Management of an Acute Asthma Exacerbation in Adults with Known Asthma in Acute and Community Care

Quicklinks

- Appendix A: Primary Care Algorithm
- Appendix B: ED/UCC/UPCC/HCC Algorithm

Site Applicability

- The following VCH and PHC Acute and Community care settings:
  - Primary Care (PC) Sites
  - Emergency Departments (ED)
  - Urgent Care Centres (UCC)
  - Health Care Centres (HCC)
  - Urgent and Primary Care Centres (U and PCC)

Practice Level

Profession	Basic Skill	Advanced Skill (requiring additional education)
NP	Management of Acute Asthma Exacerbation	

RN, RPN		**Nurse Independent Activity (NIA):**
		• **With completion of required additional education of Understanding Autonomous Practice and Nurse Independent Activities (NIA)/ Nurse Initiated Protocols (NIP), the following NIA has been approved for use as noted in the site applicability above:**
		  ○ Administration of oxygen to treat hypoxia
		  ○ Administration of inhaled bronchodilators to treat an acute asthma exacerbation

LPN		**Nurse Independent Activity (NIA):** • **With completion of required additional education of Understanding Autonomous Practice and Nurse Independent Activities (NIA)/ Nurse Initiated Protocols (NIP), the following NIA has been approved for use to:** ○ Administration of oxygen when oxygen saturation is less than 93%.

RT	• Administration of oxygen to treat hypoxia • Administration of inhaled bronchodilators as per provider order to treat an acute asthma exacerbation	

Requirements

- RNs, RPNs, LPNs, Respiratory Therapists (RT) and Nurse Practitioners (NP) must follow this clinical protocol when providing care for adults who are known asthmatics experiencing an acute asthma exacerbation.
- The use of NIA is supported within VCH and PHC, and is defined within the policy: Nurse Independent Activities (NIA) and Nurse Initiated Protocols (NIP).
- NIAs:
    - NIA can only be used at sites where the NIA has been approved
    - Physician/NP orders override the use of NIA

Need to Know

Asthma is defined as a common chronic respiratory disorder characterized by (1) symptoms such as, dyspnea, chest tightness, wheezing, sputum production, and cough, (2) airflow obstruction, (3) bronchial hyper-responsiveness and (4) underlying airway inflammation.[2,3] The interaction of these four features determines the clinical manifestations and severity of an acute asthma exacerbation and potential response to treatment. Early recognition and treatment of acute asthma exacerbations is key to improving outcomes for clients.[1,2]

Asthma symptoms and attacks usually occur after exposure to "triggers". Some of the common triggers are allergens, viral respiratory infections, exercise or exposure to irritant fumes or gases.[1,2]
Clinical warning signs for severe asthma exacerbation in adults include[1,2,10,14]

- Use of accessory muscles of respiration
- Inability to speak or brief, fragmented speech (1 to 2 word answers)
- Agitation or confusion
- Increased respiratory rate, often 30/minute or more
- Elevated heart rate (120 beats per minute or more)
- Wheezing or silent chest with no entry and no wheezing
- Tripod posture for breathing and/or inability to lie supine
- Peak expiratory flow (PEF) of less than 50% of baseline (For Primary Care, if available, record(ed) in EMR Problem List)

Due to differences in underlying disease pathology and treatment strategies, it is important to differentiate between asthma and chronic obstructive pulmonary disease (COPD).[1,5,9] For example, oxygen therapy for an individual experiencing a COPD exacerbation requires oxygen titration with a target saturation of 88 to 92%, whereas with asthma the target saturation is 94 to 98%. This differentiation can be challenging due to similarities is clinical presentation of COPD and asthma exacerbations, including dyspnea, sputum production, wheezing, airflow obstruction and airway inflammation.[5,9]

Key differences between asthma and COPD exacerbations[5,6,9,11]:

	Asthma	COPD
History	• Diagnosis of asthma • Early onset in life (often in childhood) • Symptoms vary from day to day • Symptoms often worse at night/early morning • Reversible airflow limitation • Lung function normal between exacerbations • Family history of asthma • Allergies or environmental triggers	• Diagnosis of COPD • Onset in mid-life • Symptoms slowly progressive • Persistent airflow limitation • History of tobacco smoking • Comorbidities
Physical Exam	• Overt wheezing (expiratory more pronounced than inspiratory) • Episodic dyspnea, cough and/or chest tightness	• Breath sounds: wheezing, crackles or decreased breath sounds early in inspiratory cycle • Persistent or worsening dyspnea, and/or cough (often productive)

Equipment and Supplies

- Stethoscope
- Pulse Oximeter
- Peak Flow Meter with a bacterial or viral filter disposal mouthpieces
- Oxygen source (portable tank or wall unit)
- Air compressor or nebulizer
- Oxygen administration equipment: Aerosol mask; nasal cannula; simple face mask; non-rebreather mask; oxygen tubing
- Salbutamol solution for nebulization 5mg/dose
- Ipratropium Bromide solution for nebulization 0.5mg/dose
- Salbutamol and Ipratropium Bromide Metered Dose Inhalers (MDI) and Spacers

Protocol

1. Assess severity of symptoms: Respiratory rate, heart rate, use of accessory muscles, auscultates breath sounds, shortness of breath, SpO_2 on room air and when possible Peak Expiratory Flow Rate (PEFR).
2. Take brief medical history if possible (otherwise proceed to next step): medical conditions, acute asthma exacerbation, hospitalization, current medications.
3. **For Primary Care Setting:** Respond according to algorithm in Appendix A.
4. **For ED/UCC/UPCC/HCC Setting:** Respond according to algorithm in Appendix B.

