

Practical Tips and Safety Netting: Asthma and Wheeze in Children

*Dr Sharon Hall
Consultant Paediatric Allergist*

Learning Objectives

- ▶ When, why and how to review asthmatic children and young people
- ▶ How to assess control and risk effectively
- ▶ Practicalities of using and assessing inhaler techniques
- ▶ The role of Personalised Asthma Action Plans

**National Review of Asthma Deaths
February 2012 – January 2013:
Poor quality of care for children & Young People
www.rcplondon.ac.uk/nrad**

Only One of the 28 children and young people (CYP) who died from asthma had appropriate medical care

NRAD Missed Opportunities

- ▶ Overprescribing SABA and insufficient ICS preventer medication
- ▶ Failure to monitor and provide follow up and optimisation after attacks;
 - irrespective of whether these were treated in hospital or community
- ▶ Failure to refer patients (secondary and primary care)

Case 1 C

- ▶ 3 ½ year old girl
- ▶ Attended for hospital based food challenge
- ▶ Recurrent episodes of viral induced wheeze from 2 year of age
- ▶ Background:
 - Confirmed milk tree nut and banana allergy
 - Mild eczema
 - Known house dust mite allergy

Nursing Assessment

- ▶ Coughing at most nights since June
- ▶ Using salbutamol 4 times a week – 4 times a day
- ▶ 2017
 - Feb – A&E attendance
 - April – Ward admission
 - May – Allergy Appointment
 - July – AE attendance

What were the missed opportunities?

- ▶ Diagnosis – could this be asthma ?
- ▶ Control and risk assessment A&E and ward
- ▶ 48 hour reviews
- ▶ Primary secondary and tertiary care reviews
- ▶ Triggers and smoking advice

Asthma Reviews

- ▶ NICE: Patients should be reviewed at least Annually

BUT

Asthma is a chronic disease marked by flare ups/attacks

- ▶ **It is illogical to simply do one annual review**

(Mark Levy, Breathe 2015)

