Enhancing Patient Safety in the PICU Reducing Unplanned Extubations Through Engagement and Collaboration

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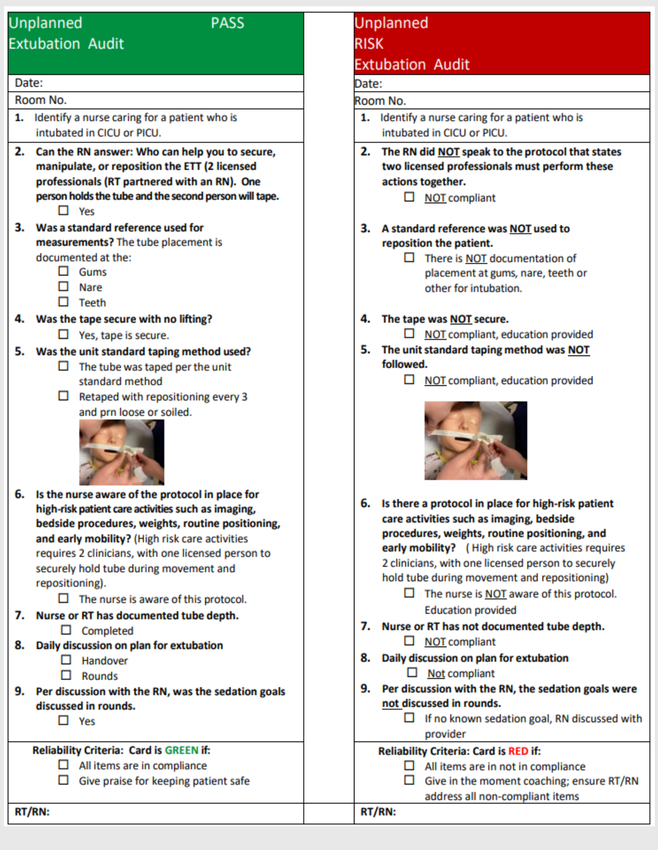
Background

- During review of Unplanned Extubation (UE) rates in the PICU, it was identified that UE events in PICU are higher than national standards reported in Solutions for Patient Safety (SPS).
- Lack of standardized practice, education, and training has contributed to increased UE rates.
- A multidisciplinary team was assembled to address UE rates and improve patient outcomes

Aim

The aim of the multidisciplinary team collaboration and employee engagement approach was to decrease UE events in PICU by 20% in 12 months.



Unplanned Extubation Audit	PASS	Unplanned RISK Extubation Audit
Date:		Date:
Room No.		Room No.
1. Identify a nurse caring for a patient who is intubated in CICU or PICU.		1. Identify a nurse caring for a patient who is intubated in CICU or PICU.
2. **Can the RN answer: Who can help you to secure, manipulate, or reposition the ETT (2 licensed professionals (RT partnered with an RN). One person holds the tube and the second person will tape.** ☐ Yes		2. **The RN did NOT speak to the protocol that states two licensed professionals must perform these actions together.** ☐ NOT compliant
3. **Was a standard reference used for measurements?** The tube placement is documented at the: ☐ Gums ☐ Nare ☐ Teeth		3. **A standard reference was NOT used to reposition the patient.** ☐ There is NOT documentation of placement at gums, nare, teeth or other for intubation.
4. **Was the tape secure with no lifting?** ☐ Yes, tape is secure.		4. **The tape was NOT secure.** ☐ NOT compliant, education provided
5. **Was the unit standard taping method used?** ☐ The tube was taped per the unit standard method ☐ Retaped with repositioning every 3 and prn loose or soiled.		5. **The unit standard taping method was NOT followed.** ☐ NOT compliant, education provided
6. **Is the nurse aware of the protocol in place for high-risk patient care activities such as imaging, bedside procedures, weights, routine positioning, and early mobility?** (High risk care activities requires 2 clinicians, with one licensed person to securely hold tube during movement and repositioning). ☐ The nurse is aware of this protocol.		6. **Is there a protocol in place for high-risk patient care activities such as imaging, bedside procedures, weights, routine positioning, and early mobility?** (High risk care activities requires 2 clinicians, with one licensed person to securely hold tube during movement and repositioning) ☐ The nurse is NOT aware of this protocol. Education provided
7. **Nurse or RT has documented tube depth.** ☐ Completed		7. **Nurse or RT has not documented tube depth.** ☐ NOT compliant
8. **Daily discussion on plan for extubation** ☐ Handover ☐ Rounds		8. **Daily discussion on plan for extubation** ☐ Not compliant
9. **Per discussion with the RN, was the sedation goals discussed in rounds.** ☐ Yes		9. **Per discussion with the RN, the sedation goals were not discussed in rounds.** ☐ If no known sedation goal, RN discussed with provider
Reliability Criteria: Card is GREEN if: ☐ All items are in compliance ☐ Give praise for keeping patient safe		**Reliability Criteria: Card is RED if:** ☐ All items are in not in compliance ☐ Give in the moment coaching; ensure RT/RN address all non-compliant items
RT/RN:		**RT/RN:**

