Current Asthma guidance on Diagnosis & Management

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Asthma Defination

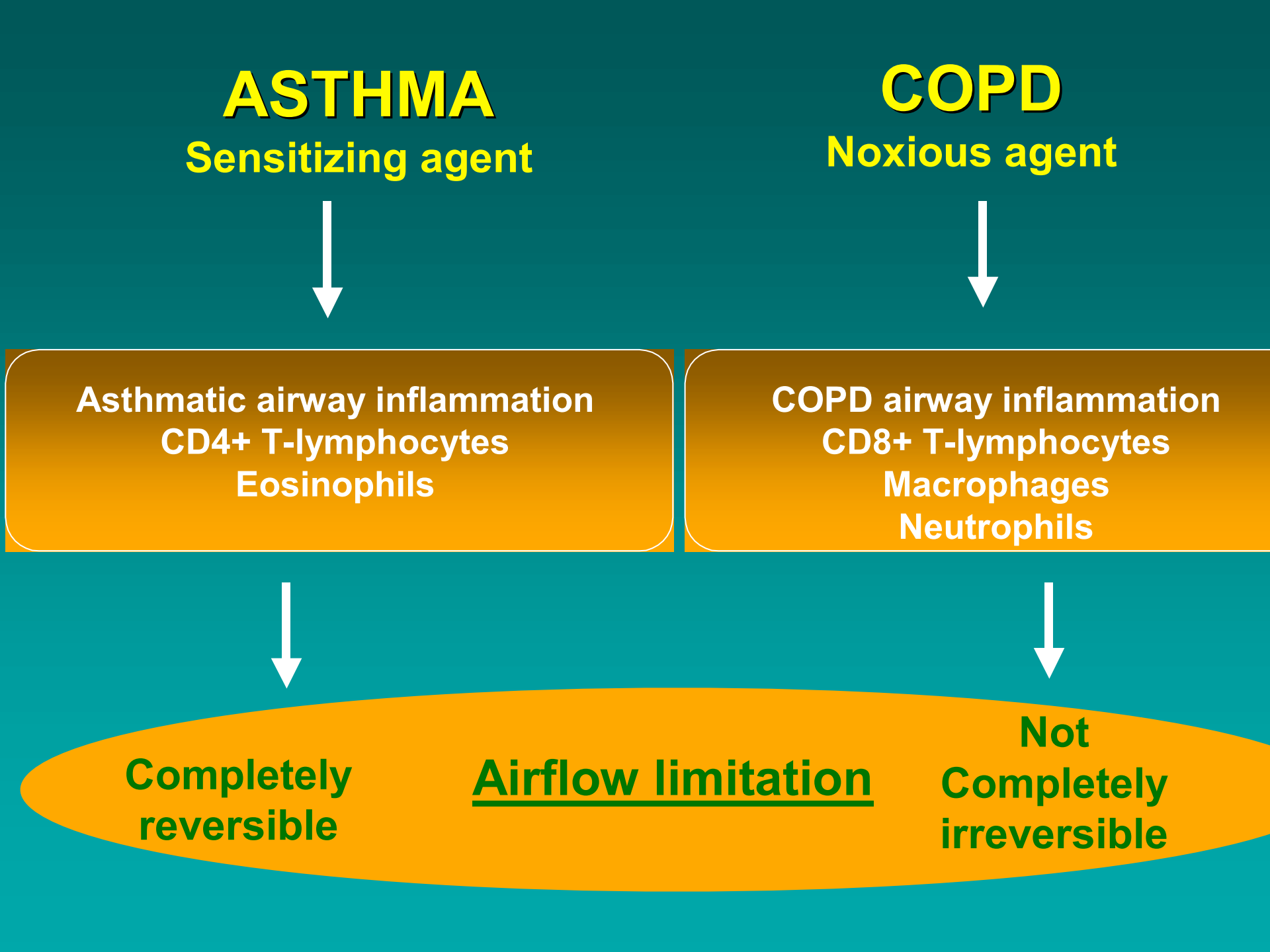
"A chronic inflammatory disorder of the airways … in susceptible individuals, inflammatory symptoms are usually associated with widespread but variable airflow obstruction and an increase in airway response to a variety of stimuli. Obstruction is often reversible, either spontaneously or with treatment."

