Phoenix Children's®

PSQ Project

Neonatal Pump Prime
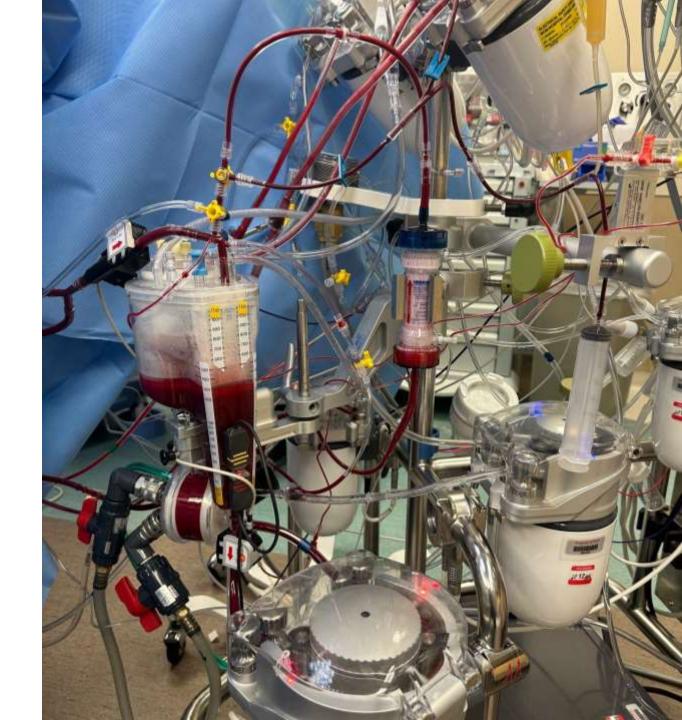
Professional Pumpers

Project Inception

Neonate Prime PSQ (Patient Safety & Quality)

- 2022 Perfusionist search
  - Market Analysis
- Dr. Velez introduces PSQ bonus
- Cardiac team dynamic
- AmSECT Standards and Guidelines for Pediatric and Congenital Perfusion Practice (2019)
  - Guideline 13.2: The perfusionist should consider matching prime composition to the individual patient values.
- Collaboration with a few different centers

Existing Neo Prime

- 250mL Plasma-lyte (removed)

- 25g 25% Albumin

- 10-15mL/Kg FFP

- 150mL – 200mL PRBC's

- 200 Units/Kg Heparin

- .5g/Kg 20% Mannitol

- 10-20mEq Bicarb

- 100-150mg Calcium Chloride

OR protocol

- Prime

  – Run pump prime gas

- Adjust to last labs

- Run a gas off the post heparin sample

  – Last second adjustments

- Gas within 5 minutes after initiation

  – Pass = Crit within 5% of post heparin gas

  – Pass = Patient base excess within normal (+/-4)

Issues encountered

- #1 Continuity in the reservoir

  – Matching the hematocrits was leading to failing on the low end.

  – Hypothesized that or prime was not perfectly mixed despite our best efforts.

  – Aimed 5-8% higher in the prime

- #2 Patients that were extremely acidotic or alkalotic pre-bypass.

2023 Results and 2024 Changes

- Ended the year with a 91% pass rate

    – Majority of cases that failed were kiddos that were greatly outside the normal values.

- 2024 PSQ changes

    – Added an exclusion criteria.

    – Changed the comparison from pre and post initiation to prime and patient.

Impact on our practice

- Prime gasses are now standard on all neonates
  - Previous prime recipe was not far off but now our adjustments are much more accurate.
  - Has led to more precise care
    - Beyond a weight
- Less variation in prime technique between the 4 of us.
- Anesthesia is more involved in pre-bypass routine
  - Opens another avenue for communication
- While not measurable we do believe that it has led to a smoother transition to bypass.

Surgical Team

Thank you!