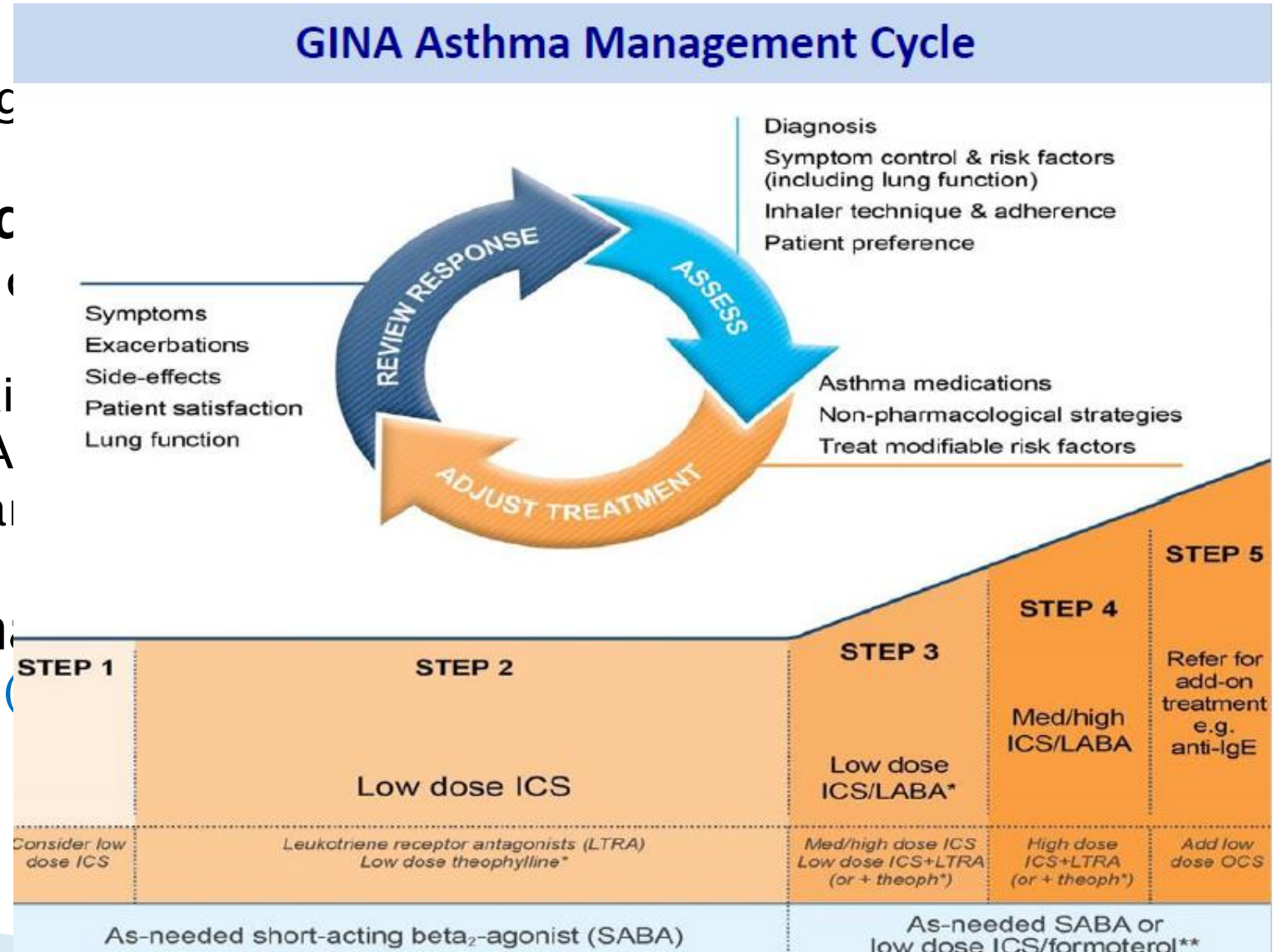
- ▶ **Review should be done more frequently – in children every 3 months and after each flare or change in medication**

(Bush & Flemming, BMJ 2015)

- 48 hour review
- Clinical deterioration
- After medication changed

Annual Reviews – What to check

- ▶ **Diagnosis ?**
 - Is it asthma ? Basis of diagnosis
- ▶ **How well is it controlled**
 - Symptoms: at night, with exertion
 - Asthma control tests
 - Triggers (allergies, smoking)
 - Exacerbations: steroids, A
 - Salbutamol use, concordance
- ▶ **Do I need to change management**
 - Review inhaler technique (
 - Review asthma plan (step
 - Referral needed?



Reviews after unscheduled care

▶ Should happen after:


- Emergency oral steroid prescription
- Unscheduled visit to primary or secondary care
- Admission to hospital

▶ Could this have been prevented ?

- Salbutamol /ICS prescription, reviews attended
- Previously reviewed inhaler technique
- Asthma action plan?

▶ Detailed review

- Are they better yet ?
- Triggers and potential avoidance
- Medication device appropriate
- Concordance ?
- Was the medication available ?
- Did they have a plan, was it followed



Oral steroids are
not just a 3 day
course

Assessing Risk and Control

What is Asthma Control

- ▶ “The extent to which the effects of asthma can be seen in the patient, or have been reduced or removed by treatment”
- ▶ **Asthma Control has 2 domains:**
 - Risk factors for future poor outcomes
 - Symptom control
- ▶ **Current control is the best predictor of future asthma attacks**

GINA 2015

Risk Factors for Poor Asthma Outcomes

▶ Potentially Modifiable independent risk factors include:

- Uncontrolled asthma symptoms
- ICS not prescribed, poor ICS concordance, incorrect inhaler technique
- High SABA use
- Low FEV1
- Major psychological or socioeconomic issues
- Exposures: smoke, allergens, pollution
- Comorbidities

**1 or more risk factors
increases the risk of exacerbations
even if symptoms are well controlled**

▶ Other major independent risk factors for exacerbations:

- Ever intubated or PICU
- 1 or more severe exacerbations in last 12 months

Assessing Symptom Control: Which Question is better and why?

