Canadian Family Medicine Clinical Card

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Asthma

Diagnosis

CHILDREN <6 Y.O.

3 key elements to diagnosis:

1. **Documentation of Airflow Obstruction**
   Preferred: documented wheezing and/or other signs of obstruction by MD or other health professional.
   Alternative: convincing parent/ guardian report of wheezing or other obstructive symptoms.
2. **Documentation of Reversibility of Airflow Obstruction**
   Preferred: documented improvement of wheezing and/or other signs of obstruction by MD or other health professional, in response to SABA +/- steroid.
   Alternative 1: convincing parent/guardian report of improvement of obstructive symptoms in response to 3 mo tx with ICS (and PRN SABA)
   Alternative 2: convincing parent/guardian report of improvement of obstructive symptoms in response to SABA
3. **No Clinical Evidence of Alternative Diagnosis**

Clues for Alternative Diagnoses	
chronic nasal discharge	rhinosinusitis (infxs. or allergic)
stridor; loud breathing when crying, eating, supine, resp infxn	upper airway obstruction (infxs, intrinsic, extrinsic)
acute onset cough/wheeze when eating or playing; recurrent pneumonia (same location)	foreign body; aspiration (food, gastric contents)
first wheeze and child < 1y.o.	bronchiolitis
sick contacts, xray with focal findings	pneumonia, atelectasis, TB, pertussis
paroxysms of cough +/- whoop	pertussis
prem. birth, prolonged O_2 +/- vent	bronchopulmonary dysplasia
sx since birth, +ve xray, recurrent pneumonia	congenital pulm. artery malform.; bronchiectasis, cystic fibrosis
neon. resp. distress, chronic daily cough	primary ciliary dyskinesia
cough when supine, eating	GERD
difficulty feeding, cough with/post feeding	eosinophilic esophagitis; swallowing problem +/- aspiration
recurrent, persist. Infections	immune disorder
murmur, heart failure, FTT, tachypnea, hepatomegaly	pulm. edema 2° to myocarditis, pericarditis, congen. cardiac dz

6 y.o. - ADULTS

3 ways to diagnose:

1. **Reversible Airway Obstruction on Spirometry (Preferred)**
   ↓ FEV_1/FEV (vs. norms) ***and*** ≥ 11% ↑ in FEV_1 after SABA or ICS course
2. **Peak Expiratory Flow Variability (Alternative)**
   ≥ 20% improvement in PEF with SABA or ICS course
   (or in adults, > 8% variability during the day, or >20% over multiple days)
3. **Positive Challenge Test (Alternative)**
   positive methacholine challenge test, or
   positive exercise challenge (> 10% ↓ in FEV_1 following exercise)

Check-Up

1. Assess control: good control if following criteria are met
   - ❑ no daytime symptoms
   - ❑ normal physical activity
   - ❑ no school/work absences
   - ❑ FEV_1 or Peak flow > 90% pers. best
   - ❑ no nighttime symptoms
   - ❑ mild/infrequent exacerbations
   - ❑ < 4 doses SABA / wk (not counting 1 dose/day for exercise sx)
2. Observe & assess inhaled drug technique (use mask chamber if < 6 years old)

Routine Management

1. **Develop Asthma Action Plan** with patient; involve asthma educator if available
2. **Address co-morbidities**: rhinitis, GERD, obesity
3. **Environmental control**:
   - ❑ smoking cessation & avoidance
   - ❑ dust/particle exposure reduction
   - ❑ allergy testing & allergen avoidance
4. **Maintenance Drug therapy**: First line: All patients should have PRN short-acting β_2-agonist (eg. salbutamol) **AND** inhaled corticosteroids (ICS)
   (ICS starting dose should be customized to patient's initial severity and age.)

Typical Age Dose Ranges (years)	DAILY equivalency	Beclo-methasone (Qvar device)	Fluticasone	Budesonide (turbuhaler device)	Ciclesonide (not for <6 years old)
0-6	Ultra low	100ug	100-125ug	100ug	100ug
6-11	Low dose	200ug	200-250ug	200ug	200ug
> 11	Medium	400ug	500ug	400ug	400ug
> 11	High	> 400ug	> 500ug	>400ug	800ug

If insufficient control, consider:
- ❑ ↑ ICS dose
- ❑ adding long-acting β_2-agonist or leukotriene antagonist
- ❑ exploring alternate/comorbid conditions

5. **Exacerbation**:
   [A] determine (and resolve if possible) underlying cause(s):
   - ❑ tobacco/irritant/allergen exposure
   - ❑ respiratory infection
   - ❑ medication/administration errors

   [B] give oral systemic steroids
   Kids: prednisone (or prednisolone) 1-2 mg/kg (up to 50mg/day) x 5 days
   or dexamethasone 0.3-0.6 mg/kg x 1-5 days
   Adults (and kids > 50kg): prednisone 50mg daily x 5 days

Emergency Management

- O_2 if hypoxic; activate EMS & arrange transportation to ED
- salbutamol by chamber mask (or nebulizer); may require back-to-back dosing
- systemic steroids if initial SaO_2 <96% (children), <94%(adults)
- consider ipratroprium bromide, MgSO4
- **if deteriorating, rule out pneumothorax and upper airway obstruction**
  ↳ consider IV β_2- agonist, inhalational anaesthetics, intubation

Key References: Lougheed et al. Canadian Thoracic Society Asthma Management Continuum—2010 Consensus Summary for children six years of age and over, and adults. *Can. Resp. J.* Vol. 17(1), 2010 15-24./ FM Ducharme, SD Dell, D Radhakrishnan, et al. Diagnosis and management of asthma in preschoolers: A Canadian Thoracic Society and Canadian Paediatric Society position paper. Can Respir J 2015;22(3):135-143.