Expected Client and Resident Outcomes

1. Reassessment includes: PEFR, SpO_2, RR, HR, accessory muscle use, work of breathing, and auscultation
2. Good response and incomplete responses as defined in algorithms in appendices of this document.

Client and Resident Education

- Proper technique for use of MDI and spacer, using lung.ca instructional videos and the VCH or PHC Teaching Guide
- Metered Dose Inhaler: Best Practices Online Education
- Self-management techniques
- Development of a personalized asthma action plan which includes
    - Identify triggers related to loss of asthma control
    - Recognizing loss of asthma control
    - Actions to take if asthma control deteriorates

Documentation

- **NURSE INITIATED ACTIVITY (NIA):** The VCH and PHC Acute and Community staff will document care provided as per their site-specific requirements and the Nurse Independent Activities (NIA) and Nurse-Initiated Protocols Policy, for any treatment for acute asthma exacerbation given independently.
- **RT:** document care provided as per site-specific requirements

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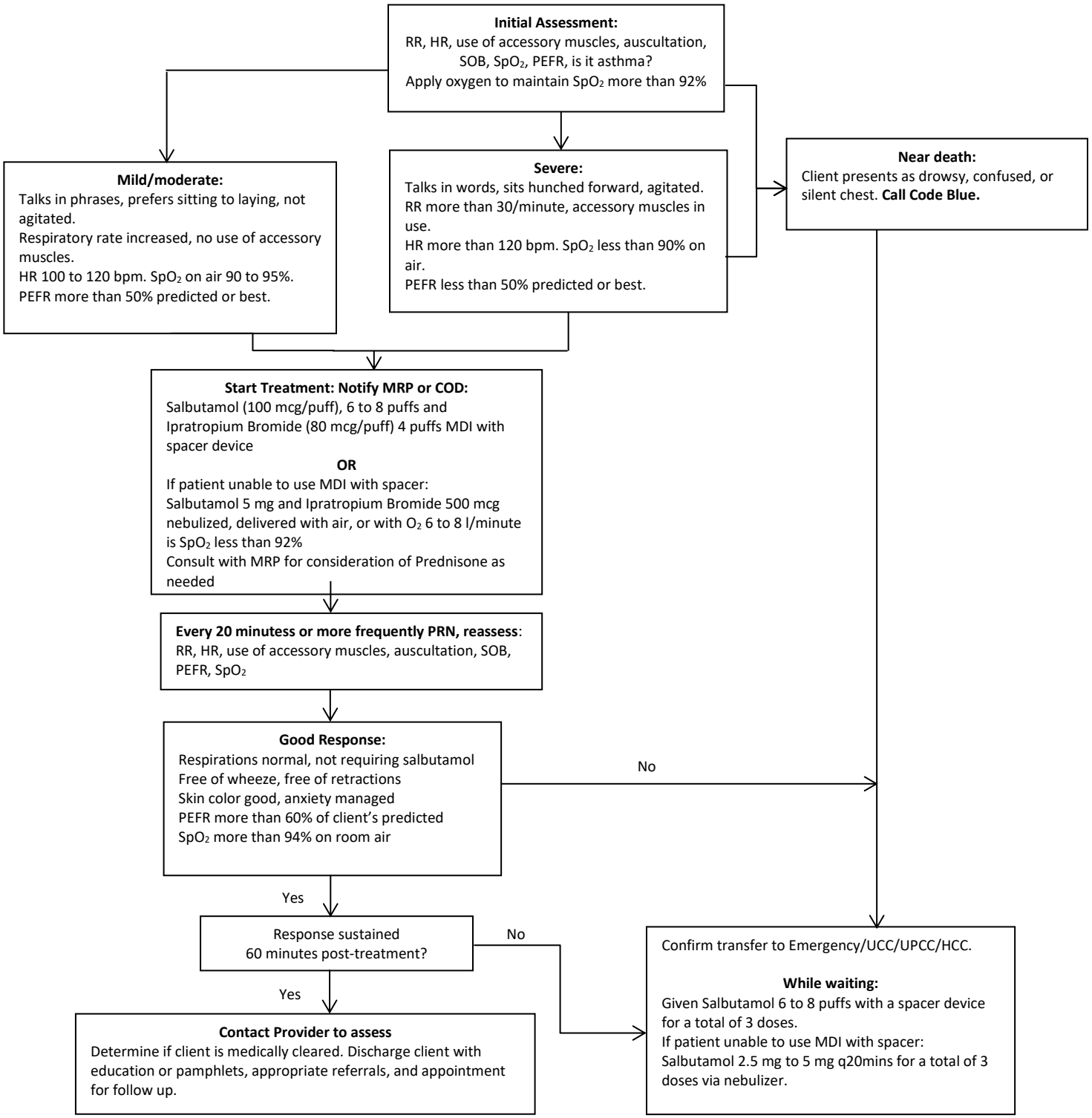
Appendix A: Primary Care Algorithm



Global Initiative for Asthma, 2018: https://ginasthma.org/2018-gina-report-global-strategy-for-asthma-management-and-prevention/

Appendix B: ED/UCC/HCC/UPCC Algorithm