“How is your asthma?”

BE SPECIFIC:
Use closed
questions

OR

*“How many times a week do you use your
blue inhaler?”*

Assessing Asthma Symptom Control

The GINA Questions

In the past 4 weeks, has the patient had:

- Daytime symptoms more than twice/week? Yes No
- Any night waking due to asthma? Yes No
- Reliever needed more than twice/week? Yes No
- Any activity limitation due to asthma? Yes No

Well controlled

None of these

Partly controlled

1–2 of these

Uncontrolled

3–4 of these

Childhood Asthma Control Test for children 4 to 11 years old.

Know the score.

This test will provide a score that may help your doctor determine if your child's asthma treatment plan is working or if it might be time for a change.

How to take the Childhood Asthma Control Test

- Step 1 Let your child respond to the **first four questions (1 to 4)**. If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining **three questions (5 to 7)** on your own and without letting your child's response influence your answers. There are no right or wrong answers.
- Step 2 Write the number of each answer in the score box provided.
- Step 3 Add up each score box for the total.
- Step 4 Take the test to the doctor to talk about your child's total score.

Have your child complete these questions.

1. How is your asthma today?

 0	 1	 2
Very bad	Bad	Not bad

2. How much of a problem is your asthma when you run, exercise or play?

 0	 1	 2
It's a big problem. I can't do what I want to do. It's a problem and I don't like it.	It's a problem and I don't like it.	Not a problem

3. Do you cough because of your asthma?

 0	 1	 2
Yes, all of the time.	Yes, most of the time.	Not at all

4. Do you wake up during the night because of your asthma?

 0	 1	 2
Yes, all of the time.	Yes, most of the time.	Not at all

Please complete the following questions on your own.

5. During the **last 4 weeks**, on average, how many **days per month** did your child have any wheezing or coughing?

 5	 4	 3	 2
Not at all	1-3 days/mo	4-10 days/mo	11-18 days/mo

6. During the **last 4 weeks**, on average, how many **days per month** did your child wheeze during the night?

 5	 4	 3	 2
Not at all	1-3 days/mo	4-10 days/mo	11-18 days/mo

7. During the **last 4 weeks**, on average, how many **days per month** did your child wake up during the night because of their asthma?

 5	 4	 3	 2
Not at all	1-3 days/mo	4-10 days/mo	11-18 days/mo

Please turn this page over to see what your child's total score means.

Asthma UK is the only charity dedicated to the health and well-being of the 6.2 million people in the UK with asthma. By taking control of their asthma, most people's day-to-day lives should be free from disruption such as troubled sleep or not being able to exercise.

Why take the Asthma Control Test™?

The Asthma Control Test™ will provide you with a score every 4 weeks, giving you a simple score to help you decide if your asthma is under control. It's handy to see if your asthma is under control or not.

your asthma is not under control

19 or less
If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. No matter what the score, bring this test to your doctor to talk about your child's results.



Asthma attack risk checker

- Using your personal asthma report will:
- ✓ Help you stay out of hospital
 - ✓ Reduce symptoms
 - ✓ Stop your family worrying

This simple check is for people with asthma who are 12 years and older. It only takes a few minutes and will show your risk of an asthma attack.

You'll also get a personal asthma report packed with simple tips and advice to help you deal with your asthma. Asthma hospitalises someone every 7 minutes. Don't let it be you.





[Start risk checker now](#)





Data from the Asthma Attack Risk Checker is used anonymously for research purposes to help us better understand how asthma affects people. The Asthma Attack Risk Checker results are not medical advice. If you are concerned about your asthma symptoms or your risk of an attack, we advise visiting a healthcare professional. If you are experiencing an asthma attack, then seek emergency care immediately if needed.




