Outcomes after Implementation of a Micropreemie Care Team
The Children’s Hospital at Providence, Anchorage, Alaska

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Background: Micro-premature infants, although small in number, contribute disproportionately to rates of death or serious morbidity in the NICU. They are fragile and developmentally immature. Prolonged hospital stays, physiologic instability and susceptibility to complications are factors contributing to this morbidity. Meticulous application of standardized practices and procedures is key to giving each micro-preemie an increased chance for intact survival. In review of our unit’s data, morbidity in these infants is unacceptably high, with only 17% of infants < 26 weeks gestation from 2010-2013 surviving without major morbidity on discharge from our unit. Literature supports that specialized teams promote consistency and improved results. After development and training in 2014, implementation of a multi-professional team, focused on the detailed care of these infants, was initiated on January 1, 2015

Aim: We will increase the proportion of infants < 26 weeks gestation surviving without major morbidity to 30%, from our 2010-2013 baseline rate of 17%, by December 30, 2015.

Sub-Aims:

- 100% of infants <26 weeks gestation will receive care by a WeeCare Team member until 26 weeks gestation or for a minimum of one week after delivery
- 100% of infants <26 weeks gestation will maintain midline head positioning for the 1st 72 hours of life
- Decrease our IVH rates by 50% from our baseline of 28% by December 2015
- Decrease our CLD rates by 50% from our baseline of 65% by December 2015

Setting: 66 bed single room, level IIIB, regional referral center for the entire state of Alaska.

Mechanisms:

- Absence of a consistent approach to the care and management of extremely premature infants
- A mental model that only one person is required to provide care to small patients.
- Inaction in addressing/implementing best practices around IVH morbidity
Drivers of Change:

- Create an interdisciplinary care team that will care for all infants < 26 weeks gestation admitted to our unit
- Standardization of bedside care practices and best practices implementation for developmentally appropriate care at all times

Methods:

- Established a micro-preemie “WeeCare” team, with implementation January 1, 2015
- Emphasized standardization of bedside care practices and best practices implementation prior to go live date
  - Admission checklist and consistent approach for routine care practices: https://www.youtube.com/watch?v=zSy7HaNF6NQ
  - Skin-to-skin care practices, transfers
  - Respiratory: weaning protocols, t-piece resuscitator for admissions, CPAP nasal prong brand, surfactant, caffeine, Bubble CPAP use only, NIV-NAVA, HFNC practices
  - Infection/Skin care: humidity practices, wound/breakdown prevention
  - Neuro: midline head positioning, CO2 monitoring, delayed cord clamping
  - Work with parent navigator and parent volunteers to standardize parent education and how we partner with parents in caring for these infants – see link above

Measures:

- Percent of shifts that infant is cared for by CARE team members – see appendix
- IVH and CLD rates - see appendix
- Track morbidity-free survival over time via VON database – see appendix
- Track family satisfaction via Howsyourbaby.com and Press-Ganey satisfaction surveys. (data gathering in progress at time of abstract publication; data will be available for poster presentation)

Results:

- WeeCare team initiated January 1, 2015 with 1st < 26 week admit
- 100% of infants <26 weeks gestation have maintained midline head positioning for the 1st 72 hours of life – see appendix
- Able to meet IVH rate goal by 2014 (1 year early)
- Of the 1st 12 < 26 week infants to reach 36 weeks gestation, only 3 (25%) have CLD – on trajectory to meet goal of cutting baseline rate in half by December 2015 – see appendix
Discussion:

- With the development of the Wee Care Team in 2014, then implementation in January 2015, we are on track to achieve our goals of 100% infants <26 weeks maintained in headline positioning for first 72 hours and decreased CLD and IVH rates by 50% each by December 30, 2015. With the improved rates for these morbidities, we feel our survival rate without major morbidities is likely to reach the goal of 30% by December 30, 2015.

- Although close to the goal of 100% Wee Care Team staff coverage for infants <26 weeks until 26 weeks corrected gestational age or 1 week after admission, we have not been able to achieve this 100% goal to date. Auditing demonstrated staffing challenges, which we addressed with further PDSA cycles to increase night shift team members and education for the unit schedulers. A follow-up audit demonstrated improved compliance with our goal. Since that time, compliance with staffing has improved such that we feel confident expanding the goal of 100% Wee Care Team member staffing to 28 weeks gestation. A repeat PDSA cycle with this new goal is underway.

- Auditing after PDSAs revealed equipment availability issues (transcutaneous CO2 monitoring) that have been further addressed with Respiratory Therapy Management.

- We are challenged to consistently meet our goal of two-person cares for any hands on touching of infants. Next steps include a PDSA to “bring a buddy” when touching babes.

- We are also challenged to engage the administration with respect to support for the cost of quarterly Wee Care Team education/update meetings. Management is currently working with the CORE team on creative solutions for this problem. Feedback of successes to date has further fueled enthusiasm of the team to maintain the gains – confirming the importance of the quarterly updates.

- Parent education regarding the special needs of micro-preemies continues to be a focus. One on one teaching by Wee Care Team members caring for individual babies is going well, however we need to develop written and video education for parents to increase the consistency of the information they are given. Our Parent Navigator is partnering with the team on development of these materials.

- Future collaborative participation will focus on minimizing post-natal growth restriction and decreasing any late infections.

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Appendix - * Note: Graphs will be updated to reflect latest data prior to Chicago meeting
IVH Interventions and Outcomes

Care Team Member Through 1st week or to 26 weeks

Target: 100%

CL: 91.4
LCL: 62.7
Implementation of neuro bundle August 2014; WeeCare Team implementation Jan. 2015

Focused training on “keeping the PEEP” and standardization of interfaces July 2014
WeeCare Team implementation January 2015
Morbidity-free Survival of Infants < 26 weeks Gestation

Target: 30% by December 2015
(current data is from 15 of 22 infants born this year)