

Improving Discharge Processes for Children with Tracheostomies Transitioning from Facility to Home

Nathan Scott, BSN, RN, DNP-FNP Student
Angela Page, DNP, APRN, PPCNP-BC, Faculty Lead
Lisa Pearson, MSN, RN, CIC, Project Consultant

Introduction

- There are over 8,000 children living at home on a ventilator in the United States (Martens et al., 2018).
- As technology advances, pediatric patients are surviving complex medical issues which used to claim more lives (Fauroux et al., 2022 & Kwak, 2023).
- Parents that desire to take these fragile children home must complete discharge training (Benscoter et al., 2019).
- Adequate training results in decreased ER return rates (Tarfa et al., 2021).

Problem & Aim

Problem

- Parents of children discharged with tracheostomies are not fully prepared to handle home hypoxic emergencies which can result in unnecessary return to an emergency room.

Aim

- To support parents by providing a safe learning space during discharge teaching to simulate effectively handling their child’s home emergency hypoxic events.

Methods

- A **discharge training team (DTT)** was created at the facility, and these staff members were trained to implement **simulation scenarios**.
- Pre-surveys and post-surveys** evaluating the confidence and competence of the DTT and the discharging parents were assessed.
- Ventilator cards** were also made that can be added to the ventilator of the discharging child which display common ventilator alarms and how to assess/fix them.

Ventilator Card

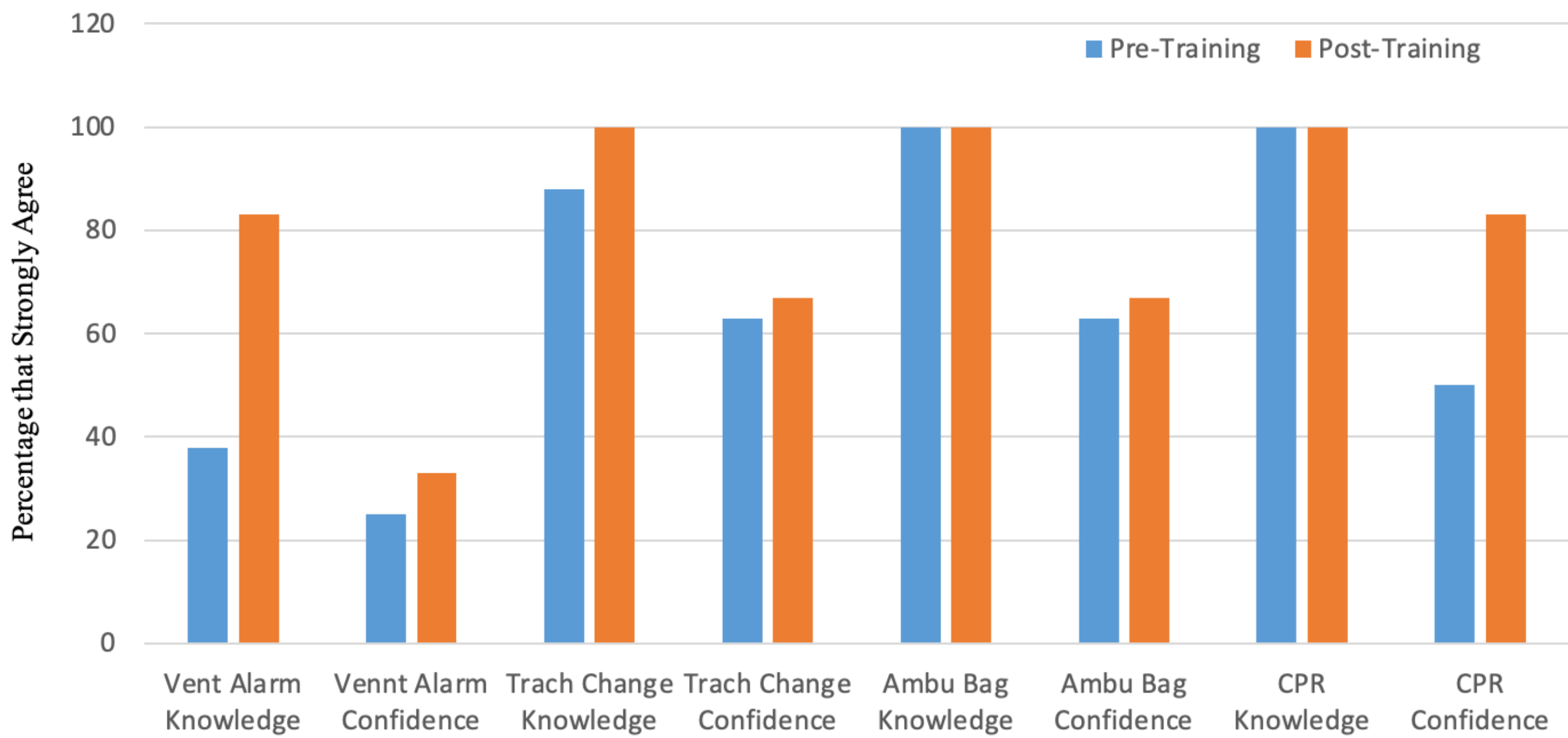
Alarm	Cause	Fix
Low Circuit Leak	Whisper Swivel	Clean out secretions, Replace whisper swivel
High Expiratory Pressure	High respiratory rate, Mucous Plug, Pinched circuit	Suction, Repair/Release circuit, slow down respiratory rate
Circuit Disconnect	Disconnect or Leak	Re-connect circuit, Fix leak, Check and/or change trach tube
Apnea	Child not breathing	Check child for breathing, use Ambu bag as necessary
Low VTE	Cuff Leak/Cuffless	Inflate Cuff, Reposition

