

Oxygen Management in Very Low Birth Weight Neonates

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BACKGROUND

- Oxygen is the most common drug administered to preterm infants in the NICU
- Oxygen must be closely monitored to avoid oxygen toxicity which can lead to development of Retinopathy of Prematurity (ROP) and Chronic Lung Disease (CLD).
- If monitor alarms are not set, the high risk infant can receive too much oxygen, placing them at risk for developing oxygen toxicity and complications.
- Nurses in NICU did not consistently set the alarms and maintain oxygen saturation levels within appropriate parameters.
- No standardized care established for an infant on oxygen.
- No standardized plan established to wean a high risk neonate from oxygen.
- Frequent clinical alarms went off in the NICU.

PURPOSE

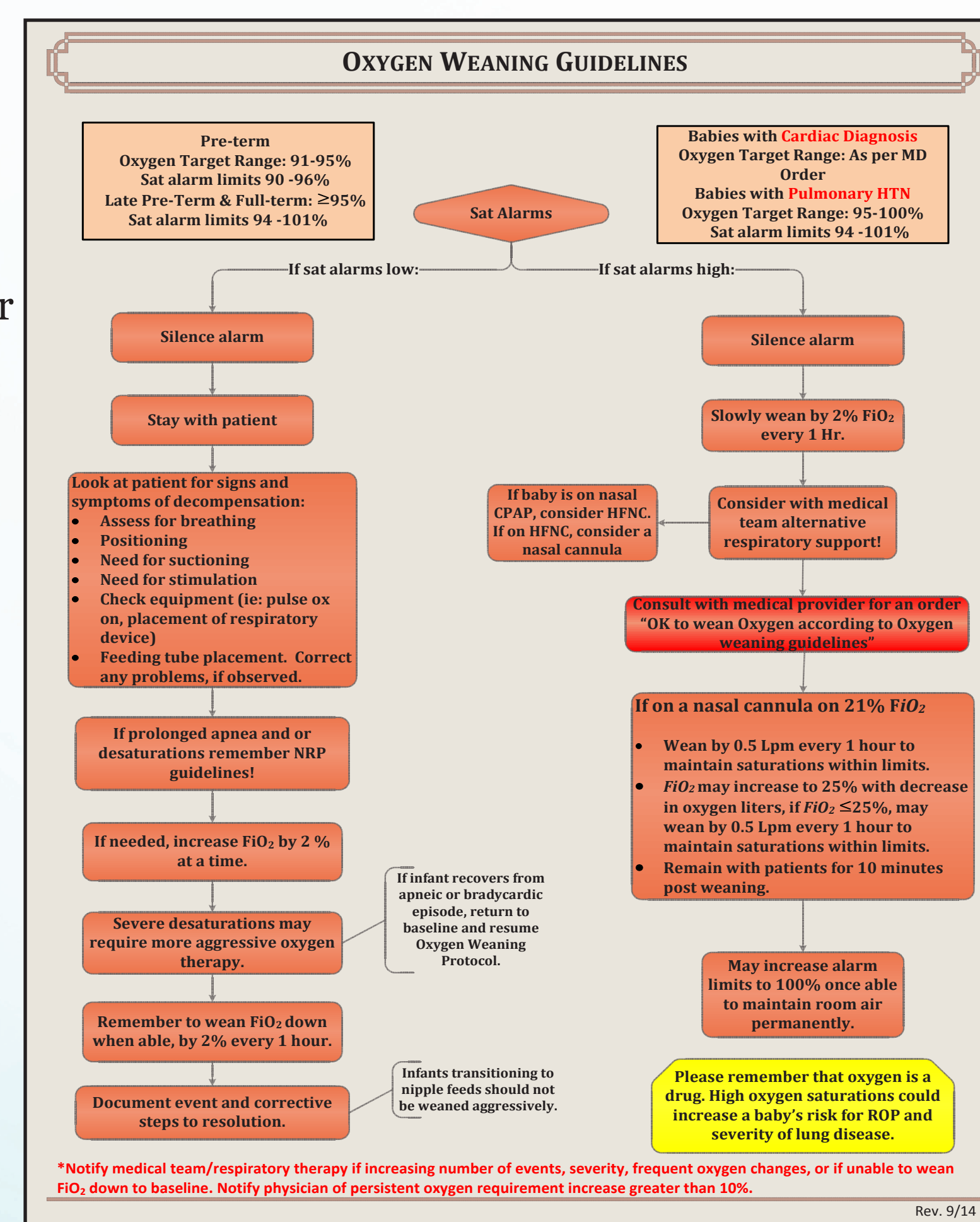
To establish and maintain standardized parameters for oxygen saturation to ensure high risk neonates receive the appropriate amount of oxygen.

