

## Project Grant Application

1. Please list all team members, their disciplines, and departments:

Christopher Conley RN Manager Respiratory Department  
James Lipsey Director Engineering

2. Briefly, what is your project idea?

Develop a tracheostomy tube holder that.

- x Securely hold the tracheostomy tube in place for all patients with a tracheostomy tube.
- x Alerts someone if a patient is attempting to remove a tracheostomy tube unexpectedly.
- x Prevents someone from removing a tracheostomy tube unexpectedly.

3. What problem does your idea solve?

The prevention of patients accidental or intentional attempting of a decannulation (the removal of the tracheostomy tube from a patient's neck) in 2022 at Shirley Ryan there were 16 documented unplanned self-decannulations, 14 initiated by patients with mental deficits due to a brain injury and 2 that occurred during an activity

- x Unplanned decannulation of a tracheostomy tube from a patient can be painful at Shirley Ryan always results in medical personnel being called to put the tube back in the patient to maintain their airway.
- x Premature dislodging or removal of the tracheostomy tube whether intentional (with patients that have mental deficits) or accidental during daily activity (participation in physical and occupational daily activities) can result in a health risk and initiate a medical event for the patient if unexpected removal of the tube results in the patient being unable to maintain normal breathing .
- x Patients with a breathing tube in place rely on the tube for maintaining patent airway allowing them to breathe normal. When the tube is removed or dislodged a physical change in the airway may take place disrupting normal breathing.

4. How are you going to solve the problem (list the steps) I'd a better tracheostomy tube holder

- a. Review what opportunities for improvement exist with the current holders that are being used and determine what allows patients to be able to easily remove them.

\*\*Project Grant applicants are strongly encouraged to identify a research partner as appropriate. Melissa Briody (mbriody@sralab.org) can facilitate a research partner for Project Grants as needed.

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- b. Improve the strap feature on a current prototype so that it can withstand the amount of torque required to pull the straps loose.
- c. Create a harness connected to a motion sensor that fits over the flange of a tracheostomy tube and allows it to alarm if it is removed

5. What is the desired outcome for this project?

- x Create a tracheostomy tube holder that securely holds the tracheostomy in place during all activity and can easily be removed by caregivers in the event of an emergency.
- x Eliminate the ability to remove the tracheostomy tube holder and subsequently removing the tracheostomy tube.
- x Create an environment that alerts someone if an attempt is being made by a patient to remove a tracheostomy tube.

How will you determine if you were successful if we are able to create a workable version of the device that can potentially be used in a more formal study to test its efficiency

6. What help do you need?

- x Perfecting a prototype
- x Sourcing materials

7. Amount funding requested: (\$1,000-\$10,000)

Total: \$5000.00

Person hours: 24 to 48 hours

Equipment/Supplies: \$1000.00

8. Please attach the following items: A sketch or picture of the idea. See images below

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