



NHS

Does your child have an asthma action plan from your GP?

Are you aware of the four asks that can help manage their asthma?

healthy london.org/ask-about-asthma

#AskAboutAsthma
October 3 - 9 2022

#AskAboutAsthma 2022: Children & young people's asthma update for primary care

Babies, Children and Young People's Transformation – London

Chair: Dr. Oliver Anglin

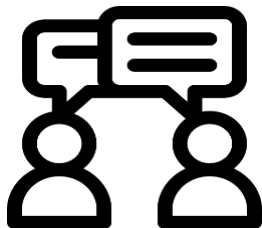
Clinical Director for CYP Transformation - NHSE (London); Clinical Lead for Children and Young People - North Central London CCG; Clinical Lead for Children and Young People - Camden Directorate; GP (Hampstead Group Practice)



Joining instructions and Teams etiquette



You'll automatically be muted with camera off during the webinar



Use the group chat feature to ask questions and please like any questions that you would like answered.



This session is being recorded. A link will be available on the HLP website with any slides

#AskAboutAsthma 2022 – primary care webinar

7th October, 12:30 – 13:30

Children & young people's asthma update for primary care

Topic	Speaker
Chair: Dr. Oliver Anglin <ul style="list-style-type: none">• Clinical Director for CYP Transformation - NHSE (London)• Clinical Lead for Children and Young People - North Central London CCG• Clinical Lead for Children and Young People - Camden Directorate• GP (Hampstead Group Practice)	
Primary care update - how to do a good annual review, inhaler check	Dr. Will Carroll <ul style="list-style-type: none">• Consultant Paediatrician• Honorary Reader in Child Health• RCPCH Officer for Research• Deputy Clinical Tutor• Editor-in-Chief Paediatrics and Child Health• NIHR - Clinical Research Scholar Staffordshire Children's Hospital at Royal Stoke
Who should be referred to severe asthma services?	Dr. Louise Fleming <ul style="list-style-type: none">• Clinical Reader, Imperial College London• Paediatric respiratory consultant, Royal Brompton Hospital
Difference in diagnosing viral wheeze and asthma?	Dr. Ian Sinha <ul style="list-style-type: none">• Consultant respiratory paediatrician, Alder Hey Children's Hospital



How to do a great asthma review

Dr Will Carroll

Consultant Respiratory Paediatrician & Reader in Child Health

PLEASE get it right



Please
and
thank
you
are still
magic words!
{No matter how old you are!}

Conflicts of Interest

- Dr Carroll has received funding for research studies from AstraZeneca and Trudell Medical International
- Dr Carroll is Chief Investigator on a Novartis inhaler study
- Dr Carroll is working with Chiesi on data concerning recycling of inhalers
- Dr Carroll has received speaker fees and/or honoraria for participation in advisory board work from GSK, Orion and Novartis

Conflicts of Interest



Children's voices



What do children and young people say?

We need more help at school to feel safe and supported with our asthma care. We need to have GPs and local hospitals who know how to look after us when we go for appointments or for emergency care. Specialist hospitals look after us really well, but sometimes the information they say doesn't get to or isn't understood by our local services.

Children and young people in clinic told us that what they wanted from GPs was a care plan that looks at helping with medication doses, that everyone can see whether in A&E or in clinic, and to have a GP or a specialist nurse who knows a lot about asthma.

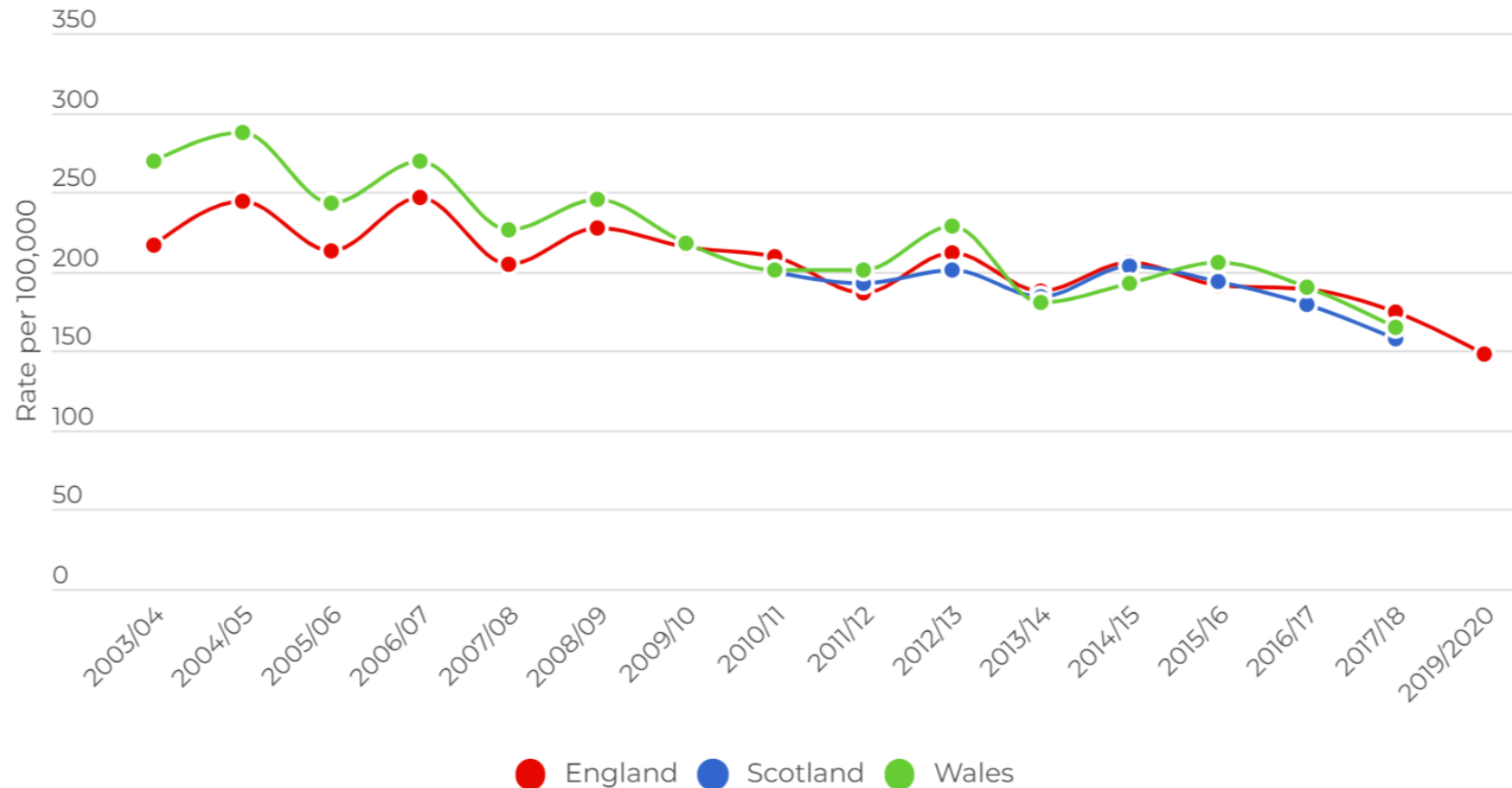
When we go into hospital for an emergency we want to get medicines on arrival, to see a specialist, and to know what is going on and who is helping me. Having more help and training for our schools and our friends and family is also really important to help us to be able to do fun stuff and stay safe.

More from children and young people →

<https://stateofchildhealth.rcpch.ac.uk/evidence/long-term-conditions/asthma/>

You have been doing a great job!

Rate of emergency admissions to hospital for asthma for children and young people

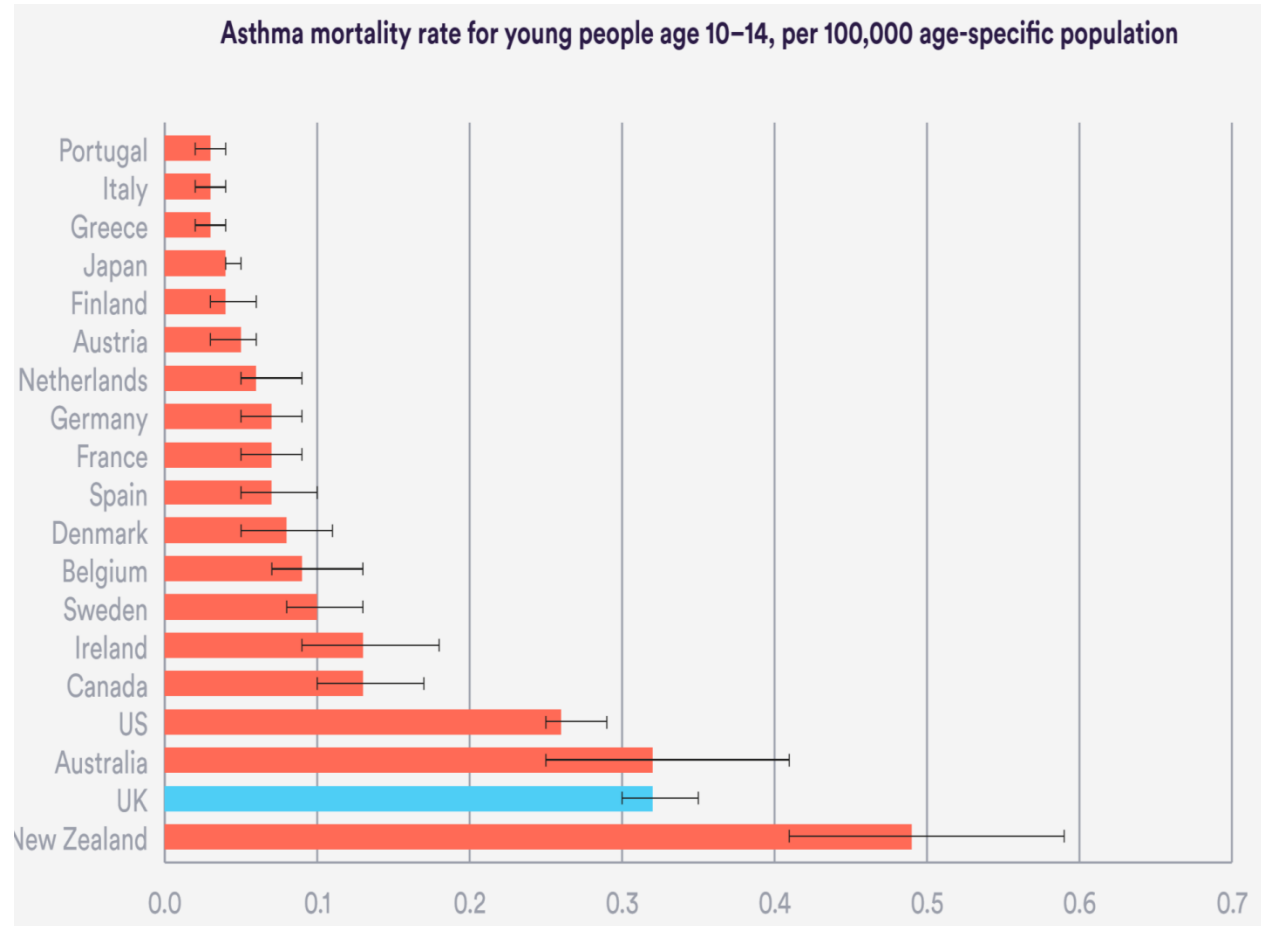


Asthma kills children



Looking back....what is the biggest regret you have?

The UK is lagging behind (and not catching up)



http://www.youngpeopleshealth.org.uk/wp-content/uploads/2019/02/NT-AYPH-adolescent-health-report_WEB-200219.pdf

Before I begin...

Please consider carefully
(and quietly):

What are the six **biggest
risk factors** for death from
asthma in childhood?



Unseen... and unheard?

Please consider carefully
(and quietly):

What are the six **biggest risk factors** for death from asthma in childhood?



Unrecognised risk

No plan

Severity

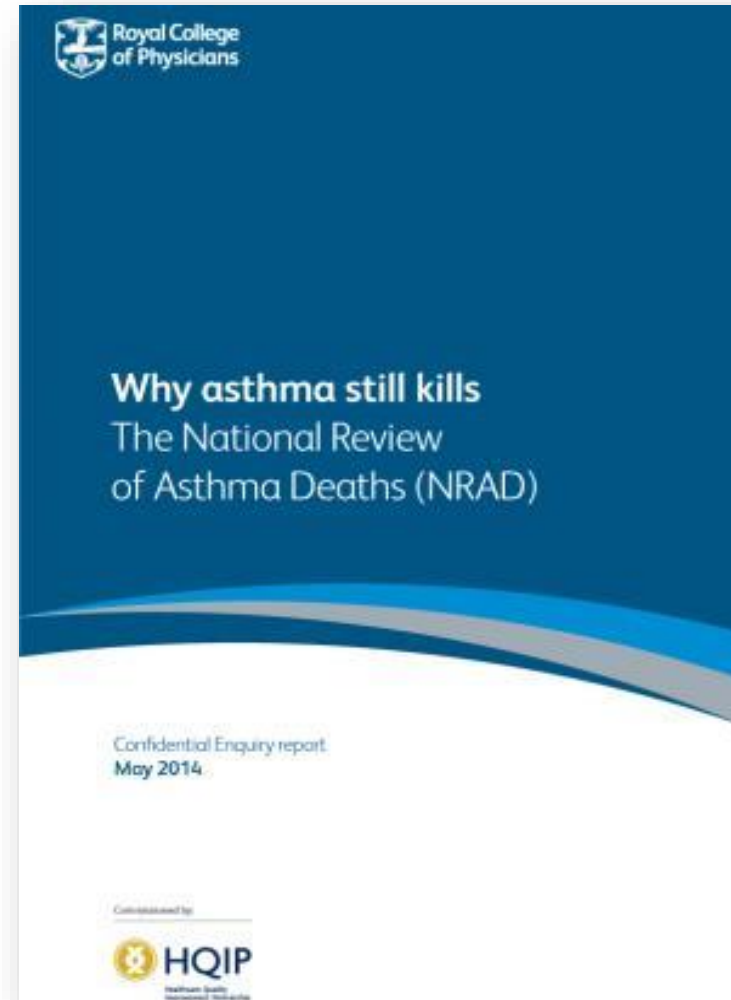
Environment

Excess SABA

Non-adherence

Unrecognised Risk

In CYP, poor recognition of risk of adverse outcome was found to be an important avoidable factor in 7/10 (70%) children and 15/18 (83%) young people in primary care, and in 2/7 (29%) children and 3/9 (33%) young people in secondary care.



