Respiratory Device Related Pressure Injury Prevention in Adult Critical Care

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INTRODUCTION

- Augusta University Medical Center (AUMC) is a 632-bed comprehensive, academic medical center for adults and children in the southeastern US
- The FY 2016 Agency for Healthcare Research and Quality (AHRQ) Quality Indicators report indicated our hospital had a performance worse than expected pressure injury rate.
- We have a Pressure Injury Prevention (PIP) team in place actively working to manage and reduce hospital acquired pressure injuries (HAPI) within the Department of Nursing in collaboration with the Wound Ostomy Continence (WOC) Nurse Department.
- The WOC Nurse Department routinely compiles data that provides detailed information on pressure injuries by type and location.
- In FY 2016, 40% of all HAPIs were medical device-related pressure injuries (MDRPI); 37% of all MDRPI were respiratory device related.
- An opportunity existed for FY 2017 to reduce respiratory device-related HAPIs with a collaborative effort between Respiratory Therapy and Nursing Departments. (Table 1)

Table 1: Respiratory Device Related Pressure Injuries

	Stage 1	DTI	Stage 2	Stage 3	Stage 4	Unstageable	Mucosal Membrane	Total
Oral Endotracheal Tube (OETT)	1	5	2	-	1	-	12	21
Non-Invasive Ventilation (NIV)	1	5	5	1	-	1	-	13
Tracheostomy	1	2	1	5	-	1	-	10
Nasal Cannula	1	1	1	1	1	-	-	5
OETT Securement Device	1	1	-	-	-	-	-	2
Face Mask	2	-	1	-	-	-	-	3
High Flow Nasal Cannula (HFNC)	-	3	-	-	-	-	-	3
Nasal Endotracheal Tube (NETT)	-	-	1	-	1	1	-	3
TOTAL								60

METHODS

- Initially the WOC Nurse Department identified devices that caused the most respiratory-related injuries and presented these to a multidisciplinary team. (Figure 1)
- OETT and NIV masks combined accounted for 57% of respiratory device-related pressure injuries in FY 2016.
- The team decided to focus on two goals in the adult ICU patient population for FY 2017
  1. Decrease pressure injuries related to OETTs by 30%
  2. Decrease pressure injuries related to NIV masks by 15%
- Using brainstorming and affinity chart processes, our group identified possible causes and solutions related to these injuries.
- The team members were asked the following questions:
  1: Why do you think we have respiratory device-related pressure injuries?
  2: What are your ideas on how we can prevent respiratory device-related injuries?

PROCESS

Action Plan

1. Standardized rotation schedule of OETT and NIV mask.
2. Scheduled maintenance of respiratory equipment.
3. Education for respiratory therapy and nursing on the new processes and protocols.
4. Daily audits of above performed by day and night shift.
5. Bi-weekly interdisciplinary meetings to report findings, barriers, and establish necessary interventions.

Figure 1: Multidisciplinary Team

Audit Measures

Ventilator Arms
- ✓ Entire Ventilator circuit in arm
- ✓ No pressure on the lips
- ✓ Ventilator arm functional
- ✓ No added weight on vent arm

NIV
- ✓ Mask rotated per protocol (Figure 2)
- ✓ NIV redness to bridge of nose
- ✓ Pressure injury prevention measures used

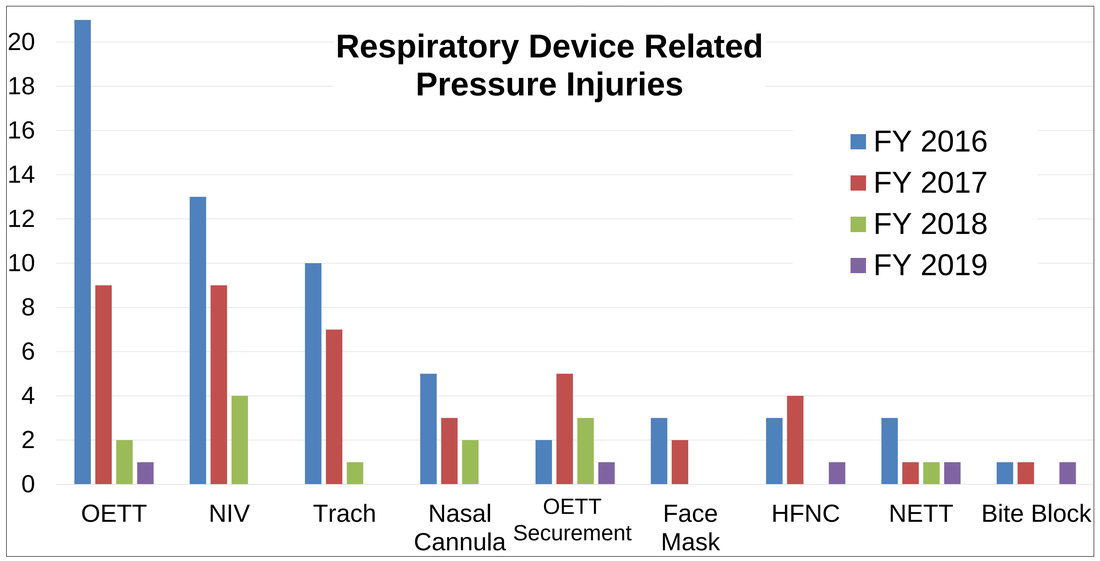
OETT
- ✓ Label and date on OETT holder
- ✓ Rotation of OETT
- ✓ CASS taped to OETT
- ✓ Skin integrity assessment performed with every rotation

Figure 2: Mask Rotation Schedule

The data and information found on this poster was deemed non-human subject research by the Augusta University Institutional Review Board

RESULTS

The results exceeded both of the goals. On the goal to decrease pressure injuries related to OETT/securement devices in the ICU by 30%, there was a decrease of 57%, from 21 in FY2016 to 9 in FY2017. The second goal was to decrease pressure injuries related to NIV masks in the intensive care units by 15%, and attained a decrease of 31%. (Graph 1)



Graph 1: Respiratory Device Related Pressure Injuries

Footnote – Hollister AnchorFast Oral Endotracheal Tube Fastener used as OETT securement device

CONCLUSION

The collaboration of both respiratory staff, nursing staff, and WOC Nurse Department to reduce respiratory device related injuries proved successful. AUMC continues to show improvement and the team meets quarterly to review data and ensure that identified reduction strategies continue to prevent respiratory device-related injuries.

REFERENCES

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