

Development and Implementation of a Standardized Oxygen Weaning Pathway in Pediatric Patients

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Background and Problem

- Bronchiolitis is an inflammation of the small airways¹
- Infants and young children are at an increased risk for complications due to immature airways and underdeveloped immune systems
- Hospitalization may be required for patients for symptom management including:
 - intravenous fluid hydration
 - supplemental oxygen
 - continuous pulse oximetry monitoring
- Currently, oxygen titration practices are variable, and no institutional standard or guideline for weaning exists, potentially leading to prolonged use of oxygen therapy and extending hospital length of stay

Purpose

Will the development of an oxygen weaning pathway using a standardized respiratory assessment score decrease the length of time on supplemental oxygen and length of hospital stay?

Methods

Setting: 34-bed pediatric acute care unit in an urban city

Interventions: A standardized oxygen weaning pathway was developed based on currently existing evidence^{2,3}. Nurses were educated on the pathway, and the pathway was implemented on patients meeting inclusion criteria

Outcome measures: Hospital length of stay, total time on oxygen

Theoretical Framework: Lewin's Change Theory⁴

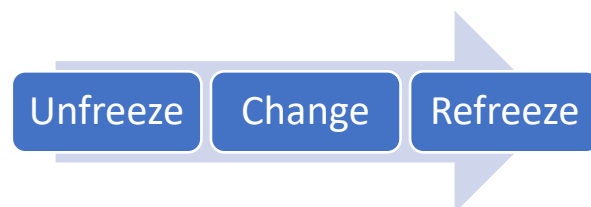


Fig 1. Lewin's Change Theory

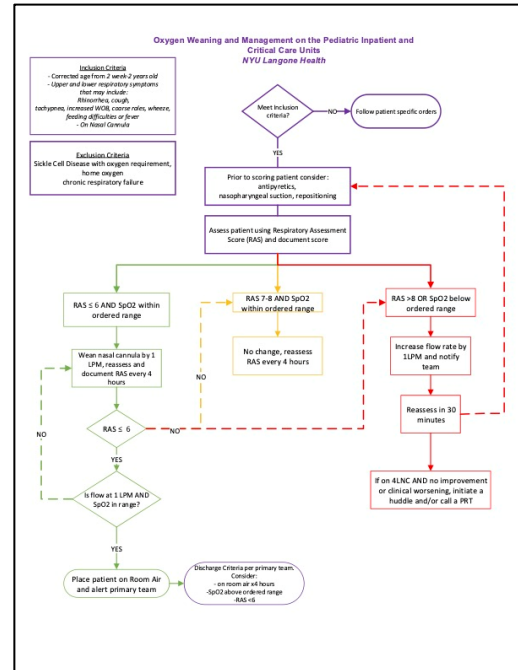


Fig 2. Standardized Oxygen Weaning Pathway

Data Collection

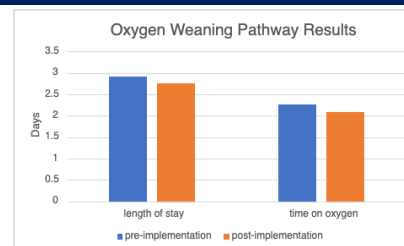


Fig 3. Pre- and Post-implementation Data

Results

- Hospital Length of Stay:
 - Pre-implementation (n=12): 2.91 days
 - Post-implementation (n=5): 2.76 days
 - $\Delta = -0.15$ days
- Total Time on Oxygen:
 - Pre-implementation (n=12): 2.27 days
 - Post-implementation (n=5): 2.08 days
 - $\Delta = -0.19$ days

Conclusion

- The use of a standardized low-flow oxygen weaning guide was associated with a decreased hospital length of stay and a reduced total time on oxygen
- An oxygen weaning pathway may reduce variability in weaning practices

Significance

- This project represents a novel idea that may be generalizable and expanded to other units and populations
- Future PDSA cycles may focus on expanding inclusion criteria to include other diagnoses requiring supplemental oxygen, such as asthma
- Reducing hospital LOS during times of surge may reduce healthcare costs associated with bronchiolitis admissions

Acknowledgments

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References

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