Provincial Health Services Authority

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Child Health BC Provincial Pediatric Asthma Management Guideline Frequently Asked Questions (FAQ's)

The Child Health BC Provincial Pediatric Asthma Guideline was first released in 2018. The intent of the revised guideline is to:

- Provide updated best practice recommendations for the management of acute pediatric asthma exacerbations
- Include recommendations for ongoing management beyond the initial 4 hours of treatment
- Enhance support tools for clinicians in emergency departments, urgent care and inpatient care settings
- Highlight real-time supports available to ensure standardized practice of care
- Expand statements on cultural safety and humility and obligations to upholding of the rights of Indigenous Peoples
- Provide resource materials to support patients and parent/caregiver/chosen supports in asthma management

Background

Who is Child Health BC?

Child Health BC (CHBC) is a Health Improvement Network within the Provincial Health Services Authority (PHSA). Our partners include: BC's health authorities, three key child-serving ministries, health professionals, academic partners and other provincial partners dedicated to improving the health status and health outcomes of BC's children and youth.

Scope

Which care settings and patient population is the guideline intended for?

The guideline is intended for children aged 1 year to 16 years +364 days who have wheezing, or respiratory distress AND are:

- Diagnosed to have asthma, or
- Have a history of frequent asthma-like symptoms or recurrent exacerbations reversible with asthma medication with no other alternative diagnosis

Utilization of the ongoing management pathway and guidance is inclusive of patients with an uncomplicated primary diagnosis of asthma, on room air or low-flow oxygen (not on high-flow nasal cannula).

Children who would require personalized care plans would be excluded from this guidance. Some examples would be those who:

- Have a concurrent primary diagnosis (e.g. admitted asthmatic patient admitted with diabetic ketoacidosis)
- On home oxygen or previously diagnosed with complex chronic lung disease
- Are on heated high flow oxygen therapy, BiPAP or CPAP

This resource should be used to guide best practice rather than to define a standard of care. We acknowledge that variation within and across health authorities/agencies and regions will determine the practical application of these guidelines. It cannot replace clinical observation and judgement in patient treatment and management.

Clinical Guidance

What are the significant changes to the recommended clinical management for pediatric asthma?

- More detailed direction and approach for the role of high-flow nasal cannula (HFNC) use in the management of pediatric asthma exacerbations. Guidance recommends the utilization of HFNC only when simple face mask oxygenation is inadequate and BiPAP is not available
- Guidance added for the delivery of medications to patients utilizing HFNC, acknowledging reduced delivery of bronchodilators with flow rates exceeding 0.25 L/kg/min
- Addition of guidance outlining the management of asthma exacerbations 4 hours after administration of initial systemic steroid
- Recommendations on the frequency of assessments and bronchodilators based on a patients PRAM score
- Insight regarding weaning salbutamol to patients meeting the outlined criteria

Does the Pediatric Respiratory Assessment Measurement (PRAM) tool need to be utilized?

Yes, the **PRAM is a validated scoring tool** for pediatric asthma to classify a patient's severity of respiratory distress and subsequent response to treatment. Treatment is initiated and modified based on the severity of the calculated PRAM score.

What is the most effective way to deliver bronchodilator treamtent in mild to moderate exacerbations?

Utilization of a Metered Dose Inhaler (MDI) with spacer and mask or mouthpiece has equivalent deposition with less side effects and decreased length of stay compared to nebulization with a small-volume nebulizer.

Do you always need a spacer to deliver bronchodilator treatment?

Yes, a spacer with mouthpiece should be utilized for all pediatrtic patients whenever administering medication through an MDI.

How do I decide whether to use a mask or mouthpiece with the spacer to deliver bronchodilator treatment?

A spacer with a mouthpiece should be used for those who are physically and developmentally able to form a seal around the mouthpiece and cooperate with instructions (often 5 years or older). A spacer with a mask should be used for those who are unable to use a mouthpiece effectively. Follow manufacturers guidance to ensure the size of mask and spacer are appropriate for patient age and weight. Using the wrong device for their size and stage of development may result in inadequate dose administration.

