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Decreasing Medical Device-Related Tracheostomy Pressure Injuries with Hydroconductive Dressings

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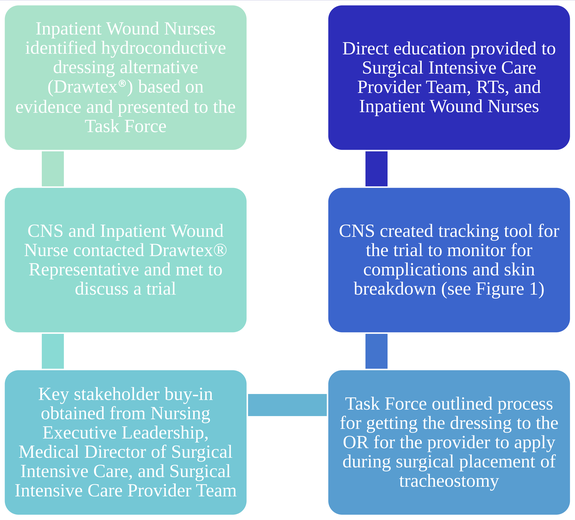
AIM

- Medical device-related pressure injuries (MDRPIs) are pressure injuries that result from prolonged exposure to a compressive force, tension, shear, or combination of all from a health care associated medical device[1]
- MDRPIs are negative hospital-acquired patient outcomes that are costly to an orgnaization[2]
- At Henry Ford Jackson Hospital (HFJH) there was an increase noted in MDRPIs from new tracheostomies in 2022
  - Quarter 1 2022: Two tracheostomy-related MDRPIs (stage 2 and stage 3)
  - Quarter 3 2022: Two tracheostomy-related MDRPIs (both unstageable)
- The HFJH Falls and Pressure Injury Committee created a task force to investigate if the use of a hydroconductive dressing post-tracheostomy placement would decrease MDRPIs compared to standard practice hydrocellular dressings

PLAN

- The increasingly worsening stages of pressure injury were brought forward to the HFJH Falls and Pressure Injury Committee by the Inpatient Wound Nurses
  - Contributing factors were identified as: moisture around the new tracheostomy site (from secretions and blood) and tracheostomy flange causing pressure directly against skin until initial suture removal
  - A task force was created to identify potential interventions and to implement the findings:
    - Clinical Nurse Specialist (CNS) leads of the Falls and Pressure Injury Committee, Inpatient Wound Nurses, and Respiratory Therapy (RT) Clinical Manager
  - The Inpatient Wound Nurses proposed an evidence-based hydroconductive dressing to the task force to combat moisture and pressure

DO



CHECK

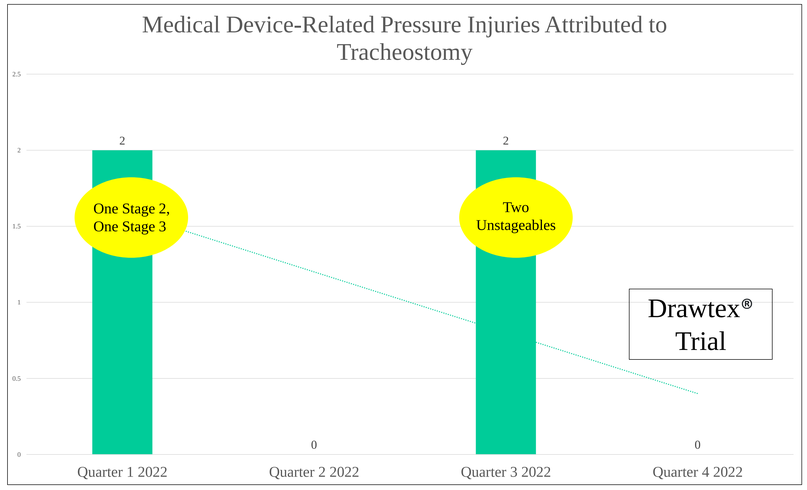
- During the trial, a shared Microsoft Excel tracking documented was kept up to date by the Medical Intensive Care Unit and Surgical Intensive Care Unit CNSs, Inpatient Wound Nurses, and RT Clinical Manager
  - The CNS and RT Clinical Manager would add the patient information to the tracking document and alert the Inpatient Wound Nurse via secure messaging platform that a new tracheostomy patient was having the hydroconductive dressing placed
  - Inpatient Wound Nurses would then assess the patient within 48 hours of hydroconductive dressing placement and add assessment findings to the tracking document (from initial visit and any subsequent visits)
  - CNS would monitor the patient until discharge and update tracking document as applicable

