GUIDELINE ON MANAGEMENT OF ASTHMA IN ADULT AND CHILDREN

CONTENTS

1. INTRODUCTION
2. DIAGNOSIS
3. CLASSIFICATION OF ASTHMA BY LEVEL OF CONTROL
4. MANAGEMENT OF ASTHMA
   FIVE COMPONENTS OF ASTHMA CARE
   Component 1. Develop Patient/Doctor partnership
   Component 2. Identify and Reduce Exposure to Risk Factors
   Component 3. Assess, Treat, and Monitor Asthma
   Component 4. Manage Exacerbations
   Component 5. Special Considerations
5. APPENDIX
   1 ASTHMA DRUG LIST & COST
   II PREDICTIVE NOMOGRAM FOR PEAK EXPIRATORY FLOW
   III RANKING OF EVIDENCE AND GRADE OF RECOMMENDATIONS
6. REFERENCES
7. MEMBERS OF CLINICAL AUDIT/ GUIDELINE WORKING GROUP,
   PDQA, DH
8. DISCLAIMER
1. INTRODUCTION

Asthma is a serious global health problem, affecting people of all ages but particularly young persons. Around the world, World Health Organization (WHO) estimates that about 300 million people suffer from asthma. In 2005 alone, 255000 people died of asthma. Appropriate management of asthma leads to control of the condition, hence, giving patients better quality of life and reducing the financial and healthcare burden of the community.

Asthma is one of the most common chronic diseases in the world. The greatest burden in terms of increasing asthma prevalence worldwide is likely to occur in China, due to its population and the rate of economic development with associated lifestyle changes. An absolute 2% increase in the prevalence of asthma would result in an additional 20 million asthmatics. The number of disability-adjusted life years (DALYS) lost due to asthma worldwide has been estimated to be about 15 million per year. Worldwide, asthma accounts for around 1% of all DALYS lost, which reflects the high prevalence and severity of asthma. The number of DALYs lost due to asthma is similar to that for diabetes, cirrhosis of the liver, or schizophrenia.

In Hong Kong, asthma is the most prevalent chronic disease in childhood. Local studies on the prevalence of asthma among schoolchildren and different age groups yield different prevalence rates.

Severe attacks of asthma usually require hospital care. In 2003 there were over 6000
hospital discharges and deaths due to asthma from Hospital Authority (HA) institutions. Children accounted for about one-third (33.6%) of all hospital discharges attributed to asthma. \(^{(11,12)}\) As Guideline Initiative for Asthma (GINA) workgroup pointed out, the burden of asthma now warrants governmental attention for more resources to implement health strategies to improve the situation. \(^{(13)}\)

Most asthmatic patients are cared for in the general practice as most patients suffer from mild to moderate disease, not requiring specialist care. In 2003, a local survey in Hong Kong on children aged 2-6 years found that 8.1% had a wheezing attack in the past year. \(^{(14,15)}\) Therefore, general practitioners play an important role in providing continuous medical care, patient education, screening for high-risk patients in the management of asthma.

It is important for asthmatic patients to be cared properly. Research has shown that delays in diagnosis are common, leading to inappropriate treatments. In other cases, asthma severity is underestimated, resulting in delay and under-use of regular preventive therapy. One study showed that 74% of those admitted to the hospital with severe asthma could have had the admission prevented by more appropriate prior care. \(^{(16)}\) Moreover, surveys of deaths from asthma have shown that nearly 90% of cases involve avoidable factors. \(^{(17)}\) To improve asthmatic outcome, patient education from the health care professionals was shown to play an important role in reducing both morbidity and mortality. \(^{(18,19,20)}\)

Many countries have written their national asthma guidelines for the management of asthma based on best evidence and local situations. The Clinical Audit and
Guideline Working Group in Professional Development and Quality Assurance (PDQA) decided to adopt the GINA guideline. \(^{(21)}\) We based our decision on that GINA guideline is one of the most current evidence based guideline in the management of asthma. Also, it is implementation (diagnosis, management, and prevention) orientated.
2. **DIAGNOSIS**

Asthma can often be diagnosed on the basis of a patient’s symptoms and medical history (Figure 1)