Things you need to do: PLEASE

PLAN

LUNG FUNCTION

EXAMINATION

ADHERENCE

SYMPTOMS/SABA

ENVIRONMENT

Asthma UK is the only charity dedicated to the health and well-being of the 5.2 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.

Asthma
Control
Test™



Why take the Asthma Control Test™?

The Asthma Control Test™ will provide you with a snapshot of how well your asthma has been controlled over the last four weeks, giving you a simple score out of 25. Asthma symptoms can vary from month to month, so it is worth keeping the test handy to see if your score changes. You can also share your results with your doctor or asthma nurse to help explain just how your asthma affects you.

Are you in control of your asthma? Or is your asthma in control of you? Here's how to find out

Step 1: Read each question below carefully, circle your score and write it in the box.

Step 2: Add up each of your five scores to get your total Asthma Control Test™ score.

Step 3: Use the score guide to learn how well you are controlling your asthma.

Q1	During the past 4 weeks, how often did your asthma prevent you from getting as much done at work, school or home?	Score:
	All of the time 1 Most of the time 2 Some of the time 3 A little of the time 4 None of the time 5	
Q2	During the past 4 weeks, how often have you had shortness of breath?	Score:
	More than once a day 1 Once a day 2 3-4 times a week 3 1-2 times a week 4 Not at all 5	
Q3	During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, chest tightness, shortness of breath) wake you up at night or earlier than usual in the morning?	Score:
	4 or more times a week 1 2-3 nights a week 2 Once a week 3 Once or twice 4 Not at all 5	
Q4	During the past 4 weeks, how often have you used your reliever inhaler (usually blue)?	Score:
	3 or more times a day 1 1-2 times a day 2 2-3 times a week 3 Once a week or less 4 Not at all 5	
Q5	How would you rate your asthma control during the past 4 weeks?	Score:
	Not controlled 1 Poorly controlled 2 Somewhat controlled 3 Well controlled 4 Completely controlled 5	

What does your score mean?

Score: 25 – WELL DONE

• Your asthma appears to have been **UNDER CONTROL** over the last 4 weeks.
• However, if you are experiencing any problems with your asthma, you should see your doctor or nurse.

Score: 20 to 24 – ON TARGET

• Your asthma appears to have been **REASONABLY WELL CONTROLLED** during the past 4 weeks.
• However, if you are experiencing symptoms your doctor or nurse may be able to help you.

Score: less than 20 – OFF TARGET

• Your asthma may **NOT HAVE BEEN CONTROLLED** during the past 4 weeks.
• Your doctor or nurse can recommend an asthma action plan to help improve your asthma control.

Total Score

What can you do now?

Like many other people in the UK, it is possible that your asthma could have less impact on your everyday life. You can get a free pack full of information about how to take control of your asthma, including an action plan to fill in with your doctor or asthma nurse, from Asthma UK.

©2002, by QualityMetric Incorporated. Asthma Control Test is a trademark of QualityMetric Incorporated.

*US English version modified for use in UK. The production of this leaflet has been supported by GlaxoSmithKline

Registered charity number 802364

“How is your asthma?”

Scary. Hard. Exhausting. Overwhelming.
Bad. Stopping me running. Makes me feel
left out. Upsetting. Makes me sad. Tiring.
fine
Frustrating. Unmanageable. Makes
me feel different. Difficult. Depressing.
Relentless. Poorly controlled. Hard to
manage. Unsafe. Limiting. Crushing.
Excluding. Worrying. Very bad. Isolating.
Unfair. Expensive. Time-consuming.

What questions should I ask?

How to ask about asthma?

RCP3Q

GINA (5Q)

ACT/cACT



Paediatric Respiratory Reviews

Volume 14, Issue 4, December 2013, Pages 229-231



Clinical Usefulness

Limitations of asthma control questionnaires
in the management and follow up of
childhood asthma

Will Carroll

Show more

+ Add to Mendeley Share Cite

<https://doi.org/10.1016/j.prrv.2013.06.007>

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What questions should I ask?

How to ask about asthma?

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ELSEVIER

Paediatric Respiratory Reviews

Volume 14, Issue 4, December 2013, Pages 229-231



Clinical Usefulness

Limitations of asthma control questionnaires in the management and follow up of childhood asthma

Will Carroll

In the last month

1	Have you had difficulty sleeping because of asthma symptoms (including cough)?	Yes/No
2	Have you had your usual asthma symptoms during the day (cough, wheeze, chest tightness or breathlessness)?	Yes/No
3	Has your asthma interfered with your usual activities (e.g. housework, work, school, etc)?	Yes/No

The 'yes/no' responses are scored with 1 for each positive answer giving a total score between 0 and 3.

What questions should I ask?

~~How to ask?~~

RCP3Q

GINA (5Q)

ACT/cACT



Paediatric Respiratory Reviews
Volume 14, Issue 4, December 2013, Pages 229-231



Clinical Usefulness

Limitations of asthma control questionnaires
in the management and follow up of
childhood asthma

1. No Daytime symptoms

2. No limitation of activities

3. No nocturnal symptoms or wakening

4. SABA use twice or less per week

5. No exacerbations

How is Asthma?

GINA (5Q)

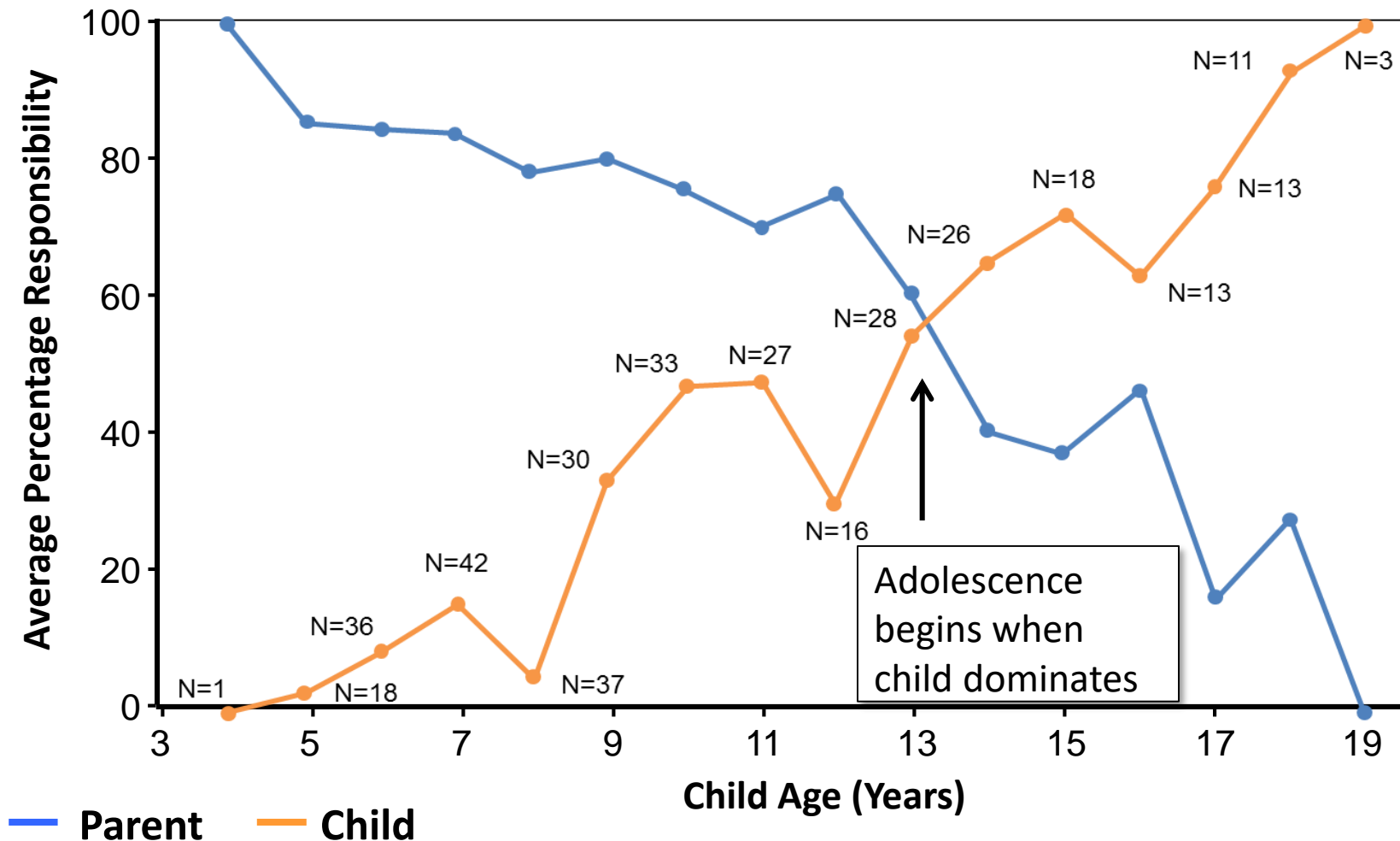
ACT/cACT



If your score is 19 or less, your asthma may not be under control. Be sure to talk with your doctor about your results. The answers below should not be added to your total score. These answers should be discussed with your doctor.

1

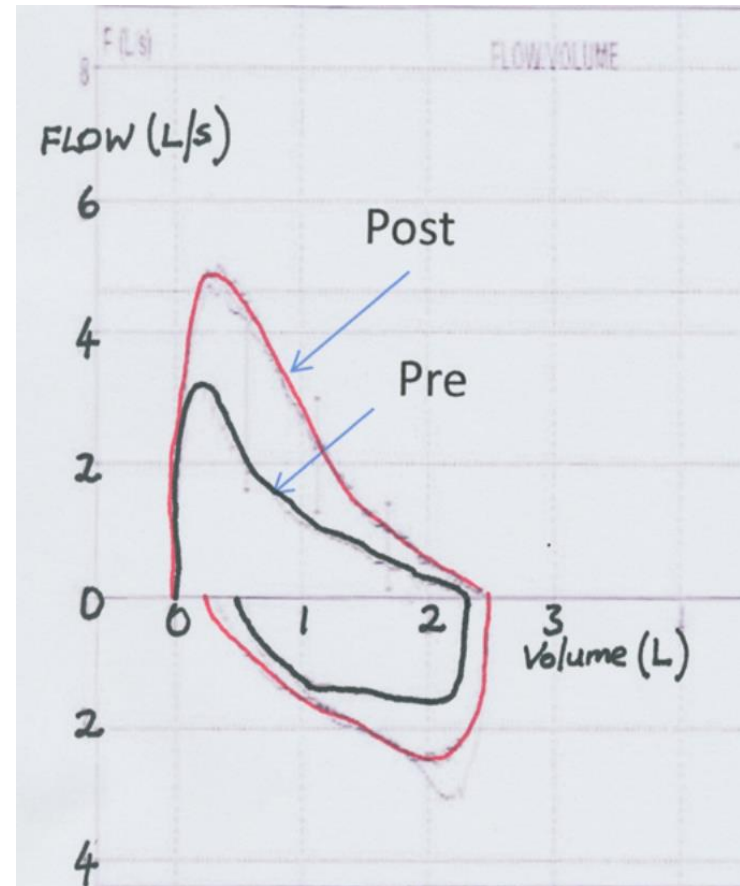
Who should I ask?



Adapted from Orell-Valente JK et al. Pediatrics 2008;122:e1186-e1192

Lung function/FeNO

- Poor correlation between asthma symptoms and lung function
- Frequently identifies CYP with poor perception of symptoms
- Can help to provide objective evidence of improvement/need for change



Examination

- Part of the art of medicine
- Red flags?
- Wheezy or wet?
- Nose
- Skin
- Eyes



Adherence

Takes it often Takes it well	Takes it often Takes it badly
Takes it rarely Takes it well	Takes it rarely Takes it badly

What do you teach your patients?

How to use their inhalers

When to use their inhalers

How to dispose of them?

How to tell when they are empty?