Asthma diagnosis
BTS New Guidelines Sept 2016

- Diagnosis of Asthma is a clinical one
- Central to the definition is the presence of symptoms(more than one of wheeze, breathlessness, chest tightness cough) and of variable airflow obstruction

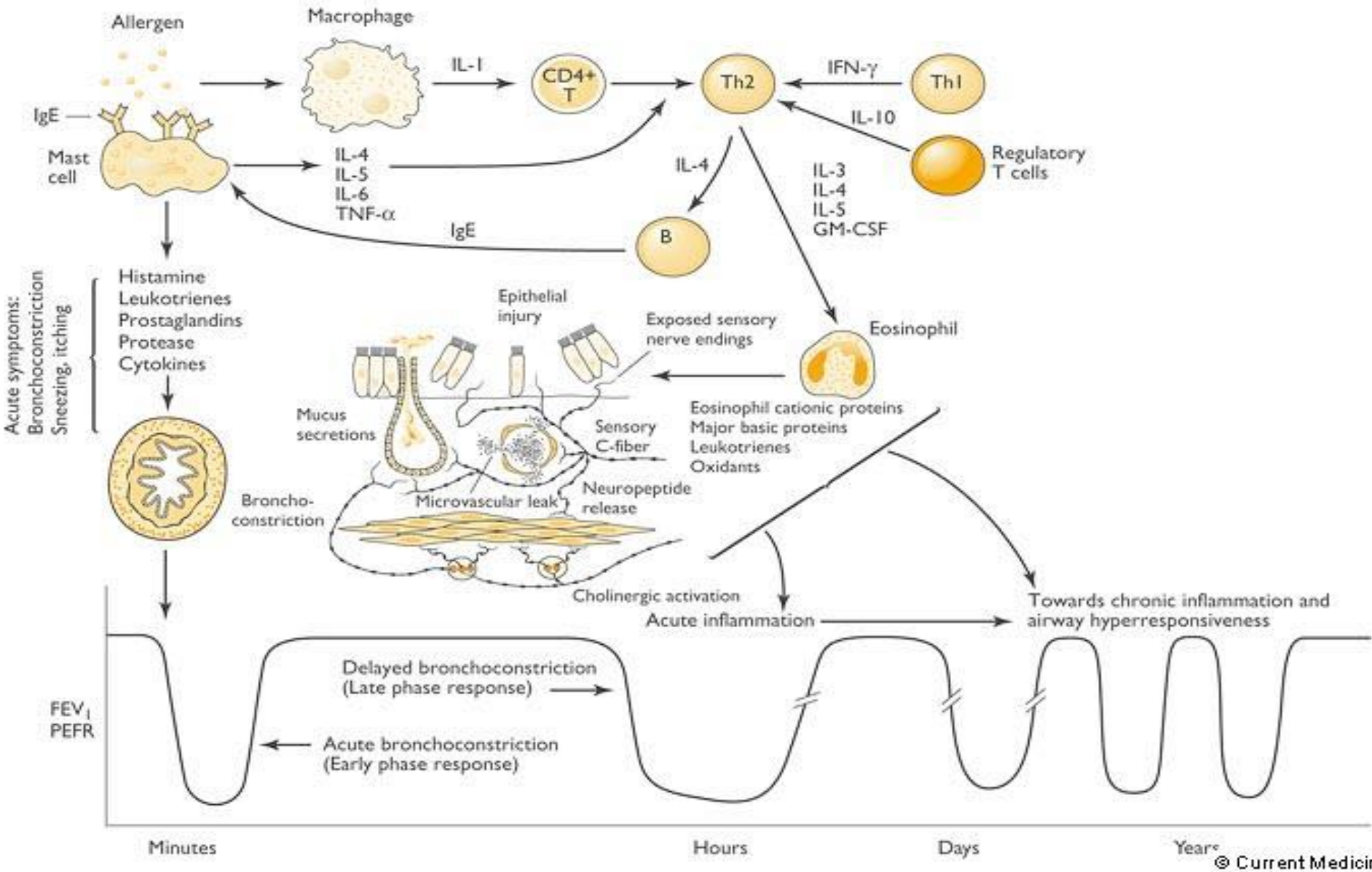
Asthma Incidence & the stats

- Effect 5.4 million patients in UK(About 1in 12 adults)
- About 300 million people effected around the world
- 80,000 patients admitted to hospital 2008-09 75% are avoidable.
- 1Billion cost to the NHS each year
- 1131 deaths from Asthma in UK 2009,1143 deaths in 2010, 90% preventable deaths
- Around 70% are Atopics (50% rise in rhinitis, eczema each decade)
- 30% Non-Atopics

