Fluid Management Protocol to Ensure Adequate Diuresis in Extremely Preterm Neonates in the First Week of Life

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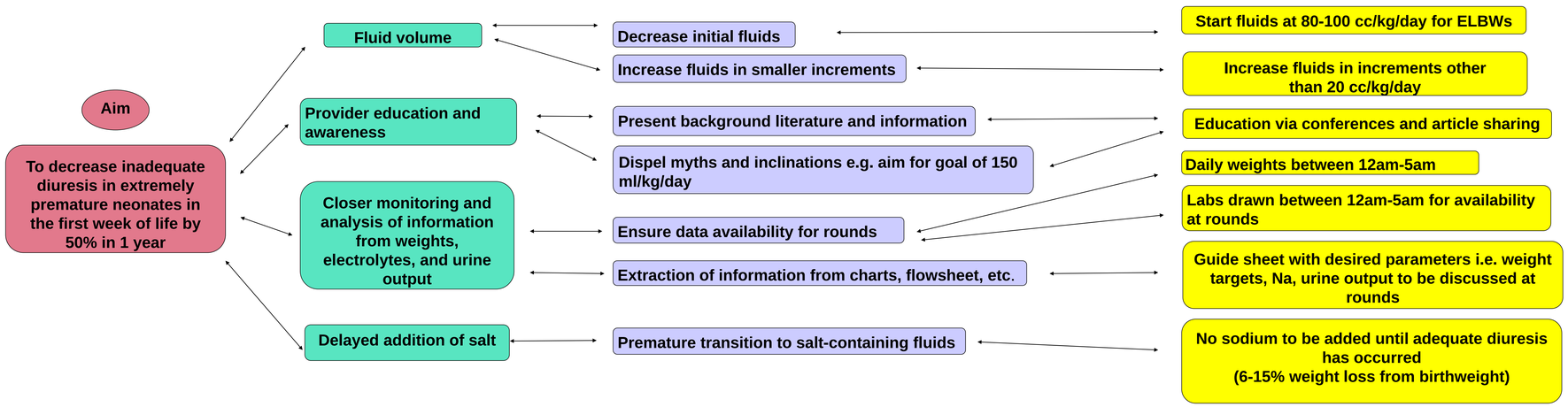
BACKGROUND

- Fluid management in extremely preterm (EPT) infants is complicated by immaturity of the renal system, increased insensible losses, respiratory distress, and perinatal medications
- Appropriate diuresis is defined as 6-15% weight loss from birthweight
- Inadequate diuresis can lead to patent ductus arteriosus (PDA), intraventricular hemorrhage (IVH), bronchopulmonary dysplasia (BPD), and other complications
- We noticed a relatively high incidence of inadequate diuresis in our NICU as well as a high incidence of BPD and IVH

KEY DRIVERS



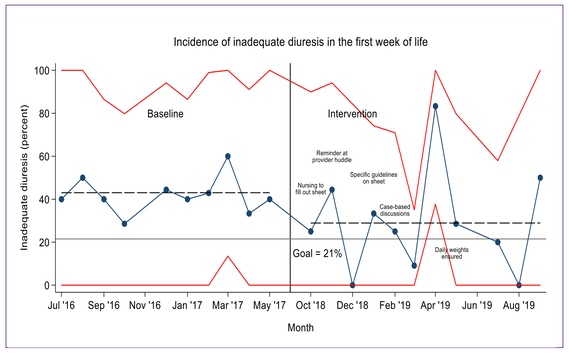
PROJECT AIM

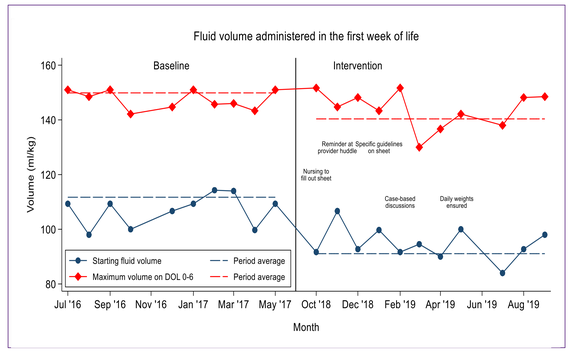
To decrease the incidence of inadequate diuresis in extremely preterm infants (<28 weeks GA) in the first week of life by 50% in 1 year

PDSA CYCLES

PDSA 1	Literature review Establishment of team Collection of baseline data Creation of fluid guide sheet
PDSA 2	Education of staff Nurses to complete guide sheets
PDSA 3	Reminder to complete guide sheets at staff huddle
PDSA 4	Inclusion of specific suggestions on guide sheet
PDSA 5	Education of staff using case-based discussion at multidisciplinary rounds
PDSA 6	Ensuring daily weights were recorded

RESULTS/OUTCOMES





DISCUSSION

- Data demonstrated statistically significant reduction in starting fluid volumes on DOL 0 as well as maximum fluid volume on DOL 0-6
- Successful reduction of incidence of inadequate diuresis, though our goal was not met
- No significant change in PDA, BPD, or IVH which is likely due to the multifactorial nature of these disease processes
- No significant increase in our balancing measures: dehydration or hypernatremia
- Close monitoring of electrolytes revealed iatrogenic hypernatremia especially in the smallest babies (<600g) most likely caused by hidden sources of sodium (transfusions, medications, flushes, etc.)

NEXT STEPS/LESSONS LEARNED

- Education regarding fluid management will be continued in the unit
- A longer time frame may be required to see our goal of a 50% reduction in the rates of inadequate diuresis
- The fluid status of infants weighing less than 600g at birth was more challenging to manage than in larger infants
- Critically ill infants with central lines require a minimum volume of fluid to keep those lines open which impacts the ability to fluid restrict these infants

ACKNOWLEDGEMENTS

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