The goal of this project:

- Increase NICU nurse compliance with standardized oxygen alarm parameters for very low birth weight neonates.
- Implement standardized oxygen weaning guidelines in the NICU.
- Decrease oxygen saturation alarms in the NICU to minimize alarm fatigue.

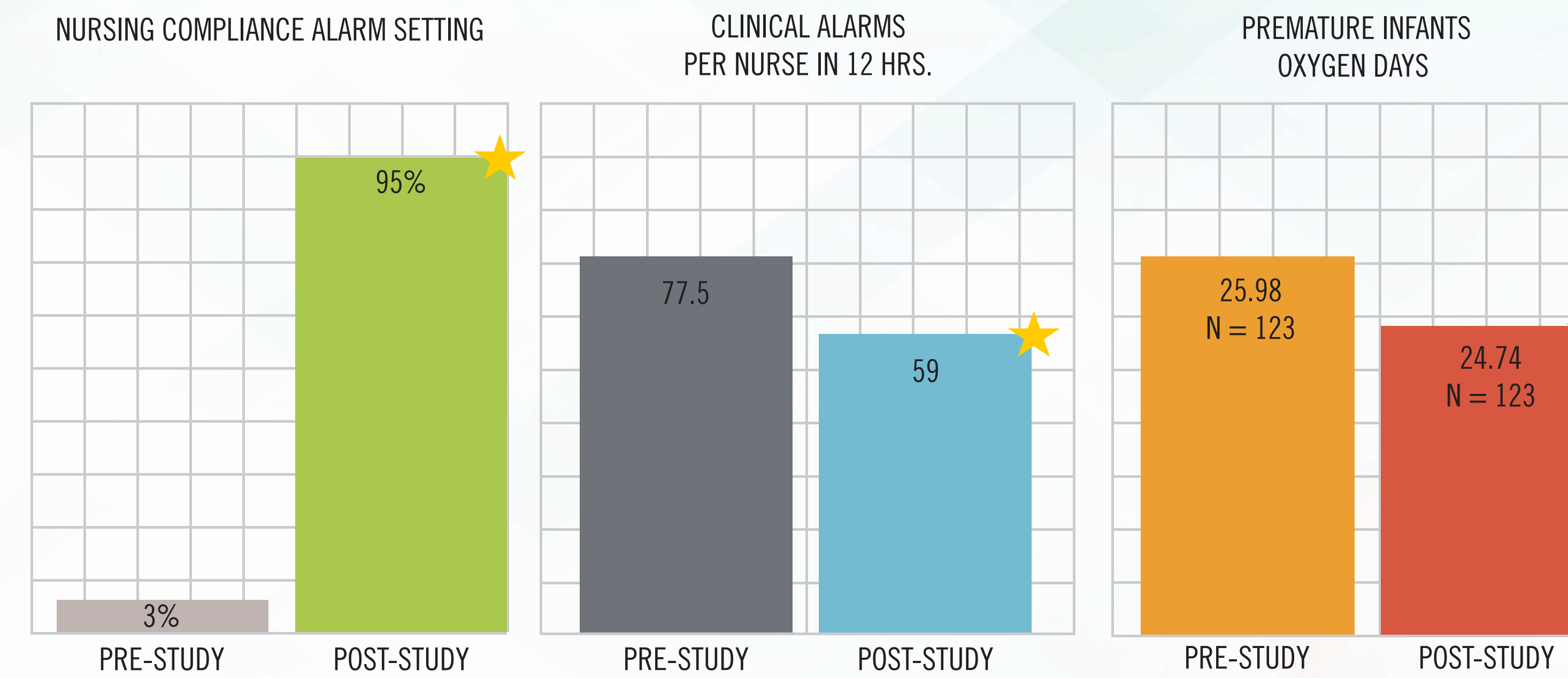
METHODS

- IRB and Performance Improvement committee approval obtained
- Conducted NICU baseline assessment
- Interdisciplinary team formed
- Conducted change readiness assessment for interdisciplinary care team
- Conducted review of literature
- Conducted audit of appropriate compliance with alarm parameters with oxygen saturation and nursing response to alarms