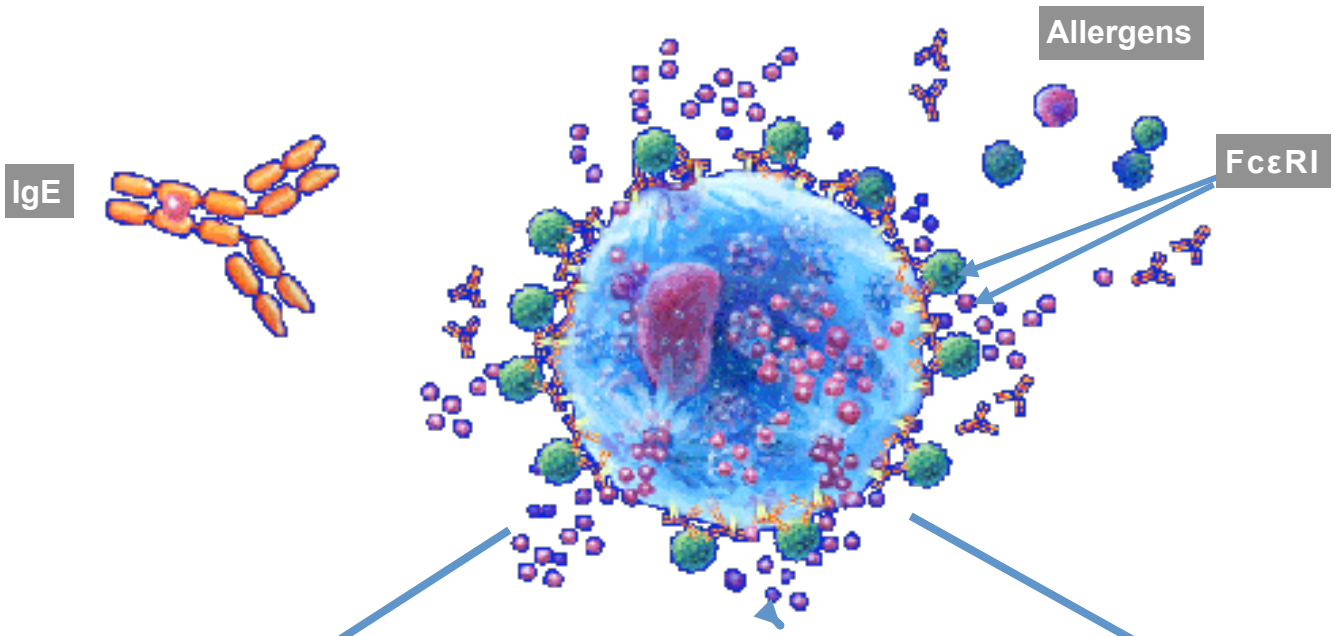

ASTHMA
Sensitizing agent
COPD
Noxious agent
Asthmatic airway inflammation
CD4+ T-lymphocytes
Eosinophils
COPD airway inflammation
CD8+ T-lymphocytes
Macrophages
Neutrophils
Completely reversible
Airflow limitation
Not Completely irreversible


Inflammation
Smooth Muscle contraction
Mucus production
Airway wall remodelling
Airways Hyperresponsiveness (AHR)

*Asthma is a multifactorial disease involving acute bronchoconstriction, chronic airway inflammation that may lead to remodeling**



