PCCL Session: Summary Report and Resources

PCCL session topic: "Code Blue, Baby"

Date: January 17th, 2025

Learning objectives:

- Early recognition of possible sepsis and shock
- Recognition of the impact team collaboration has on patient care
- Understand the importance of quality communication at transitions of care

Case:

- A community hospital that provides tier 4 pediatric medical and surgical services, 24/7 pediatrician support, and Adjacent level 2b NICU

- This was a direct admission from community provider for query malnutrition (failure to thrive). At home had decreased intake, decreased muscle tone, and hypothermia.

- 17 days old, male and born at 38 weeks via emergency c-section due to decreased fetal movement.

- Vital signs: T 30.4 (temporal), HR 92, RR 20, sats 88% on RA. Cap refill 3-4 sec, blood glucose 4.5 mmol/L, weight 2.7 kg, cold to touch and cyanotic. CXR and abdominal US ordered. No labs or imagining completed prior to pediatric code blue being called.

- Initial management:
    - Warm blankets applied and placed on cardio-resp monitor.
    - Code blue pediatric called for lengthening apneic spells. The patient required manual ventilation via bag-valve mask by RT. IV access was challenging with the initial IV soon going interstitial.
    - Due to the large response, the code team was dismissed, and the patient moved to NICU for ongoing resuscitation: placed under overhead warmer upon arrival, NS bolus 50 cc given and VS repeated every 10 min, intubated in NICU with no medications and no sedation required post intubation. 2 fluid boluses, 2 antibiotics and an antiviral once IV access re-established, epinephrine infusion initiated prior to ITT transfer to BCCH PICU.

Learnings:

Recognition of sepsis in an infant

- Discussed the importance of **initial Assessment:** Detailed history (birth history, maternal infections, exposure risks, vaccination status), physical examination (vital signs, signs of systemic illness, respiratory distress, altered mental status, poor feeding, jaundice)
- Importance of temperature assessment and management in a neonate as temperature changes can signal infection (e.g., sepsis, meningitis) or other conditions.
    - Fever in neonates is often a sign of systemic infection, while hypothermia (low body temperature) can be indicative of serious illness or inadequate thermal regulation.
- **Temperature - Early Detection:** Monitoring temperature is critical for early identification of sepsis or other serious infections, enabling timely intervention and treatment.
    - **Hypothermia Risks:**
        - Impaired Immune Response: Hypothermia can suppress the neonate's immune system, making it more difficult to fight infections.
        - Hypoxic-Ischemic Events: Persistent hypothermia may result in reduced oxygen supply to vital organs, potentially leading to organ failure or brain damage.
        - Poor Feeding and Weight Loss: Cold stress can also lead to poor feeding and difficulty maintaining blood glucose levels.
- If you are unable to obtain a temperature on an infant, it may be a sign that their temperature is too low. Central continuous temperature monitoring is recommended in children < 5kg.

Resuscitation of an infant - NRP vs PALS

- The decision to use **NRP** versus **PALS** in a resuscitation scenario depends on the age, clinical condition, and underlying physiology of the patient being treated.
- **NRP (Neonatal Resuscitation Program)**:
    - Specifically designed for **newborns (up to 28 days old)**, including premature, term, and post-term infants, and relates to the specific newborn conditions commonly associated with requiring NRP, specifically RDS and HIE. PICU will always recommend PALS for appropriately aged and sized babies with whom we are supporting during transport calls.
- It also depends what the team is most comfortable utilizing, the resources you have and the unit you are practicing on.
- If the infant progresses beyond the neonatal period (post-28 days), and their condition worsens into a more cardiac or shock-related issue, PALS may be used instead.

Vascular access in small children

- Vascular access in infants presents unique challenges due to their small size, fragile veins, and limited anatomical landmarks.
- In an emergency, if unable to obtain IV access after 3 attempts, IO access should be used.
- UVC /UA is recommended if it is a newborn.

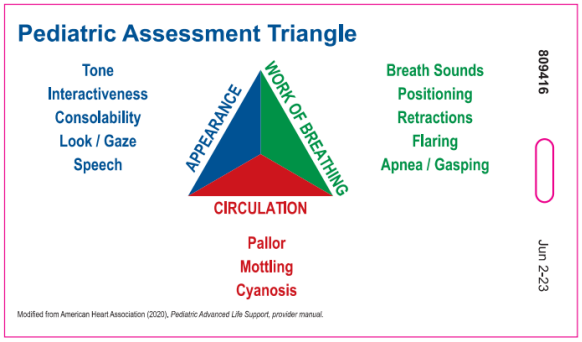
Intubation Drugs

- The exact choice of drugs and dosages should be tailored to the child's age, weight, medical condition, and response to medications.
- At BCCH our standard practice is Ketamine 0.5-1mg/kg and Rocuronium 1 mg/kg. Fentanyl 1 mcg/kg may be considered but usually only after airway is secured, and if pain might be an issue.

Resources:

- Temperature management BCCH - https://shop.healthcarebc.ca/phsa/BCWH_2/BC%20Children%27s%20Hospital/C-05-12-62525.pdf

- Sepsis Screening tools - screening tool; Sepsis Management | CHBC
- IV access - Peripheral Intra Venous (PIV) Access | CHBC
- IO access - Intra Osseous (IO) Access | CHBC
- Rapid Sequence Intubation - BEFORE Intubation | CHBC
- Pediatric Assessment Triangle – Lanyard card from interior health.



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The resources shared throughout this session are for reference purposes only. Please consult your health authority leaders for guidance on adoption and use of these resources within your local context. The advice provided during the PCCL sessions is not intended to replace the clinical judgment of the healthcare providers who are with the patient. While PCCL sessions may suggest recommendations, the final decisions regarding a child's care and treatment should always rest with the healthcare professionals involved in their care at both the referring and receiving centres.
If you need additional in the moment support refer to the Provincial Real Time Virtual Support Pathways: If you need additional in the moment support refer to the Provincial Pediatric Virtual Support Pathways: https://childhealthbc.ca/pcc/provincial-pediatric-virtual-support-pathways