When do I provide continuous nebulization for bronchodilator treatment?

In patients with severe exacerbations or a PRAM score of 8 to 12 on room air or low-flow oxygen (who do not improve after initial MDI or nebulization treatment), it is recommended to provide continuous nebulization therapy.

When would I use a Vibrating Mesh Nebulizer (VMN) for treatment?

If your site has a VMN nebulizer available, it should be utilized for all pediatric patients receiving continuous administration of medication.

If a VMN is unavailable, continuous medication can be provided most effectively through the administration of back-to-back small or large volume nebulizer therapy.

If a child is on HFNC, to achieve best deposition of medication, intermittent medication can be provided through pre-oxygenating the child and removing the HFNC prongs from the face and administering the medication with an MDI and spacer with mask/mouthpiece (or nebulizer if unable to use an MDI and spacer).

These strategies can be found in more detail within the 'Medication Administration with Respiratory Support (Non-Invasive Ventilation & High-Flow Nasal Cannula)' section of the guideline.

What is the recommended treatment to support work of breathing during severe asthma exacerbations?

In sites where the required personnel and equipment are available, BiPAP should be used as a first step to support work of breathing in patients with severe asthma exacerbation or impending respiratory failure. Consult with RRT and/or a higher level of care to discuss pharmaceutical options for sedation to improve tolerability of BiPAP.

Is it recommended to use High Flow Nasal Cannula (HFNC) for providing respiratory support during asthma exacerbations?

The use of HFNC in pediatric asthma exacerbations is still unclear. There have been a few positive observational studies, but no clear evidence to show superiority over simple face mask for improving oxygenation or less failure rates than BiPAP. It is known that the delivery of inhaled medications diminishes as flow rates increase with HFNC. Further studies are required to delineate the applicability of HFNC as respiratory support in pediatric patients with severe asthma exacerbations.

The use of HFNC can be considered for respiratory support only when simple face mask oxygenation is inadequate and BiPAP is not available.

It is recommended to consult with local pediatrician on-call; if no pediatrician call **CHARLiE** via ZOOM/phone and a higher level of care center via PTN prior to initiating.

Is the use of ipratropium recommended for ongoing therapy?

There is no evidence to support use of ipratropium in ongoing asthma management after the initial 3 doses. Do not give ipratropium to patient/caregiver/chosen support to take home.

Oral dexamethasone often makes my pediatric patients vomit. How can I help them tolerate it?

BC Children's Hospital has created a resource for ways to **improve palatability of oral medications**.

Should my patient have an x-ray?

No, it is recommended that only children with severe asthma, slow/inadequate response to therapy or diagnostic uncertainty, should have an chest x-ray to assess for barotrauma, possible pneumothorax and/or pneumonia/atelectasis. For children presenting with first-time wheezing or with typical findings of asthma, x-rays rarely yield important positive findings and expose patients to radiation, increase cost of care, and prolonged emergency department length of stay. Chest x-rays may also lead to overuse of antibiotics as outlined by **Choosing Wisely Canada**.

When should I transition my patient to the Ongoing Management Pathway?

The patient may transition when all of the following are met:

- At least 4 hours has elapsed since the initial dose of systemic steroid was administered
- The patient's most recent PRAM score is less than or equal to 7
- The patient does not meet any exclusion criteria outlined in the guideline
- It has been ordered by the most responsive provider (MRP)

When can a child start to be weaned off their bronchodilators during the admission period?

Once stable and PRAM is mild after 4 hours or more without inhaled salbutamol, number of bronchodilator puffs can be weaned, and discharge should be considered. Weaning of bronchodilators may be done by MRP, RRT or RN dependent on health authority/agency guidelines regarding scope of practice.

Are dry powder inhalers recommended following an asthma exacerbation?

Caution should be used in prescribing dry powder inhalers to children with an acute asthma exacerbation as they may not have the inspiratory force to properly get the medication out of the inhaler.

There is information available about more environmentally friendly inhalers ("green inhalers"). Are these recommended to prescribe for pediatric patients on discharge?

