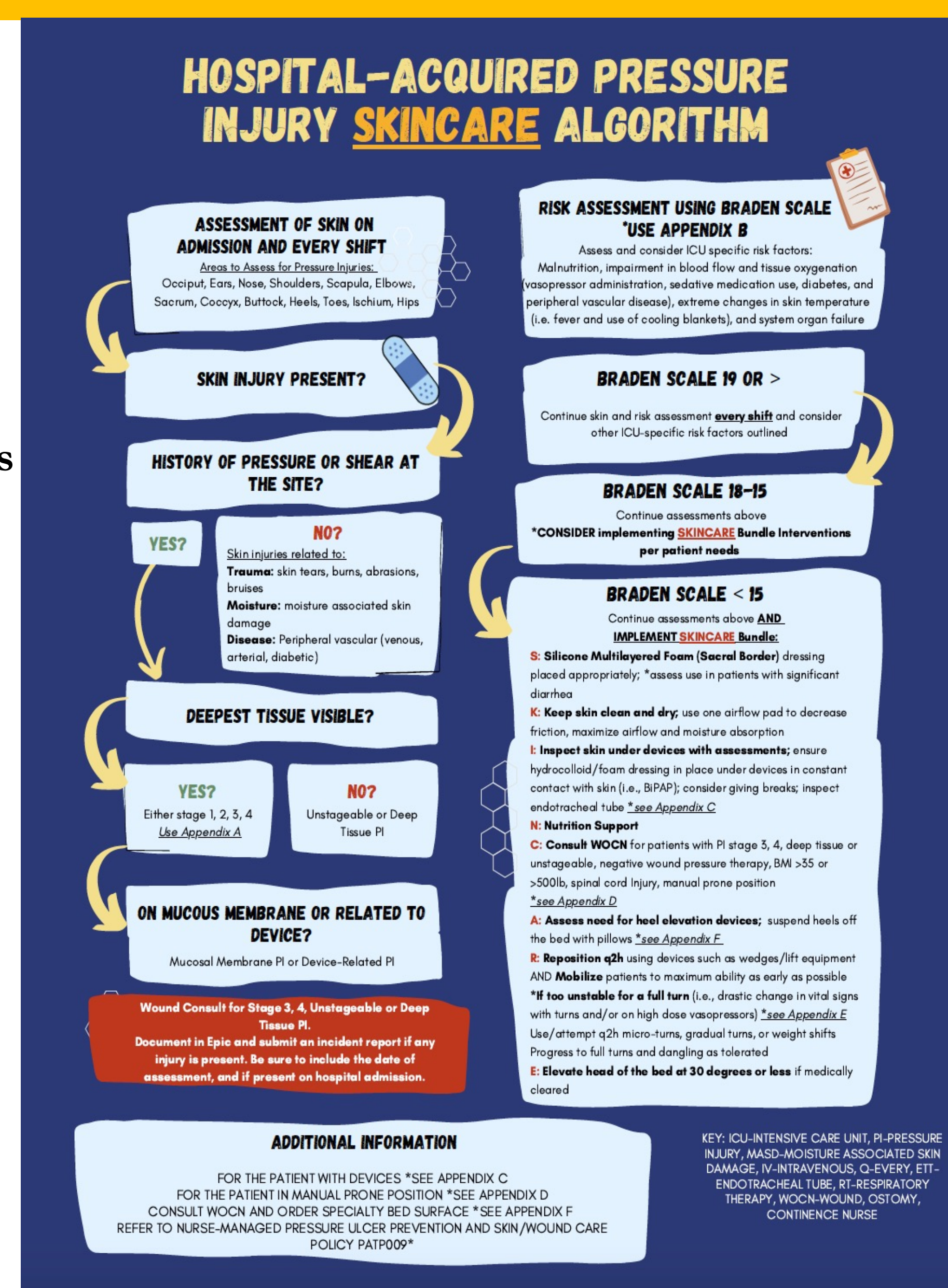
- Aim 1: HAPI Prevalence**
- HAPI prevalence rates in the ICU will decrease to at or below National Database Nurse Quality Indicator (NDNQI) benchmark of 5.2% for three consecutive months after project implementation.
- Aim 2: ICU nurses' knowledge**
- ICU nurses will have increased knowledge and awareness of HAPI prevention bundle components and HAPI prevention after project implementation measured by using the validated Pressure Ulcer Knowledge Test (PUKT)<sup>6</sup>
- Aim 3: Bundle Compliance**
- There will be an increase in compliance with the HAPI prevention bundle components and interventions delineated by the acronym SKINCARE.

