

WHO PEN Protocol 3

3.1 Management of Asthma

3.2 Management of Chronic Obstructive Pulmonary Disease (COPD)

ASK

Asthma and COPD can both present with cough, difficult breathing, tight chest and/or wheezing

DIAGNOSIS

The following features make a diagnosis of asthma more likely:

- previous diagnosis of asthma;
- symptoms since childhood or early adulthood;
- history of hayfever, eczema and/or allergies;
- intermittent symptoms with asymptomatic periods in between;
- symptoms worse at night or early morning;
- symptoms triggered by respiratory infection, exercise, weather changes or stress;
- symptoms respond to salbutamol.

The following features make a diagnosis of COPD more likely:

- previous diagnosis of COPD;
- history of heavy smoking, i.e. >20 cigarettes per day for >15 years;
- history of heavy and prolonged exposure to burning fossil fuels in an enclosed space, or high exposure to dust in an occupational setting;
- symptoms started in middle age or later (usually after age 40);
- symptoms worsened slowly over a long period of time;
- long history of daily or frequent cough and sputum production often starting before shortness of breath;
- symptoms that are persistent with little day-to-day variation.

TEST

Measure Peak Expiratory Flow rate (PEFR)

- Give two puffs of salbutamol and remeasure in 15 minutes
- If the PEF improves by 20%, a diagnosis of asthma is very probable.
- Smaller response makes a diagnosis of COPD more likely

WHO PEN Protocol 3.1 Management of Asthma

ASK

Is asthma well controlled or uncontrolled?

Asthma is considered to be well controlled if the patient has:

- daytime asthma symptoms and uses a beta agonist two or fewer times per week;
- night time asthma symptoms two or fewer times per month;
- no or minimal limitation of daily activities;
- no severe exacerbation (i.e. requiring oral steroids or admission to hospital) within a month;
- a PEFr, if available, above 80% predicted.

If any of these markers are exceeded, the patient is considered to have uncontrolled asthma.

TREAT

Increase or decrease treatment according to how well asthma is controlled using a stepwise approach

Step 1. Inhaled salbutamol prn

Step 2. Inhaled salbutamol prn plus low-dose inhaled beclometasone, starting with 100ug twice daily for adults and 100ug once or twice daily for children

Step 3. Same as step 2, but give higher doses of inhaled beclometasone, 200ug or 400ug twice daily

Step 4. Add low-dose oral theophylline to Step 3 treatment (assuming long-acting beta agonists and leukotriene antagonists are not available)

Step 5. Add oral prednisolone, but in the lowest dose possible to control symptoms (nearly always less than 10mg daily)

At each step, check the patient's adherence to treatment and observe their inhaler technique.

REFER

Review asthma control every 3-6 months and more frequently when treatment has been changed or asthma is not well controlled.

Referral for specialist:

- when asthma remains poorly controlled;
- when the diagnosis of asthma is uncertain;
- when regular oral prednisolone is required to maintain control.

WHO PEN Protocol 3.1

Management of exacerbation of Asthma

ASSESS

Assess severity

Severe

- PEFR 33-50% best or predicted.
- Respiratory rate more than 25 breaths/minute (adult).
- Heart rate ≥ 110 beats/minute.(adult)
- Inability to complete sentences in one breath.

Very severe

altered conscious level, exhaustion, arrhythmia, hypotension, cyanosis, silent chest, poor respiratory effort.

- SpO₂ <92%

TREAT

First-line treatment

- prednisolone 30–40mg for five days for adults and 1mg per kg for three days for children, or longer, if necessary, until they have recovered;
- salbutamol in high doses by metered dose inhaler and spacer (e.g. four puffs every 20 minutes for one hour) or by nebulizer;
- oxygen, if available, and if oxygen saturation levels are low (below 90%).

Reassess at intervals depending on severity.

Second-line treatment

to be considered if the patient is not responding to first-line treatment

- Increase frequency of dosing via an metered dose inhaler and spacer or by nebulizer, or give salbutamol by continuous nebulization at 5–10mg per hour, if appropriate nebulizer available;
- for children, nebulized ipratropium, if available, can be added to nebulized salbutamol.

ADVICE

Asthma - Advice to patients and families

Regarding prevention:

- avoid cigarette smoke and trigger factors for asthma, if known;
- avoid dusty and smoke-filled rooms;
- Avoid occupations that involve agents capable of causing occupational asthma
- reduce dust as far as possible by using damp cloths to clean furniture, sprinkling the floor with water before sweeping, cleaning blades of fans regularly and minimizing soft toys in the sleeping area;
- It may help to eliminate cockroaches from the house (when the patient is away) and shake and expose mattresses, pillows, blankets, etc. to sunlight.

Regarding treatment, ensure that the patient or parent:

- knows what to do if their asthma deteriorates;
- understands the benefit from using inhalers rather than tablets, and why adding a spacer is helpful;
- is aware that inhaled steroids take several days or even weeks to be fully effective.

WHO PEN Protocol 3.2 Management of Chronic Obstructive Pulmonary Disease

ASSESS

Assess severity

Moderate - if breathless with normal activity

Severe - if breathless at rest

Measure PEFr and oxygen saturation, if possible.

TREAT

- inhaled salbutamol, two puffs as required, up to four times daily;
- if symptoms are still troublesome, consider low-dose oral theophylline;
- if ipratropium inhalers are available, they can be used instead of, or added to, salbutamol, but they are more expensive.

ADVICE

COPD - Advice to patients and families

- ensure they understand that smoking and indoor air pollution are the major risk factors for COPD – therefore, patients with COPD must stop smoking and avoid dust and tobacco smoke;
- keep the area where meals are cooked well ventilated by opening windows and doors;
- cook with wood or carbon outside the house, if possible, or build an oven in the kitchen with a chimney that vents the smoke outside;
- stop working in areas with occupational dust or high air pollution – using a mask may help, but it needs to have an appropriate design and provide adequate respiratory protection.

Management of exacerbation of COPD

TREAT

- antibiotics should be given for all exacerbations;
- for severe exacerbations, give oral prednisolone 30–40mg for around seven days;
- give high doses of inhaled salbutamol by nebulizer or metered dose inhaler with spacer; (e.g. four puffs every 20 minutes for one hour) or by nebulizer;
- oxygen, if available, should be given by a mask that limits the concentration to 24% or 28%.