PCCL Session: Summary Report and Resources

PCCL session topic: "SEEING IS BELIEVING - Using video consults in assessing sick children"

Date: November 15th, 2024

Learning objectives:

- Identify how to assess critically ill patients on the ward and what interventions can be done versus what needs to be done off ward.
- Identify how to manage gaps in communication between health professions.
- Assess how the use of video consults from BCCH can help with determining disposition and urgency of transfer.

Case:

- A 7-year-old patient, who was fully immunized and healthy beyond a history of a chronic cough, presented to the emergency department with 6 days of worsening cough, 1-day of increased work of breathing and post-tussive emesis. They had no fever or other infectious symptoms. On presentation their PRAM was 6-7, with increased work of breathing and wheezing. The asthma protocol (Ventolin/Atrovent back-to-backs, IV methylprednisolone) was initiated, and they were admitted to the ward.

- After almost 48 hours of admission, the patient had an acute deterioration with increased work of breathing and intractable coughing. Acute asthma treatment was re-escalated with Ventolin/Atrovent back-to-backs, followed by IV magnesium sulfate and IV methylprednisolone. A video call with BCCH PICU was initiated from the PTN transfer/advice call, and it was agreed to move this patient to ED for BiPAP initiation, dexmedetomidine infusion for mask tolerance and ongoing asthma treatment.

- The PATCH (Pediatric Advance Transport to Children's) team had arrived to transfer patient to BCCH.

Learnings:

Decision algorithm and support tools for a treating a child with asthma

- The new BC Provincial Pediatric Asthma Guideline 2024: C-0506-07-63037.pdf (healthcarebc.ca)
- Key updates in the guideline include:
    - Revised recommendations for best practices in managing acute pediatric asthma.
    - Guidelines for ongoing management beyond the first 4 hours of treatment
    - A focus on real-time support and tools to ensure consistent and standardized care across the province

  - Expanded statements on cultural safety and humility and our duty to uphold and recognize the health care right of indigenous people
- Regarding high flow oxygen therapy, it is primarily indicated for patients with oxygenation failure. The main physiological challenge in pediatric asthma is lower airway obstruction and dynamic hyperinflation. Studies show that high flow oxygen therapy is associated with longer hospital stays compared to non-invasive ventilation (NIV) and does not prevent the need for escalation to non-invasive positive pressure ventilation (NIPPV). Therefore, the guideline recommends using BiPAP when available. High flow nasal cannula (HFNC) may be considered for respiratory support when face mask oxygenation is insufficient and BiPAP is unavailable.
- The dosing for ipratropium is as follows:
  - For patients <20kg (1 dose): 3 puffs per dose via MDI with spacer (20mcg per puff) or 0.25 mg via nebulizer.
  - For patients >20kg (1dose): 6 puffs per dose via MDI with spacer (20mcg per puff) or 0.5 mg via nebulizer.

Video Conferencing and PATCH response

- Video conferencing for a consult, advice or transport call can occur at any time. This can be initiated through a regular call to PTN and connection with the PICU either at BC Children's Hospital or Victoria General Hospital
- Physician, RT and RN support is available 24/7.
- PATCH (Pediatric Advance Transport to Children's) is available from BC Children's Hospital for ground transport when ITT is unavailable. They will provide ground transport with a range from Pemberton to Hope. The team will transport patients >2kg to 17 years of age requiring transfer to the BCCH ED or PICU.
- The process of organizing the transport from the referring site is through PTN as per the standard process, depending on resource availability either PATCH or ITT will be dispatched
- PATCH includes a PICU MD, RN and RT with additional training from BCCH. The team will bring all required equipment, and transport that patient to BCCH via ambulance.

Sedation and analgesia for children receiving NIPPV

- Choosing the right analgesia for your patient to be compliant and comfortable on their NIPPV can be challenging.
- A dexmedetomidine infusion would be a first line option, but it will take 30+ minute to take effect if you start in the mid or low range. You will get a more rapid effect if you start at a higher dose (0.8-1 mcg/kg/hr) initially and then wean down once the patient is settled on BiPAP.
- You may also give a dose of IV Lorazepam, Midazolam or Ketamine as needed while starting the infusion to support BiPAP being started rapidly
- There is potential for mild hypotension or bradycardia once the child is sedated. This usually occurs gradually and can be treated by reducing the dexmedetomidine infusion.

Resources:

- Guidelines
- NEW - Child Health BC Provincial Pediatric Asthma Management Guideline
- Asthma Guideline Webinar: watch or listen a summary of the guidelines and the key changes.
- Pediatric Critical Care in British Columbia | CHBC (childhealthbc.ca)
    - The virtual support pathways (including access to nursing outreach) - Provincial Pediatric Virtual Support Pathways | CHBC (childhealthbc.ca)
    - In a hurry: Asthma and NIPPV support
- Dexmedetomidine Infusion: Infusion guidelines

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