Case Study

Asthma

June 2019

Jaime Correia de Sousa
Ioanna Tsiligianni
Miguel Román Rodriguez
CASE STUDY: JANE
Jane comes to visit Dr Taylor; she has been experiencing some recent issues with her asthma...
Dr Taylor must first explore Jane’s background and medical history...
Patient background

Jane is recalling her story to Dr Taylor...

I am 36-years-old and I work as a secretary

I live in a flat in a suburban area with my husband and daughter

My mother has asthma, and so does my 7-year-old daughter
Medical History

- Jane has had asthma since she was 3. She is allergic to house dust mites and pollens. She has no allergic rhinitis.
- She has used her control inhalers during most of the past year and her asthma appeared to be well controlled. This often made her reduce or discontinue inhaled corticosteroids.
- She had a spirometry with a positive reversibility test 2 years ago.
- During the last 3 years, she has had one or two exacerbations per year.
- These exacerbations were usually triggered by viral infections of the upper respiratory tract.
- A year and a half ago, one exacerbation required oral corticosteroids.
- Last summer, when the pollen count was particularly high, she felt chest tightness and breathlessness for about 2 weeks.
- Her usual medication is 125μg fluticasone dry powder twice daily and salbutamol as needed.
- She often only uses one dose of fluticasone per day and often completely forgets it.
- Also, she uses salbutamol several times per week "because it helps a lot".

Explore patient background and history
Clinical assessment and symptoms
Physical exam
I need to find out more information
Review my case
Clinical assessment and symptoms

What else does Dr Taylor need to check about Jane’s asthma?
Choose the boxes below to explore the 4 key priorities she needs to know about Jane’s asthma symptoms and triggers...

- **Check for isolated cough with no other respiratory symptoms**
- **Check if symptoms vary over time and in intensity**
- **Check for asthma triggers:**
  - viral infections
  - exercise
  - allergen exposure
- **Check if symptoms are often worse at night or in the early morning**
- **Check if there is more than one type of symptom:**
  - wheeze
  - shortness of breath
  - cough
  - chest tightness

**HOTSPOT:** asthma triggers

**HOTSPOT:** asthma symptoms

**Assessment of symptom control**
GINA assessment of symptom control

Asthma Assessment Key Considerations Checklist

Asthma control – two domains
• Assess symptom control over the last 4 weeks
• Assess risk factors for poor outcomes, including low lung function

Treatment issues
• Check inhaler technique and adherence – ask about side effects
• Does Jane have a written PAAP?
• What are Jane’s attitudes and goals for her asthma management?

Comorbidities
• Think of the following comorbidities:
  - rhinosinusitis
  - GORD
  - obesity
  - obstructive sleep apnoea
  - depression
  - anxiety
• These may contribute to symptoms and poor quality of life

GORD = gastro-oesophageal reflux disease; PAAP = personalised asthma action plan.
Dr Taylor performs a clinical assessment on Jane. Click on the instruments to discover the results...

- **Pulse**: 67 beats per minute
- **Tympanic temperature**: 36.3°C
- **Height**: 1.68 m, **Weight**: 62 kg, **BMI**: 22.0 kg/m²
- **Respiratory rate**: 16 breaths/minute
- **Pulm ausc**: slight bilateral wheezing
- **PEF (peak expiratory flow)**: 350 L/min (71%)
- **Predicted FEV₁**: 2.40 L (79%)

**BMI** = body mass index; **BP** = blood pressure; **FEV₁** = forced expiratory volume in 1 second; **PEFR** = peak expiratory flow rate
I need to find out more information

Help Dr Taylor explore which additional assessments and information she requires in order to make a decision about Jane’s treatment...

1. Request another spirometry?
2. Assess asthma symptoms in the past 4 weeks?
3. Confirm the allergy to house dust mites?
4. Assess risk factors for poor outcomes?
5. Request a chest X-ray?
6. Understand Jane’s perspective on using inhalers?

Explore patient background and history
Clinical assessment and symptoms
Physical exam
I need to find out more information
Review my case
Review assessment priorities
Help Dr Taylor choose what else she needs to know in order to make a decision about treatment...