Asthma Control Test™ for teens 12 years and older. Know the score.



- Step 1 Write the number of each answer in the score box provided.
- Step 2 Add up each score box for the total.
- Step 3 Take the test to the doctor to talk about your child's total score.






- 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?

All of the time	 1	 2	 3	 4	 5
	Most of the time	Some of the time	A little of the time	Not at all	
- During the past 4 weeks, how often have you had shortness of breath?

 1	 2	 3	 4	 5
More than once a day	Once a day	3 to 6 times a week	Once or twice a week	None of the time
- 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?

 1	 2	 3	 4	 5
4 or more nights a week	2 or 3 nights a week	Once a week	Once or twice a week	Not at all
- During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

 1	 2	 3	 4	 5
1 or 2 times per day	2 or 3 times per week	Once or twice a week	Once or twice a week	Not at all
- How well is your asthma control during the past 4 weeks?

 1	 2	 3	 4	 5
Poorly controlled	Somewhat controlled	Well controlled	Not at all	Completely controlled

Total

For teens 19 or less?

If your child's asthma is not under control, ask your doctor. Ask if you should change your child's asthma treatment plan. Medications that can help control airway inflammation and constriction, the two main things that can help control asthma, may need to be taken on a daily basis for the best asthma control.

GP Stu... Children's ... Asthma At... 019986 - A... Harrow 30... 48 hour Re... Childhood... Staff for es...

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Case 2. S

- ▶ 14 year old boy
- ▶ Reviewed post admission to PICU
- ▶ Background
 - Asthma diagnosed at 6 years of age
 - Mild perennial rhinitis with seasonal exacerbations
 - House dust mite, cat and grass pollen allergy
 - Mild eczema from 6 years of age
 - No history of food allergy
- ▶ Current treatment
- ▶ Previous treatment and control
- ▶ What do you look at?

Case 2 S continued

- ▶ No pets at home
- ▶ House dust mite reduction measures in place
- ▶ No problems at school or home
- ▶ Picking up prescriptions regularly
- ▶ Still using salbutamol every day

- ▶ Symbicort inhaler technique.....