- Developed oxygen weaning guidelines
- Intervention: Educated interdisciplinary team regarding importance of alarm parameters and weaning guidelines
- Measured number of days infants spent on oxygen pre and post intervention



RESULTS / OUTCOMES

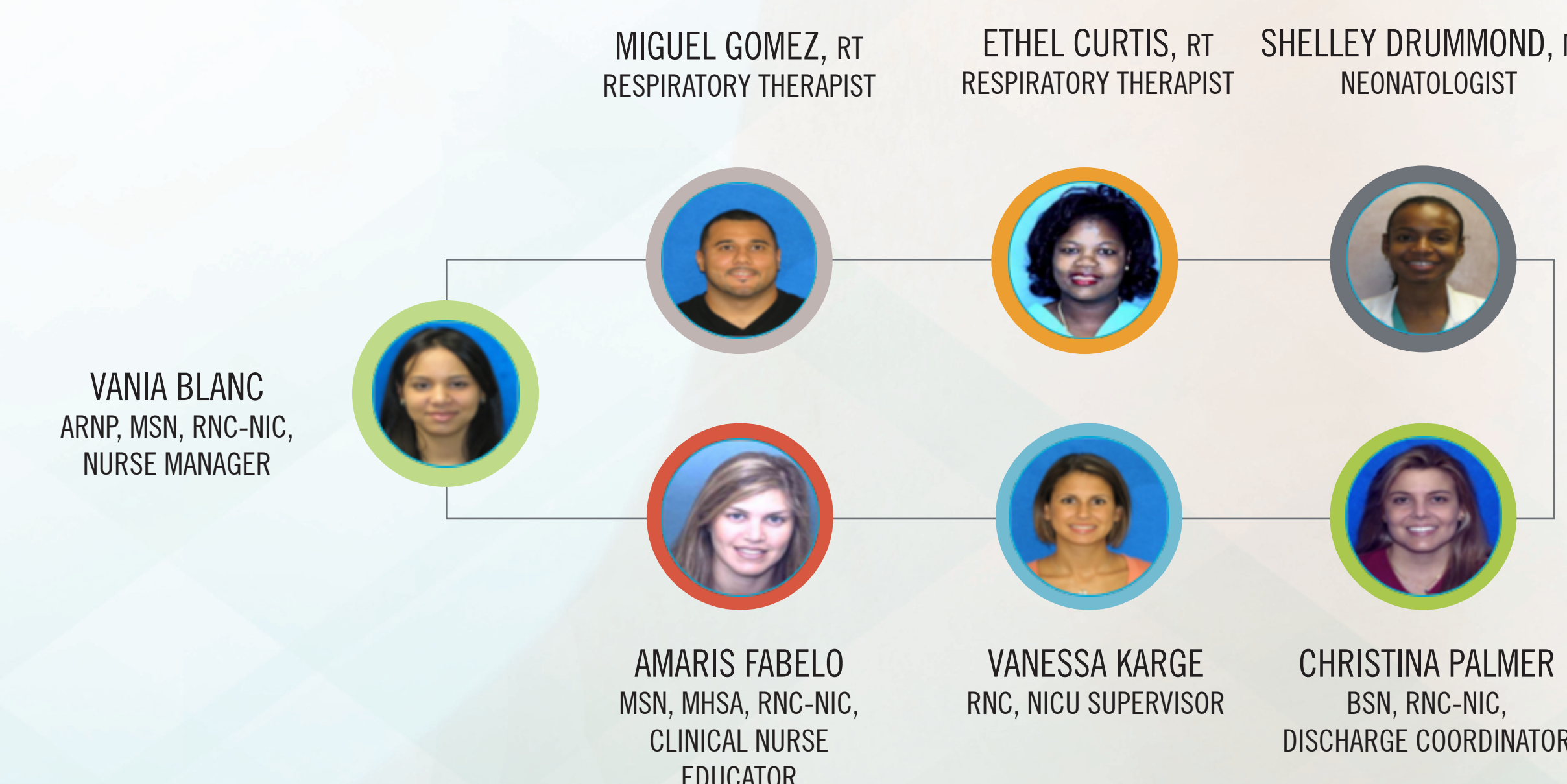
- Increase setting alarm parameters for preterm infants from 3% to 95%
- Decrease clinical alarms per nurse in 12 hrs. from average 77.5 to 59 alarms.
- Decreased number of days premature infants spent on oxygen from 25.98 to 24.74
- Implemented oxygen weaning guidelines in NICU for premature infants on oxygen