<table>
<thead>
<tr>
<th>Presence of any of these signs and symptoms should increase the suspicion of asthma:</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Wheezing—high-pitched whistling sounds when breathing out—especially in children. <em>(A normal chest examination does not exclude asthma.)</em></td>
</tr>
<tr>
<td>■ History of any of the following:</td>
</tr>
<tr>
<td>• Cough, worse particularly at night</td>
</tr>
<tr>
<td>• Recurrent wheeze</td>
</tr>
<tr>
<td>• Recurrent difficult breathing</td>
</tr>
<tr>
<td>• Recurrent chest tightness</td>
</tr>
<tr>
<td>■ Symptoms occur or worsen at night, awakening the patient.</td>
</tr>
<tr>
<td>■ Symptoms occur or worsen in a seasonal pattern.</td>
</tr>
<tr>
<td>■ The patient also has eczema, hay fever, or a family history of asthma or atopic diseases.</td>
</tr>
<tr>
<td>■ Symptoms occur or worsen in the presence of:</td>
</tr>
<tr>
<td>• Animals with fur</td>
</tr>
<tr>
<td>• Aerosol chemicals</td>
</tr>
<tr>
<td>• Changes in temperature</td>
</tr>
<tr>
<td>• Domestic dust mites</td>
</tr>
<tr>
<td>• Drugs (aspirin, beta blockers)</td>
</tr>
<tr>
<td>• Exercise</td>
</tr>
<tr>
<td>• Pollen</td>
</tr>
<tr>
<td>• Respiratory (viral) infections</td>
</tr>
<tr>
<td>• Smoke</td>
</tr>
<tr>
<td>• Strong emotional expression</td>
</tr>
<tr>
<td>■ Symptoms respond to anti-asthma therapy.</td>
</tr>
<tr>
<td>■ Patient’s colds “go to the chest” or take more than 10 days to clear up.</td>
</tr>
</tbody>
</table>

Figure 1. Is It Asthma? *(Source: Table from GINA Report. Strategy for Asthma Management and Prevention, updated December 2007.)*
Measurements of lung function provide an assessment of the severity, reversibility, and variability of airflow limitation, and help to confirm the diagnosis of asthma.

Spirometry is the preferred method of measuring airflow limitation and its reversibility to establish a diagnosis of asthma.
- An increase in FEV1 of $\geq 12\%$ (or $\geq 200\text{ml}$) after administration of a bronchodilator indicates reversible airflow limitation consistent with asthma.

Peak expiratory flow (PEF) measurement can be an important aid in both diagnosis and monitoring of asthma.
- PEF measurements are ideally compared to the patient’s own previous best measurement using his/her own peak flow meter.
- An improvement of 60L/min (or $\geq 20\%$ of the pre-bronchodilator PEF) after inhalation of a bronchodilator, or diurnal variation in PEF of more than 20% (with twice-daily readings, more than 10%), suggests a diagnosis of asthma.

In children 5 years and younger, the diagnosis of asthma has to be based largely on clinical judgment and an assessment of symptoms and physical findings. A useful method for confirming the diagnosis in this age group is a trial of treatment with short-acting bronchodilators and inhaled glucocorticosteroids. Marked clinical improvement during the treatment and deterioration when treatment is stopped supports a diagnosis of asthma. Children 4 to 5 years old can be taught to use a PEF meter, but to ensure accurate results parental supervision is required.
3. **CLASSIFICATION OF ASTHMA BY LEVEL OF CONTROL**

Traditionally, the degree of symptoms, airflow limitation, and lung function variability have allowed asthma to be classified by severity (e.g. as Intermittent, Mild Persistent, Moderate Persistent, or Severe Persistent)

However, it is important to recognize that asthma severity involves both the severity of the underlying disease and its responsiveness to treatment. In addition, severity is not an unvarying feature of an individual patient’s asthma, but may change over months or years.

Therefore, for ongoing management of asthma, classification of asthma by level of control is more relevant and useful (Figure 2).

Figure 2. Level of Asthma Control

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Controlled (All of the following)</th>
<th>Partly Controlled (Any measure present in any week)</th>
<th>Uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daytime symptoms</strong></td>
<td>None (twice or less/week)</td>
<td>More than twice/week</td>
<td></td>
</tr>
<tr>
<td><strong>Limitations of activities</strong></td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td><strong>Nocturnal symptoms/ awakening</strong></td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td><strong>Need for reliever/rescue treatment</strong></td>
<td>None (twice or less/week)</td>
<td>More than twice/week</td>
<td></td>
</tr>
<tr>
<td><strong>Lung function (PEF or FEV₁)</strong></td>
<td>Normal</td>
<td>&lt; 80% predicted or personal best (if known)</td>
<td></td>
</tr>
<tr>
<td><strong>Exacerbations</strong></td>
<td>None</td>
<td>One or more/year*</td>
<td>One in any week†</td>
</tr>
</tbody>
</table>

* Any exacerbation should prompt review of maintenance treatment to ensure that it is adequate.
† By definition, an exacerbation in any week makes that an uncontrolled asthma week.