Click on the bubbles to reveal the results

1. Smoking status
   - Jane confirms that she does not smoke

2. Other comorbidities
   - Jane confirms she has no allergic rhinitis and no other comorbidities

3. Other allergic sensitisations
   - Jane confirms she has an allergic sensitisation to house dust mites and has no other allergic sensitisations

4. Patient preferences and expectations
   - Jane confirms she understands her treatment and is comfortable with her inhaler, though she is worried about side effects.
   - Dr Taylor reassures her of the benefits of the inhaler and checks her device technique

Dr Taylor thinks she is now ready to make her decision. Before doing that, Dr Taylor wants to review Jane’s case...
What do I already know about Jane?

- Jane confirmed having poorly controlled asthma in the last 4 weeks:
  - Daytime asthma symptoms at least 3 times a week
  - Night waking due to asthma 2 x/week
- Needing to use a salbutamol at least twice a week
- Jane confirmed having no upper respiratory tract infections in the last 4 weeks
- She doesn’t smoke and she denies being exposed to secondary cigarette or biomass smoke
- Jane’s asthma diagnosis has been confirmed by reviewing the clinical records and the results from the previous spirometry
- Comorbidities have been excluded
- Asthma symptoms have been assessed over the past 4 weeks
- Inhalation technique has been reviewed;
  - You have corrected minor errors
- Jane explained about her perspective and preferences on inhalers:
  - She likes the inhaler she is using
  - There are no problems with costs
  - No important side effects
- Jane’s beliefs, fears and expectations have been assessed
6.0 I am ready to make a decision

Dr Taylor chose non-pharmacological and pharmacological approaches from the options below that you think may help Jane...

**Non-pharmacological approaches**

- Avoidance of tobacco smoke exposure
- Check inhaler technique and adherence
- Physical activity
- Allergen avoidance

**Pharmacological approaches**

**HOTSPOT**

- Explore patient background and history
- Clinical assessment and symptoms
- Physical exam
- Appointment summary

"Hmm, what is the preferred treatment approach for Jane..."
I am ready to make a decision

Dr Taylor choose **non-pharmacological** and **pharmacological** approaches from the options below that you think may help Jane...

**Pharmacological approaches**

- As-needed SABA only  **✗**
- Low-dose ICS with as-needed SABA  ??
- Combination low-dose ICS/LABA with as-needed SABA  ✓
- Combination low-dose ICS/formoterol maintenance and reliever regimen  ✓
- LTRA with as-needed SABA  **✗**
- Intermittent ICS with as-needed SABA  **✗**

**GINA Step 3**

**Review treatment options**

ICS = inhaled corticosteroid; LABA = long-acting β₂ agonist; LTRA = leukotriene receptor antagonist; SABA = short-acting β₂ agonist.
Appointment summary

After seeing Jane out of the office, Dr Taylor writes up her thoughts on Jane’s appointment...

**S:** Flare-ups when Jane has upper Respiratory tract infections (1 or 2 in the last 3 years, one required treatment with oral steroids. Chest tightness and shortness of breath.

Usual medication: 125 µg fluticasone + salbutamol for relief: Jane uses a lot of salbutamol because she feels better. Bad adherence to control treatment.

Jane’s fears and expectations were addressed. Modifiable risk factors were addressed.

**O:** Pulmonary auscultation: slight bilateral wheezing

Spirometry (2017): obstructive pattern with a positive reversibility test. Sensitisation to house dust mites as confirmed with prick tests and specific IgE for house dust mites.

**A:** Uncontrolled asthma

**P:** Pharmacotherapy options: 1. Low dose ICS-LABA for maintenance + as-needed low dose ICS-formoterol. 2. ICS/LABA maintenance + with as-needed SABA. 3. Consider **ICS-formoterol for maintenance and relief.** Review inhalation technique; **Promote self-care and patient enablement**

ICS = inhaled corticosteroid; FEV₁ = forced expiratory volume in 1 second; LABA = long-acting β₂ agonist; LTRA = leukotriene receptor antagonist; SABA = short-acting β₂ agonist. S - week

*Approved only for low dose beclomethasone / formoterol at low dose budesonide / formoterol

WHAT IS ASTHMA RIGHT CARE?