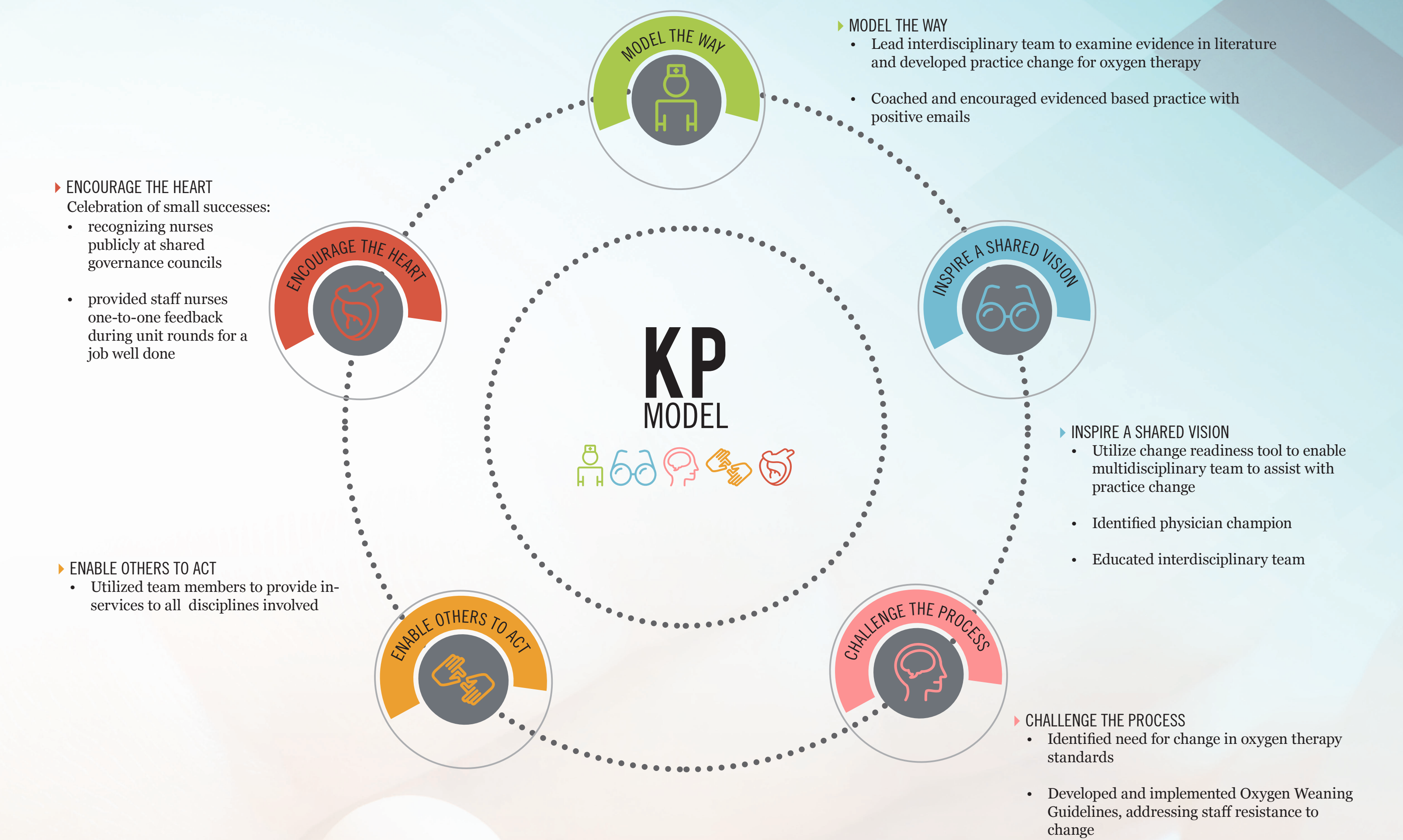
LOGIC MODEL

INPUTS	STRATEGIES/ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	MID-TERM OUTCOMES	LONG-TERM OUTCOMES
<ul style="list-style-type: none"> Interdisciplinary team formed Obtained support from executive leadership for project Barriers to implementation of project identified 	<ul style="list-style-type: none"> Performed bedside audits to determine baseline compliance with setting oxygen saturation parameters Performed literature review and posted on NANN list serve Conducted change readiness assessment with team members Garnered physician support / identified physician champion IRB submitted 	<ul style="list-style-type: none"> Increased awareness of importance of oxygen saturation ranges with interdisciplinary team of: nurses, respiratory therapists, and neonatologists Monthly review of data compiled and shared with team IRB approval received 	<ul style="list-style-type: none"> Increased awareness and approval of project within the facility from executive sponsorship and Evidenced-Based Clinical Practice Council Shared project progress monthly in NICU Interdisciplinary meetings and Neonatologists meetings. Developed oxygen weaning guidelines 	<ul style="list-style-type: none"> Measured compliance with oxygen weaning protocol Decreased amount of oxygen days in 123 premature infants from 25.98 to 24.74 days Decreased the number of alarms received by nurses from oxygen saturation