4. MANAGEMENT OF ASTHMA

The goal of asthma care is to achieve and maintain control of the clinical manifestations of the disease for prolonged periods. When asthma is controlled, patients can prevent most attacks, avoid troublesome symptoms day and night, and keep physically active.

To reach this goal, five interrelated components of therapy are required:

Component 1. Develop patient/doctor partnership
Component 2. Identify and reduce exposure to risk factors
Component 3. Assess, treat, and monitor asthma
Component 4. Manage asthma exacerbations
Component 5. Special considerations

Component 1: Develop Patient/Doctor Partnership

The effective management of asthma requires the development of a partnership between the person with asthma and his or her health care team.

With your help, and the help of others on the health care team, patients can learn to:

- Avoid risk factors
- Take medications correctly
- Understand the difference between “controller” and “reliever” medications
- Monitor their status using symptoms and, if relevant, PEF
- Recognize signs that asthma is worsening and take action
- Seek medical help as appropriate

Component 2: Identify and Reduce Exposure to Risk Factors

To improve control of asthma and reduce medication needs, patients should take steps to avoid the risk factors that cause their asthma symptoms (Figure 3). However, many asthma patients react to multiple factors that are ubiquitous in the environment, and avoiding some of these factors completely is nearly impossible. Thus,
medications to maintain asthma control have an important role because patients are often less sensitive to these risk factors when their asthma is under control.

Physical activity is a common cause of asthma symptoms but patients should not avoid exercise. Symptoms can be prevented by taking a rapid-acting inhaled B-agonist before strenuous exercise.

Patients with moderate to severe asthma should be advised to receive an influenza vaccination every year, or at least when vaccination of the general population is advised.

Figure 3. Strategies for Avoiding Common Allergens and Pollutants

Avoidance measures that improve control of asthma and reduce medication needs:

• **Tobacco smoke:** Stay away from tobacco smoke. Patients and parents should not smoke.

• **Drugs, foods, and additives:** Avoid if they are known to cause symptoms.

• **Occupational sensitizers:** Reduce or, preferably, avoid exposure to these agents.

Reasonable avoidance measures that can be recommended but have not been shown to have clinical benefit:

• **House dust mites:** Wash bed linens and blankets weekly in hot water and dry in a hot dryer or the sun. Encase pillows and mattresses in air-tight covers. Replace carpets with hard flooring, especially in sleeping rooms. (If possible, use vacuum cleaner with filters. Use acaricides or tannic acid to kill mites—but make sure the patient is not at home when the treatment occurs.)

• **Animals with fur:** Use air filters. (Remove animals from the home, or at least from the sleeping area. Wash the pet.)

• **Cockroaches:** Clean the home thoroughly and often. Use pesticide spray—but make sure the patient is not at home when spraying occurs.

• **Outdoor pollens and mold:** Close windows and doors and remain indoors when pollen and mold counts are highest.

• **Indoor mold:** Reduce dampness in the home; clean any damp areas frequently.

Component 3: Assess, Treat and Monitor Asthma

The goal of asthma treatment – to achieve and maintain clinical control – can be reached in most patients through a continuous cycle that involves

- Assessing Asthma Control
- Treating to Achieve Control
- Monitoring to Maintain Control

Assessing Asthma Control

Each patient should be assessed to establish his or her current treatment regimen, adherence to the current regimen, and level of asthma control. A simplified scheme for recognizing controlled, partly controlled, and uncontrolled asthma is provided in Figure 2.

Treating to Achieve Control

- Each patient is assigned to one of five treatment “steps.” Figure 4 details the treatments at each step for adults and children age 5 and over.
- At each treatment step, reliever medication should be provided for quick relief of symptoms as needed. (However, regular or increased use indicates that asthma is not well controlled)
- At Steps 2 through 5, patients also require one or more regular controller medications, which keep symptoms and attacks from starting. Inhaled glucocorticosteroids (Figure 5) are the most effective controller medications currently available.
- For most patients newly diagnosed with asthma or not yet on medication, treatment should be started at Step 2 (or if the patient is very symptomatic, at Step 3). If asthma is not controlled on the current treatment regimen, treatment should be stepped up until control is achieved.
- For children age 5 and younger, a low-dose glucocorticosteroid is the recommended initial controller treatment. If this treatment does not control symptoms, an increase in the glucocorticosteroid dose is the best option.
Figure 4. Management Approach Based On Control