## Intervention

### SKINCARE:

- S:** Sacral foam dressing
- K:** Keep skin clean and dry
- I:** Inspect under devices
- N:** Nutritional support
- C:** Consult Wound Ostomy Nurse
- A:** Assess the need for heel elevation devices
- R:** Reposition every 2 hours or per turn schedule/early mobility
- E:** Elevate the head of bed 30 or less

Figure 1. Bundled Skincare Algorithm (Page 1)



## Methods & Sample

**Design:** Quality Improvement pre-post design from June 2021 through December 2021  
**Setting:** Within 24-bed ICU in a 230-bed community-based acute care hospital in the mid-Atlantic, U.S.A.  
**Timeline:**

	Pre Intervention	Bundled Algorithm Roll-Out/Education and Control	Post Intervention
Time	JUN 2021-AUG 2021	SEP 2021	OCT 2021-DEC 2021
Measure			
Prevalence Rounds	✓	✓	✓
Nurses' Knowledge Scores		✓	
Compliance	✓	✓	✓

### ICU Nurse Sample (46 RNs)

- Inclusion:** Staff registered nurses, agreed to participate
- Exclusion:** Non-nurses, contracted RN staff, non-direct care staff, and auxiliary staff

### ICU Patient Sample (57 ICU Patients)

- Inclusion:** Adult ICU over the age of 18; Braden risk score < 15
- Exclusion:** In procedure, palliative care, COVID19 restrictions, refusal

## Results

Table 1. Nurse Sample Demographics

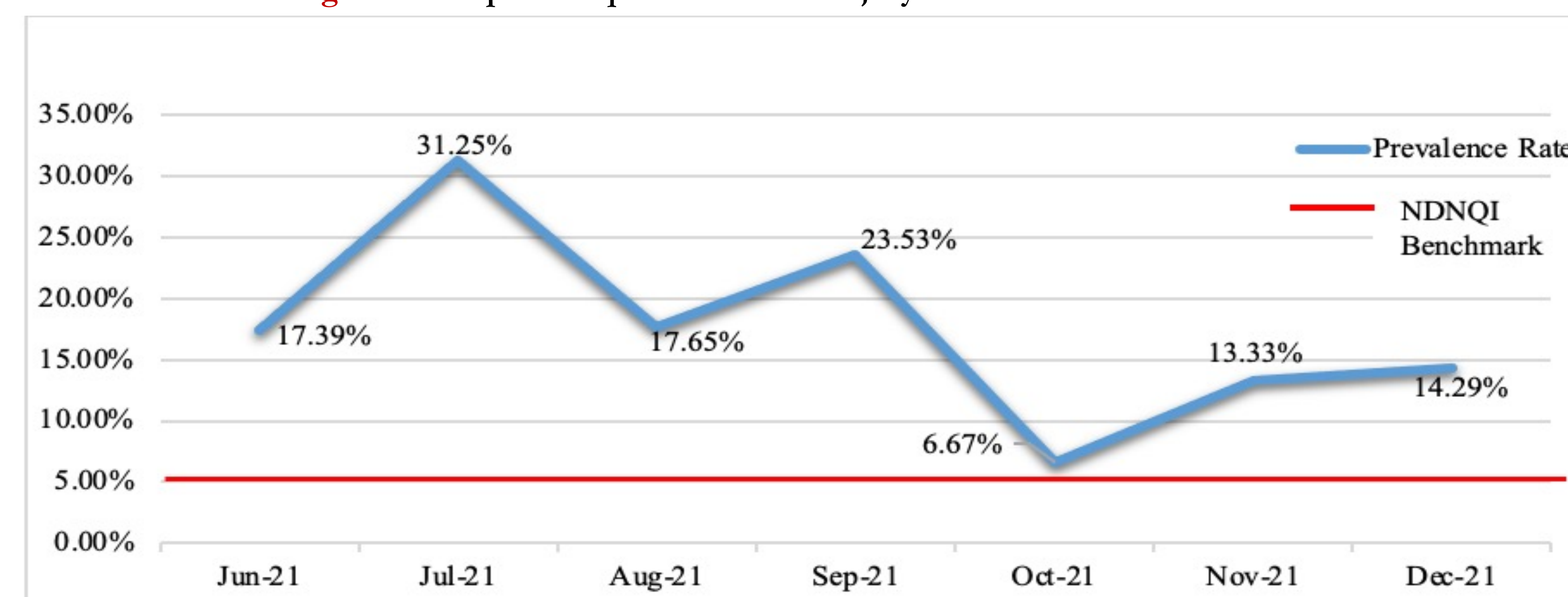
Characteristic	n	%
Gender (n=40)		
Male	5	10.9
Female	34	73.9
Prefer not to say	1	2.2
Age (years)		
18-24	0	0
25-35	13	28.3
36-45	12	26.1
46-55	11	23.9
Over 55	4	8.7
Experience (years)		
Less than 1	4	8.7
1-5	6	13
6-10	4	8.7
Greater than 10	26	56.5

