



Timely Extubation in Extremely Preterm Neonates

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ECU Health Quality
Improvement Symposium

January 29, 2025

Background



- *Extubation protocols can improve patient outcomes by decreasing the duration of mechanical ventilation in the NICU.*

Reducing duration of invasive mechanical ventilation for preterm infants  

Chisom Egwuatu, Mariana R. Brewer, Regina Spinazzola, Vitaliya Boyar, Joanne Casatelli, Tesi Thomas, Elfriede Wallace, Barry Weinberger and Shahana Perveen

Journal of Neonatal Nursing, 2023-06-01, Volume 29, Issue 3, Pages 459-463, Copyright © 2022 Neonatal Nurses Association

Weaning and extubation from neonatal mechanical ventilation: an evidenced-based review

[Razieh Sangsari](#)¹, [Maryam Saeedi](#)¹, [Marzieh Maddah](#)², [Kayvan Mirnia](#)^{1,✉}, [Jay P Goldsmith](#)³

SMART GOAL

↓ total intubation time by 3 days

In preterm infants who are

< 29 weeks

< 1500 g

over 9 months



Weight

> 600 g

MAP

< 11cm H₂O

F_iO₂

< 40%

pH

> 7.25

P_aCO₂

< 55 mmHg 1st week of life
< 65 mmHg after 1st week

All requirements met?

