

JUST MOVE: Implementing an Early Mobility Program in the Pediatric Intensive Care Unit (PICU)

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BACKGROUND

Historically, PICUs have been marked by over-sedation and patient immobility. The detrimental sequelae of critical illness combined with sedation and bed rest are well described, including decreased muscle mass and strength, impaired physical function and pulmonary capacity, and neurocognitive deficits. PICUs have increasingly begun to develop early mobilization programs in order to improve outcomes.^{1,2}

DESCRIPTION

An inter-professional team was formed to understand the current process, and develop and implement standard guidelines for PT/OT involvement for all intubated patients. Additionally standard guidelines for levels of activity were adapted from those published by Wieczorek et al³ based on severity of illness and practice patterns in our PICU. These guidelines were implemented beginning May 2017. Our process measure for success was the percent of patients receiving appropriate PT/OT consults, defined as occurring on day 3 for all mechanically ventilated children.

Activity Level Guidelines (Adapted from Wieczorek et al.³)

Level:	Level 0	Level 1	Level 2	Level 3
Criteria:	-Not stable for range of motion (ROM) or stimulation	-Intubated, FiO ₂ ≥ 60% -Intubated, PEEP ≥ 8 -Oscillator -ECMO -Critical airway -Vasoactive medications other than milrinone -Femoral access -Acute spinal cord injury (SCI) or severe traumatic brain injury (TBI)	-Intubated, FiO ₂ < 60% -Intubated, PEEP < 8 -Renal replacement therapy if not femoral access -Arterial line (any location) -Chest tube -New tracheostomy after ties changed if not critical airway -O ₂ sats > 92%	-External ventricular drain (EVD) cleared by neurosurgery -Baseline pulmonary support -Non-invasive respiratory support with FiO ₂ < 60%
Therapeutic interventions:	-Issue appropriate splints PRN -Daily check-ins with team	-ROM, splinting -In-bed strengthening -Recommendations for positioning -Skin risk assessment -Positive touch for infants, toddlers -Assess for communication difficulties	-Level 1 activities -Bed in chair position -Consider edge of bed sitting -Consider out-of-bed transfer -Consider ambulation unless arterial line in place	-Level 1 and 2 activities -Assess swallowing -Out-of-bed to chair -Out-of-bed strengthening -Ambulation -ADL's -Bedside commode

NEXT STEPS

We are currently analyzing data to determine the impact of early mobility on functional recovery, duration of mechanical ventilation, PICU length of stay, and hospital length of stay.

PROJECT AIM

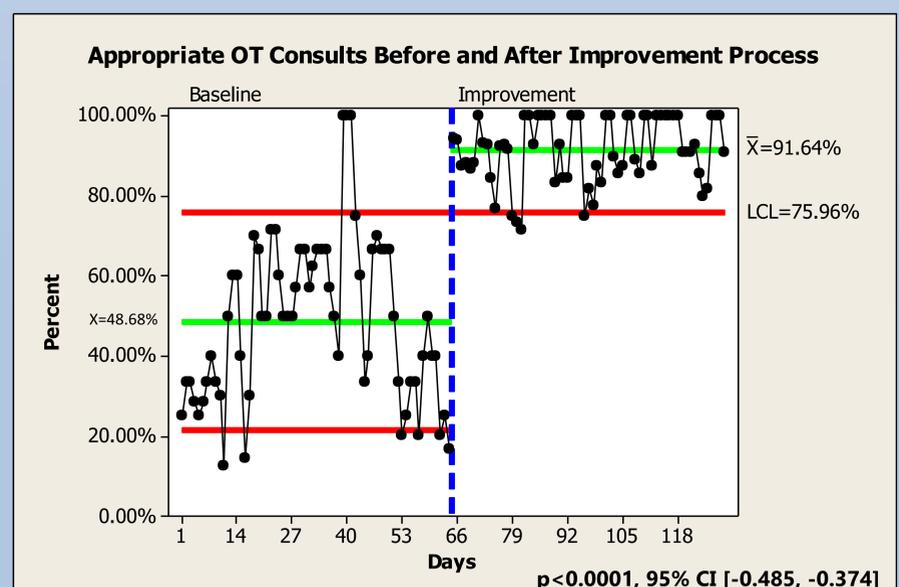
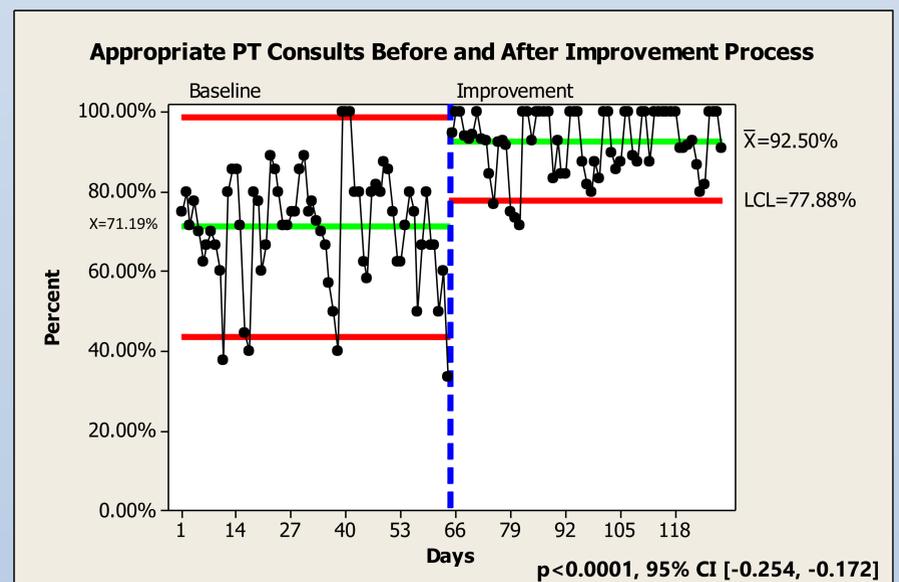
To implement an early mobility program for critically-ill children in the PICU.

ACTIONS TAKEN

Guidelines were universally adopted in the PICU and the percent of appropriate consults were recorded daily.

FINDINGS

Percent of appropriate PT consults increased significantly from 71% pre-implementation to 92% post-implementation, $p < 0.0001$ 95% CI (-0.254, -0.172). An even more significant increase was seen in percent of OT consults from 48% pre-implementation to 91% post-implementation ($p < 0.0001$ 95% CI (-0.485, -0.374)).



REFERENCES

1. Wieczorek B, Burke C, Al-Harbi A, Kudchadkar S. Early mobilization in the pediatric intensive care unit: a systematic review. *J Pediatr Intensive Care*. 2015; 2015: 129-170.
2. Llano-Diez M, Renaud G, Anderson M, et al. Mechanisms underlying ICU muscle wasting and effects of passive mechanical loading. *Crit Care*. 2012 Oct 26; 16(5): R209.
3. Wieczorek B, Ascenzi J, Kim Y, et al. PICU up!: Impact of a Quality Improvement Intervention to Promote Early Mobilization in Critically Ill children. *Ped Crit Care Med*. 2016; 17(12): e559-e566.