IgE-dependent Release of Inflammatory Mediators



Immediate release
Granule contents:
Histamine, TNF-α,
Proteases, Heparin

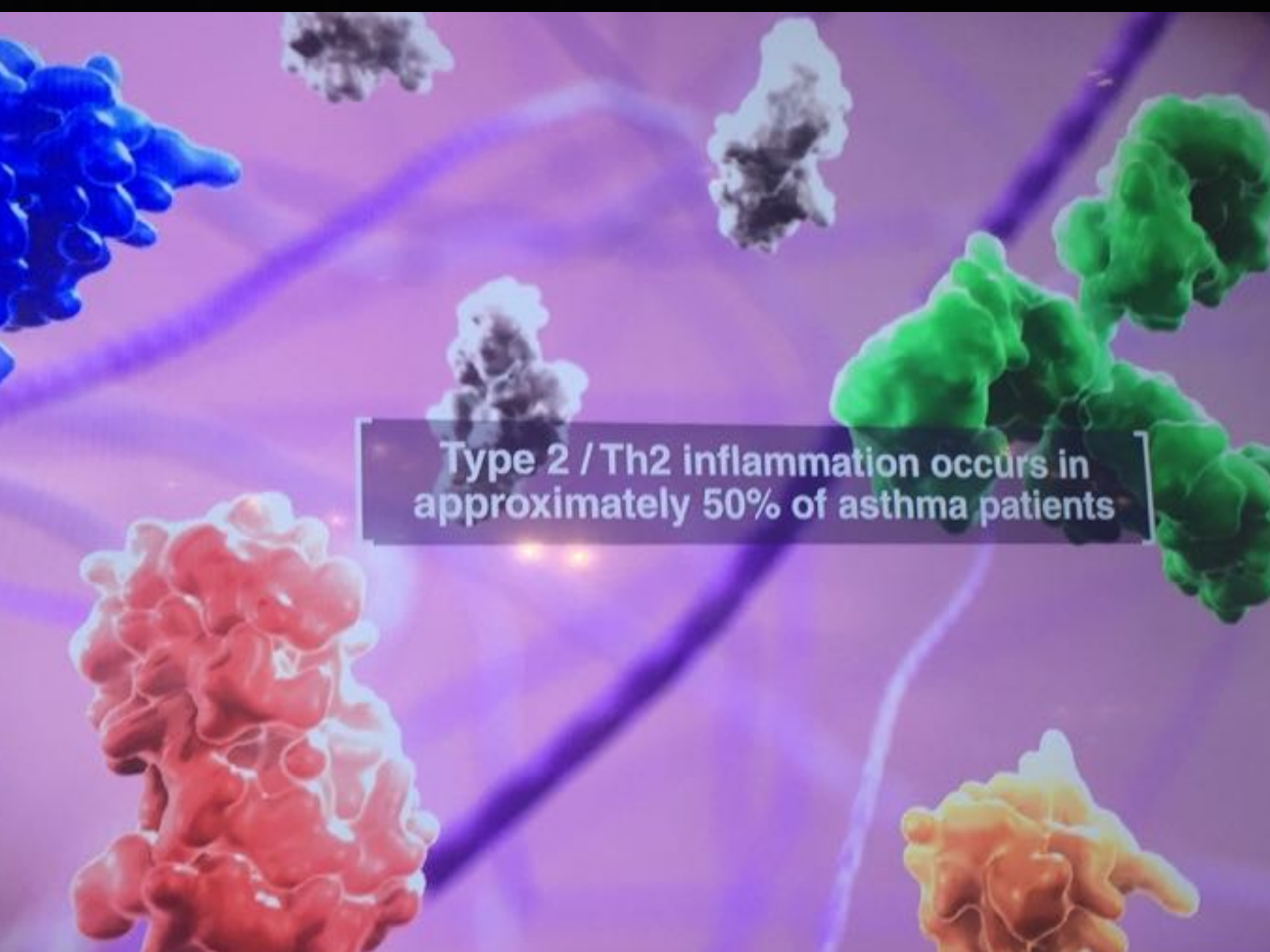
Sneezing
Nasal congestion
Itchy, runny nose
Watery eyes