➔ ready for a trial of extubation

Outcome measures

- 1° - Total time of intubation
- BPD* incidence

Process measure

- Time to first extubation attempt

Balancing measure

- Re-intubation rate

*BPD = Bronchopulmonary dysplasia
MAP = Mean airway pressure

Total ti

Respiratory Therapist
RESPIRATORY THERAPY

Addendum

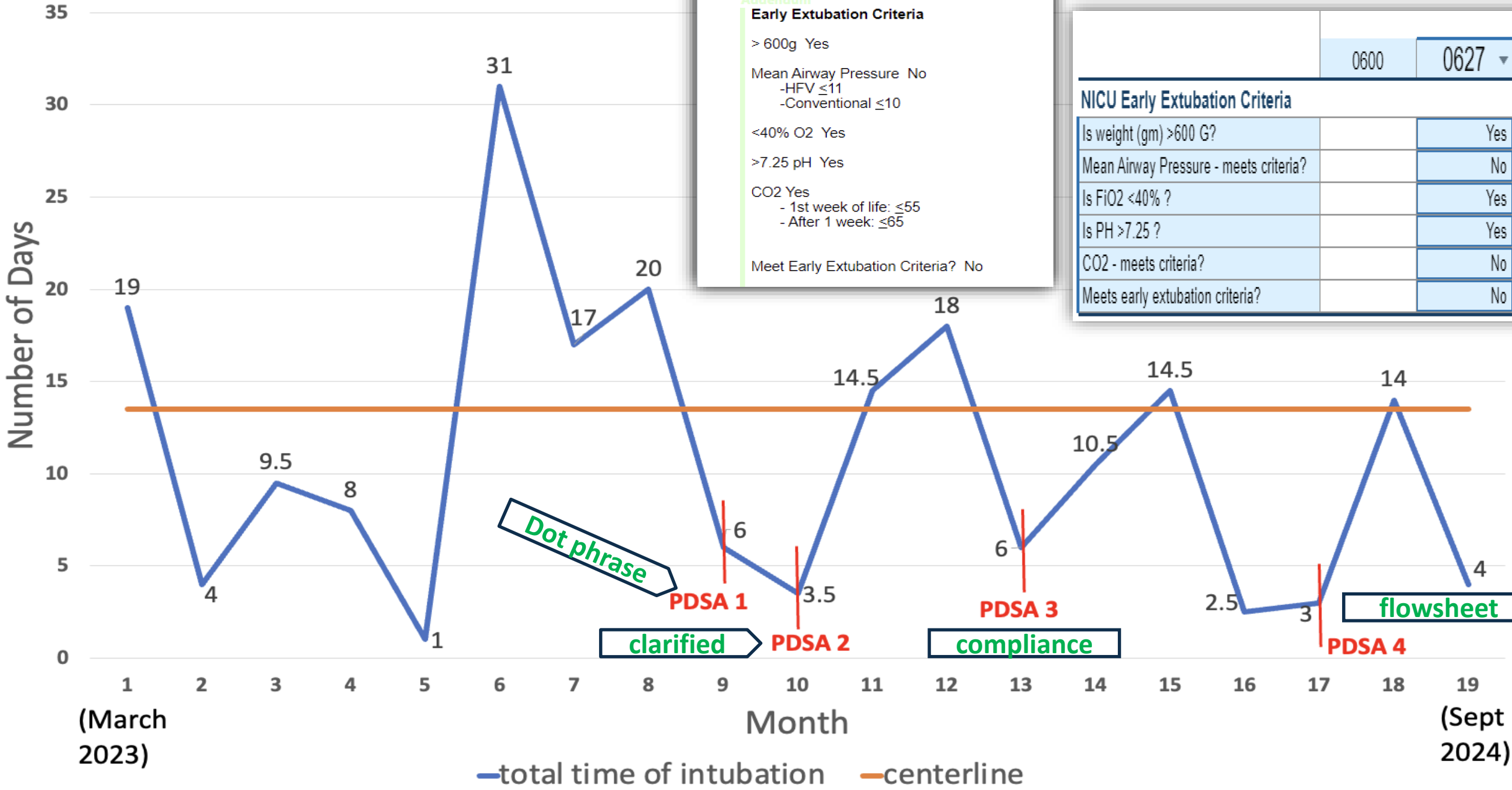
Addendum

Early Extubation Criteria

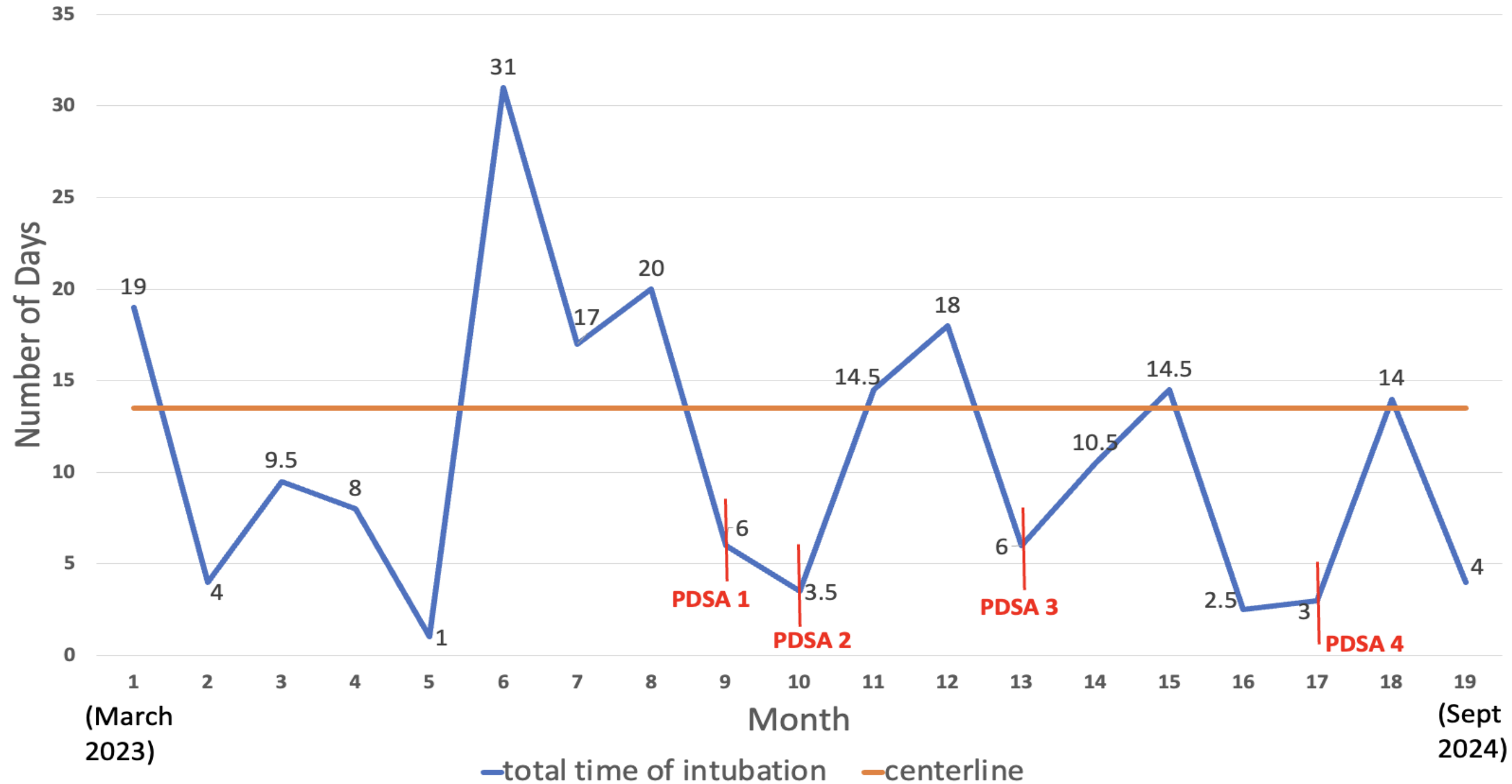
- > 600g Yes
- Mean Airway Pressure No
 - HFV ≤ 11
 - Conventional ≤ 10
- <40% O2 Yes
- >7.25 pH Yes
- CO2 Yes
 - 1st week of life: ≤ 55
 - After 1 week: ≤ 65

Meet Early Extubation Criteria? No

	0600	0627
NICU Early Extubation Criteria		
Is weight (gm) >600 G?		Yes
Mean Airway Pressure - meets criteria?		No
Is FiO2 <40% ?		Yes
Is PH >7.25 ?		Yes
CO2 - meets criteria?		No
Meets early extubation criteria?		No



Total time intubated



Conclusion



❖ Why wasn't a change seen?

- Extremely preterm neonates who are critically ill with multiple comorbidities that require prolonged care.
- Inconsistent compliance with protocol

❖ **Positives:** positive communication and smoother decision-making among the team members in the NICU

❖ Next steps:

- QI initiatives to standardize post-extubation respiratory support