NACAP Audit



How Do Patients Determine That Their Metered-Dose Inhaler Is Empty?*

Bruce K. Rubin, MD, MEng, FCCP; and Lolly Durotoye

Study objective: To evaluate how patients determined that pressurized metered-dose inhaler (pMDI) canisters were empty and to measure pMDI depletion under different circumstances in the laboratory.

Setting: Most of the study was performed in a university research laboratory.

Participants: Fifty consecutive patients attending the Brenner Children's Hospital Asthma Center were initially questioned regarding pMDI use, and they demonstrated their use of the inhaler.

Measurements and results: Of the 50 children and parents questioned, 74% did not know how many actuations were in their canisters, and all used their pMDI until they could not longer "hear" the medication when actuating. Only half shook the canister before actuating. In the laboratory, chlorofluorocarbon (CFC) canisters typically had 86% more actuations than the nominal dose, and hydrofluoroalkane (HFA) canisters had 52% more. Canister flotation was ineffective in identifying when a pMDI was depleted, and water obstructed the valve opening 27% of the time. For CFC inhalers, shaking the pMDI before firing increased the number of actuations per canister ($p = 0.009$ [vs not shaking]), but this was not true for HFA inhalers.

Conclusions: If patients are not taught to recognize when a pMDI is empty, they may continue to use the medication for up to twice the intended duration. Until accurate dose counters are added to pMDIs, counting the number of doses administered is the only accurate method with which to tell when the canister should be discarded. (CHEST 2004; 126:1134–1137)

Key words: adherence; aerosol therapy; asthma medication; dose counters; hydrofluoroalkane propellants; pressurized metered-dose aerosol

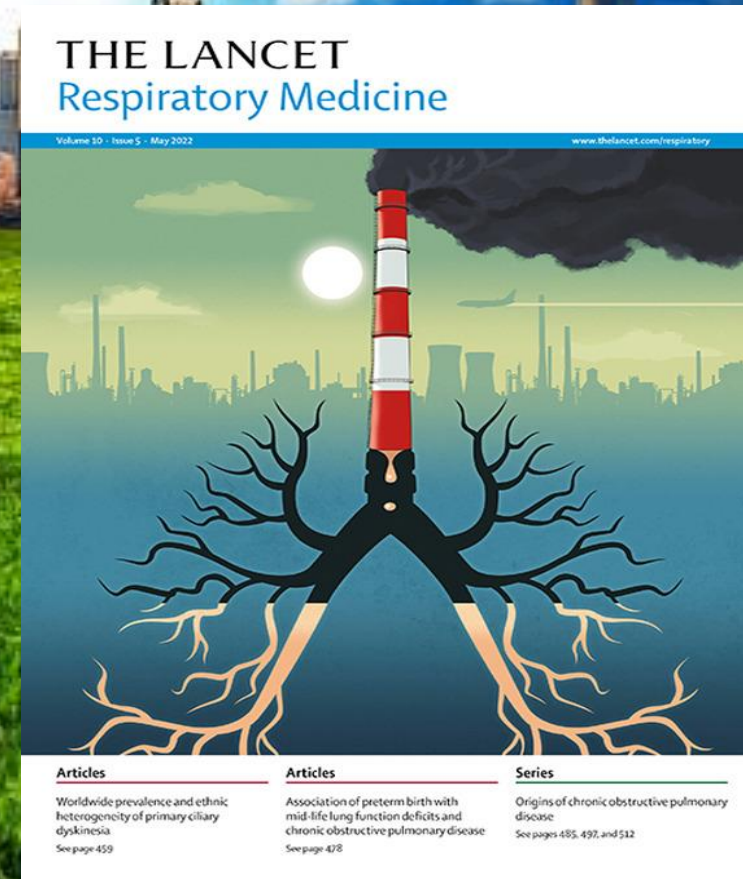
Abbreviations: CFC = chlorofluorocarbon; HFA = hydrofluoroalkane; pMDI = pressurized metered-dose inhaler

Environment

**It matters to your
patients**

**It matters to their
families**

It matters



Carroll W, et al. Saving our planet one puff at a time. Lancet Resp Med May 1 2022



**“IF YOU FAIL TO
PLAN,
YOU ARE
PLANNING TO
FAIL.”**

**-BENJAMIN
FRANKLIN**



Do you have some questions?

PLEASE get it right



Please
and
thank
you
are still
magic words!
{No matter how old you are!}



Which Children Should be Referred to a Severe Asthma Service?

Dr Louise Fleming

Reader, Imperial College London

Consultant Respiratory Paediatrician, Royal Brompton Hospital



Imperial College
London

Royal Brompton and
Harefield hospitals

Conflict of interest disclosure

Affiliation / Financial interest	Commercial company
Grants/research support:	Asthma UK: Joan Bending, Evelyn Bending, Mervyn Stephens and Olive Stephens Memorial Fellowship; NIHR (EME); Asthma UK Centre for Applied Research
Honoraria or consultation fees:	Novartis, Chiesi, Astra Zeneca, Teva
Participation in a company sponsored bureau:	Astra Zeneca, Boehringer Ingelheim, Novartis, Synexus, GSK, Sanofi, Respi UK

All fees paid directly to my institution

Member of GINA Science Committee

Overview

- Why refer?
- Indicators of poor control
- Key questions
- What can a severe asthma service offer?

Why Refer?

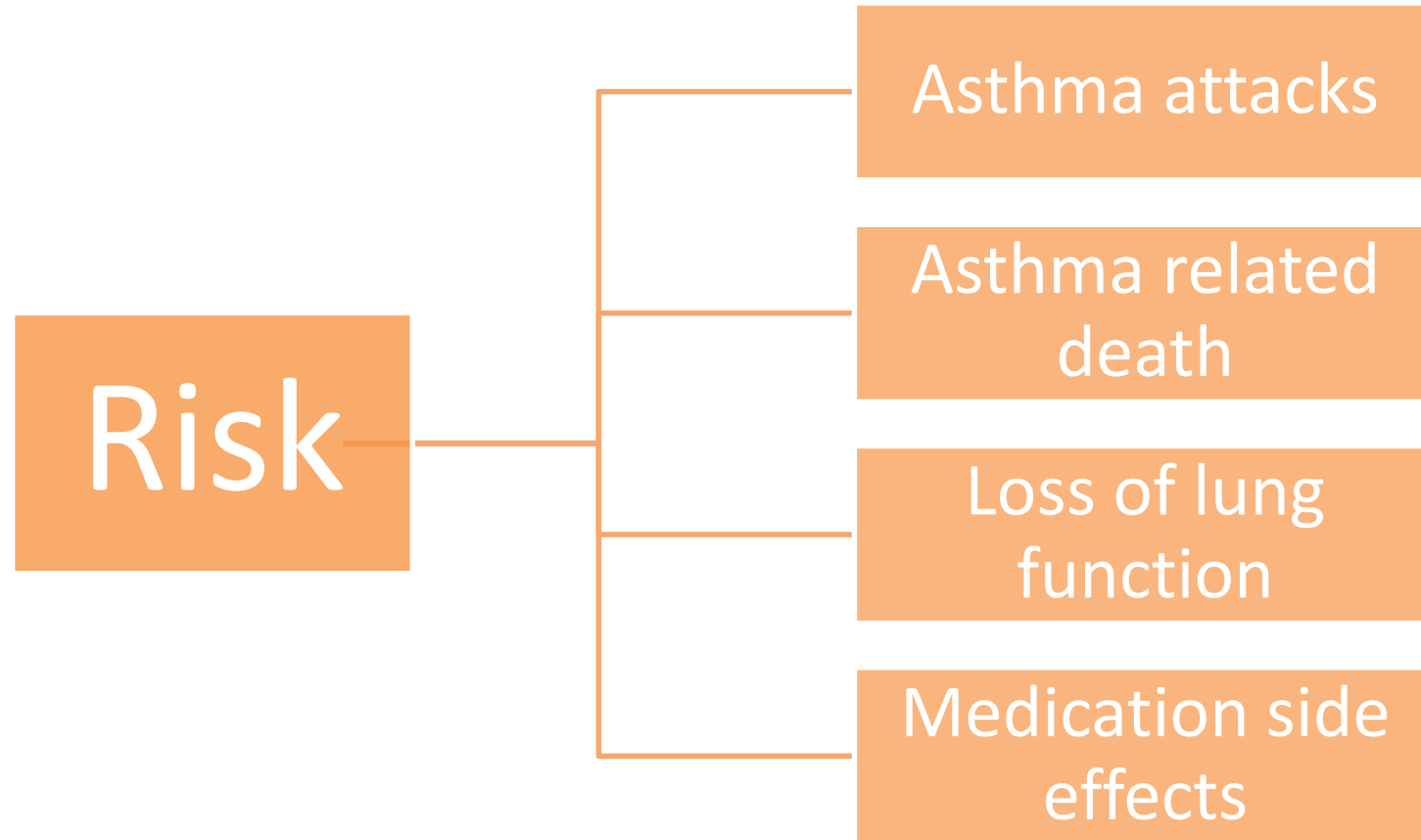
Optimise
management of
children with poor
asthma control

Access to a
specialist multi-
disciplinary team

Minimise risk

Access to
additional tests /
assessments

Risk



Indicators of Poor Control

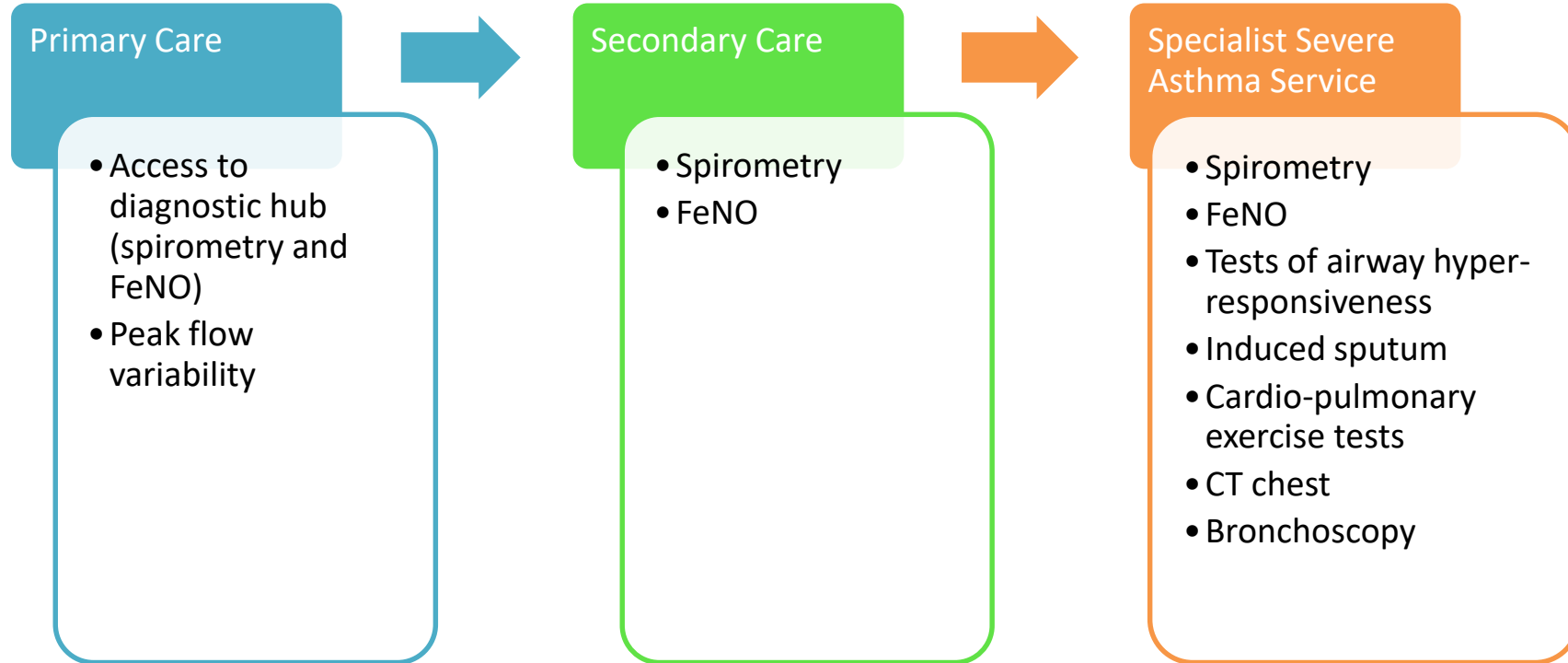
Indicators of poor asthma control

- Asthma attack
- Hospital admission / ED attendance
- ≥ 6 SABA inhalers per year
- ACT / cACT score < 20

