



Carolinus HealthCare System

**Be Smooth Be Safe: A CNS Led Intervention To Decrease Patient Handling Injuries and Reduce Pressure Injuries Using Air Assisted Technology**

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**Learning Objective**

- The learner will be able to describe the benefits of exploring new technology for preventing patient handling injuries



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**MEDICAL INTENSIVE CARE UNIT**

- Located within Carolinas Medical Center in Charlotte, NC
- Not for profit Level 1 trauma, quaternary care hospital
- 1132 acute care adult and pediatric beds
- MICU has 29 beds
- Provides multidisciplinary care to adult and geriatric medical, surgical, and vascular patients



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## Significance/Background



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## CDC, OSHA, & ANA

- OSHA, 2013: boosting and in-bed repositioning is a leading cause of injury for healthcare personnel
- CDC 2015: Boosting and in-bed repositioning is a high frequency, high risk task
- ANA 2013: MSDs are responsible for lost work time, the need for prolonged medical care, and permanent disability among health care workers.



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## Injury Data

- 8 patient handling injuries related to lifting, repositioning, & transfers the year prior
- 10 Sacral/coccyx pressure injuries account for 50% of unit acquired pressure injuries



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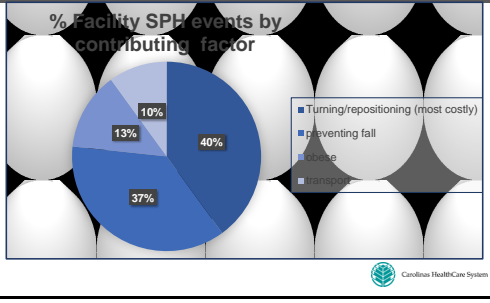
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### Contributing factors for patient handling events at CMC




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### A Case for the Pilot

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### Air Assisted Technology




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## Air Assisted Technology Pilot

The purpose of this 6-week pilot was to determine if the use of an air assisted technology system for repositioning patients in the medical intensive care unit would:

- Increase compliance with the q2h turning protocol
- Reduce patient handling injuries
- Improve sacral pressure injury rates



## Collect Pre-data

- Lift equipment is underutilized
- Q2h turning compliance -72%



## Cost Analysis Using 2016 Data

• Cost to treat one healthcare worker injury  
**(HWI) = \$22,500**

• 8 teammate injuries related to turning, positioning, or transfer reported from October 2015 to October 2016.

• Potential cost for these is **\$180,000**

(BLS, 2014)

• Cost to treat one hospital acquired pressure injury  
**(PI) = \$17,000**

• MICU had 10 Sacral/Coccyx pressure injuries reported in 2016


• Potential cost for these is **\$170,000**

(AHRQ, 2014)

**Potential cost avoidance of \$350,000**



**Methods**



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**Create a Team**

- 2 Clinical Nurse Specialists
- MICU Manager
- MICU Nurses
- AVP
- Facility Safety Officer
- WOCN – Skin Care Specialist
- Infection Control Registered Nurse
- Materials Management
- Environmental Services
- Clinical Value Analysis



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**Criteria for Use**

- **Ventilated**
- **Unable to turn themselves**
- **Evidence of skin breakdown on sacrum/coccyx**

The system was discontinued when the patient could turn themselves or transferred from the unit.



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## Methods

- Educate teammates on safe use of the equipment
- The Borg Scale of Perceived Exertion (RPE)  
Traditional Method versus air assisted technology
- Track device use
- Product evaluation for feasibility and likelihood of use



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## Outcomes



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## Outcomes

- 43 patients were placed on the system
- Review of documentation showed a turning compliance similar to the pre-data at 73%
- No sacral/coccyx injuries were acquired by patients during the pilot
- No patient handling injuries were reported by staff
- Borg Scale reveals that Air Assisted Technology requires minimal effort by the caregiver



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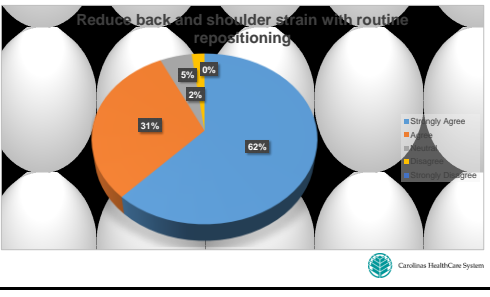
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### Product Evaluation



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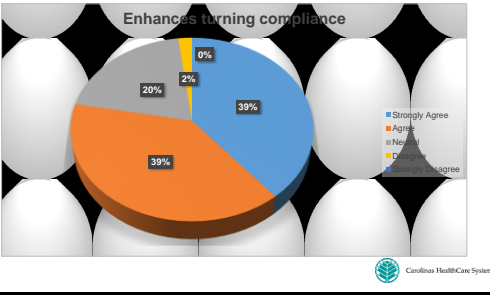
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### Product Evaluation



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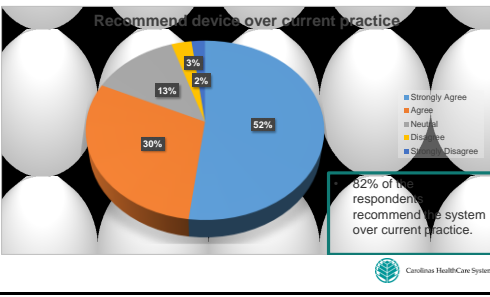
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### Product Evaluation



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Implications/Recommendation



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Implications/Recommendation

- Repositioning patients using air assisted technology is quick and effortless because it reduces the force required to reposition patients who cannot turn or reposition themselves.
- Friction and shear to the coccyx and sacrum are reduced.
- Nurses feel better able to prevent injury to both themselves and the patient.
- **A longer pilot of the device is needed to determine long-term effects on pressure injury and staff injury rates.**



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The Rest of the Story



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## Cost Analysis Using 2016 Data

- Cost of one system = \$160
  - Potential for use on 1050 patients over 12 months (70% compliance rate)
  - 1050 X \$160 = **\$168,000** cost of device for 1 year
  - \$170,000(PI) + \$180,000(HCWI) = **\$350,000** Total injury cost
- \$350,000 – \$168,000 = potential cost avoidance of \$182,000**

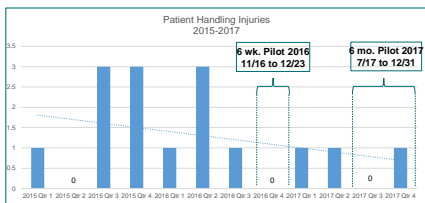


## 6 Month Air Assist Extended Pilot Results

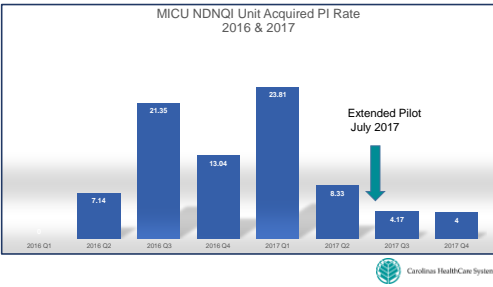
- Criteria compliance
- 1 patient handling injury November 2017
- 1 NDNQI sacral pressure injury November 2017
- Teammate product survey results
- Actual spend for the MICU July to December 2017 was \$30,995
- Projected cost expected to be \$70,000 to \$90,000 per year



## Timeline



## NDNQI Unit Acquired Pressure Injury Rate



## Thank You

Special thank you to Dave Lall MSN, RN, NE-BC, CCRN, Kayla Fuller MSN, RN, ACCNS-AG, CCRN, and the MICU staff for their contributions on this project.



## References

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