### Estimate Comparative Daily Dosages for Inhaled Glucocorticosteroids by Age

<table>
<thead>
<tr>
<th>Drug</th>
<th>Low Daily Dose (µg)</th>
<th>Medium Daily Dose (µg)</th>
<th>High Daily Dose (µg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 5 y Age &lt; 5 y</td>
<td>&gt; 5 y Age &lt; 5 y</td>
<td>&gt; 5 y Age &lt; 5 y</td>
</tr>
<tr>
<td>Beclomethasone</td>
<td>200-500 100-200</td>
<td>&gt;500-1000 &gt;200-400</td>
<td>&gt;1000 &gt;400</td>
</tr>
<tr>
<td>Budesonide</td>
<td>200-600 100-200</td>
<td>600-1000 &gt;200-400</td>
<td>&gt;1000 &gt;400</td>
</tr>
<tr>
<td>Budesonide-Neb Inhalation Suspension</td>
<td></td>
<td>250-500</td>
<td>&gt;500-1000 &gt;1000</td>
</tr>
<tr>
<td>Ciclesonide</td>
<td>80 – 160 80-160</td>
<td>&gt;160-320 &gt;160-320</td>
<td>&gt;320-1280 &gt;320</td>
</tr>
<tr>
<td>Flunisolide</td>
<td>500-1000 500-750</td>
<td>&gt;1000-2000 &gt;750-1250</td>
<td>&gt;2000 &gt;1250</td>
</tr>
<tr>
<td>Fluticasone</td>
<td>100-250 100-200</td>
<td>&gt;250-500 &gt;200-500</td>
<td>&gt;500 &gt;500</td>
</tr>
<tr>
<td>Mometasone furoate</td>
<td>200-400 100-200</td>
<td>&gt; 400-800 &gt;200-400</td>
<td>&gt;800-1200 &gt;400</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>400-1000 400-800</td>
<td>&gt;1000-2000 &gt;800-1200</td>
<td>&gt;2000 &gt;1200</td>
</tr>
</tbody>
</table>


### Step 1 – As-needed reliever medication

- Patients with occasional daytime symptoms of short duration
- A rapid-acting inhaled β₂-agonist is the recommended reliever treatment (Evidence A)
- When symptoms are more frequent, and/or worsen periodically, patients require regular controller treatment (step 2 or higher)

### Step 2 – Reliever medication plus a single controller

- A low-dose inhaled glucocorticosteroid is recommended as the initial controller treatment for patients of all ages (Evidence A)
- Alternative controller medications include leukotriene modifiers (Evidence A) appropriate for patients unable/unwilling to use inhaled glucocorticosteroids
**Step 3 – Reliever medication plus one or two controllers**
- For adults and adolescents, combine a low-dose inhaled glucocorticosteroid with an inhaled long-acting \( \beta_2 \)-agonist either in a combination inhaler device or as separate components (Evidence A)
- Inhaled long-acting \( \beta_2 \)-agonist must not be used as monotherapy
- For children, increase to a medium-dose inhaled glucocorticosteroid (Evidence A)
- Additional Step 3 options for adolescents and adults include:
  a. increase to medium-dose inhaled glucocorticosteroid (Evidence A)
  b. low-dose inhaled glucocorticosteroid combined with leukotriene modifiers (Evidence A)
  c. low-dose inhaled glucocorticosteroid combined with low-dose sustained-release theophylline (Evidence B)

**Step 4 – Reliever medication plus two or more controllers**
- Selection of treatment at Step 4 depends on prior selections at Step 2 and 3
- Medium or high-dose inhaled glucocorticosteroid combined with a long-acting inhaled \( \beta_2 \)-agonist (Evidence A)
- Medium or high-dose inhaled glucocorticosteroid combined with leukotriene modifier (Evidence A)
- Low-dose sustained-release theophylline added to medium or high-dose inhaled glucocorticosteroid combined with a long-acting inhaled \( \beta_2 \)-agonist (Evidence B)
- Where possible, patients not controlled on Step 3 treatments should be referred to a health professional with expertise in the management of asthma

**Step 5 – Reliever medication plus additional controller options**
- Addition of oral glucocorticosteroids to other controller medications may be effective (Evidence D) but is associated with severe side effects (Evidence A)
- Addition of anti-IgE treatment to other controller medications improves control of allergic asthma when control has not been achieved on other medications (Evidence A)
Monitoring to Maintain Control

Ongoing monitoring is essential to maintain control and establish the lowest step and dose of treatment to minimize cost and maximize safety.