Why is Control Poor? Three key questions

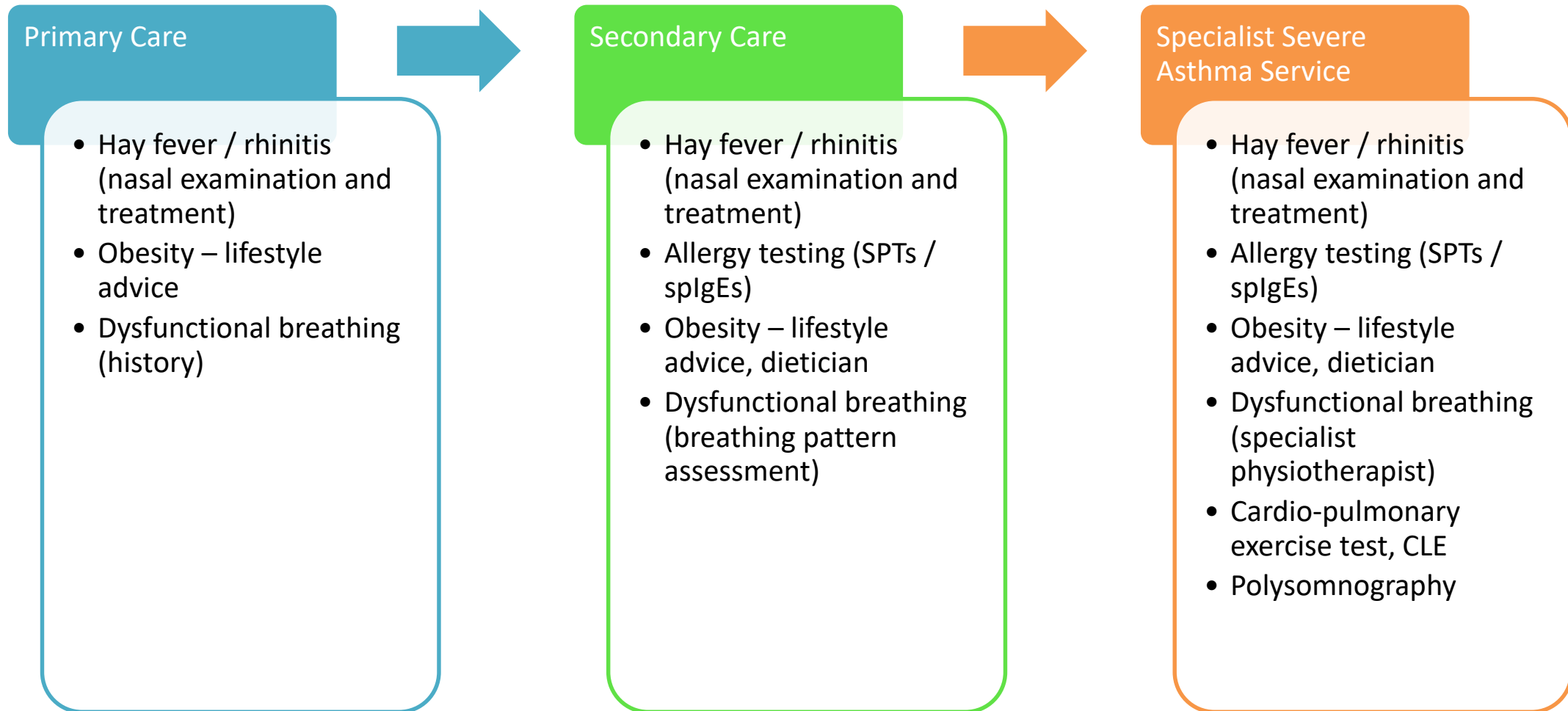
- Is it asthma?
- Are all the symptoms due to asthma?
- Why is control so poor?

Is it Asthma? Diagnostic Evaluation



Are All Symptoms Due to Asthma?

Assessment of Co-Morbidities and Asthma Mimics



Why Is Control Poor?

Assessment of Modifiable Factors / Severity

Adherence

Primary Care

Inhaler technique
Prescription check

Secondary Care

Inhaler technique
Prescription check

Specialist Severe Asthma Service

Inhaler technique
Prescription check
Electronic adherence monitoring

Allergens

History (pets, mould, hay fever)
Assessment and treatment of rhinitis

History (pets, mould, hay fever)
Assessment and treatment of rhinitis
Allergy testing

History (pets, mould, hay fever)
Assessment and treatment of rhinitis
Allergy testing
Immunotherapy

Smoking

History (secondary exposure, active
smoking inc e-cigarettes)
Smoking cessation advice

History (secondary exposure, active
smoking inc e-cigarettes)
Smoking cessation advice
Urinary cotinine . CO monitoring

History (secondary exposure, active
smoking inc e-cigarettes)
Smoking cessation advice
Urinary cotinine . CO monitoring

Psychosocial

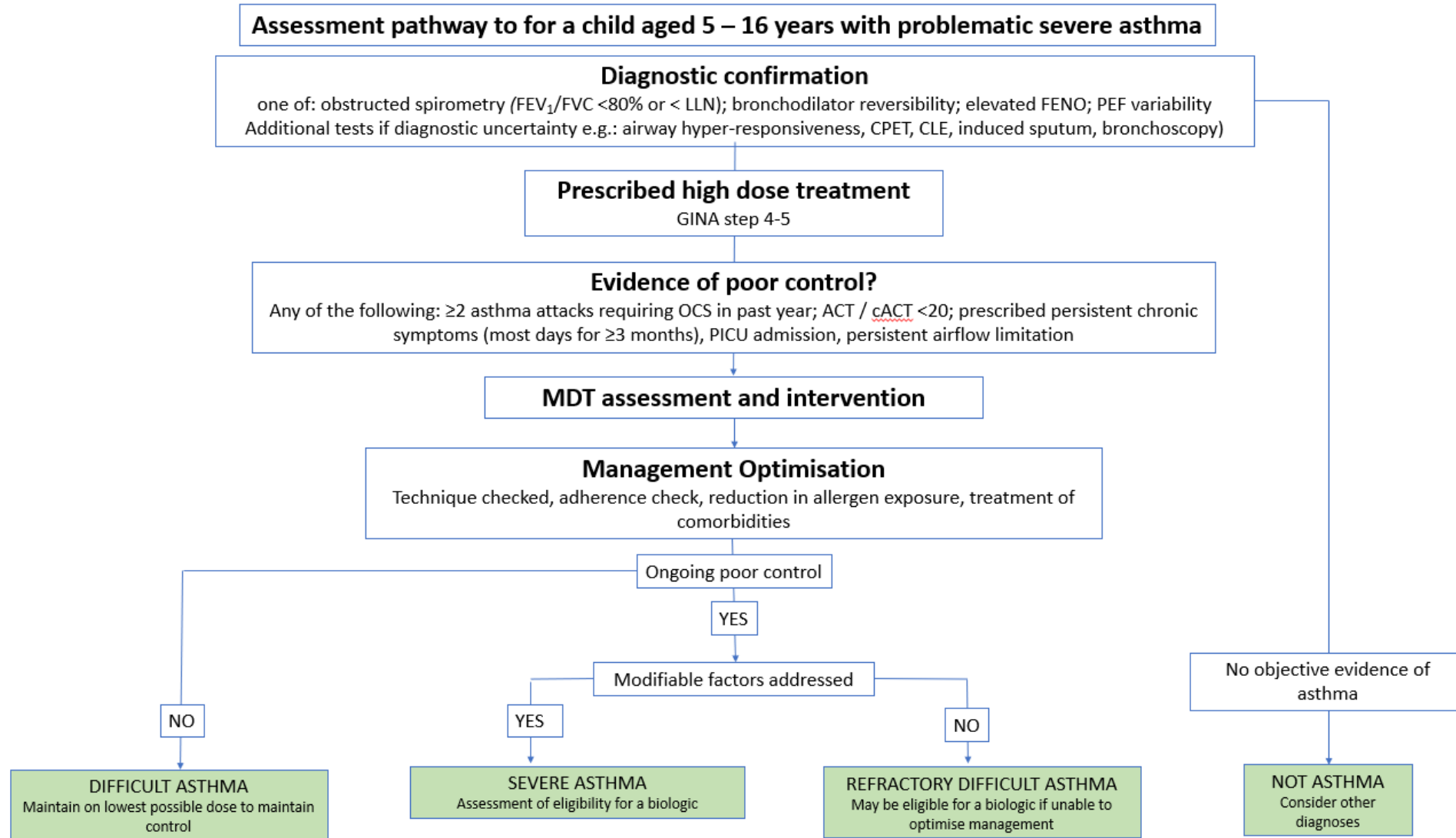
Family circumstances
Safeguarding
Referral top CAHMS

Family circumstances
Safeguarding
Referral to CAHMS

Family circumstances
Safeguarding
Home visit
Psychology assessment / support

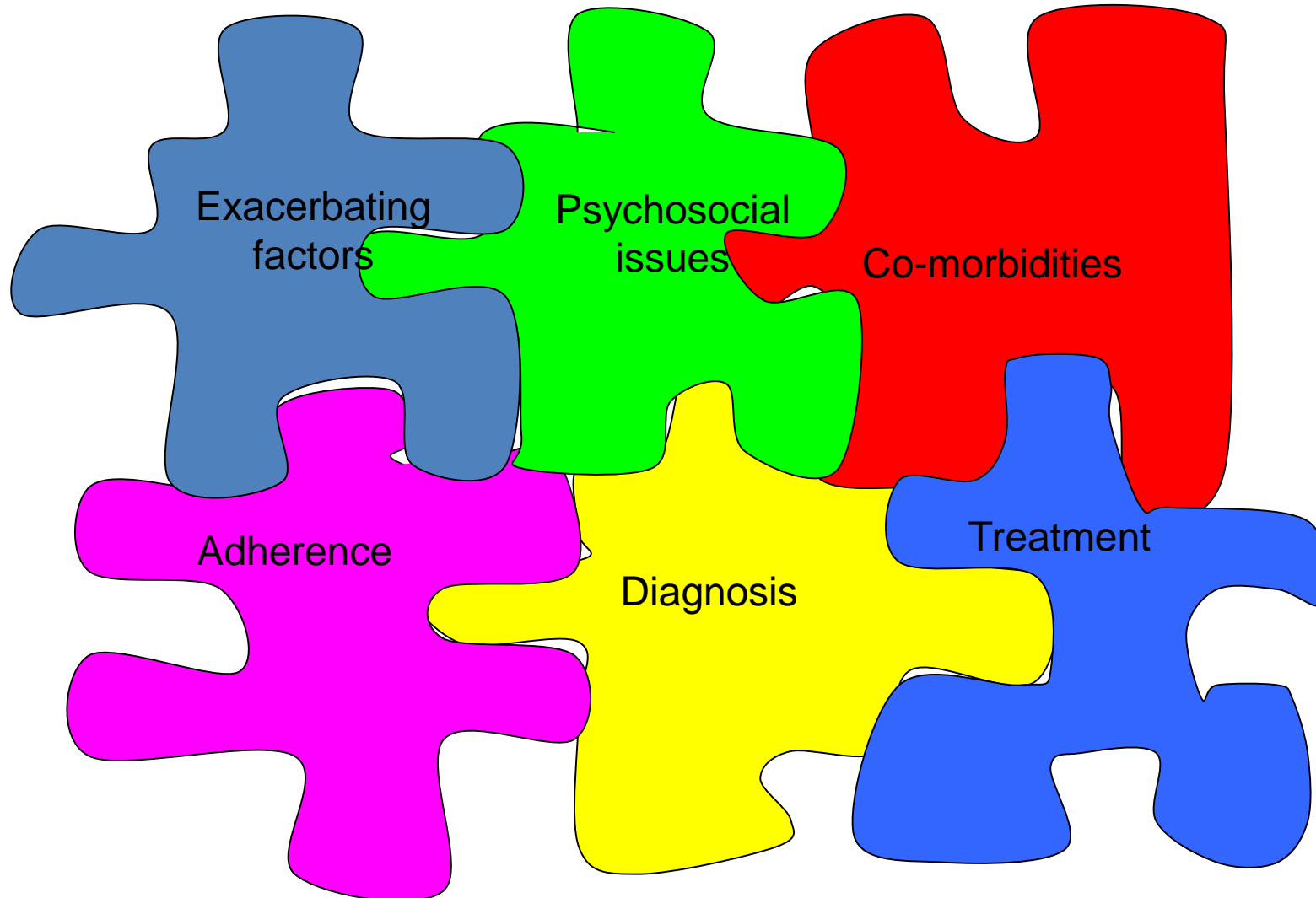
SPECIALIST SEVERE ASTHMA SERVICE

Assessment pathway for children with problematic severe asthma



Adapted from
Pjinenburg, Fleming
Lancet Resp Med,
2020

“Solving” Difficult Asthma



Adherence check

- Prescription check – GP & hospital records
- ICS adherence and number of SABA inhalers

	Medication	Strength	Total daily dose	Number of days 1 inhaler should last	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	Total	% uptake
ICS (ICS/LABA)	seretide	125	1 puffs BD	60 DAYS		1			1					1			3	50%
Prednisolone																		
Epipen		0.3mg					4					4						
Salbutamol		100mcg				2	2	2	2	2	2	2	2	2		2	20	
Montelukast		4mg						28	28		28	28	56	28		28		