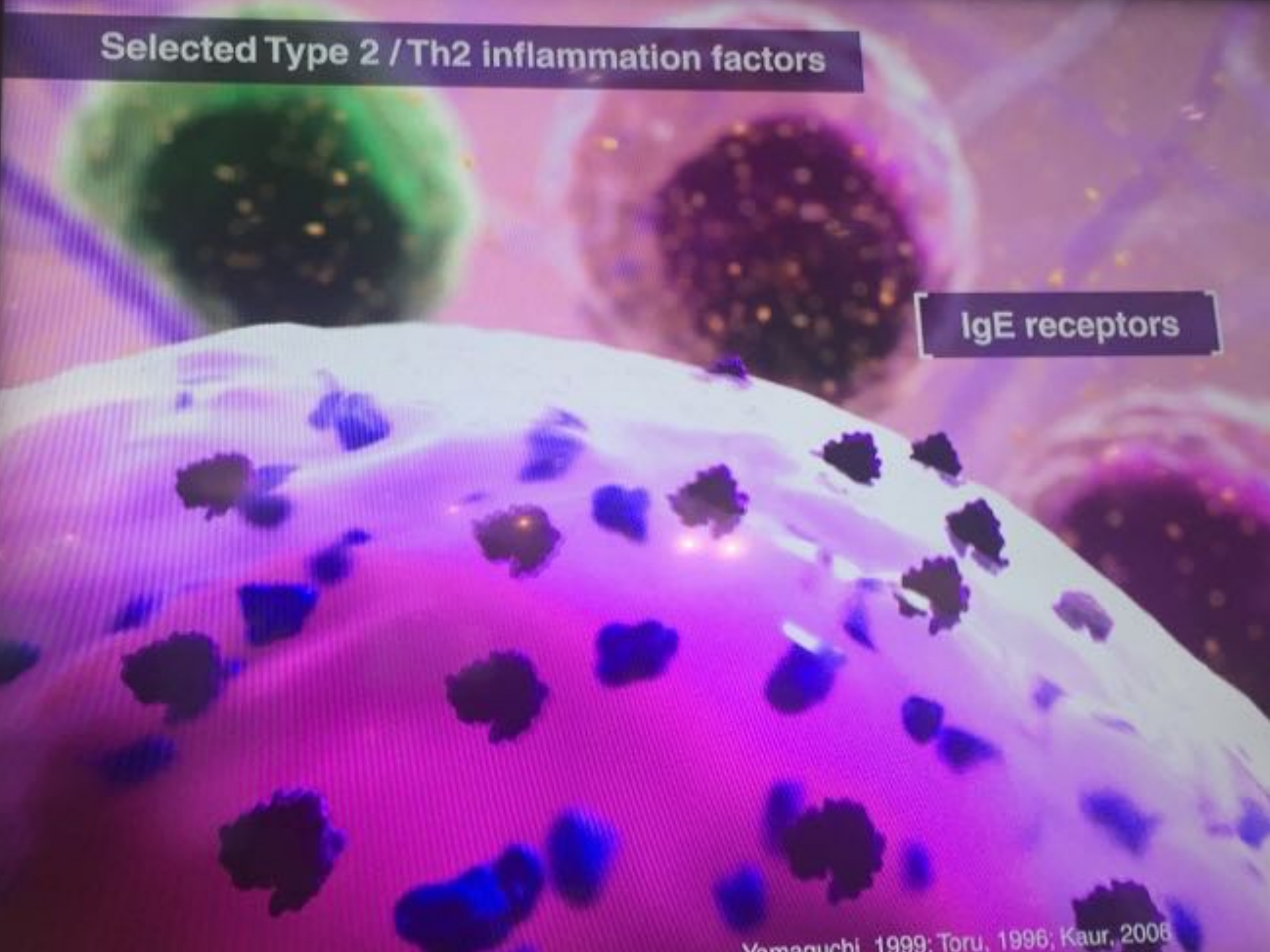
Over minutes
Lipid mediators:
Prostaglandins
Leukotrienes