Table 2. Patient Sample Characteristics

Characteristic	Pre-intervention n=28		Post-intervention n=29	
	Mean	SD	Mean	SD
Age, years	63.4	17.9	66.8	15.3
Body Mass Index	27	6.3	30.7	8
Sequential Organ Failure Assessment Score	5.5	2.8	5.9	3.2
Length of Stay, days	11.4	11.2	7.8	5.9
Braden on admission	14	4	13	3
Braden for shift	12	2	12	1
	n	%	n	%
Sex (male)	22	78.6	13	44.8
Highest Level of Mobility 1, Lying in bed	18	64.3	14	48.3
Vasopressor Use	20	71.4	18	62.1
On Mechanical Ventilator	19	67.9	18	62.1
Primary Diagnosis				
Respiratory	5	17.9	8	27.6
Cardiothoracic	6	21.4	3	10.3
Neurologic	9	32.1	5	17.2
Trauma	1	3.6	1	3.4
Renal	5	17.9	1	3.4
Sepsis/Multisystem	0	0	5	17.2
Other	2	7.1	6	20.7

### Aim 1: HAPI Prevalence

Figure 2. Hospital-Acquired Pressure Injury Prevalence Rate



## Results Continued

### Aim 2: Nurses' Knowledge

- 22 of 46 nurses (47.8%) strongly agree on a 4-point Likert scale for both awareness and usefulness