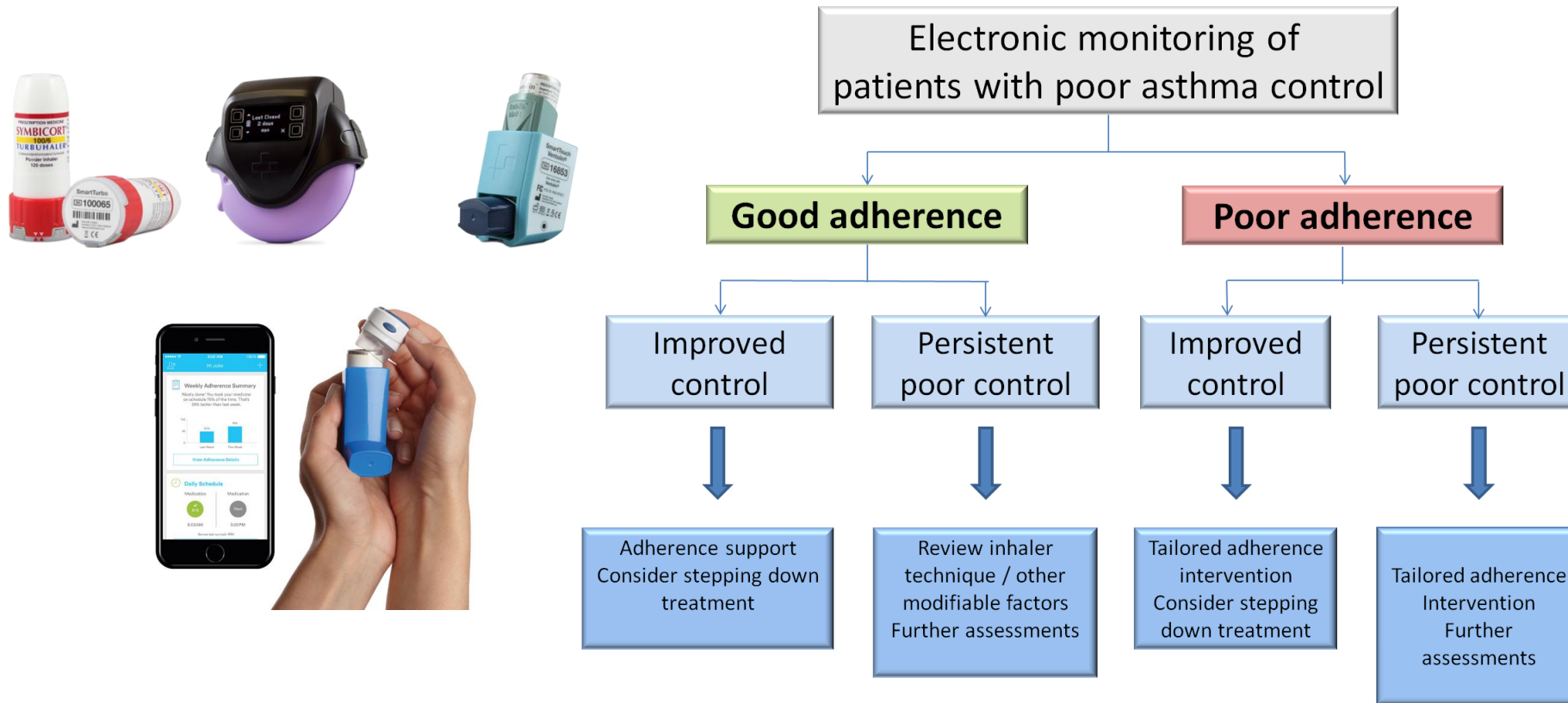
- Smartinhaler monitoring

Prescription check: 20 salbutamol inhalers, 3 Seretide in past year



Adherence Monitoring: An Essential Tool for Identifying Severe Asthma

Adherence



Allergen Exposure

- Exposure to allergen exacerbates asthma in sensitised individuals
- Exacerbation most likely in those with a viral illness and exposed to a sensitised allergen
- Mattress covers led to a reduction in exacerbations in those with asthma and HDM sensitised

Table 3 Odds ratios (95% CI) for risks factors for hospital admission using constructed variable* (mutually exclusive categories), univariate and multivariate (adjusted for use of ICS and duration of asthma)

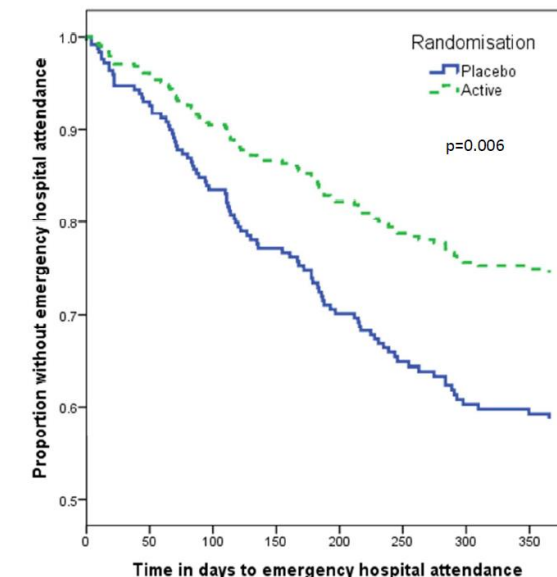
	Univariate analysis		Multivariate analysis	
	OR (95% CI)	p value	OR (95% CI)	p value
Sensitised only	1.8 (0.4 to 9.2)	0.47	1.75 (0.3 to 11.7)	0.56
Duration of asthma†	0.8 (0.7–0.9)	0.004	0.9 (0.8–1.1)	0.3

Sensitised and exposed and virus detected OR 22.7 (4.6 – 112.5)

ICS, inhaled corticosteroids.

*Overall p value for the constructed variable is $p < 0.001$. The reference category for the constructed variable is neither sensitised nor virus infected (\pm exposed).

†Median (range) in years; OR refers to decreased risk with each additional year.



Smoking

Not just cigarettes

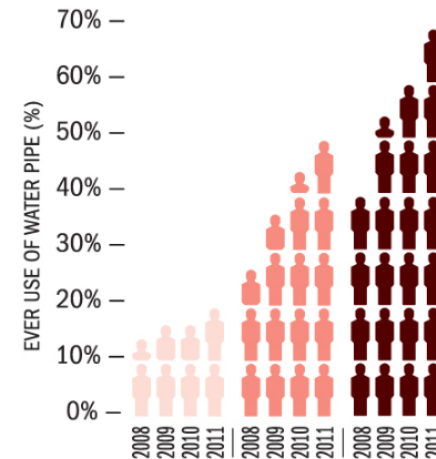
- History
- Home visit
 - Evidence of smoking
- Urinary cotinine
- CO monitor



INCREASING PREVALENCE

Increasing Prevalence

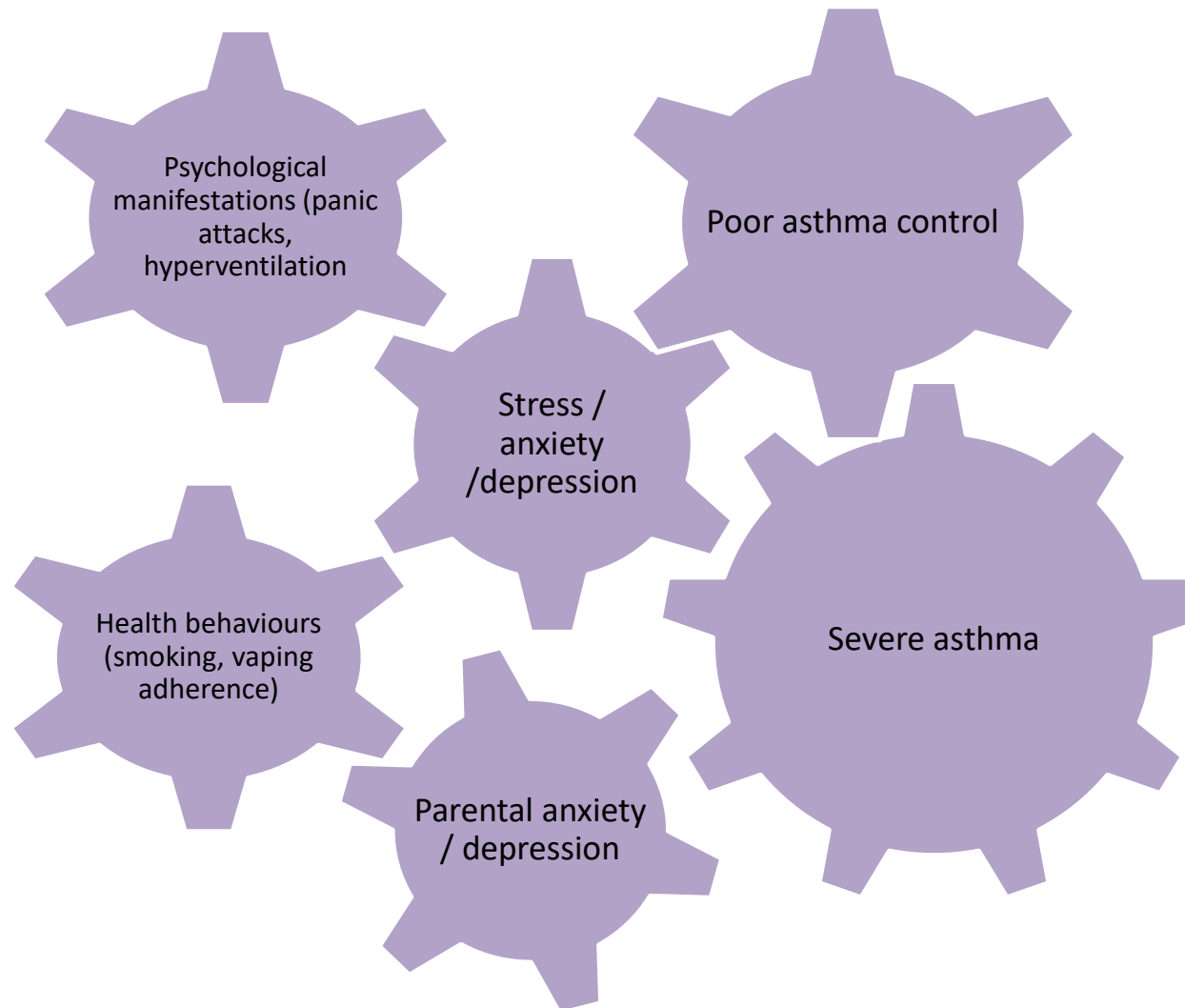
FLORIDA BOYS AND GIRLS
JORDANIAN GIRLS JORDANIAN BOYS



The prevalence of water pipe use among students has increased dramatically in Jordan and the USA.



Psychosocial issues



Safeguarding

- Neglect
 - Poor adherence
 - Inappropriate environment
- Exaggerated or fabricated symptoms
 - Secondary gain
 - Fabricated and induced illness
 - Deliberately withholding treatment
- Place of safety
- Emotional abuse



Structured MDT Assessment

First Clinic Appointment

- Respiratory Consultant
- Clinical nurse specialist (CNS)
- Physiotherapist
- Psychologist
- Specialist pharmacist

Assessments:

- Spirometry and bronchodilator response (BDR)
- FeNO (induced sputum)
- Blood eosinophils
- Symptom score (Asthma Control Test ACT/ Childhood Asthma Control Test C-ACT)
- Quality of life (Paediatric Asthma Quality of Life Questionnaire PAQLQ)
- Psychosocial questionnaire and Paediatric Index of Emotional Distress (PI-ED)
- Urinary or salivary cotinine
- Allergy testing (skin prick tests (SPTs), specific IgEs to aeroallergens (sIgEs), total IgE)
- Other bloods (drug levels)
- Short Synacthen test

Adherence monitoring:

- Issued with an Electronic monitoring Device (EMD)

Additional Information

- Local team
- Primary care (including prescription check)
- School

Electronic
Monitoring 12-16
weeks



Follow up Appointment

- Respiratory Consultant
- CNS
- (Physiotherapist)