WHEN IN DOUBT, USE THE AMBU BAG
AND CALL 9-1-1

Results & Analysis

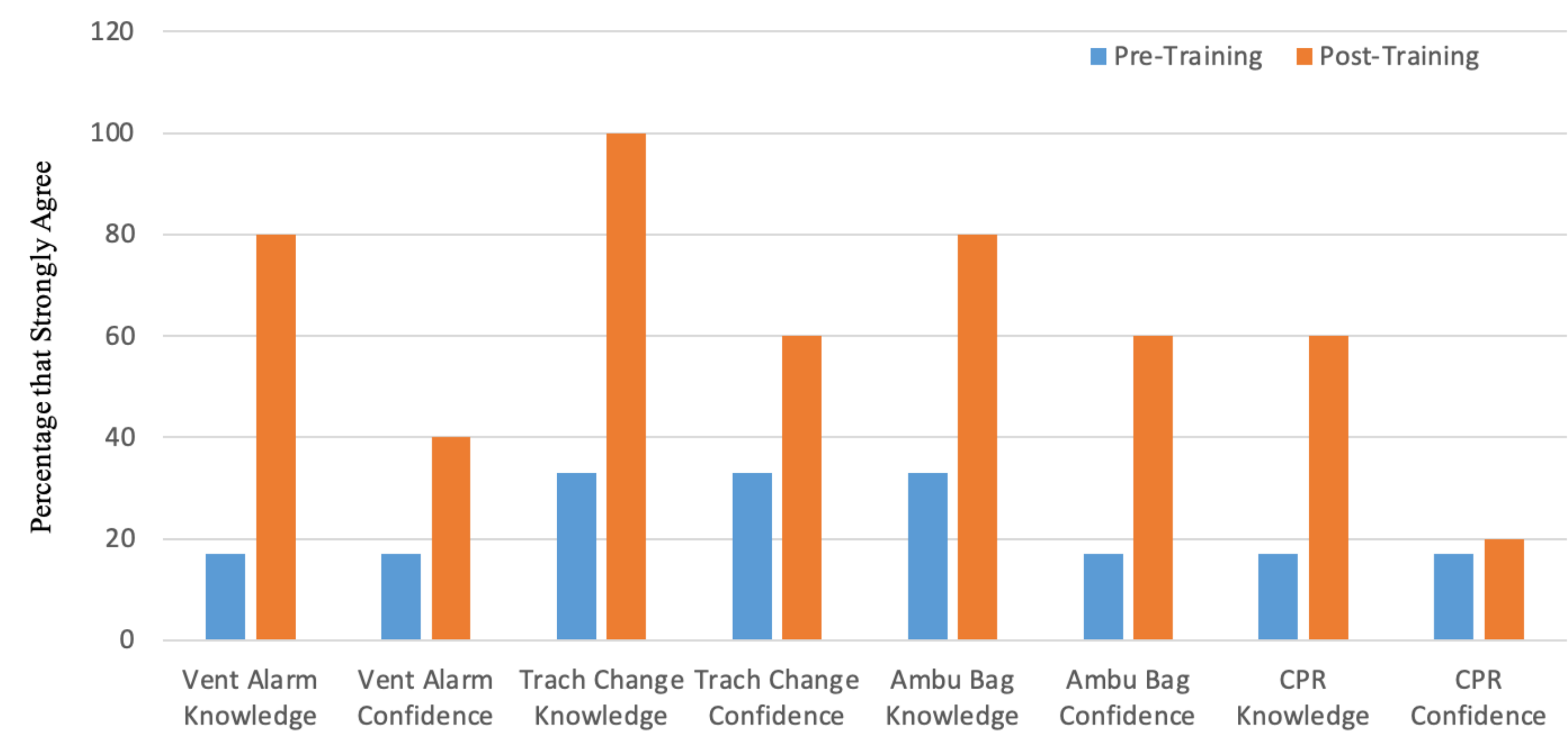
The following results indicated that the simulation training improved both parent and staff confidence and competence in safely handling their child’s tracheostomy unexpected and emergency events before discharge.