Asthma Right Care:
a movement for Global Change

Over reliance on SABA's?
INTRODUCTION

The charity International Primary Care Respiratory Group (www.ipcrg.org.uk) is leading an international pilot that is exploring how the use of social movement approaches to create a desired change in the management of asthma. Our focus, in the first phase, is on the over reliance on short-acting beta, agonists (SABAs), and testing, how to create a sense of discomfort and dissatisfaction with this amongst stakeholders.

We set up a multi-national delivery team from four pilot countries, Canada, Portugal, Spain and the UK that includes patients, pharmacists, GPs and nurses. The team has been discussing and designing ways to start conversations and these cards are one of our ideas that we are testing.

* The IPCRG has received funding from the Asthma Research Board of the Society and is grateful for its ongoing and growing support. The delivery team is supported by the IPCRG.

OUR "HUNCHES" DRIVING THIS PROGRAMME ARE THAT:

• Whilst there is over reliance, there is no consensus on what "over reliance" looks like.
• The initial conversations about SABAs that may affect performance in the future occur in many places of community pharmacies and emergency departments availed to primary care.
• We don't really know what people do if they don't come regularly to the practice.

We are engaging new categories of patients, asthma is regarded as a low priority for change.

Previous approaches have not really shifted that despite the evidence suggesting unwanted variation in outcomes and avoidable mortality, morbidity and healthcare utilisation.

Without an aspirational change, it is difficult for messages about how to improve asthma care to be accepted and adopted.

These cards are a way to trigger conversations about over reliance and how to start them for your practice and your team.

The cards are designed to get people talking about things that they need to talk about.

Question & Challenge Cards

Short-acting beta, agonist (SABA) set

INSTRUCTIONS

1. Split into pairs or small groups.
2. Choose a card from the pack.
3. Read the question or comment.
4. Have a few minutes to discuss the question or comment on the card and note down your key discussion points.
5. Choose another card and follow steps 3 and 4 above.
6. Feedback your discussion points to the full team.

Do you agree that asthma management is a global healthcare problem because:

1. There is unwarranted variation (ie variation that cannot be explained by variation in patient illness or preference).
2. Failure to prevent death and disability.
3. Waste of human and physical resources through low value activity.
4. Harm from overdiagnosis and overtreatment even when quality is high.

WHAT IS ASTHMA RIGHT?
Questions?
Thank you for your attention!
What other clinical assessments do you think Jane needs?

- Jane had a spirometry with a positive reversibility test 2 years ago
- Many primary health centres will have delayed access to spirometry; not allowing Dr Taylor to manage Jane’s asthma on the same day
- Spirometry could be helpful to manage Jane’s asthma, if it was available at the primary health centre
- If possible, a spirometry test could be ordered for Jane’s follow-up appointment
What other clinical assessments do you think Jane needs?

Jane confirmed that in the past 4 weeks she:
- had **daytime asthma symptoms** 3 or 4 times a week
- had **night wakening** due to asthma once or twice a week
- was unable to walk upstairs due to shortness of breath
- **needed to use salbutamol** at least twice / week, to be able to breath
- had not had an upper respiratory tract infection
- **didn’t smoke**, and she wasn’t exposed to smoke
What other clinical assessments do you think Jane needs?

- Jane has allergic sensitisation to house dust mites as confirmed with **prick tests** and **specific IgE** some years ago.
- It is unnecessary to repeat Jane’s house mite allergy test to acquire information required for the immediate management of the situation.

Please note:
- Allergic sensitization to a given allergen, a positive IgE test, does not imply allergic disease.
- Testing for allergy should therefore be reserved for cases where there is a strong suspicion regarding the allergen (agent).

IgE = immunoglobulin E.
What other clinical assessments do you think Jane needs?

- A review of potential risk factors for exacerbations would be appropriate
- Factors to consider include:
  - **Uncontrolled asthma symptoms**
- Additional potentially modifiable risk factors for exacerbations, even in patients with few asthma symptoms, include:
  - Medications: ICS not prescribed; **poor adherence**; incorrect **inhaler technique**;
  - **High SABA use** (with increased mortality if >1x200-dose canister/month)
  - **Comorbidities**: obesity; chronic rhinosinusitis; gastro-oesophageal reflux disease; confirmed food allergy; anxiety; depression; pregnancy
  - **Exposures**: smoking; allergen exposure if sensitized; air pollution
  - **Setting**: major **socioeconomic problems**
  - **Lung function**: low FEV1, especially if <60% predicted; higher reversibility
  - **Other tests**: sputum/blood eosinophilia; elevated FENO in allergic adults on ICS
  - **Other** major independent risk factors for flare-ups (exacerbations) include **ever being intubated** or in **intensive care** for asthma
  - Having **1 or more severe exacerbations** in the last 12 months.