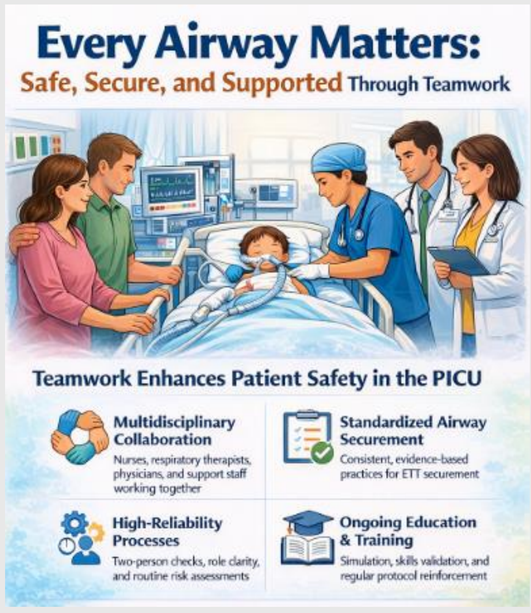
Methods

- A multidisciplinary care team was created with PICU stakeholders and Quality Team. This team developed a strategic plan to reduce UEs through targeted interventions.
- The plan included reviewing available UE prevention bundle elements from the SPS collaborative network
- These included standardizing protocols for ETT management, conducting educational workshops and simulations based on best practices for ETT management, developing a UE debriefing form to review each case of UE, incorporating an extubation care plan during daily multidisciplinary rounds, and developing daily audits of UE prevention bundles and compliance.

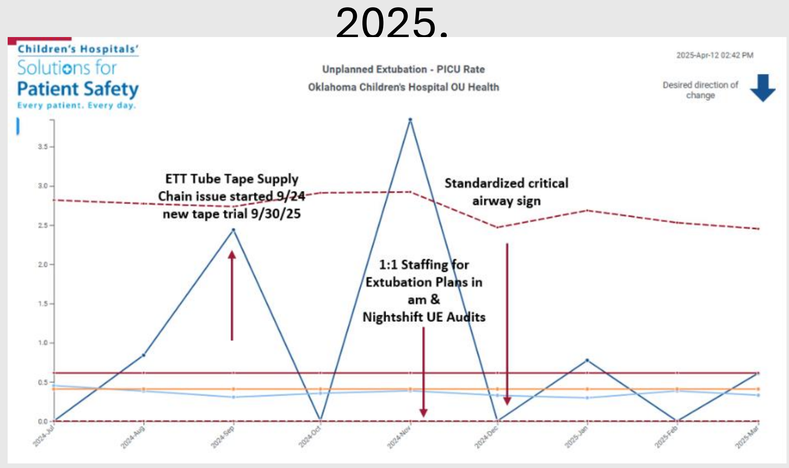
Results and Outcomes

- UE events were reviewed monthly in the OCH Unplanned Extubation Committee, department staff meetings, and Quality Committee Meetings.
- UE rates from 2022 – December 2023 were inaccurate as trach vent days were included in calculations. UE rates from January 2024 – May 2025 exclude trach vent days and are therefore higher than previous rates.
- The organization implemented a new electronic medical record in July of 2023 which also impacted how vent days were calculated.

Conclusions



Incorporating Standard Operating Procedures for ETT taping and UE prevention decreased UEs in the PICU by 44% in 12 months from July 2023 – May 2025.



Solution for Patient Safety	7/1/2024	8/1/2024	9/1/2024	10/1/2024	11/1/2024	12/1/2024	1/1/2025
# of Unplanned Extubation PICU Events	0	1	3	0	4	0	1
PICU Ventilator Days (exc. tracheostomy)	114	119	123	105	104	161	129
Monthly Hospital Rate	0	0.84	2.439	0	3.846	0	0.775
Hospital Centerline (0.615)	0.615	0.615	0.615	0.615	0.615	0.615	0.615
Upper Control Limit	2.818	2.772	2.736	2.911	2.922	2.469	2.686
Lower Control Limit	0	0	0	0	0	0	0
Monthly SPS Rate	0.452	0.384	0.306	0.36	0.384	0.33	0.297
SPS Centerline (0.342)	0.408	0.342	0.342	0.342	0.342	0.342	0.342

Lessons Learned

- Continue to leverage staff engagement to improve patient outcomes related to preventable harm.
- Continuously review UE prevention practices regularly as a multidisciplinary team.
- Identify new techniques to prevent UEs

References