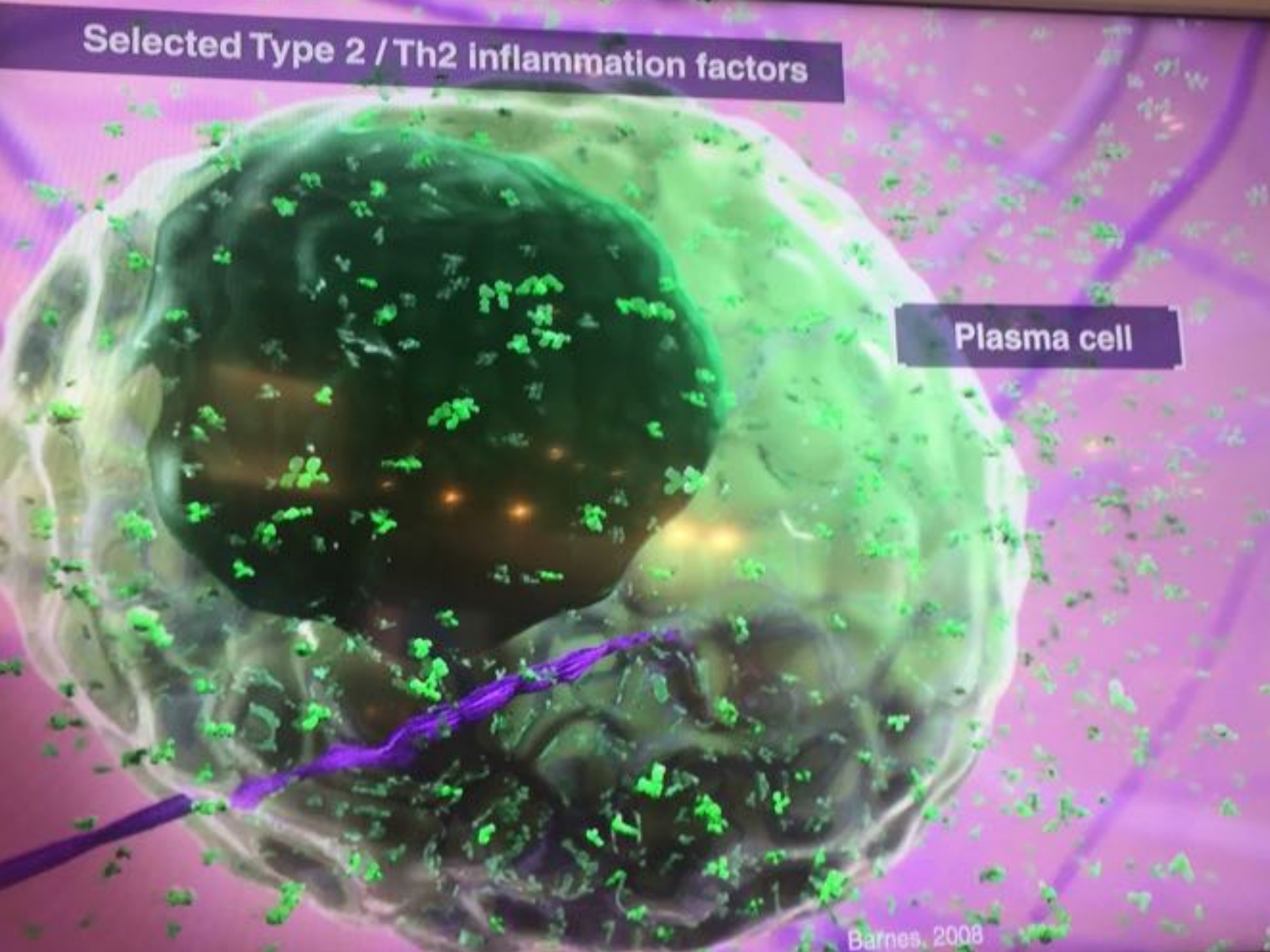
Wheezing
Bronchoconstriction

Over hours
Cytokine production:
Specifically IL-4, IL-13

Mucus production
Eosinophil recruitment


Type 2 / Th2 inflammation occurs in
approximately 50% of asthma patients


Selected Type 2 / Th2 inflammation factors
IgE receptors
Yamaguchi, 1999; Toru, 1996; Kaur, 2006


Selected Type 2 / Th2 inflammation factors
Plasma cell
Barnes, 2008

What is inflammation in asthma?
Inflammatory factors

Class	Examples
Cytokines	IL-3, -4, -5, -9, -13; GM-CSF; TNF-α
Chemokines	MCP-3, -4, eotaxin
Growth factors	TGF-β; fibroblast growth factor; platelet-derived growth factor; neurotransmitters (NK-B)
G-protein-coupled receptor ligands	Leukotrienes; histamine; endothelin; adenosine
Metalloproteinases	MMP-9; TIMP

GM-CSF, granulocyte/macrophage colony stimulating factor; TNF, tumour necrosis factor; MCP, monocyte chemotactic protein

Adapted from: Pascual RM, Peters SP. Airway remodelling contributes to the progressive loss of lung function in asthma: an overview. *J Allergy Cli Immunol* 2005; **116**: 477–86.

Remodelling in the airways

- The epithelium
  - Source of cytokines and chemokines which can sustain inflammation and secrete mast cells[1]
  - Site of goblet cell hyperplasia

- Airway smooth muscle
  - Increased mass, contractility and AHR[2-4]
  - Mast cells release mediators which contract smooth muscle, and also cause proliferation of smooth muscle cells leading to AHR[2]
    - Increased cell numbers correlate with asthma severity and AHR

- Basement membrane[2,3]
  - Thickening often evident at diagnosis
  - This is termed subepithelial fibrosis

1. GINA Guideline http://www.ginasthma.com. (Accessed October 2006). 2. Yamauchi K. Airway remodeling in asthma and its influence on clinical pathophysiology. *Tohoku J Exp Med*. 2006; **209**: 75–7. 3. Jeffery P. Inflammation and remodelling in the adult and child with asthma. *Ped Pulm* 2001; **21**: 3–16. 4. Pascual RM, Peters SP. Airway remodelling contributes to the progressive loss of lung function in asthma: an overview. *J Allergy Clin Immunol* 2005; **116**: 477–86.

Consequences of remodelling

- Increasing airway obstruction, which is irreversible
- Increasing airway constriction
  - As smooth muscle contracts it constricts and shortens
  - This shortening action is limited by membrane thickening, and, as a consequence, the resultant force of smooth muscle contraction is transferred to bronchial constriction.[1,2]

1. Pascual RM, Peters SP. Airway remodelling contributes to the progressive loss of lung function in asthma: an overview. *J Allergy Clin Immunol* 2005; **116**: 477–486.
2. Jeffery P. Inflammation and remodelling in the adult and child with asthma. *Ped Pulm* 2001; **21**: 3–16.

