

## Oxygen Saturation Limits

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## BACKGROUND

- ROP = Retinopathy of Prematurity
- An abnormal growth of blood vessels throughout the retina; blood vessels scar and pull the retina out of position, which causes retinal detachment leading to permanent vision damage or blindness
- ROP affects premature infants who are less than 32 weeks gestation and is increased with supplemental oxygen use in the neonate
- Compared to VON (Vermont Oxford Network), LVHN's severe ROP rate has been rising

## PICO

- **P** – NICU nurses
- **I** – Verification of oxygen saturation alarm limits on monitor with provider ordered saturation range during shift report
- **C** – Not verifying with on-coming RN
- **O** – Compliance of accurate monitor alarm limits for oxygen saturation that follows the given provider order

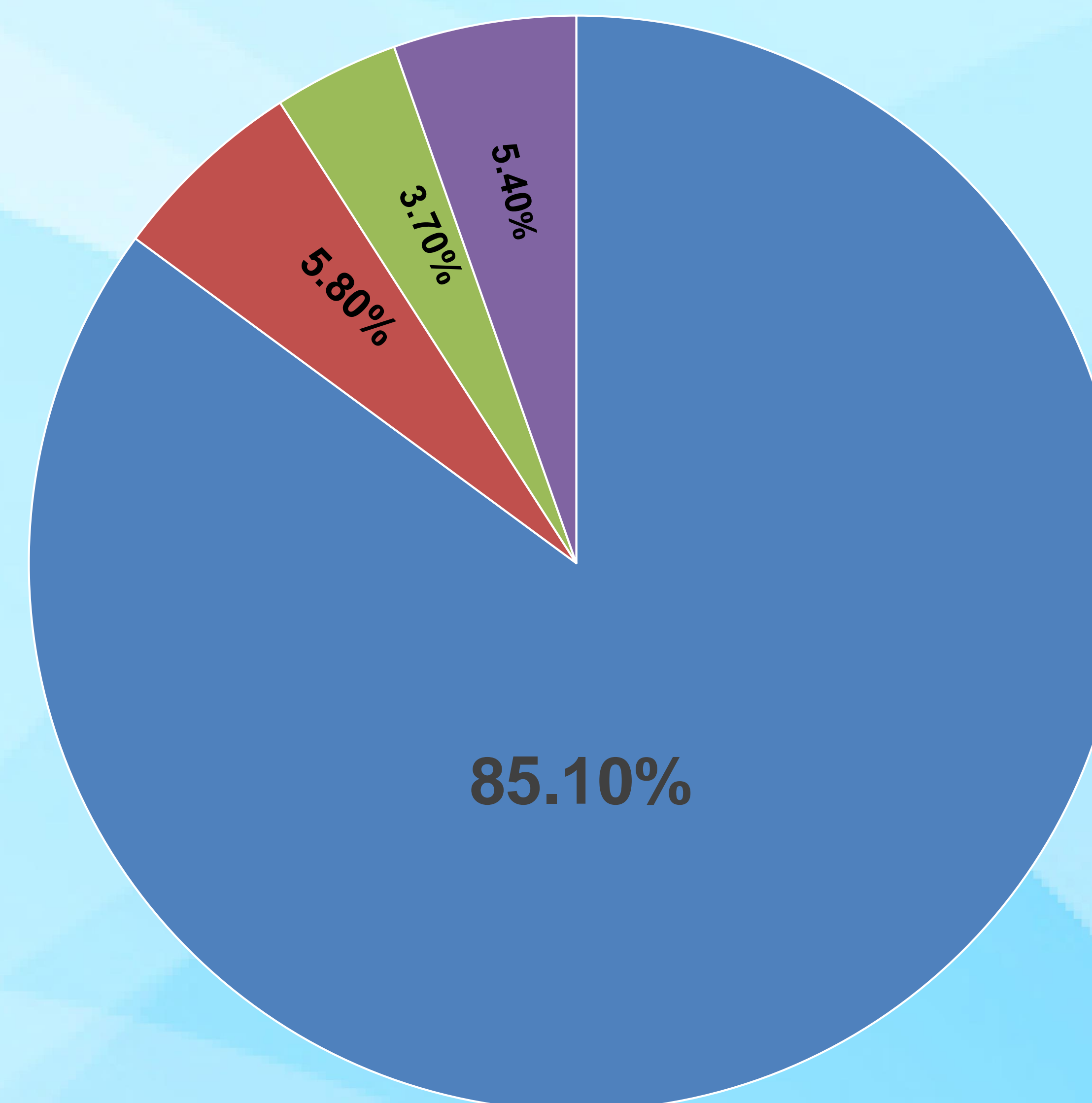
## EVIDENCE

- A similar study found – in infants weighing <1500g the SpO2 lower alarm was set correctly 91% of the time
- In the same infants, the SpO2 upper limit was only set correctly 23% of the time
  - Reasons upper limits were set incorrectly:
    - Belief that hypoxemia is more detrimental than hyperoxemia
    - The default monitor setting for upper limit is 100%
    - Alarm fatigue
- Implementation of a standardization in SpO2 target ranges, along with a bedside reminder led to:
  - SpO2 values being higher than target range 20-50% of the time

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## OUTCOMES

### Compliance of SpO2 Alarm Limits



- Monitor Limit & Ordered Limits MATCH
- Monitor Limits & Orders DO NOT Match
- No Ordered SpO2 Alarm Limit
- No Upper SpO2 Limit but pt in >21% FiO2

## IMPLEMENTATION

- Sample size
  - 247 patients
- Data collection
  - FiO2 sat orders
  - FiO2 monitor set limits
  - Type of support
  - Hourly saturation documentation

## NEXT STEPS

- Continued education on importance of O2 ordered saturation compliance

## REFERENCES

- Cummings, J. J., & Polin, R. A. (2016). Oxygen targeting in extremely low birth weight infants. *Pediatrics*, 138(6), 1-9.
- Hartnett, E., & Lane, R. H. (2013). Effects of oxygen on the development and severity of retinopathy of prematurity. *Journal of AAPOS*, 17(3), 229-234.
- Ketko, A. K., Martin, C. M., Nemshak, M. A., Niedner, M., & Vartanian, R. J. (2015). Balancing the tension between hyperoxia prevention and alarm fatigue in the nicu. *Pediatrics*, 136(2), 496-504.
- Lau, Y. Y., Tay, Y. Y., Shah, V. A., Chang, P., & Loh, K. T. (2011). Maintaining optimal oxygen saturation in premature infants. *The Permanente Journal*, 15(1), 108-113.
- National Eye Institute. (2014). Facts about retinopathy of prematurity (ROP). Retrieved from <https://nei.nih.gov/health/rop/rop>