FEV1 = forced expiratory volume in 1 second. FeNO - Fractional exhaled nitric oxide
What other clinical assessments do you think Jane needs?

A **chest X-ray** should **not be routine** in the assessment of asthma and it is not expected to provide any additional information for the clinical management of Jane’s asthma.
What other clinical assessments do you think Jane needs?

- Jane was prescribed a treatment, which she failed to use for fear of side effects.
- Adherence to medication is a modifiable behaviour that can be improved by having a clear understanding of the patient’s perspective and the reasons for non-adherence.
- If interventions are used to improve adherence, PCPs should identify Jane’s perceptual and practical barriers so that interventions can be individually tailored.
What other clinical assessments do you think Jane needs?

- Check asthma **symptoms** in the past 4 weeks
- Determine if the patient has risk factors for **poor** outcomes
- Understand the **patient’s perspective** on using inhalers
I am ready to make a decision

- Low-dose ICS with as-needed SABA, OR ICS-Formoterol as needed

- **GINA Step 2**, should be considered as a possible option; however, Jane has troublesome day-time asthma symptoms and is waking at night due to asthma

- **Starting at a higher step (Step 3).** Step 3 treatments should be considered as a first option
  - Low dose ICS-LABA for maintenance + as-needed low dose ICS-formoterol
  - Medium dose ICS, **or** low dose ICS+LTRA + as-needed low dose ICS-formoterol
  - ICS-formoterol for maintenance and relief

- GINA advises to review the response to treatment after 2–3 months, adjust treatment and consider stepping down when asthma has been well controlled for 3 months
Treating a difficult-to-manage asthma patient

**Smoking**
- Ask about current smoking habits and exposure to second-hand smoke. People may be more willing to be honest about their smoking in a written self-completed questionnaire.
- Encourage and support smokers to quit, including medication and referral to expert stop-smoking services.
- Consider alternative therapy to ICS in patients who cannot quit because smokers respond less well to ICS than non-smokers.

**Support**
- Check what support the patient has from their family and involve the family where possible in supporting the patient’s understanding of asthma and their adherence to treatment.

**Education**
- Check patient understands their asthma: what it is, why treatment helps.

**Lifestyle**
Ask patients specific questions about their exposure to factors that may worsen their asthma such as exposure to pets or occupational exposure:
- Where do you live?
- Is your house damp – does mould grow on any of the walls?
- Have you noticed anything in the environment (outside or in the home) that makes your asthma worse?
- What hobbies do you take part in?
- Have you noticed a pattern before your asthma gets worse?
- Does your asthma get better or worse at the weekends – or stay the same?

**Inhaler technique**
- Does the patient have the best choice of inhaler for their needs?
- Observe the patient using their inhaler(s) to ensure correct technique.
- Recheck inhaler technique on each visit.

**Monitoring**
- Assess asthma control in a systematic way using a simple, validated tool, such as the RCP 3 questions for assessing asthma control, ACT or CARAT.

**Pharmacotherapy**
- Is the patient being treated at the right step for the severity of their asthma?
- Check for both unintentional and intentional non-adherence by asking the patient about how they take their medication and by checking prescription records for their asthma medication (where this information is available) for the last 6 months, at every visit.
- Check the patient understands their treatment, tailoring information to their specific needs: what it is, what it is for, how it works, potential side effects and how to minimise them.

**For difficult to manage asthma patients, use ‘SIMPLES’**
- Smoking
- Inhaler technique
- Monitoring
- Pharmacotherapy
- Lifestyle
- Education
- Support

ACT = assessment of asthma control; CARAT = Control of Allergic Rhinitis and Asthma Test; ICS = inhaled corticosteroids; RCP = royal college of physicians.

SIMPLES IPCRG desktop helper. Available at: [http://www.theipcrg.org/display/TreatP/Home+-+Difficult+to+manage+asthma](http://www.theipcrg.org/display/TreatP/Home+-+Difficult+to+manage+asthma) (accessed July 2016)
How to manage adherence?

