

Implementing a Conservative Oxygen Therapy Protocol to Reduce Hyperoxia in Mechanically Ventilated Pediatric ICU Patients

Mark Britton, BSRT; Darrael Robinson, RRT; Maribel Thiel, BSRT/RRT-ACCS/RRT-NPS/CPFT; Andrea Davis, BSN/RN; Candida Duenas BSN/RN, CCRN; Lea Estefanos, BSN/RN; Troy Miller BSN/RN, CCRN; D. Michelle Moyle BSN/RN; Jose Napoleon BSN/RN; Maria Simon, BSN/RN; Consolacion Saqueton, MD; Errin Mitchell, MD; Joshua Patterson, MD

BACKGROUND

- Hyperoxia has been associated with increased risk of organ injury and mortality in critically ill children.
- Liberal oxygen administration may expose patients to avoidable harm.
- Emerging evidence, including pediatric critical care studies such as the Oxy-PICU trial, supports a more conservative and targeted approach to oxygen therapy.
- Standardizing oxygen titration may help reduce unnecessary oxygen exposure while maintaining safe oxygenation.

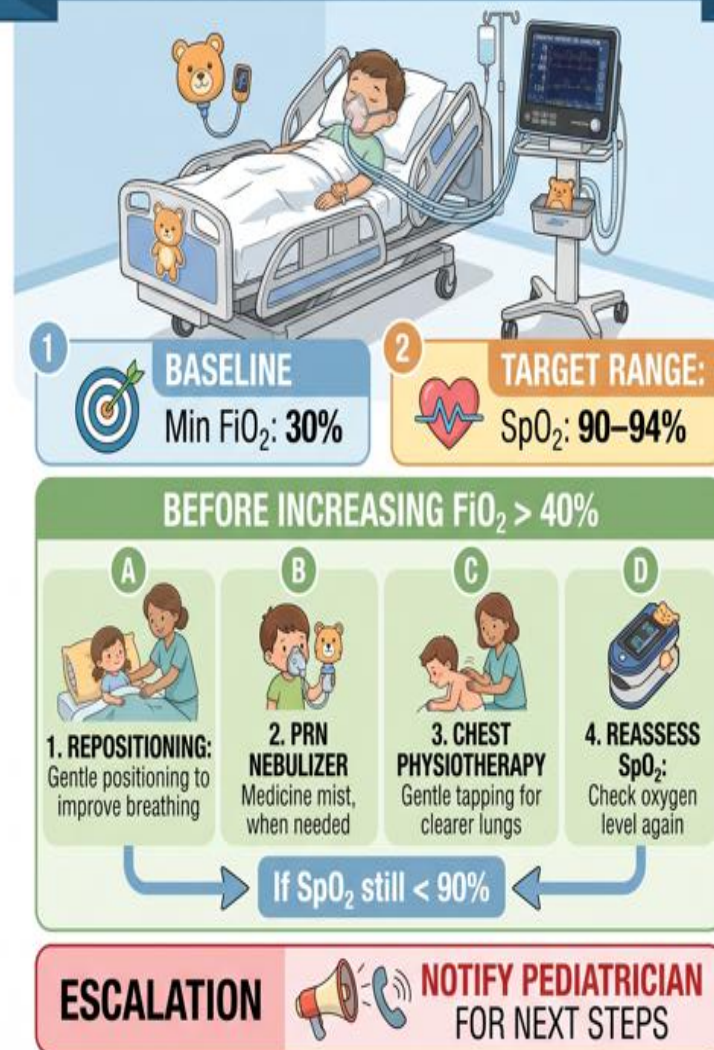
PURPOSE

- The purpose of this project is to establish and implement an evidence-based oxygen therapy protocol.
- A protocol that supports clinicians in safely titrating oxygen for mechanically ventilated pediatric intensive care unit (PICU) patients.
- The goal is to reduce hyperoxia, promote consistent oxygen management and support patient safety while maintaining adequate oxygenation.

METHODS

- A conservative oxygen therapy protocol is proposed for mechanically ventilated patients in the UMC PICU.
- The proposed protocol is supported by our UMC PICU physicians and is intended to guide nursing and respiratory therapy staff to set a minimum fraction of inspired oxygen (FiO₂) at 30% and use proposed interventions before increasing FiO₂ above 40%.

PEDIATRIC FiO₂ TITRATION PROTOCOL & BEDSIDE INTERVENTIONS



RESULTS

- Implementation of this protocol is expected to decrease unnecessary FiO₂ escalation above 40% by encouraging bedside interventions and reassessment before increasing oxygen delivery.
- The protocol supports maintaining peripheral capillary oxygen saturation (SpO₂) within the target range of 90–94% while reducing avoidable hyperoxia (with the exception of specific patient populations including but not limited to: traumatic brain injuries, acute respiratory distress syndrome, shock, cardiac arrest, etc).
- Anticipated outcomes include improved consistency in oxygen titration, increased staff adherence to evidence-based oxygen management and timely physician notification when oxygenation goals are not met after appropriate interventions.

CONCLUSIONS

- Provision of clear, standardized guidance for nursing and respiratory therapy staff to safely titrate oxygen therapy in mechanically ventilated pediatric patients.
- Reducing excessive oxygen exposure supports an evidence-based approach to oxygen management.
- Reinforces the concept that oxygen should be treated as a medication requiring thoughtful dosing, monitoring, and reassessment.

REFERENCES

Refer to QR code for references
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