MRN	Patient Name	Unit	Date of Trach Placement	Date of Drawtex Placement	Date of 1st Wound RN Assessment Post-Trach	Pressure Injury During Admission, Post-Trach?	Inpatient Wound Nurse Assessments

Figure 1. Trial tracking Microsoft Excel document.

- During the trial, concerns were brought forward by the Surgeons and Advanced Practice Providers placing the initial dressing in OR that it was difficult to fit the dressing under the flange and around sutures
  - The task force worked with the Drawtex® Representative to create a flyer illustrating how to effectively cut the dressing to fit (Figure 2)
- At the beginning of the trial there was some inconsistency as to when the hydroconductive dressing would be discontinued and the standard non-adhesive apertured hydrocellular dressing applied
  - The task force decided to leave the hydroconductive dressing until sutures were removed then utilize the standard hydrocellular dressing, with the option to revert back to the hydroconductive dressing if the patient had copious secretions

OUTCOMES



ACT

- The trial was completed after utilizing the hydroconductive dressing on eleven patients and resulted in 0 MDRPIs from tracheostomies
- Following the completion of the trial, the Medical Intensive Care CNS submitted a proposal to Nursing Executive Leadership to implement the hydroconductive dressings for all newly created tracheostomy patients until the time of suture removal
  - A cost savings and value analysis was included based on prevention of sentinel event MDRPIs
- Product proposal accepted by Executive Leadership
  - Currently working with Drawtex® Representative to deliver product and finalize education plan for RTs and nursing

Education and Signage

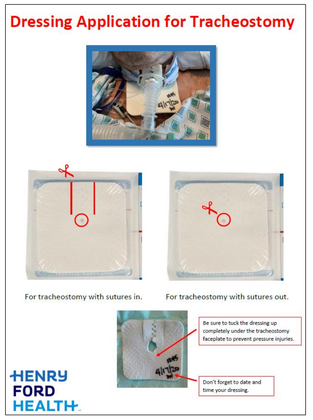


Figure 2. Educational flyer provided to Surgeons and Advanced Practice Providers who would be placing the dressing post-tracheostomy insertion.

DRAWTEX DRESSING CHANGE INTERVALS

Day and time of initial trach/dressing placement:

Change interval	Date and Time
Initial	
Subsequent	
Subsequent	
Subsequent	
Subsequent	
Subsequent	
Subsequent	
Subsequent	

Figure 3. Signage posted in patient's room to alert clinical nurses and RTs that the patient was trialing the new dressing and allow tracking of dates the dressing was changed.

KEYS TO SUCCESS / LESSONS LEARNED

- There were multiple keys to the success of this quality improvement project, including:
  - Obtaining buy-in from key stakeholders
    - The support and knowledge obtained from RT and surgical providers was invaluable
  - Innovation from the Inpatient Wound Nurses to find a product that was able to address the contributing factors of the MDRPIs was essential
  - Support from Director (over Critical Care Nursing and RT)
    - The product is more expensive than the prior standard hydrocellular dressing, but our Director was encouraging of the trial and able to push for product proposal approval

References
[1]European Pressure Ulcer Advisory Panel, National Pressure Injury Prevention Advisory Panel and Pan Pacific Pressure Injury Alliance (2019). Prevention and treatment of pressure ulcer/injuries: Clinical practice guideline.
[2]Jackson, D., Sarki, A. M., Betteridge, R., & Brooke, J. (2019), Medical device-related pressure ulcers: A systematic review and meta-analysis. *International Journal of Nursing Studies*, *92(1)*, 109-120. doi:10.1016/j.ijnurstu.2019.02.006