A patient’s adherence to their medication is often determined by the following:

• The patient’s perceptions of illness: expectations, aspirations and goals
• The patient’s beliefs and concerns about treatments and cultural perceptions of asthma
• The perceived need and the level of control that patients want to achieve
• Contextual issues: past experiences, influences from others, practical difficulties

Patient adherence to medication is influenced by a number of factors relating to how the individual judges the necessity of their treatment relative to their concerns.\(^1\)

Intentional non-adherence derives from the balance between the patient’s beliefs about the personal necessity of taking a given medication relative to any concerns about taking it.\(^2\)

**Perceptual–Practical Model of Adherence (can’t take, won’t take)**

- **UNINTENTIONAL nonadherence**
  - Capacity & resources
  - Practical barriers

- **INTENTIONAL nonadherence**
  - Motivational Beliefs/preferences
  - Perceptual barriers

---

The Health Belief Model by Rosenstock, is a psychological model developed in the 1950s. It contains several primary concepts that predict why people will take action to prevent, to screen for, or to control illness conditions.
I am ready to make a decision
Review treatment options

• Together with non-pharmacological approaches, the recommended options for pharmacotherapy for Jane are:
  – Combination **low-dose ICS/LABA with as-needed SABA**
  – Combination **low-dose ICS/formoterol maintenance and reliever regimen**

ICS = inhaled corticosteroid; LABA = long-acting $\beta_2$ agonist; SABA = short-acting $\beta_2$ agonist.
Key asthma triggers

URTI = upper respiratory tract infection
*Beta-blockers and non-steroidal anti-inflammatory drugs.
Common asthma symptoms

Inflammation and remodelling

- Symptoms associated with variable expiratory airflow and inflammation, which subsequently lead to:
  - Bronchoconstriction (airway narrowing)
  - Airway wall thickening
  - Increased mucus

Common symptoms

- Chest tightness
- Breathlessness
  - Wheezing
  - Cough

Common physical examination findings

- Breathlessness
- Tachycardia
- Audible wheezing
- Atopic findings, e.g. rhinitis, eczema
- Symptoms often worse at night or in the morning when waking

The goal of asthma management is to achieve overall asthma control and reduce future risks.

The long-term goals of asthma management:

- **Symptom control**: To achieve good control of symptoms and maintain normal activity levels.
- **Risk reduction**: To minimise future risk of exacerbations, fixed airflow limitation and medication side effects.

Achieving these goals requires a partnership between patients and their healthcare providers.

Asthma management is a continuous control-based process.

Confirmation of diagnosis if necessary
Symptom control & modifiable risk factors (including lung function)
Comorbidities
Inhaler technique & adherence
Patient goals

Treatment of modifiable risk factors & comorbidities
Non-pharmacological strategies
Education & skills training
Asthma medications

## GINA assessment of symptom control

### A. Symptom control

<table>
<thead>
<tr>
<th>In the past 4 weeks, has the patient had:</th>
<th>Well controlled</th>
<th>Partly controlled</th>
<th>Uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Daytime asthma symptoms more often than twice a week?</td>
<td>Yes ☐ No ☐</td>
<td>None of these</td>
<td>1–2 of these</td>
</tr>
<tr>
<td>• Any night waking due to asthma?</td>
<td>Yes ☐ No ☐</td>
<td>None of these</td>
<td>1–2 of these</td>
</tr>
<tr>
<td>• Reliever needed for symptoms* more often than twice a week?</td>
<td>Yes ☐ No ☐</td>
<td>None of these</td>
<td>1–2 of these</td>
</tr>
<tr>
<td>• Any activity limitation due to asthma?</td>
<td>Yes ☐ No ☐</td>
<td>None of these</td>
<td>1–2 of these</td>
</tr>
</tbody>
</table>

*Excludes reliever taken before exercise.