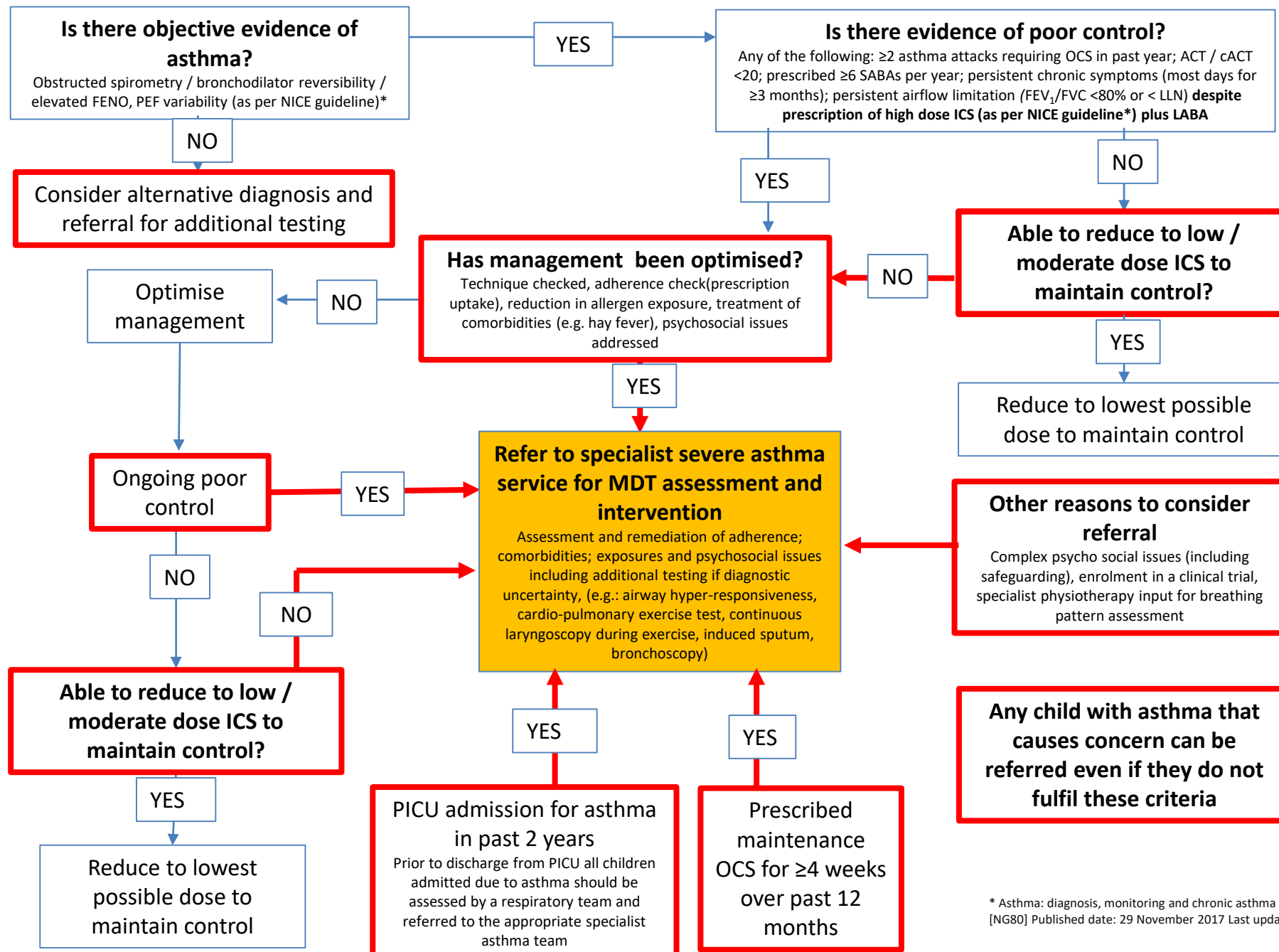
Assessments:

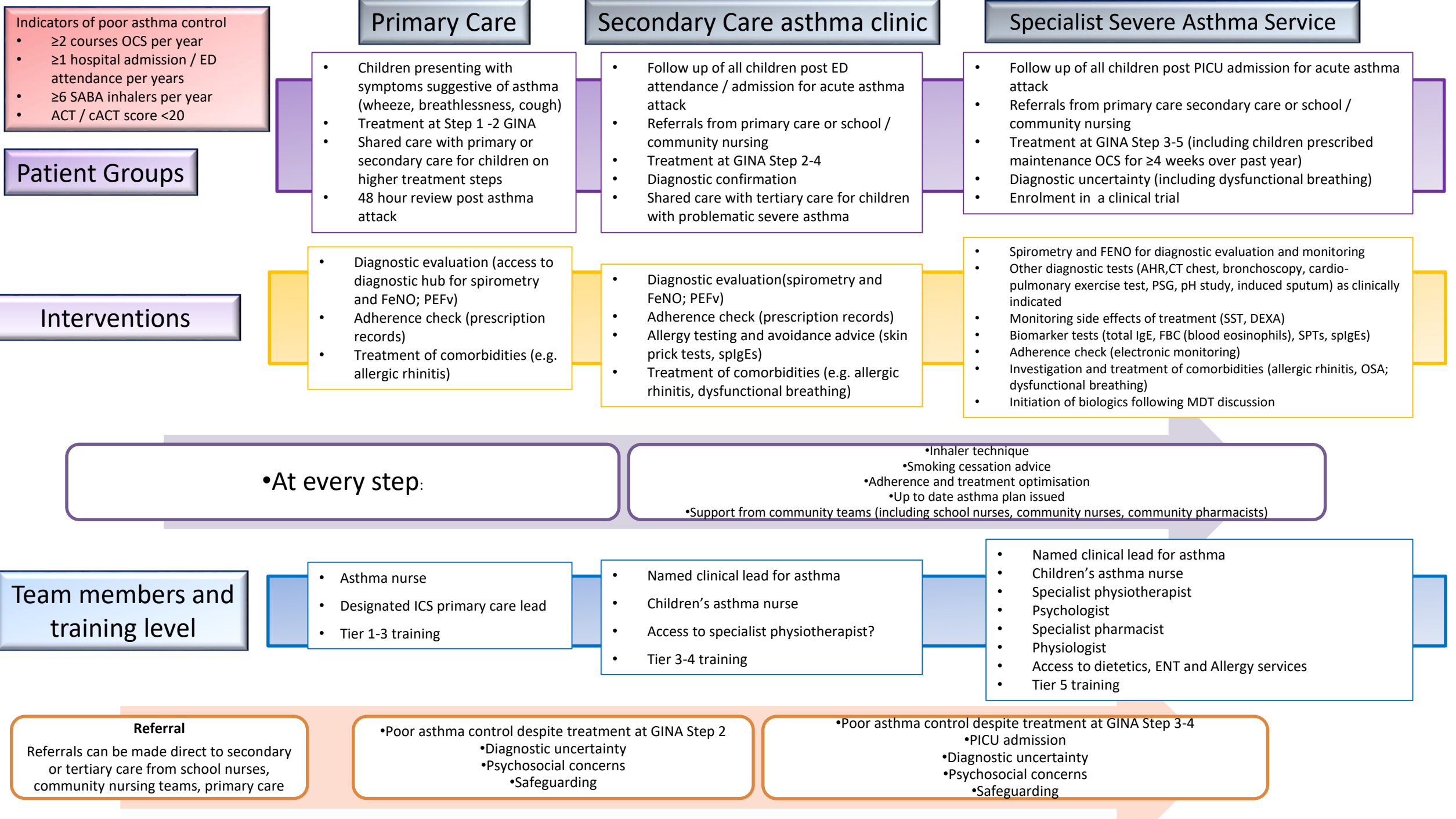
- Spirometry and BDR
- FENO (induced sputum)
- Asthma control (ACT/C-ACT)
- Quality of life (PAQLQ)

Adherence monitoring:

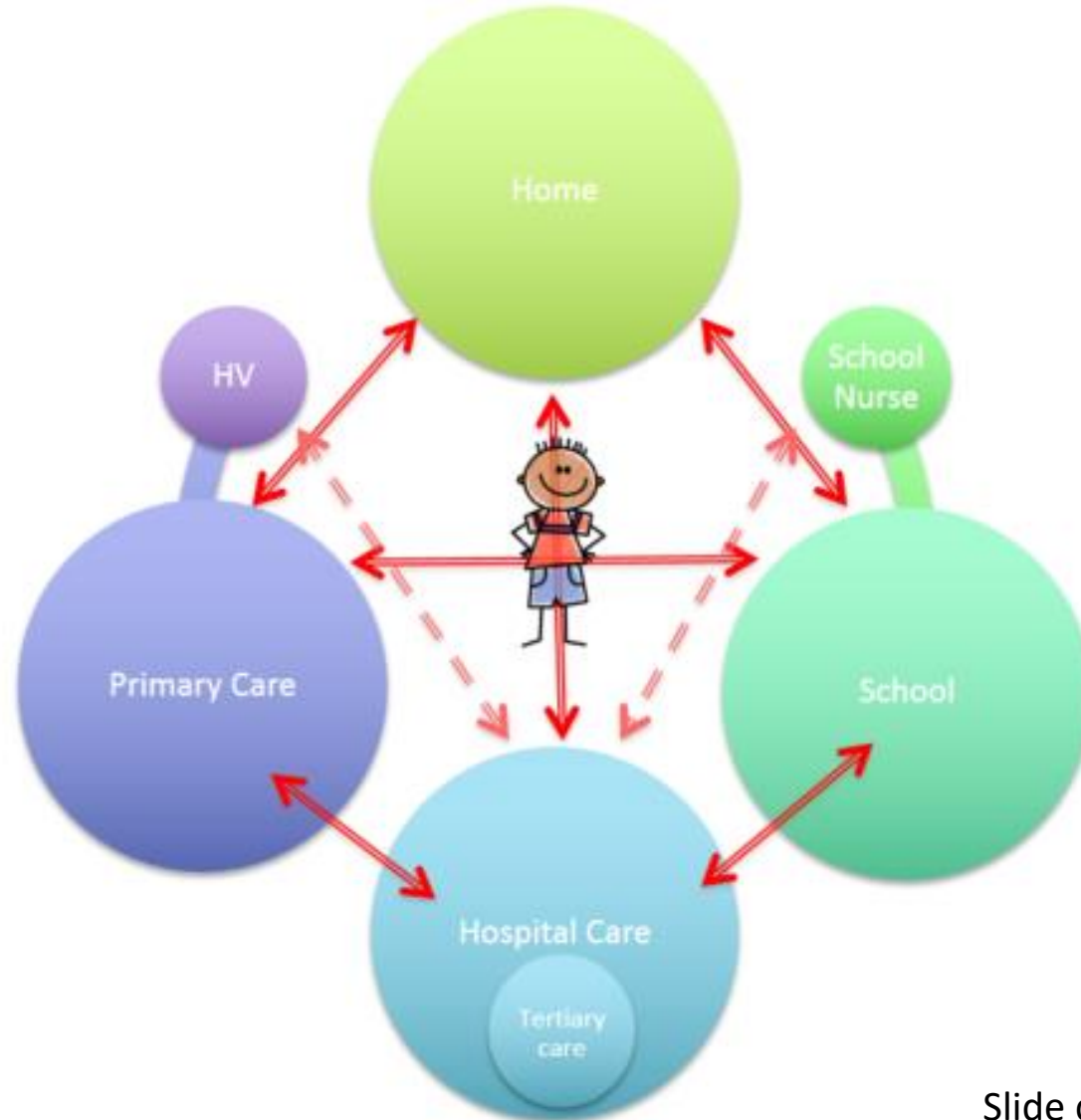
- EMD data downloaded

Referral pathway to a specialist (tertiary) severe asthma service: child aged 5 – 16 years with problematic asthma





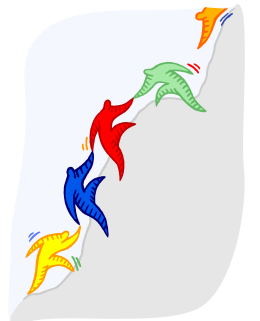
Asthma Pathway Components



Slide courtesy of Dr Richard Chavasse

Conclusion

- Consider referral in all children with indicators of poor control
- Address three key questions
 1. Is this asthma?
 2. Are all the symptoms due to asthma?
 3. Why is control so poor?
- Important to carry out a systematic assessment and address potentially modifiable factors
- Specialist asthma service provides access to MDT, further assessments and access to biological treatments
- Teamwork and working in partnership with young people and their families is essential



Acknowledgements



Joan Bending, Evelyn Bending, Mervyn Stephens and Olive Stephens Memorial Fellowship



SCHWEIZERISCHER NATIONALFONDS
ZUR FÖRDERUNG DER WISSENSCHAFTLICHEN FORSCHUNG



Asthma UK Centre
for Applied Research



The difference between diagnosing asthma and viral wheeze

Ian Sinha

Consultant respiratory paediatrician
Alder Hey Children's Hospital, Liverpool

Structure

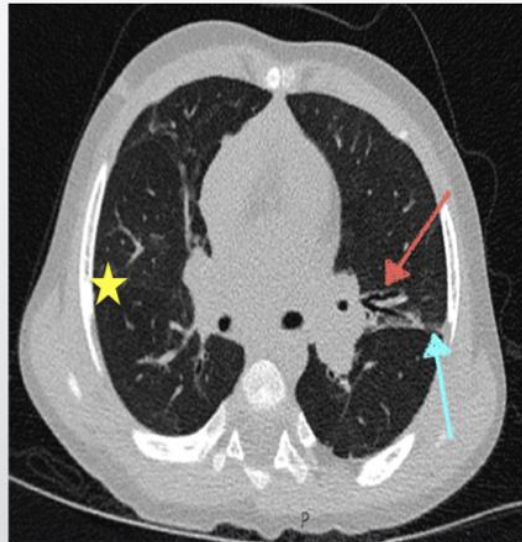
- Diagnosing asthma in children (and the usual cautionary tales)
- Phenotypes of preschool wheeze
- A simple framework: more like asthma, or more like viral wheeze?