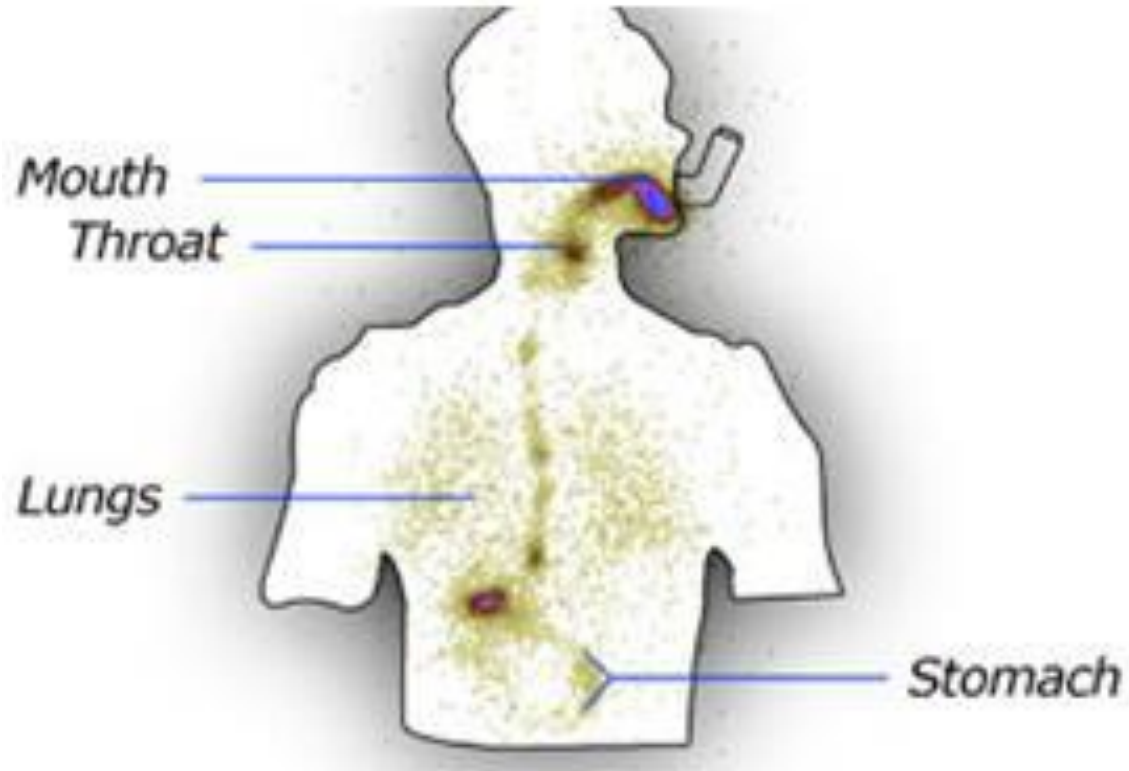
Inhaler techniques



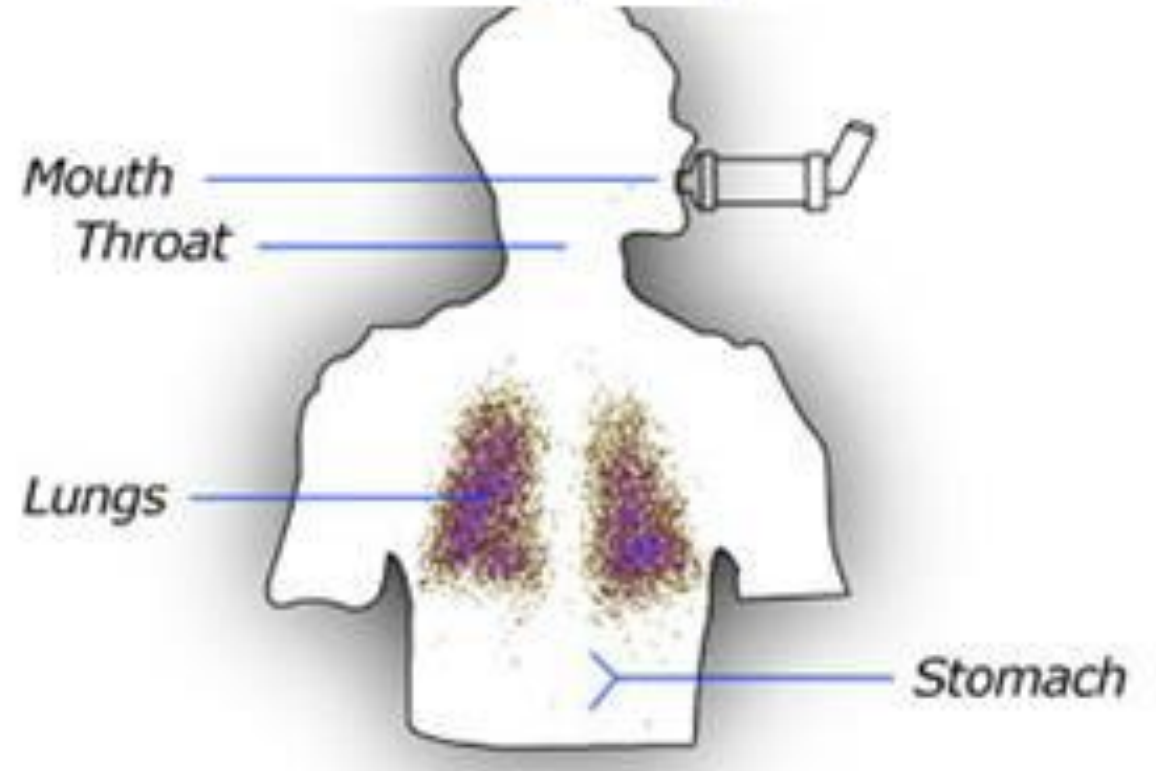
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Inhaler Devices

