

Background

The PICU/TICU at Children's Health benchmarks a variety of quality metrics to ensure we are providing our patients with the best care. At the end of 2023, the unit rate for unplanned extubation (UE) of 0.58 was higher than the national benchmark rate of 0.33 but lower for the failed extubation benchmark. This led to questioning if the unit was too conservative in determining when patients are ready to extubate.

Objectives

The primary goal is to lower the rate of UE while maintaining a failed extubation rate lower than the national benchmark. The secondary goal is to reduce the time between extubation readiness testing (ERT) or a spontaneous breathing trial (SBT) and extubation.

Literature

A literature search utilizing Ovid Synthesis and PubMed was conducted. Upon completion of a synthesis table, three articles were included that supported the use of a checklist as part of the care bundle to aid in improving patient safety outcomes. Notable recommendations included avoiding long checklists and listing the most critical items at the beginning of the checklist.



PICU Peri Extubation Checklist

Date: _____ Time: _____ Unit/Room #: _____

Please circle

Provider needed: ☐ Fellow ☐ Attending

Can this patient be extubated on night shift?

YES ☐ NO ☐

ERT or SBT

TIME: _____

PASS or FAIL

Sedation plan: _____

Goals for extubation: _____

Fill out a survey!

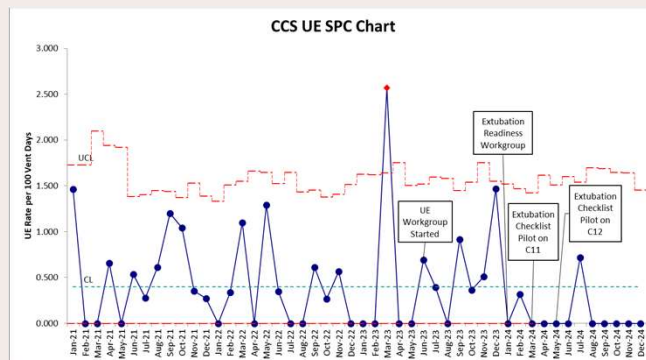
Peri-extubation Checklist Survey

Methods

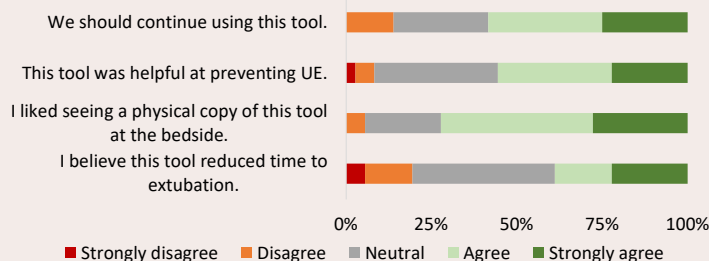
A quality improvement (QI) team was created and after drafting a Fishbone Diagram and Key Driver Diagram, they implemented a peri-extubation checklist. It was triggered for patients who were either within 24 hours of extubation or on their home vent settings. The patient's RT would lead a conversation with the nurse, physician, and advanced practice provider to agree upon a plan for extubation.

Pilot Testing

Three PDSA cycles were completed beginning in April and ending in August 2024, with each cycle expanding the patients who qualified. Surveys were conducted via a QR code on the checklist to incorporate staff feedback. A total of 52 checklists were completed on 48 patients during this pilot period.

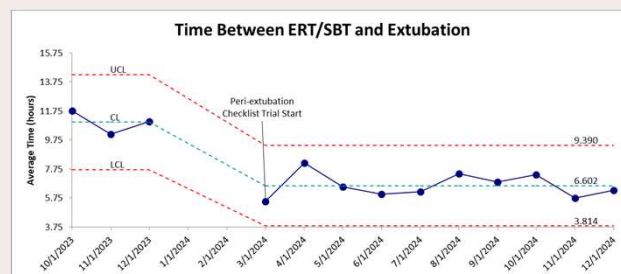


Please rate the following:



Outcomes

- In 2024, we experienced an 84% decrease in the annual UE rate. With the average UE costing \$101,000¹, this is a cost prevention of \$1.5 million.
- Increasing communication and extubation planning between disciplines also led to a reduction in the average time between extubation readiness testing and extubation from 11.49 hours in Q4 2023 to 6.91 hours after implementation. This is a statistically significant reduction with $p < 0.01$.
- The 2024 failed extubation rate was 2.42% – a decrease of 11% from 2023.
- Staff feedback was generally positive.



Conclusion

Simple checklists allow multiple disciplines caring for a patient to align their plan of care and reduce the frequency of unplanned events.

Upon seeing positive results, the next step will be to adopt the peri-extubation checklist as part of the plan of care for all intubated patients in the PICU. As part of this initiative, the checklist trigger now includes all patients on the ventilator management protocol.

References:



¹Solutions for Patient Safety (2017). SPS Value Calculator. [Excel file]. Retrieved from www.solutionsforpatientsafety.org

Thank you to everyone on C11 and C12 who helped put this checklist into action! Special thank you to Dr. Sarah Ginsburg, Dr. Amy Lee, Annecia Jones, Sarah Baldensperger, Aprilyn Hilton, and Allison Kelley.