Staff Confidence and Competence Levels



Note: For the pre-test, N=8. For the post-test, N=6. The pre-test was taken by eight staff members while the post-test was taken by 6 staff members.

Staff Perception of Parent Confidence and Competence Levels



Note: For the pre-test, N=6. For the post-test, N=5. The pre-test was taken by 6 staff members while the post-test was taken by 5 staff members.



Scan QR code to view the simulation scenario.



Image used with permission from Kristi Tucker (Tucker, 2024)

Conclusion

- Adding simulation training to the discharge process improves parent ability to manage emergency trach events post discharge.
- Increased parental confidence and competence provides a safer home environment for medically complex children.

Acknowledgments

I express my most sincere thanks to the facility Training Department for their assistance and unwavering support as we implemented this project together. I also want to express my gratitude to Lisa Pearson for allowing this project to begin, and to the staff members on the pediatric LTAC unit for embracing this opportunity, and for being willing to take on this added responsibility as we improve our discharge process and quality patient care.

References

Benscoter, D., Borschuk, A., Hart, C., & Voos, K. (2019). Preparing families to care for ventilated infants at home. *Seminars in Fetal and Neonatal Medicine*, 24. <https://doi.org/10.1016/j.siny.2019.101042>

Fauroux, B., Abel, F., Amaddeo, A., Bignamini, E., Chan, E., Corel, L., Cutrera, R., Ersu, R., Instalé, S., Khirani, S., Krivec, U., Narayan, O., MacLean, J., Perez De Sa, V., Pons-Odena, M., Stehling, F., Ferreira, R. T., & Verhulst, S. (2022). ERS statement on paediatric long-term noninvasive respiratory support. *The European Respiratory Journal*, 59(6). <https://doi-org.hal.weber.edu/10.1183/13993003.01404-2021>

Kwak, S. (2023). Home mechanical ventilation in children with chronic respiratory failure: a narrative review. *Journal of Yeungnam Medical Science*, 40(2), 123–135. <https://doi-org.hal.weber.edu/10.12701/jyms.2022.00227>

Martens, A., DeLucia, M., Leyenaar, J. K., & Mallory, L. A. (2018). Foster caregiver experience of pediatric hospital-to-home transitions: A qualitative analysis. *Academic Pediatrics*, 18(8), 928–934. <https://doi-org.hal.weber.edu/10.1016/j.acap.2018.06.007>

Tarfa, R. A., Morris, J., Melder, K. L., McCoy, J. L., & Tobey, A. B. J. (2021). Readmissions and mortality in pediatric tracheostomy patients: Are we doing enough? *International Journal of Pediatric Otorhinolaryngology*, p. 145, 110704. <https://doi-org.hal.weber.edu/10.1016/j.ijporl.2021.110704>

Tucker, K. (2024). [Smiling boy with tracheostomy and ventilator tubing]. [Photograph].