Inhaler directly in the mouth

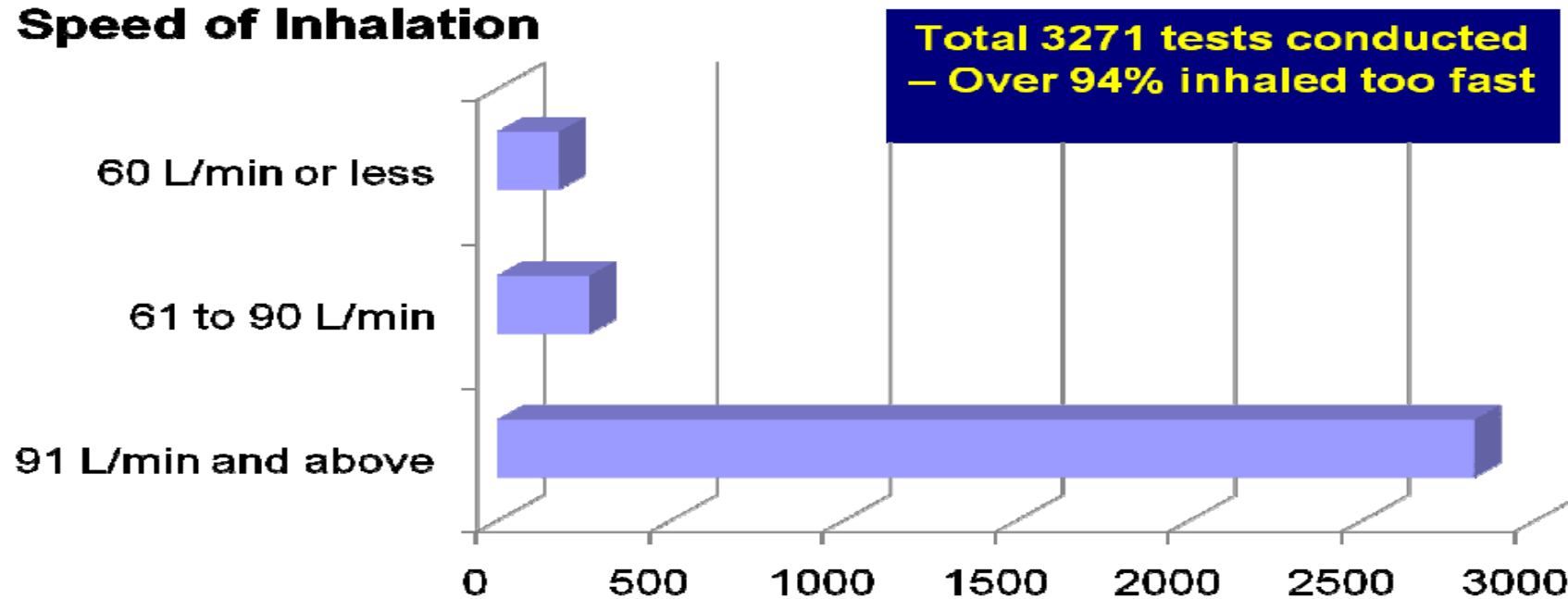


Inhaler through a spacer



Health Professional speed of inhalation when asked to inhale as if using a MDI

Speed of Inhalation



Presented Jon Bell, ERS 2007

Inhaler device chart

DEVICE	Dry or wet	SABA short acting β_2 agonist	SAMA short acting muscarinic antagonist	LAMA long acting muscarinic antagonist	LABA long acting β_2 agonist	ICS Inhaled glucocorticoid steroid
Metered Dose Inhaler		salbutamol			formoterol (Aformax®)	budesonide & formoterol (Duoair®), fluticasone (Flixotide®), beclomethasone (Qvar®), ciclesonide (Alto®)