FEV$_1$ = forced expiratory volume in 1 second.
Use an asthma control test – CARAT, ACT or other

---

**Control of Allergic Rhinitis and Asthma Test**

Please mark the following boxes with a cross ( 

Due to your allergic respiratory diseases (asthma, rhinitis, allergies) in the last four weeks, on average, how many times did you have:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Up to 2 days per week</th>
<th>More than 2 days per week</th>
<th>Almost every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blocked nose?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>2. Sneezing?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>3. Itchy nose?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>4. Runny nose?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>5. Shortness of breath/dyspnoea?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>6. Wheezing in the chest?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>7. Chest tightness upon physical exercise?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>8. Tiredness/limitations in doing daily tasks because of your allergic respiratory diseases?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>9. Woke up during the night?</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
</tbody>
</table>

In the last 4 weeks how many times did you:

- I’m not taking any medicines?
- Less than 7 days?
- 7 or more days?

---

www.new.caratnetwork.org/pt-pt/
### Written PAAP

- A written PAAP is an essential part of managing long-term disease\(^1\)
- SIGN-BTS recommend that **all people with asthma should be offered self-management education which includes a written AAP**\(^2\)
- In addition, GINA also highlights the importance of supporting long-term asthma management\(^3\)
- These recommendations are based on literature reviews that show that supported PAAPs improve asthma control, reduce exacerbations and improve quality of life\(^2,3\)

### Why are they useful?

- Pinpoint signs that the asthma is getting worse\(^4\)
- Keep track of when to take medicines\(^4\)
- Aid daily monitoring as well as long-term control\(^4\)
- Provide information on what to do in the event of an asthma attack\(^4\)

The overall aim of a written PAAP is to help take *early action* to prevent or reduce the severity of asthma attack symptoms\(^4\)

---

PAAP = personalised asthma action plan; GINA = Global Initiative for Asthma; SIGN-BTS = Scottish Intercollegiate Guidelines Network- British Thoracic Society.

Comorbidities can impact asthma management

Asthma Comorbidities

• Rhinitis and chronic rhinosinusitis
• Gastroesophageal reflux (GERD),
• Obesity,
• Obstructive sleep apnoea,
• Depression and anxiety.

Comorbidities should be identified as they may contribute to respiratory symptoms, flare-ups and poor quality of life. Their treatment may complicate asthma management.
Treatments for asthma: non-pharmacological approaches

There are many non-pharmacological approaches to attaining better asthma control; some of these include:

- Allergen avoidance
- Smoking cessation or avoidance of tobacco smoke
- Checks of inhaler technique
- Physical activity

Initial controller treatment for adults, adolescents and children (6–11 years)

• Start controller treatment early
  – For best outcomes, initiate controller treatment as early as possible after making the diagnosis of asthma
• Step 1 is for patients with symptoms less than twice a month, and with no exacerbation risk factors
• GINA recommends as-needed low dose ICS-formoterol (off-label; all evidence with budesonide-formoterol) for almost all patients
• Treatment of children 6-11 years: Low dose ICS taken whenever SABA is taken (off-label)
• Consider starting at a higher step if:
  – Troublesome asthma symptoms on most days
  – Waking from asthma once or more a week, especially if any risk factors for exacerbations
• If initial asthma presentation is with an exacerbation:
  – Give a short course of oral steroids and start regular controller treatment (e.g. high-dose ICS or medium-dose ICS/LABA, then step down)

ICS = inhaled corticosteroid; LABA = long-acting β₂ agonist.

Initial controller treatment for adults, adolescents and children (6–11 years)

• Before starting initial controller treatment
  – Record evidence for diagnosis of asthma, if possible
  – Record symptom control and risk factors, including lung function
  – Consider factors affecting choice of treatment for this patient
  – Ensure that the patient can use the inhaler correctly
  – Schedule an appointment for a follow-up visit

• After starting initial controller treatment
  – Review response after 2–3 months, or according to clinical urgency
  – Adjust treatment (including non-pharmacological treatments)
  – Consider stepping down when asthma has been well controlled for 3 months
GINA recommends a stepwise approach to pharmacological asthma management

**Box 3-5A**

**Adults & adolescents 12+ years**

**Personalized asthma management:**
Assess, Adjust, Review response

**Asthma medication options:**
Adjust treatment up and down for individual patient needs

**PREFERRED CONTROLLER**
to prevent exacerbations and control symptoms

**PREFERRED RELIEVER**
Other reliever option

**STEP 1**
As-needed low dose ICS-formoterol

**STEP 2**
Daily low dose inhaled corticosteroid (ICS), or as-needed low dose ICS-formoterol *

Leukotriene receptor antagonist (LTRA), or low dose ICS taken whenever SABA taken †

