



Background & Problem

- In 2013 a nurse driven sedation algorithm was introduced and resulted in a statistically significant decrease in the amount of medication (narcotics/benzodiazepines) administered post implementation.
- Compliance with the algorithm has not been audited for several years.
- Inter-rater reliability (IRR) of the Richmond Agitation Sedation Scale (RASS) and FLACC Behavioral Pain Assessment Scale (FLACC) was improved following implementation of the nurse driven sedation algorithm.
- Achieving steady state via sedation algorithm will decrease the number of unplanned extubations.
- Studies have shown that standardized sedation algorithms can reduce delirium, mechanical ventilation and length of stay.

Goals & Metrics

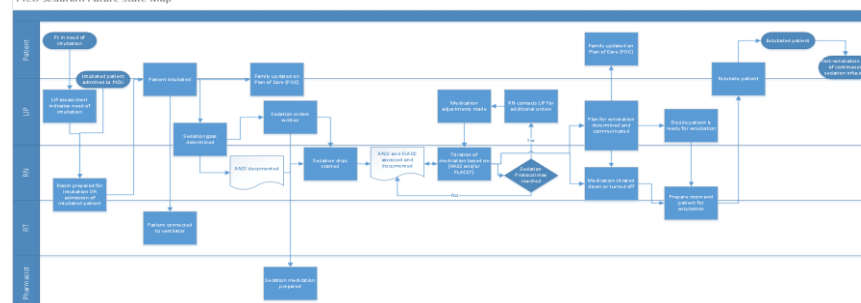
#	Metric	Unit	Current	Target
1	RASS Inter-rater reliability	Kappa	71%	$\geq .70$
2	% RNs who rate their familiarity with the sedation protocol as "extremely or very familiar"	%	0.52	0.9
3	Compliance with sedation protocol	%	0.94	watch
4	Days on ventilation	Days	262	10% Reduction
5	Unplanned extubations	per 100	0.3	< 0.5
6	ICU LOS	average		watch

Methods & Approach

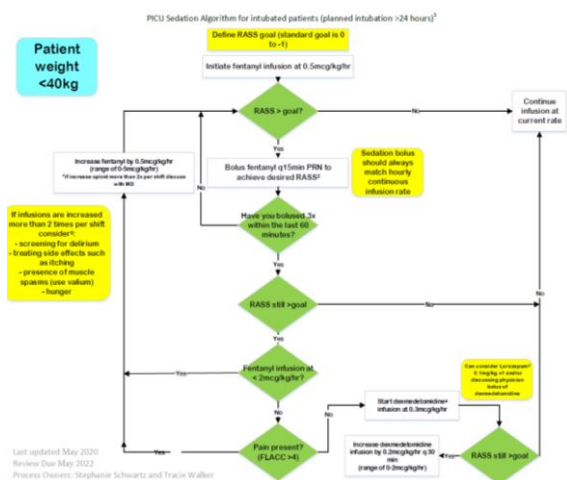
A3 Lean and Six Sigma Methodology

- Defined in scope and out of scope criteria
 - In scope: Intubated PICU patients on mechanical ventilation
- Out of scope: Non-intubated PICU patients; PICU patients with tracheostomies; Patients in all other areas of the hospital
- Identified current state and target state with a future state process map (displayed below) resulting in a gap analysis
- Identified solution approaches and experiments to better align with best practice regarding sedation of the intubated pediatric patient
- Outlined a completion plan and defined metrics

PICU Sedation Future State Map



Experiments, Interventions and Education



Experiments and Interventions

- Update sedation algorithm
- Update sedation order set
- Create algorithm reference document
- Perform RASS education
- Daily multidisciplinary RASS goal discussions

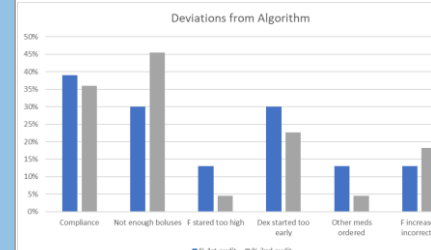
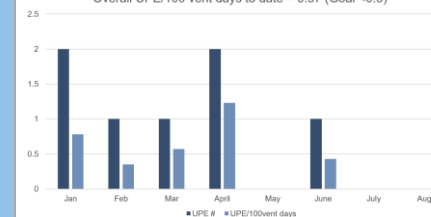
Education

- Presentation of updated PICU Sedation Algorithms to nursing, physician and leadership staff members
- Participation in sedation algorithm case studies required for PICU nursing staff
- Real time audits and training for bedside RNs and MDs focused on decision points within the sedation algorithm
- Physician training related to sedation algorithm order sets

Preliminary Results & Findings

- Data related to unplanned extubations (UPE) and algorithm compliance following May 2020 go live date is displayed below.
- There were zero UPEs in May, July and August.
- Data is continuing to be evaluated with the goal of increased sedation algorithm compliance.

Overall UPE/100 vent days to date = 0.37 (Goal <0.5)



Month	Average PICU LOS
Apr	10.62796717
May	5.953308824
Jun	8.041630117
Jul	7.454166667
Aug	5.153694444
Sep	2.105246914
Grand Total	7.151217186

Conclusions & Next Steps

- Bi-weekly rounding with a multidisciplinary team to address practice gaps in real time and provide just in time education with clinical staff will be implemented.
- PICU charge RNs will begin to query bedside staff each shift to determine whether their patient has the sedation algorithm ordered and to identify and address any deviations from the algorithm; this will be prompted by an added column to the charge RN handoff tool.
- Multidisciplinary workgroup meetings to review data and identify areas for improvement will be increased to bi-monthly.
- An enhanced multidisciplinary workgroup will be developed to begin identifying delirium screening tools.