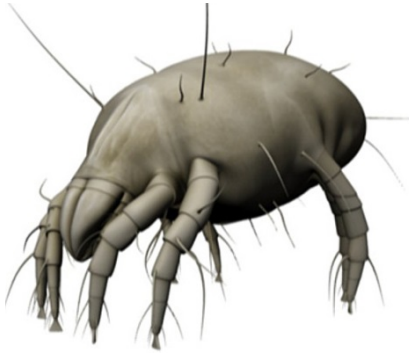
Features increase risk of Asthma

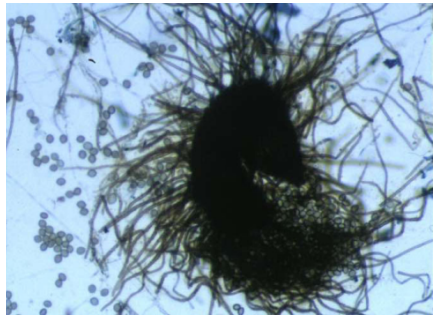
BTS/SIGN 2008/MAY 2011

- Wheeze, breathlessness, chest tightness, cough
- Symptoms worse in evening and mornings
- Excercise, allergens cold air, Asprin, beta blockers
- H/O Atopy, F/H/O Asthma, Atopy
- wheeze, peripheral eosinophilia
- low PEFR, FEV1

Allergen Avoidance Measures

Indoor Allergen	Reccomendations for Reducing Exposure
Animal Danders	• Remove animal from home or at the least remove from bedroom environment • Use air filters and vacuums with HEPA filters. Replace filter regularly.
House Dust Mites	Less Costly • Physical barriers (mite impermeable covers) • Wash bedding weekly in warm water with detergent • Hot temperature drier • Reduce indoor humidity to <50% More Costly • Remove carpets from the bedroom • Replace old upholstered furniture with leather/ wooden furniture
Moulds	• Clean Mouldy surfaces with dilute solution of water and bleach • Fix water leaks • Maintain humidity <50%