Cough and wheeze \neq asthma

CT findings in 67 children with 'asthma'

(Wajid, Sinha 2016, ERS)

Findings	n (%)
Normal/ non-specific	57 (83%)
Bronchiectasis	5 (7%)
Bronchiolitis obliterans	2 (3%)
Structural tracheal problems	2 (3%)
Allergic alveolitis	1 (1%)



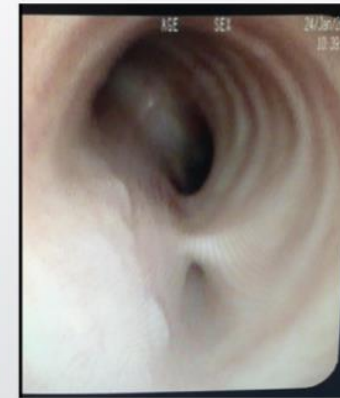
All alternative diagnoses strongly suspected on history

iansinha@liv.ac.uk

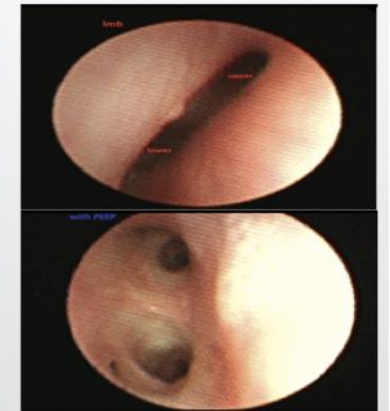
Bronchoscopy in children with 'asthma'



Wet cough



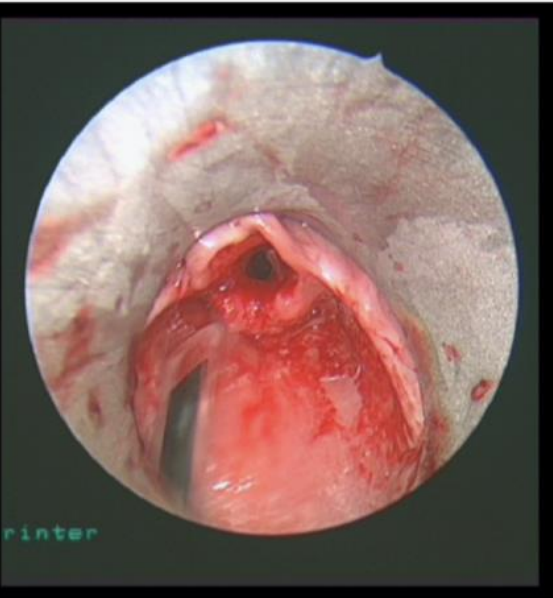
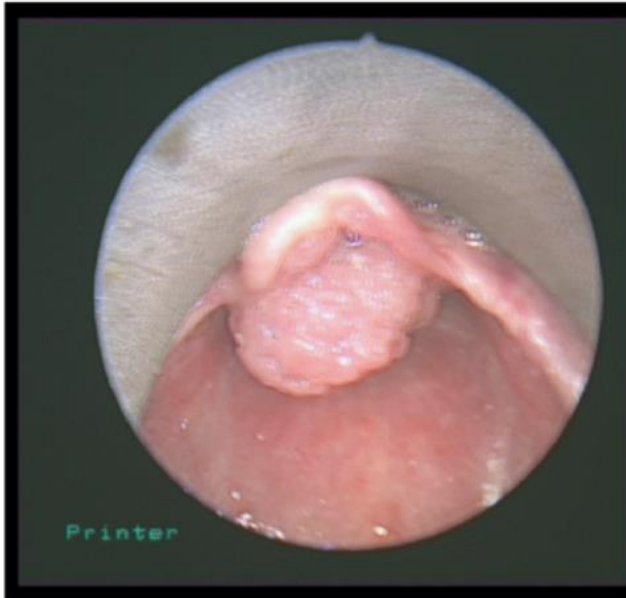
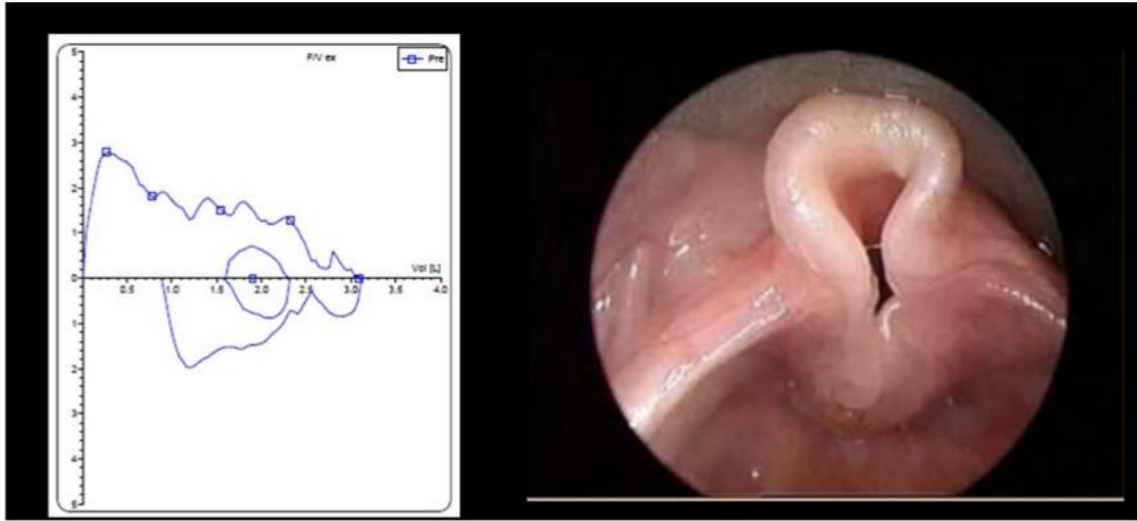
Neutrophilia



Dyspnoea

iansinha@liv.ac.uk

Cystic fibrosis
Primary ciliary dyskinesia
Bacterial bronchitis

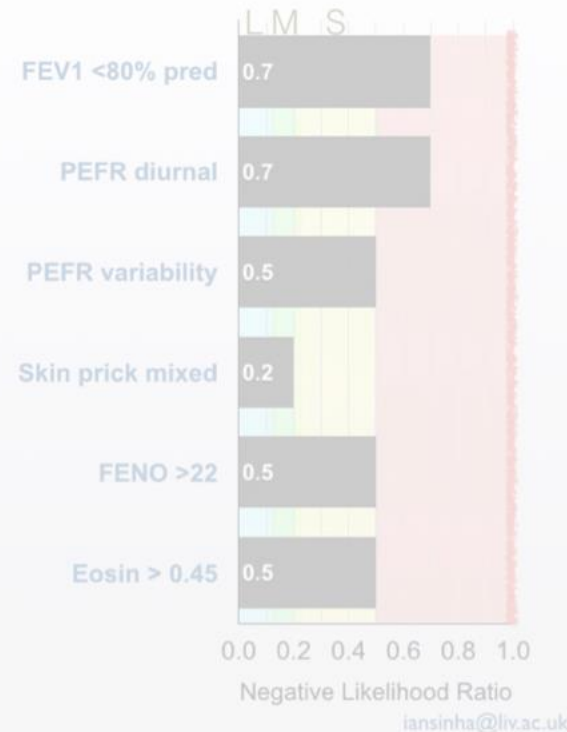
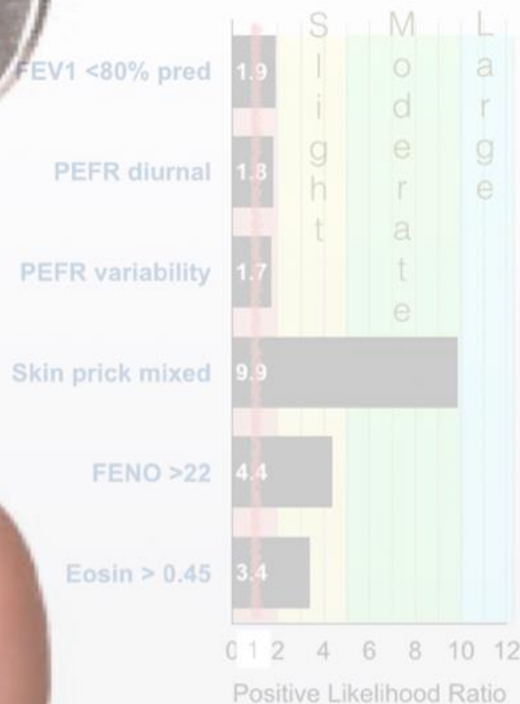
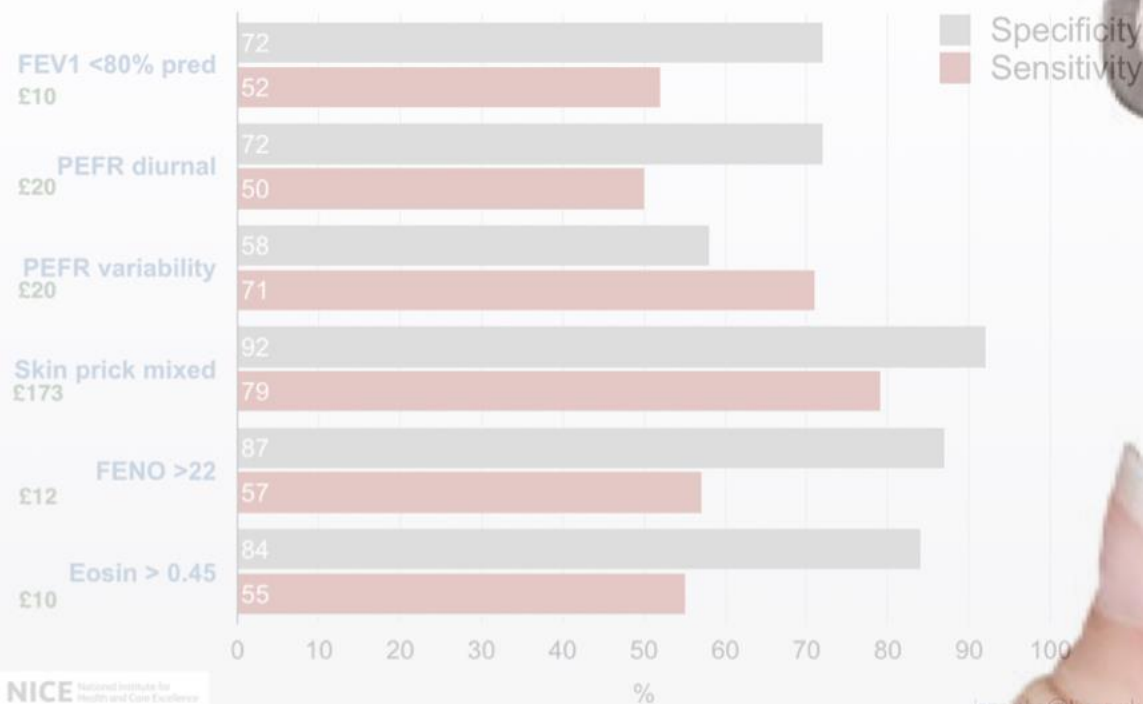


Are the respiratory symptoms a marker of something non-medical?

- Housing
 - Pollution
 - Smoking
 - Nutrition
 - Stress
-
- Consider antenatal and postnatal factors

How useful are the tests?

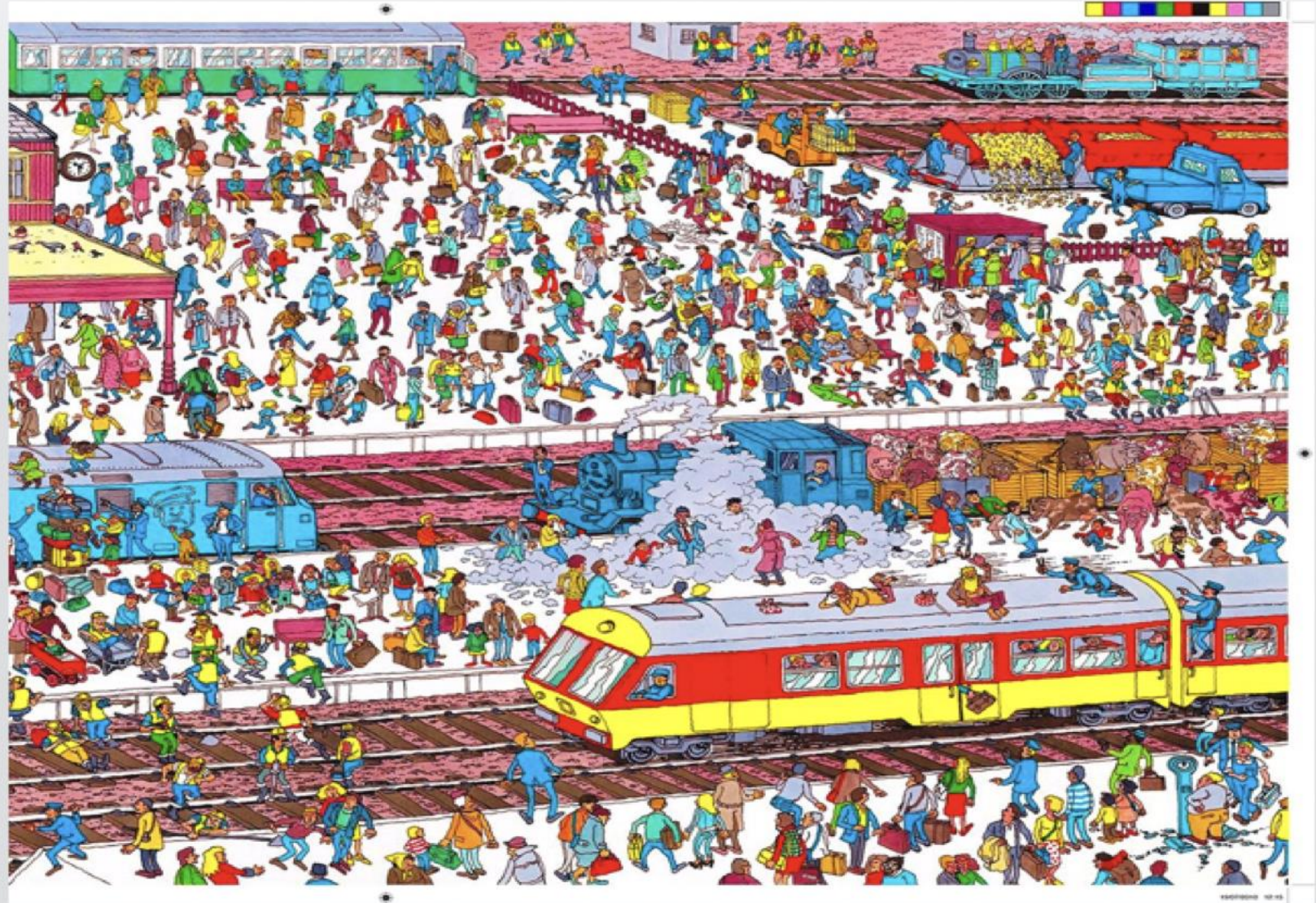
Effect on pretest probability



HEADS IT'S ASTHMA, TAILS IT'S NOT!