**STEP 3**
Low dose ICS-LABA

Medium dose ICS, or low dose ICS+LTRA #

**STEP 4**
Medium dose ICS-LABA

High dose ICS, add-on tiotropium, or add-on LTRA #

**STEP 5**
High dose ICS-LABA

Refer for phenotypic assessment ± add-on therapy, e.g. tiotropium, anti-IgE, anti-IL5/5R, anti-IL4R

Add low dose OCS, but consider side-effects

**Confirmation of diagnosis if necessary**
- Symptom control & modifiable risk factors (including lung function)
- Comorbidities
- Inhaler technique & adherence
- Patient goals

**Treatment of modifiable risk factors & comorbidities**
- Non-pharmacological strategies
- Education & skills training
- Asthma medications

© Global Initiative for Asthma, www.ginasthma.org

GINA 2019
Step 3 - one or two controllers plus as-needed reliever

- Before considering step-up
  - Check inhaler technique and adherence, confirm diagnosis
- Adults/adolescents: preferred options are either combination low-dose ICS/LABA maintenance with as-needed SABA or ICS/formoterol or, OR
- Combination low-dose ICS/formoterol maintenance and reliever regimen*
  - Adding LABA reduces symptoms and exacerbations and increases FEV1, while allowing lower dose of ICS
  - In at-risk patients, maintenance and reliever regimen significantly reduces exacerbations with similar level of symptom control and lower ICS doses compared with other regimens
- Children 6–11 years: preferred option is low dose ICS-LABA and medium dose ICS are ‘preferred’ controller treatments
  - No safety signal with ICS-LABA in children 4-11 years

ICS = inhaled corticosteroid; LABA = long-acting $\beta_2$ agonist; SABA = short-acting $\beta_2$ agonist; LTRA = leukotriene receptor antagonist.

ASTHMA SLIDE RULE

1. Questions for prescriber/dispenser to ask themselves and a person with asthma
Using this slide rule, how much short-acting beta agonist (SABA) also known as reliever/rescue/salbutamol/albuterol inhaler would you think was acceptable for a person with asthma to take in a year, week or day before you thought a review was necessary? What made you choose that?

<table>
<thead>
<tr>
<th>Number of SABA inhalers Rx per year</th>
<th>Increasing SABA use*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td>3</td>
<td>600</td>
</tr>
<tr>
<td>4</td>
<td>800</td>
</tr>
<tr>
<td>5</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>1200</td>
</tr>
<tr>
<td>7</td>
<td>1400</td>
</tr>
<tr>
<td>8</td>
<td>1600</td>
</tr>
<tr>
<td>9</td>
<td>1800</td>
</tr>
<tr>
<td>10</td>
<td>2000</td>
</tr>
<tr>
<td>11</td>
<td>2200</td>
</tr>
<tr>
<td>12</td>
<td>2400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Puffs of SABA used per year</th>
<th>Puffs of SABA used per week</th>
<th>Puffs of SABA used per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>3</td>
<td>&gt;3</td>
</tr>
<tr>
<td>23</td>
<td>4</td>
<td>&gt;4</td>
</tr>
<tr>
<td>27</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>31</td>
<td>6</td>
<td>&gt;6</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Symptoms                             | | |
|--------------------------------------| | |
| <1                                   | 1                           |
| 1                                   | 2                           |
| 2                                   | 2                           |
| 3                                   | 3                           |
| >3                                   | 4                           |
| >4                                   | >4                          |
| 5                                   | 5                           |
| 6                                   | >6                          |
| >6                                   | 7                           |

*Suggestion: Try asking a person with asthma question 1 after asking the ACT™ question: (www.nhp.org/provider/asthma/Survey_ACT_adult_EN.pdf)
During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol): 3 or more times per day / 1 or 2 times per day / 2 or 3 times per week / Once a week or less / Not at all

Asthma Right Care Guidance Notes available at www.iprcg.org/astmarightcare

---

2. Questions for prescriber to ask themselves and a person with asthma
Using the number scale 0–10 below, reflect:

- How important is it that you organise a review given the answer to question 1? What made it a [number]?
- How confident do you feel to have the conversation about reducing the dose? What made it a [number]?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all important/confident</td>
<td>Extremely important/confident</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: International guidance (Global Initiative for Asthma (GINA) 2017) is that if an adolescent or adult with asthma uses more than 2 puffs of SABA (one dose) a week and reports asthma symptoms or night-waking in the last 4 weeks, their asthma will not be fully controlled on a SABA alone and prescribing should be reviewed.
Thank you for your attention!
References


PAAP

This is what I need to do to stay on top of my asthma:

My personal best peak flow is: _______________________

My preventer inhaler (insert name/colour):
I need to take my preventer inhaler every day even when I feel well.
I take ___ puff(s) in the morning and ___ puff(s) at night.