The majority of "green inhalers" are dry powder inhalers so they are not recommended to provide on discharge following an acute asthma exacerbation. The Recommended Asthma Discharge Medication Table within the guideline provides lower environmental impact options but the most beneficial impact to the child and the environment is to reduce unnecessary asthma exacerbations requiring urgent/emergent care. Ensure all barriers to compliance to regular inhaled corticosteroids therapy have been considered. Robust patient/family/chosen support education to guide correct treatment at home and use of a dose tracking sheet are also critical to reduce environmental impact.

Parent/Caregiver

What resources have been revised or developed for patient/caregivers/chosen supports?

An Asthma Wallet Card was created to support knowledge translation of the Provincial Pediatric Asthma Guideline. Patients/families/chosen supports can be provided the Asthma Wallet Card to bring with them to future emergency department or urgent care visits regarding their asthma exacerbation.

The Asthma Action Plans for ages 1 to 5, 6 to 11 and 12 to 17 have been revised and are now translated into eight additional languages (Arabic, Chinese, Farsi, French, Korean, Punjabi, Spanish and Vietnamese).

Child Health BC has utilized many of the resources developed by BC Children's Hospital, the University of BC and BC Lung Association to support patient/caregiver education.

All resources can be downloaded from the Child Health BC Asthma Care Across Community Settings webpage.

Implementation

What other resources are available for education and implementation?

Several resources may be utilized for education and implementation of the CHBC Provincial Pediatric Asthma Guideline. This includes:

- Recorded podcast style webinar with BCCH physicians Dr Claire Seaton (Pediatric Respirology), Dr. Simi Khangura (Pediatric Emergency) and Registered Respiratory Therapist, Alyssa Hawley.
- PRAM Scoring Table and PRAM Lanyard
- Pediatric Asthma Education Checklist
- Three simulation scenarios:
    - Initial management for mild/moderate PRAM score
    - Initial management for severe PRAM score
    - Ongoing management
- Pediatric Asthma Guideline Huddle Facilitator Guide
- Pediatric Asthma Guideline Factsheet

When can I start using the CHBC Provincial Pediatric Asthma Guideline in my practice?

The CHBC Provincial Pediatric Asthma Guideline is now available on PHSA SHOP and the CHBC website. It has been shared widely with pediatric partners across BC.

Discuss with your CHBC Regional Coordinator or health authority pediatric leads about its implementation in your health authority. Resources are available on our website including education resources and material to assist with implementation. If you require further support email CHBCEducation@phsa.ca

How do I access printed materials from the CHBC Provincial Pediatric Asthma Guideline?

The Child Health BC Asthma Care Across Community Settings webpage allows you to download, print or email all the asthma resources. We encourage you to access materials directly from the website to ensure the latest versions are always utilized.

I have some questions about the CHBC Provincial Pediatric Asthma Guideline and would like support – who do I contact?

Child Health BC is committed to supporting your service to adopt the CHBC Provincial Pediatric Asthma Guideline and improve outcomes for families and children. Resources are available on our website including education resources and material to assist with implementation. If you require further support email CHBCEducation@phsa.ca

What if I have feedback to provide about the CHBC Provincial Pediatric Asthma Guideline?

CHBC will be evaluating the provincial implementation of the toolkit and will be collecting feedback over the next 6 months to support the evaluation. Please send feedback via email to CHBCEducation@phsa.ca

Who did CHBC collaborate with to develop the CHBC Provincial Pediatric Asthma Guideline and accompanying resources?

The CHBC Provincial Pediatric Asthma Management Guideline is based on best practice and incorporates input from a broad range of pediatric clinicians across BC. The guideline was developed in collaboration with the following partners:

- First Nations Health Authority
- Fraser Health
- Island Health Authority
- Interior Health
- Northern Health Authority
- Provincial Health Services Authority
- Vancouver Coastal and Providence Health Authority

A full list of partners can be found within the CHBC Provincial Pediatric Asthma Management Guideline. We would also like to acknowledge the families who provided feedback on our patient caregiver materials who wish to remain anonymous.