

## CARE SETTING

### Vidant Medical Center Neonatal Intensive Care Unit (VMC NICU)

- Level IV, 50-bed unit
- Admits ~850 neonates yearly, including 100 extremely low birth weight infants

### Multidisciplinary Team

- Attending neonatologist
- Neonatology fellow
- Nurse practitioner
- NICU nurse
- Pediatrics resident
- Medical student

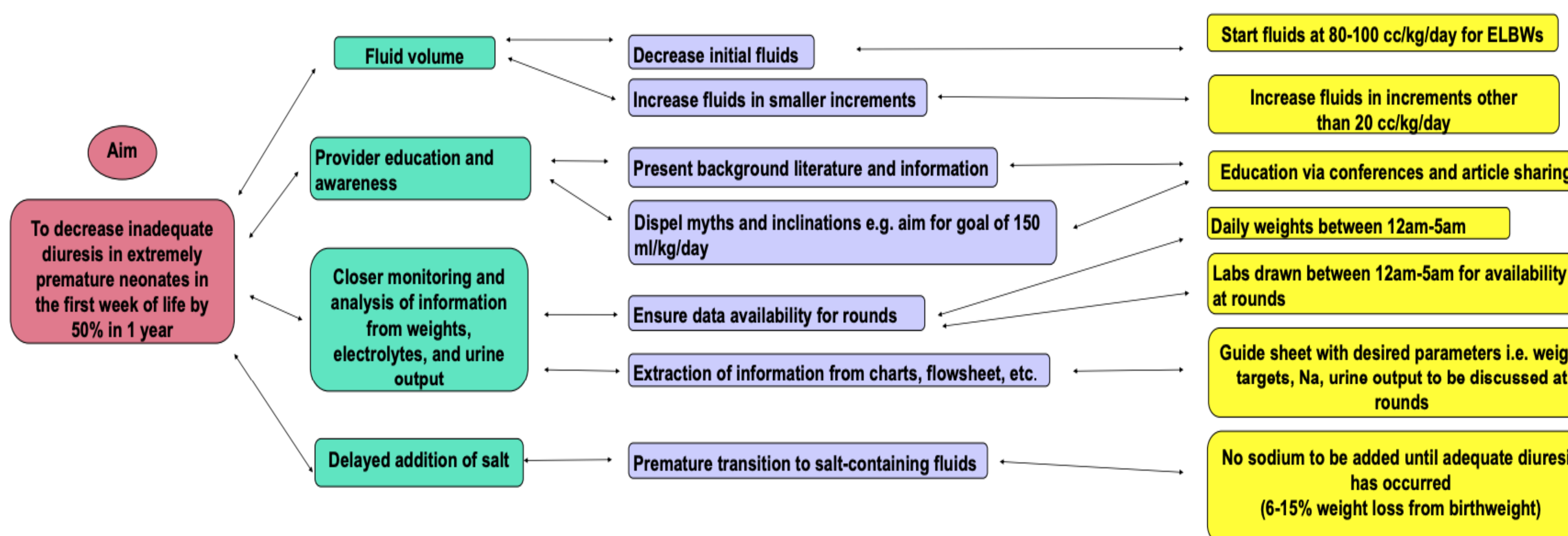
## PROJECT AIM

Decrease the incidence of inadequate diuresis (weight loss of <6% of birth weight) in extremely preterm neonates (<28 weeks of gestation at birth) during the first week of life by 50% in 1 year.

## REFERENCES

Havinga J, Williams A, Hassan N, Moore S, Dollhopf E, Tumin D, Akpan US. Individualized fluid management in extremely preterm neonates to ensure adequate diuresis without increasing complications. J Perinatol. 2021 Feb;41(2):240-246. doi: 10.1038/s41372-020-00789-7. Epub 2020 Aug 19. PMID: 32814823.

## KEY DRIVER DIAGRAM



## STRENGTHS

### Individualization of fluid management in neonates

- Start fluids at a lower volume (80-100ml vs. 120ml)
- Decrease fluid volume by different increments (5ml/kg, 10ml/kg vs. 20ml/kg)

**Inadequate diuresis decreased by 32% (29% from 43%) over 12 months**

## DETAILS & INTERVENTIONS

- VMC NICU had a 43% incidence of inadequate postnatal diuresis in EPT infants compared to 3–8% reported in other units
- Multidisciplinary team formed to decrease this percentage and therefore decrease the associated morbidities.

### Outcome Measures

- Percentage of birth weight lost within week 1 of life

### Process Measures

- Initial fluid volume
- Fluid guide sheets completion rates by provider
- Provider education

### Balancing Measures

- % of dehydration (weight loss >15% of birth weight)
- % of hypernatremia (Na<sup>+</sup> >148)

## OPPORTUNITIES

### Resistance to change in unit culture

- Longer timeline to allow for adoption

### Difficulties completing the fluid guide sheet

- Integration into the EHR

### Controlling sources of extra fluid and sodium

- Strictly restrict or eliminate extra sources of sodium
- Record extra sources of fluid

## RECOMMENDATIONS

1. Continue provider education as 12 months may not have been long enough to shift unit culture.
2. Conduct root cause analysis to determine why fluid guide sheets were not being completed.
3. Create a method using Lean/Six Sigma to track extra sources of fluids, especially for infants requiring a central line.