My reliever inhaler (insert name/colour):
I take my reliever inhaler only if I need to.
I take ___ puff(s) of my reliever inhaler if any of these things happen:
- I'm wheezing
- My chest feels tight
- I'm finding it hard to breathe
- I'm coughing.

Other medicines I take for my asthma every day:

With this daily routine I should expect/aim to have no symptoms. If I haven't had any symptoms or needed my reliever inhaler for at least 12 weeks, ask my GP or asthma nurse to review my medicines in case they can reduce the dose.

People with allergies need to be extra careful as attacks can be more severe.

My asthma is getting worse if I notice any of these:

- My symptoms are coming back ( wheeze, tightness in my chest, feeling breathless, cough)
- I am waking up at night
- My symptoms are interfering with my usual day-to-day activities ( eg at work, exercising)
- I am using my reliever inhaler ___ times a week or more
- My peak flow drops to below _______________________

This is what I can do straight away to get on top of my asthma:

1. If I haven't been using my preventer inhaler, start using it regularly again or:
   Increase my preventer inhaler dose to ___ puffs ___ times a day until my symptoms have gone and my peak flow is back to normal.
   Take my reliever inhaler as needed ( up to ___ puffs every four hours).
   If I don't improve within 48 hours make an urgent appointment to see my GP or asthma nurse.

2. If I have been given prednisolone tablets (steroid tablets) to keep at home:
   Take ___ mg of prednisolone tablets (which is ___ x 5mg) immediately and again every morning for ___ days or until I am fully better.

Urgent! Call my GP or asthma nurse today and let them know I have started taking steroids and make an appointment to be seen within 24 hours.

I'm having an asthma attack if any of these happen:

- My reliever inhaler is not helping or I need it more than every ___ hours.
- I find it difficult to walk or talk.
- I find it difficult to breathe.
- I'm wheezing a lot or I have a very tight chest or I'm coughing a lot.
- My peak flow is below _______________________.

This is an emergency take action now:

1. Sit up straight – don't lie down. Try to keep calm.
2. Take one puff of my reliever inhaler every 30 to 60 seconds up to a maximum of 10 puffs.
3. (a) If I feel worse at any point while I'm using my inhaler.
   (b) If I don't feel any better after 10 puffs.
   (c) If I feel better, make an urgent same-day appointment with my GP or asthma nurse to get advice.

Call 999

Ambulance taking longer than 15 minutes?
Repeat step 2

If I feel better, and have made my urgent same-day appointment:
   Check if I've been given rescue prednisolone tablets.
   If I have these I should take them as prescribed by my doctor or asthma nurse.

Important: This asthma attack information is not designed for people who use the Symbicort SMART regime or Fostair SMART regime. If you use one of these speak to your GP or asthma nurse to get the correct asthma attack information.
Use an asthma control test – ACT (Asthma Control Test)

1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

   **SCORE**

2. During the past 4 weeks, how often have you had shortness of breath?

<table>
<thead>
<tr>
<th>More than once a day</th>
<th>Once a day</th>
<th>3 to 6 times a week</th>
<th>Once or twice a week</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

<table>
<thead>
<tr>
<th>4 or more nights a week</th>
<th>2 or 3 nights a week</th>
<th>Once a week</th>
<th>Once or twice</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

<table>
<thead>
<tr>
<th>3 or more times per day</th>
<th>1 or 2 times per day</th>
<th>2 or 3 times per week</th>
<th>Once a week or less</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

5. How would you rate your asthma control during the past 4 weeks?

<table>
<thead>
<tr>
<th>Not controlled at all</th>
<th>Poorly controlled</th>
<th>Somewhat controlled</th>
<th>Well controlled</th>
<th>Completely controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>