being outside parameters 	<ul style="list-style-type: none"> Unit standardized care of preterm infant receiving oxygen With continued compliance anticipate improved NICU outcomes: decrease Chronic Lung Disease (CLD) rates, improved ROP rates, decreased length of stay, and reduced healthcare cost

PROJECT TEAM



LEADERSHIP JOURNEY



DISCUSSION

This project accomplished the following:

- Developed standardized care for premature infant on oxygen therapy to diminish potential complications
- Nurses and respiratory therapists state they support setting appropriate oxygen saturation parameters and weaning guidelines
- Fewer days that infants in the NICU remain on oxygen
- Fewer clinical alarms related to oxygen therapy therefore reducing alarm fatigue of caregivers
- Audits show consistent use of weaning guidelines

BENEFICIARIES

- 123 Premature Infants ages 0-5:
 - females: n = 59
 - males: n = 64
- 160 Neonatal Nurses – less alarm fatigue / EBP
- 50 Neonatologists / NNPs / PAs
 - standardized care
- 33 Respiratory Therapists
 - standardized oxygen therapy

SUSTAINABILITY

- Perform routine monitoring of nursing documentation for all infants on oxygen to ensure compliance with appropriate oxygen saturation parameters and weaning guidelines
- Continue to add oxygen weaning guidelines to all charts in the NICU to facilitate compliance
- Future plans: Work with physicians to consistently document room air challenge results prior to discharge