Back to basics...

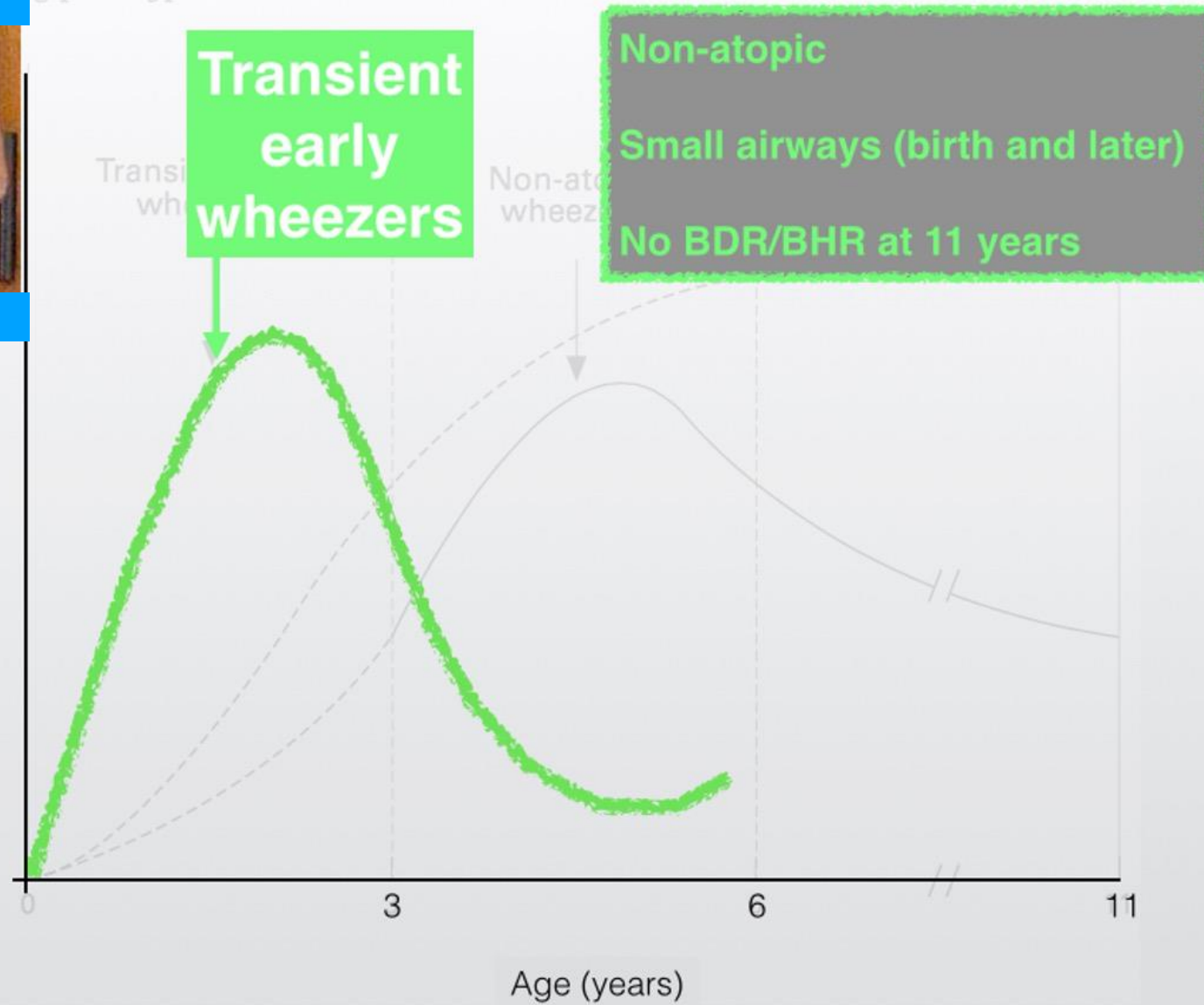
**Cough
Wheeze
Dyspnoea
Variability
Atopy**



g phenotypes in children



Wheezing prevalence and





Wheezing in children

Transient early wheezers

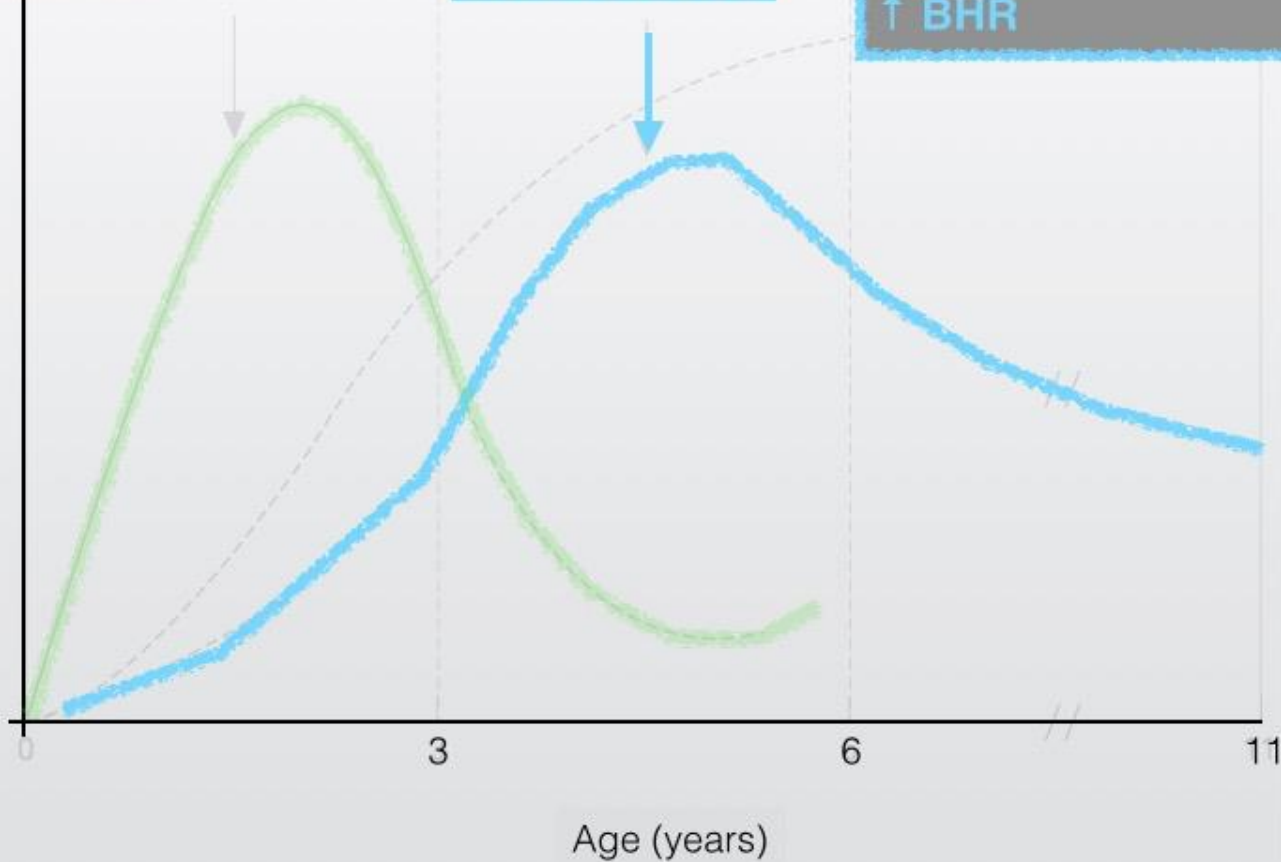
Non-atopic wheezers

Mild wheeze with LRIs

PFT normal then low

↑ BHR

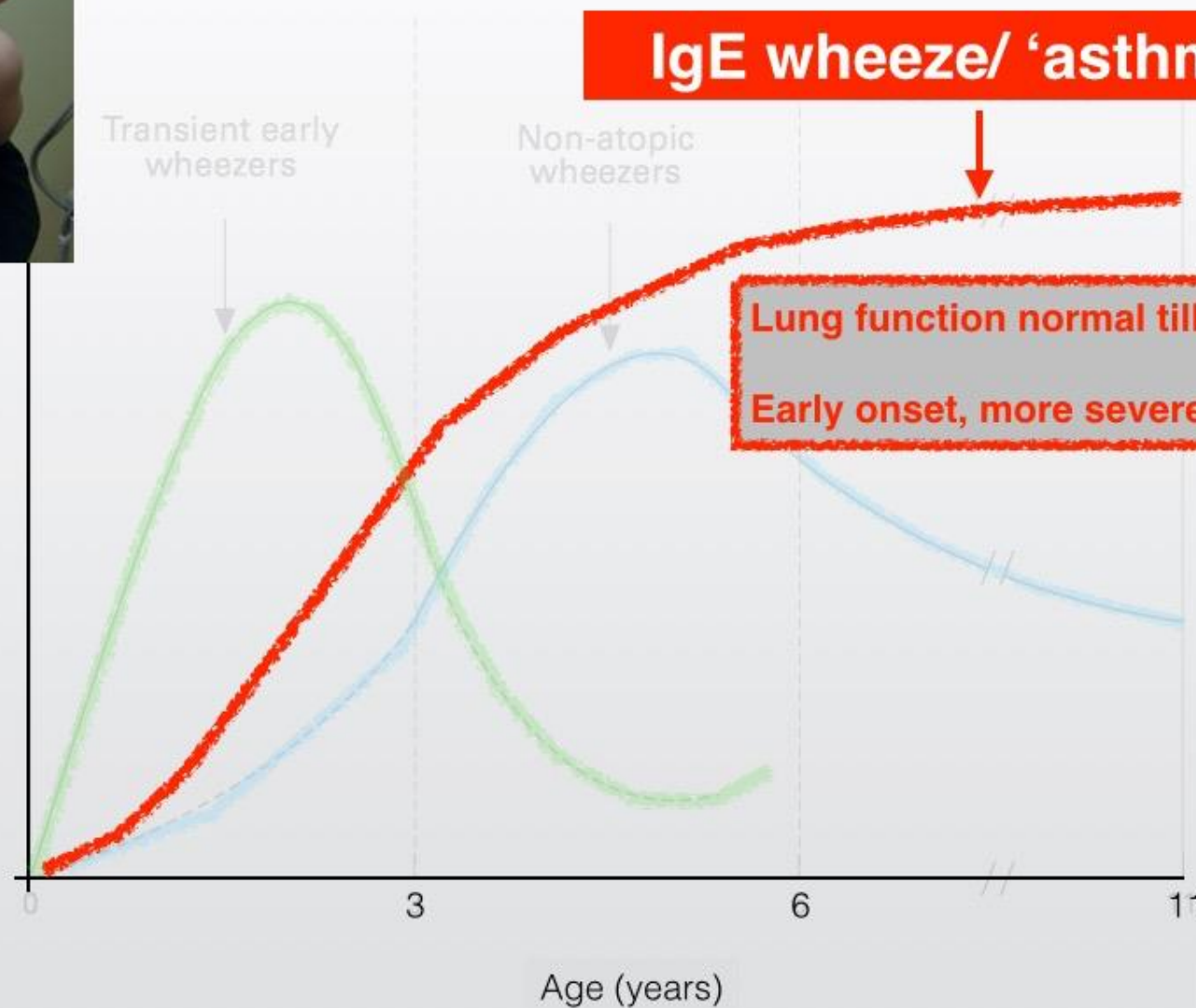
Wheezing prevalence





phenotypes in children

Wheezing prevalence



Yes

Does the child have interval symptoms when they do not have viral infections?

No

Yes

Are the exacerbations severe and/or frequent?

No

Yes

Are any of the following markers present?:

**Atopy (personal or first-degree relative)
Eosinophilic inflammation (serum, FeNO, BAL)
Sensitisation (IgE/RAST/Skin Prick Test)**

No



**More like preschool
asthma**

**Less like asthma, more like
preschool episodic wheeze**

Summary

- 50% of preschoolers wheeze - 50% of these grow out of it; 50% of them grow into children with asthma
- Think about the symptomology and presentation - this may not be viral wheeze or asthma!
- Three questions:
 - What are they like on a good day?
 - Are there severe and/or frequent exacerbations?
 - Is there any suggestion of Type 2 inflammation?