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Devices suitable for children

MDI & Spacer (volumatic)



Requires least training. MDI combined with spacer delivers the most medicine to the lungs. An age appropriate spacer must be used. Children over 4 years old should use a mouthpiece - NOT a mask (unless neurologically impaired)

Easi-breathe

(≥ 7y)



Requires good technique and cannot be used with a spacer
To use - take a slow constant breath in. The device detects this and then activates the spray automatically.

Accuhaler

(≥ 7y)



Child must be able to take a forceful deep breath in.
To use - Open the device, pull the lever, take a forceful deep breath in (through the device's mouthpiece), close.

Turbohalers

(≥ 7y)



Requires deep inspiration & good lung capacity (i.e. a very forceful deep breath in) more than accuhaler (above)
To use - Stand device upright, twist the base (not mouthpiece), hold flat in hand and take a very forceful breath in via the mouthpiece

Aerochamber Spacer	Age range
	0 - 18 months
	1 - 4 years
	≥ 4 years
	Adults & children with neuro-disability

Wet inhalers need long slow breaths **Dry inhalers** need quick hard deep breaths

IMPERIAL COLLEGE HEALTHCARE NHS TRUST - a digital tool developed by the Inhaler Team and Library team from the St. Mary's Hospital Library Group, June 2017

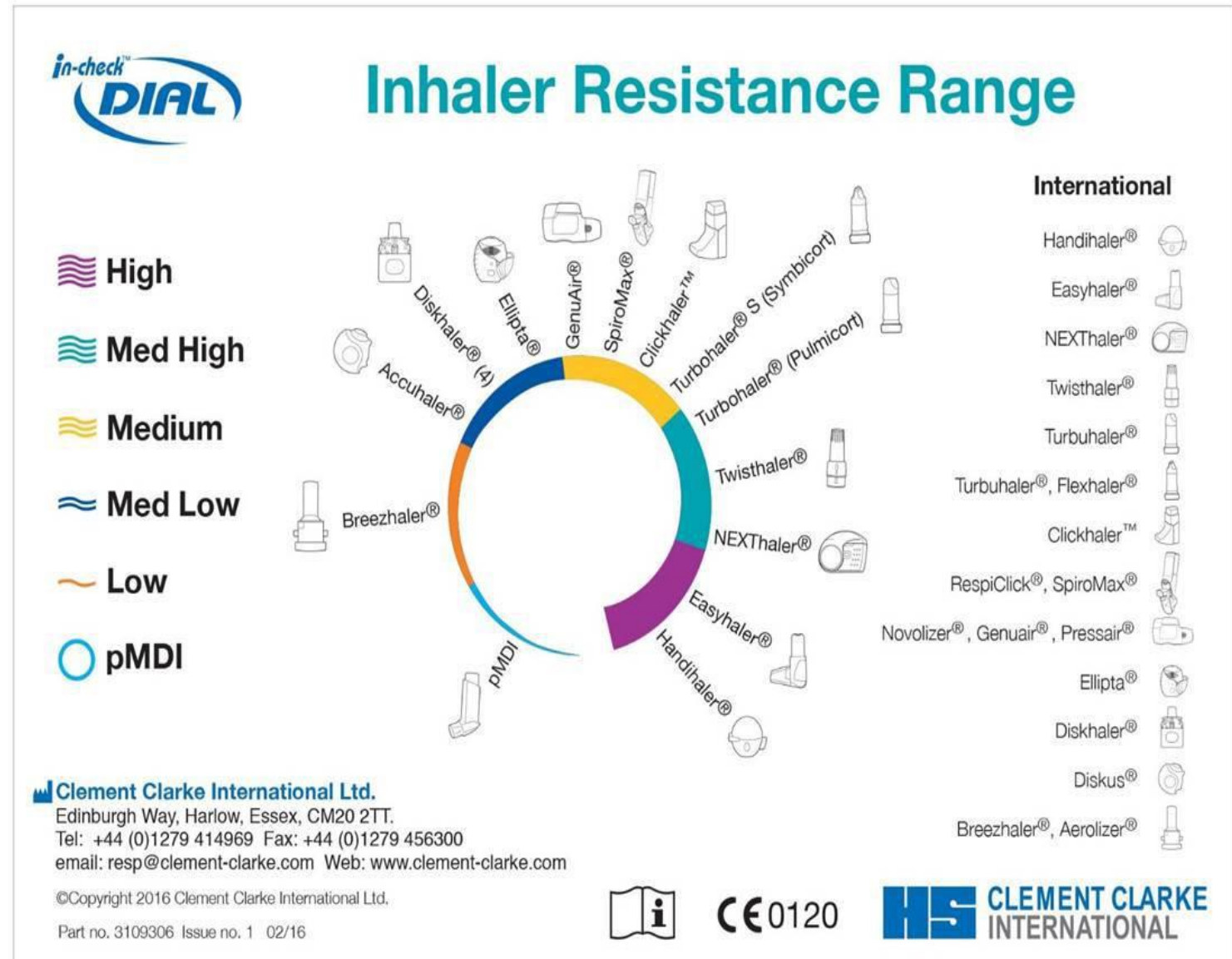
Twisthaler		Dry				mometasone (Amanex®)
Novolizer		Dry	salbutamol (Salbutin®)			budesonide (Budelin®)