Typically, patients should be seen one to three months after the initial visit, and every three months thereafter. After an exacerbation, follow-up should be offered within two weeks to one month.

Adjusting medication:

a. If asthma is not controlled on current treatment regimen, step up treatment. Generally, improvement should be seen with 1 month. But first review the patient’s medication technique, compliance, and avoidance of risk factors.
   - Rapid-onset, short-acting or long-acting inhaled \( \beta_2 \)-agonist bronchodilators provide temporary relief
   - Need for repeated dosing over more than one/two days signals need for possible increase in controller therapy
   - Use of a combination rapid and long-acting inhaled \( \beta_2 \)-agonist (e.g. formoterol) and an inhaled glucocorticosteroid (e.g. budesonide) in a single inhaler both as a controller and reliever is effecting in maintaining a high level of asthma control and reduces exacerbations (Evidence A)
   - Temporarily doubling the dose of inhaled glucocorticosteroids is not effective, and is not recommended (Evidence A)

b. If asthma is partly controlled, consider stepping up treatment, depending on whether more effective options are available, safety and cost of possible treatment options, and the patient’s satisfaction with the level of control achieved

c. If control is maintained for at least 3 months, step down with a gradual, stepwise reduction in treatment. The goal is to decrease treatment to the least medication necessary to maintain control
   - When controlled on medium to high-dose inhaled
glucocorticosteroids: 50% dose reduction at 3 months intervals (Evidence A)
- When controlled on low-dose inhaled glucocorticosteroids: switch to once-daily dosing (Evidence A)
- When controlled on combination inhaled glucocorticosteroids and long-acting inhaled β2-agonist, reduce dose of inhaled glucocorticosteroid by 50% while continuing the long-acting β2-agonist (Evidence B)
- If control is maintained, reduce to low-dose inhaled glucocorticosteroids and stop long-acting B2-agonist (Evidence D)

Component 4 : Manage Exacerbations

- Exacerbations of asthma are episodes of progressive increase in shortness of breath, cough, wheezing, or chest tightness
- Exacerbations are characterized by decreases in expiratory airflow that can be quantified and monitored by measurement of lung function (FEV1 or PEF)
- Severe exacerbations are potentially life-threatening and treatment requires close supervision

Primary therapies for exacerbations:
- Repetitive administration of rapid-acting inhaled β2-agonist (begin with 2 to 4 puffs every 20 minutes for the first hour; then mild exacerbations will require 2 to 4 puffs every 3 to 4 hours, and moderate exacerbations 6 to 10 puffs every 1 to 2 hours)
- Early introduction of systemic glucocorticosteroids (0.5 to 1mg of prednisolone/kg or equivalent during a 24-hour period introduced early in the course of a moderate or severe attack help to reverse the inflammation and speed recovery)
- Oxygen supplementation at health centers or hospitals if the patient is hypoxemic (achieve O2 saturation of 95%)
- Closely monitor response to treatment with serial measures of lung function
**Component 5: Special considerations**

Special considerations are required to manage asthma in relation to:

- **Pregnancy**
  - During pregnancy the severity of asthma often changes, and patients may require close follow-up and adjustment of medications.
  - Pregnant patients with asthma should be advised that the greater risk to their baby lies with poorly controlled asthma, and the safety of most modern asthma treatments should be stressed.
  - Acute exacerbations should be treated aggressively to avoid fetal hypoxia.

- **Surgery**
  - Airway hyper-responsiveness, airflow limitation, and mucus hyper-secretion predispose patients with asthma to intra-operative and post-operative respiratory complications, particularly with thoracic and upper abdominal surgeries.
  - Lung function should be evaluated several days prior to surgery, and a brief course of glucocorticosteroids prescribed if PEV1 is less than 80% of the patient’s personal best.

- **Rhinitis, sinusitis, and nasal polyps**
  - Rhinitis and asthma often coexist in the same patient, and treatment of rhinitis may improve asthma symptoms.

- **Occupational asthma**
  - Pharmacologic therapy for occupational asthma is identical to therapy for other forms of asthma, but is not a substitute for adequate avoidance of the relevant exposure.
  - Consultation with a specialist in asthma management or occupational medicine is advisable.

