The Effect of Tracheostomy Education on an Inpatient Pediatric Surgical Unit

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Background

- Caring for pediatric patients with tracheostomy tubes requires astute assessment skills by RNs and NPs as patients are at an increased risk for adverse outcomes including respiratory compromise
- Hospital policies and procedures revealed limited resources on caring for patients with tracheostomies
- To assess the comfort level of providers caring for patients with tracheostomy tubes and emergency scenario preparedness, an 8-question survey was administered to RNs and NPs on the surgical unit at Shriners Hospital for Children

Pre-education staff comfort level in caring for patients with tracheostomy tubes			
	Comfortable	Somewhat Comfortable	Not Comfortable
Nurse Practitioner (NP)	0%	75%	25%
Registered Nurse (RN)	33%	66%	0%

Pre-education staff preparedness in responding to tracheostomy emergency scenarios		
	Very Prepared	Somewhat Prepared
Nurse Practitioner (NP)	0%	100%
Registered Nurse (RN)	22%	78%

Results based on 4 Nurse Practitioner (NP) and 9 Registered Nurse (RN) respondents

Purpose/Objectives

- Provide education on management of pediatric tracheostomy tubes to providers on a surgical unit.
- Increase staff awareness on adverse outcomes that may occur in tracheostomy dependent patients such as a plugged tracheostomy tube, water in the tracheostomy tube, de-cannulation, inability to place a tracheostomy tube, and creation of false tract
- Improve tracheostomy dependent patient safety

Description of Improvement Initiative

- An educational document was developed that discussed tracheostomy safety and emergency scenarios including a plugged tracheostomy tube, water in the tracheostomy tube, de-cannulation, inability to place a tracheostomy tube, and creation of a false tract
- Educational review sessions were held by Stephanie Collins, an experienced tracheostomy and ventilator RN at The Children's Hospital of Philadelphia. 13 RNs and NPs on the surgical unit at Shriners were educated over a one month period
- Post-education comfort level was evaluated by a 5 question survey

Education Provided

Key points when changing a tracheostomy tube

- Two person procedure, preferably with a respiratory therapist present
- Ensure patient has been NPO for a least one hour
- Have emergency supplies ready: suction, oxygen, airway, pulse ox (SOAP)
- Insertion of correct size and length tracheostomy tube, check for accuracy
- Know if patient has a critical/difficult airway and can not be bag-valve mask ventilated from above or intubated due to severe airway stenosis, obstructive granulation tissue, or anatomical issues

Emergency Scenarios Reviewed

1) Plugged tracheostomy tube
- Mucus plug obstructing the airway
- Intervention: change the tracheostomy tube

2) Water in the tracheostomy tube
- From accumulation of water in the ventilator tubing/improper repositioning
- Intervention: suction and perform chest PT

3) Decannulation
- Is the patient more audible or in respiratory distress for unknown reasons?
- Intervention: replace the tracheostomy tube immediately

4) Unable to place/insert tracheostomy tube
- Due to inner or outer airway obstruction/granulation or patient crying
- Intervention: attempt to place back up/half size smaller tracheostomy

5) False tract
- When the tracheostomy tube goes into a dead end space in the trachea making air unable to get to the lungs
- Intervention: remove tracheostomy tube and reinsert it

Outcome of Initiative

- Post-education survey data showed that the majority of the RNs and NPs were somewhat more comfortable in caring for tracheostomy dependent patients and felt better prepared to respond in emergency scenarios
- RNs and NPs agreed availability of policies and procedures related to tracheostomy management and emergency scenarios would be beneficial to have on the surgical unit at Shriners Hospital for Children

Post-education staff comfort level in caring for patients with tracheostomy tubes			
	More Comfortable	Same comfort level prior to teaching	Unsure
Nurse Practitioner (NP)	100%	0%	0%
Registered Nurse (RN)	88%	11%	0%

Post-education staff preparedness in responding to tracheostomy emergency scenarios			
	More prepared	Same level of preparedness prior to teaching	Unsure
Nurse Practitioner (NP)	100%	0%	0%
Registered Nurse (RN)	77%	22%	0%

Results based on 4 Nurse Practitioner (NP) and 9 Registered Nurse (RN) respondents

Conclusion

- Tracheostomies are a high risk, low incidence and variable occurrence at Shriners Hospital for Children
- Continuing and ongoing education on the management of tracheostomy tubes and emergency scenarios is essential at Shriners Hospital for Children
- Post survey limitation was that the educator did not assess staff response to tracheostomy scenarios. However, during the education sessions almost all staff responded appropriately to emergency scenarios

Future Implications

- In any low incident, high-risk procedure, ongoing and continuing education is essential to maintain patient safety
- NPs and RNs need to take a leadership role in his/her tracheostomy education
- Thank you to the staff at Shriners Hospital for Children for your participation in this quality improvement project