Using the in-check DIAL inspiratory flow meter

- ▶ 26%–70% of patients using pMDI fail to inhale at the correct rate for the device
- ▶ The In-check DIAL is a tool for demonstrating how to use their inhaler technique and then coaching correct technique
- ▶ It measures inspiratory flow:
 - Optimal inspiratory flow for pMDI and DPI's

Inspiratory flow

- ▶ Inspiratory flow affects drug delivery
- ▶ DPI values 30–90L/min needed
 - Important when using as “relievers”
- ▶ pMDI values between 20–60L/min are preferred



Personalised Asthma Action Plans

NRAD Key Message

Failure to get help in time

- About half of the people died without calling for, or getting medical help
- Most children and young people died before they reached hospital

¾ of those who died had not been given a personal asthma action plan – why, how & when to take medication and when to call for help

Asthma Action Plans – The Essentials

- ▶ Can be very simple:
 - Eg. See your doctor urgently if –
 - Your blue inhaler doesn't work as usual
 - You're needing your blue inhaler more than usual (>3 times a week or at night)
 - Your blue inhaler doesn't last four hours
 - Your PEFr drops by half

- ▶ Symptoms vs PEFr based control or both

- ▶ To something very elaborate.....



Every day asthma care:

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.



When I feel worse:

- 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)

URGENT! If I don't improve within 24 hours **make an emergency 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! Contact 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.**



In an asthma attack:

- 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



IMPORTANT! This asthma attack information is not designed for people on a SMART or MART medicine plan. If you're on a SMART or MART medicine plan, please speak to your GP or asthma nurse to get the correct asthma attack information.

Does doing sport make it hard to breathe?



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Supported Self Management Key Messages

- ▶ Education is good for you and your patients
- ▶ All patients should have an asthma action plan
- ▶ More likely to be admitted if they don't have a plan

- ▶ Essential components:
 - Usual medication
 - Recognising symptoms and getting worse
 - Recognising triggers
 - When to seek help or increase treatment
 - What to do in an emergency

Questions



Summary

- ▶ Get the basics right
- ▶ Education is key for patients and staff
- ▶ Regular reviews just as in any other long term condition
- ▶ Right device for the right patient with the right training
- ▶ Ensure an asthma plan is agreed and understood