- **Respiratory infections**
  - Respiratory infections provoke wheezing and increased asthma symptoms in many patients.
- Treatment of an infectious exacerbation follow the same principles as treatment of other exacerbation.

- **Gastroesophageal reflux**
  - Gastroesophageal reflux is nearly three times as prevalent in patients with asthma compared to the general population.
  - Medical management should be given for the relief of reflux symptoms, although this does not consistently improve asthma control.

- **Aspirin-induced asthma**
  - Up to 28% of adults with asthma, but rarely children, suffer from asthma exacerbations in response to aspirin and other non-steroidal anti-inflammatory drugs.

- **Anaphylaxis and Asthma**
  - Anaphylaxis is a potentially life-threatening condition that can both mimic and complicate severe asthma.
## 5. APPENDIX I: ASTHMA DRUG LIST & COST

Asthma drug list and cost

<table>
<thead>
<tr>
<th>Class</th>
<th>Drug (Trade name)</th>
<th>Cost HKD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhaled short acting B2-agonist</td>
<td>*Salbutamol inhaler 100mcg/dose (ventolin)</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>*Terbutaline sulphate tubuhaler 200 doses (Bricanyl tubuhaler)</td>
<td>92.5</td>
</tr>
<tr>
<td>Inhaled long acting B2-agonist</td>
<td>*Salmeterol xinafoate (Serevent inhaler)</td>
<td>311</td>
</tr>
<tr>
<td>Inhaled steroid</td>
<td>*Beclomethasone dipropionate 1 inhaler 50mcg/dose (Beclotide)</td>
<td>40.9</td>
</tr>
<tr>
<td></td>
<td>Budesonide (Pulmicort)</td>
<td>40.09 (50 mcg)</td>
</tr>
<tr>
<td></td>
<td>Fluticasone (Flixotide)</td>
<td>69 (200mcg)</td>
</tr>
<tr>
<td></td>
<td>Fluticasone 250mcg + salmeterol 50mcg (Seretide)</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Fluticasone 500mcg + salmeterol 50mcg (Seretide)</td>
<td>342</td>
</tr>
<tr>
<td></td>
<td>Budesonide 160mcg + formoterol 4.5mcg (Symbicort)</td>
<td>520</td>
</tr>
<tr>
<td></td>
<td>Budesonide 160mcg + formoterol 4.5mcg (Symbicort)</td>
<td>172</td>
</tr>
<tr>
<td>Leukotriene modifier</td>
<td>Montelukast (Singulair) 10mg</td>
<td>278/28 tabs</td>
</tr>
</tbody>
</table>

*available in families clinic
5. **APPENDIX II: PREDICTIVE NOMOGRAM FOR PEAK EXPIRATORY FLOW (FOR CHINESE MALE)**

Predictive nomogram for PEFR for Chinese males by height and age
Predictive nomogram for PEFR for Chinese females by height and age
Global Strategy for Asthma Management and Prevention

<table>
<thead>
<tr>
<th>Evidence Category</th>
<th>Sources of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Randomized clinical trials</td>
</tr>
<tr>
<td></td>
<td>Rich body of data</td>
</tr>
<tr>
<td>B</td>
<td>Randomized clinical trials</td>
</tr>
<tr>
<td></td>
<td>Limited body of data</td>
</tr>
<tr>
<td>C</td>
<td>Non-randomized trials</td>
</tr>
<tr>
<td></td>
<td>Observational studies</td>
</tr>
<tr>
<td>D</td>
<td>Panel judgment consensus</td>
</tr>
</tbody>
</table>

6. References

23


23
7. MEMBERS OF THE CLINICAL AUDIT AND GUIDELINE GROUP, PDQA, DEPARTMENT OF HEALTH

Group Leader: Dr Hui Yin-fun, Linda

Coordinator of the Asthma guideline: Dr Ng Mei-yee
                 Dr. Tse Ching-wan, Charmaine

Members:
1. Dr Chan Yuk-chun, Christy
2. Dr Cheng Pui-kwan, Lisa
3. Dr Kong Che-wan, Leo
4. Dr Lam Wing-kwun

Special thanks to Dr Luke Tsang, Consultant (FM) PDQA for his support in the production of this guideline.

Correspondence to: Dr Ng Mei-yee

Address: Chai Wan Families Clinic, Department of Health
         1st Floor, Main Block, PYNEH, Chai Wan, HK

Fax: 25575542

E-mail: Ng Mei-yee: johnhli@netvigator.com

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- Comments and suggestions are welcomed and should be addressed to the chairman of the group.

8. DISCLAIMER

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