Figure 3. PI Questionnaire Non-Paired Test Scores

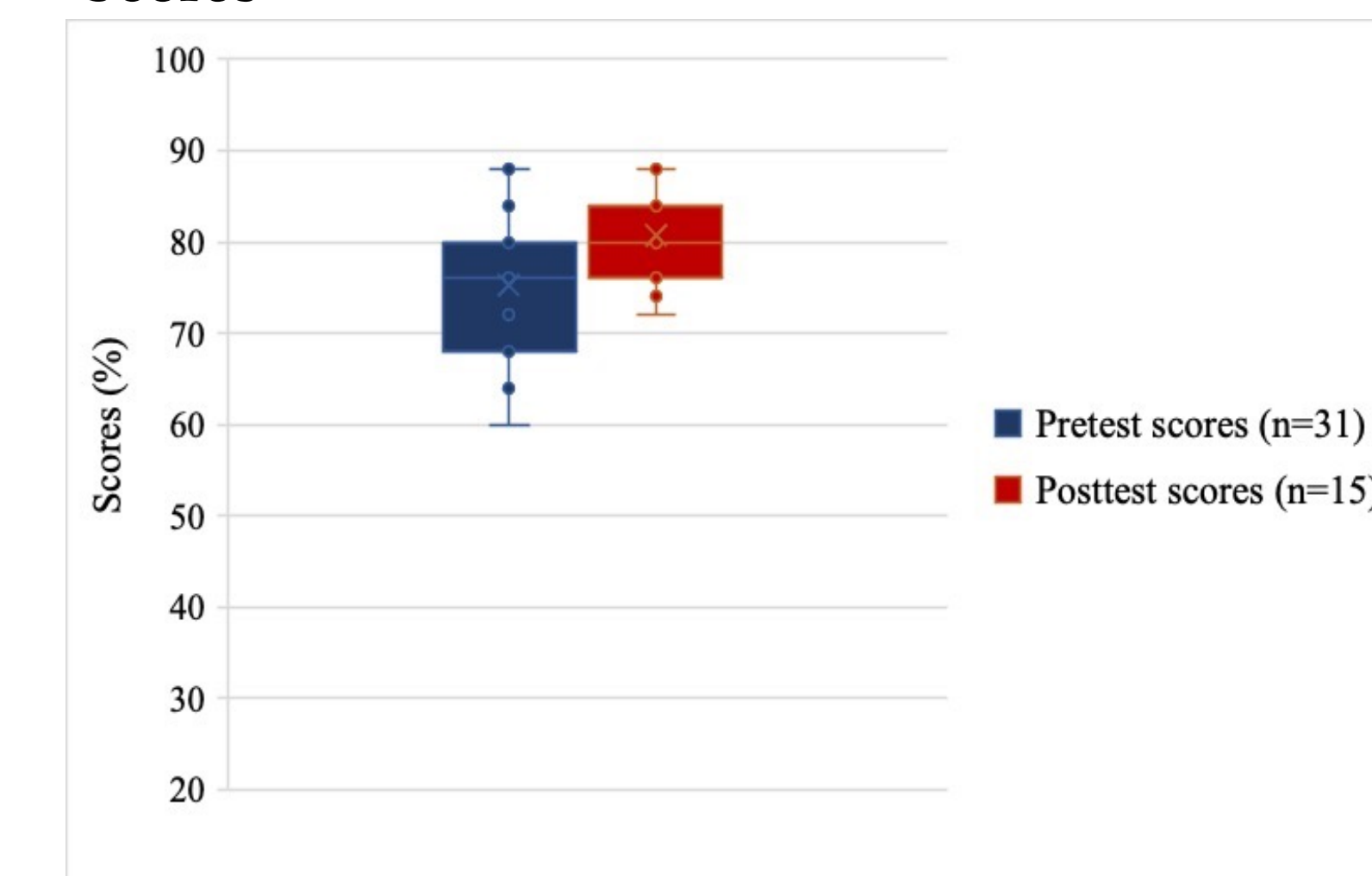
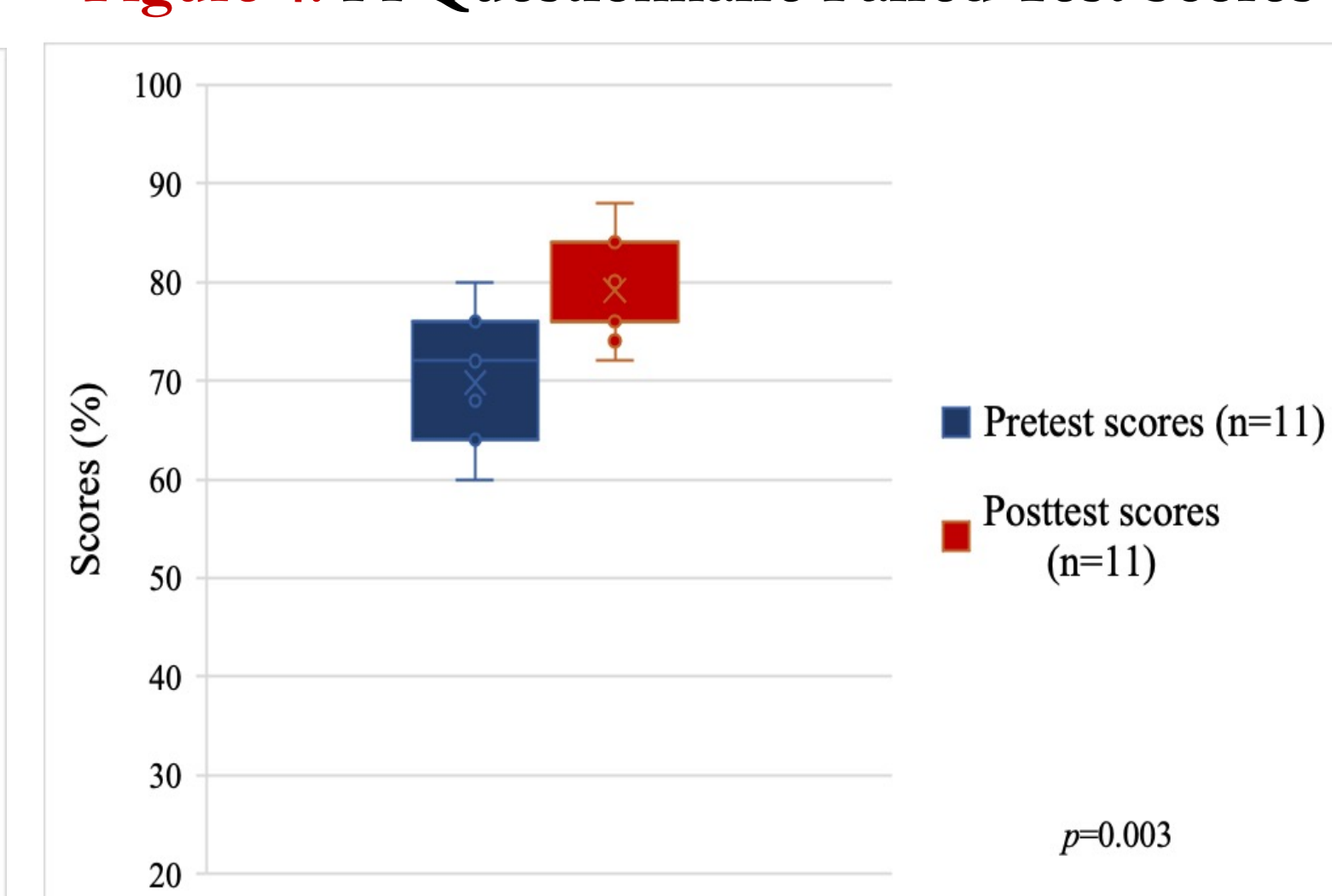


Figure 4. PI Questionnaire Paired Test Scores



### Aim 3: Bundle Compliance

Table 3. Bundle Compliance

Domain	Compliance Rate (%)	
	Pre-intervention n=28	Post-intervention n=29
Braden Risk Assessment, shift	85.7	100
Skin Assessment, Admission	100	100
Skin Assessment, Shift	89.3	100
Sacral Bordered Dressing Present*	70.4	82.1
Moisture Management	89.3	96.6
Device Management	64.3	41.4
Nutrition	84	72.7
WOCN consultation referral	42.9	72.7
Heel elevation	88.9	82.8
Repositioning Schedule	92.9	96.6
Head of Bed elevation at 30 degrees*	85.7	82.8

Pre-Mean= 84.1% (SD 14.6%)

Post-Mean= 85.1% (SD 15.4%)

## Conclusions & Implications

- The intervention may increase nurses' knowledge and help reduce HAPIs
- Monthly reinforcement and WOCN presence could aid in compliance
- Potential reasons for lack of compliance: staff turnover, extended use of temporary RN staff, increased workload, lack of supplies, and patient-specific factors
- HAPI prevention is interdisciplinary

## References

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