Preventing Unplanned Extubations in the Pediatric Intensive Care Unit

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Background

Before intervention there was an UE rate of 0.4 or 2 extubations per month. UE carry a significant risk to patient safety, result in increased morbidity, increased lengths of hospital stay, and can result in undue harm, and even death.

Purpose Statement

This QI project sought to minimize risk to patient harm and decrease the amount of unplanned extubations by creation of a bundle and increased observation through a telemedicine entity.

Aim 1

Increase nurses' knowledge and perception of risk factors for unplanned extubations within a 12-week time period.

Aim 2

Develop a UE bundle including identification of risk factors, preventative measures, safety checks, and use of telemedicine entity on the PICU in a 12-week time period.

Aim 3

Decrease unplanned extubations by 10% in 12-week time period.

Methods

- Design: QI Mixed Methods Pre-test/Post test; survey
- Sample: All PICU nurses (n=150); cases of unplanned extubations from July 2018 to January 2020.
- Setting: 40 bed Pediatric ICU in the greater Baltimore area

Intervention

Development of an education bundle, intubation checklist, and telemedicine utilization customized to the specific pediatric population on the ICU.

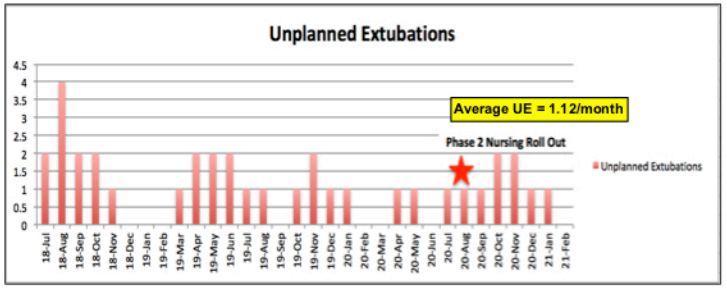
Results

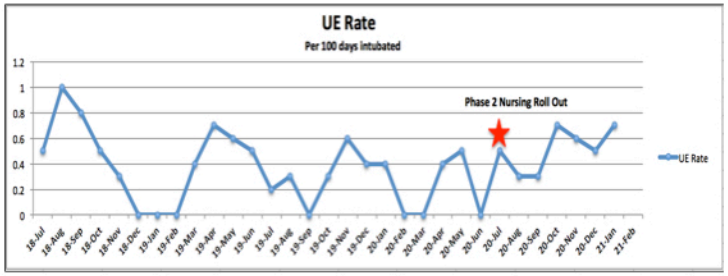
Risk Factors (%)	(N=51)
Inadequate Sedation	43 (84%)
Improper Movement/Patient too Awake	35 (69%)
Poor observation/Lack of ability to watch patient	30 (59%)
Lack of Communication	25 (49%)
Improper Taping/Bad Taping	23 (45%)
Improper Pairing/Bad Assignments	20 (29%)
Increased Secretions	10 (20%)
Orders Not Present	5 (10%)

Question	Yes, n (%)	No, n (%)	Maybe, n (%)
Do you feel that unplanned extubations are happening too frequently?	17 (34%)	18 (36%)	15 (30%)
Are you aware of the unplanned extubation bundle?	39 (78%)	11 (22%)	N/A
Do you check your orders for SBS, PRN orders, and ETT placement at the beginning of your shift?	49 (98%)	1 (2%)	N/A
Do you feel that having an unplanned extubation checklist/ Visual aid at the bedside would be helpful?	44 (88%)	6 (12%)	N/A
Do you think having a gentle reminder in the morning from the base nurse about ETT placement, SBS goals, and PRN parameters would be helpful?	25 (50%)	25 (50%)	N/A

Question	Yes, n (%)	No, n (%)
Do you have an active SBS order?	320 (89%)	40 (11%)
Do you have an active WAT score order?	0 (0%)	360 (100%)
Do you have an active ETT cm taping order?	0 (0%)	360 (100%)
Do you have active PRN orders?	105 (29%)	255 (71%)

(% asked in a 12 week period for 36 days, 10 rooms total intubated children N=360)





Overall 1.75% decrease in the number of Unplanned Extubations

Conclusion

Results were similar to other studies, suggesting that bedside education, toolkits, increasing nursing knowledge of risk factors, and addition of increased observation from the telemedicine nurse were effective in reducing rates of UE. This study highlights the importance of practice policy change and a need for continued interdisciplinary team approach for intubated children. Similar studies should focus on the benefits of telemedicine for increased observations for other purposes and the ability to translate this project into different settings around the hospital.

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