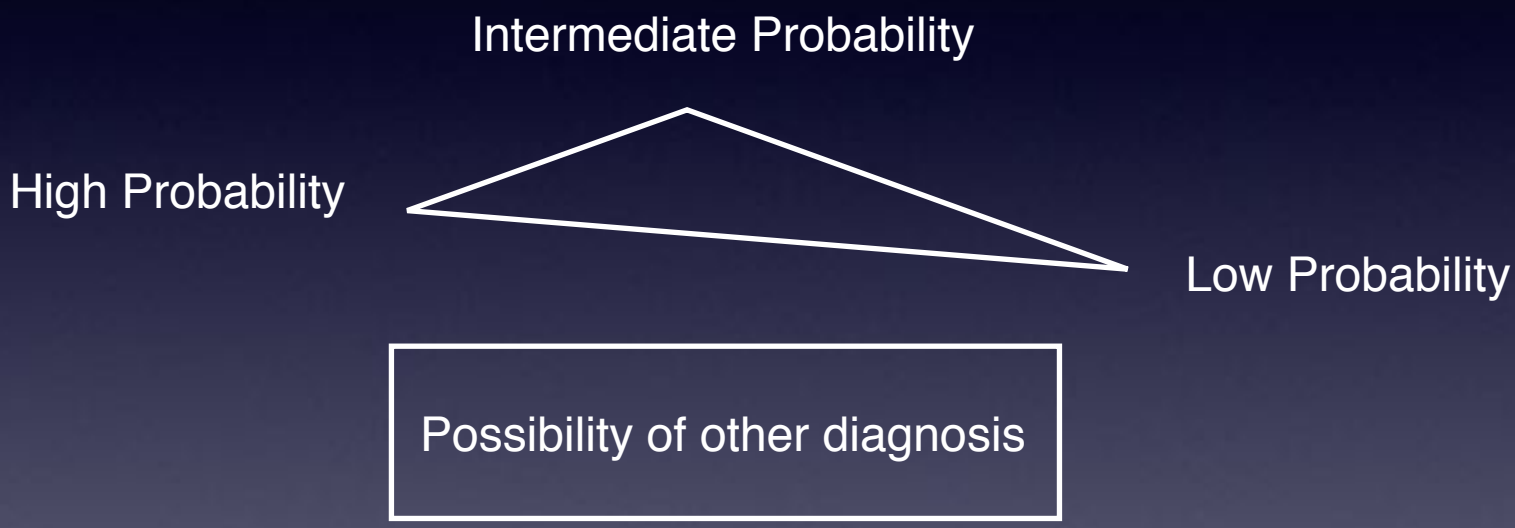


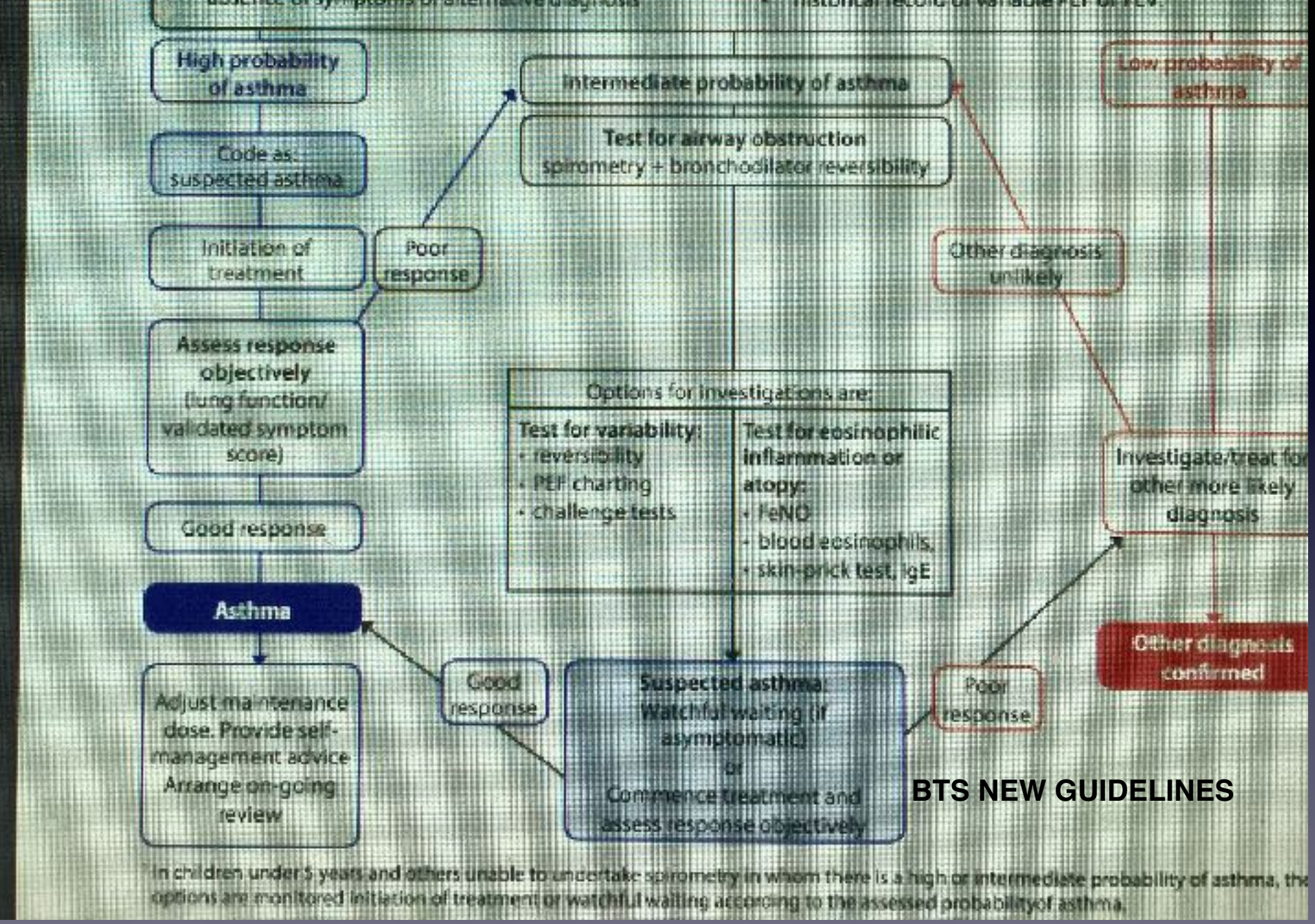
Signs and symptoms of Asthma

- Cough
- Wheeze
- SOB
- Chest Tightness

- History and examination of previous records for wheeze
- Personel history of Atopy
- Historical records of variability of PEF or Spirometry
- Recurrent episodes of symptoms
- Symptoms variability
- Absence of symptoms of alternate disease

Asthma Probability





In children under 5 years and others unable to undertake spirometry in whom there is a high or intermediate probability of asthma, the options are monitored initiation of treatment or watchful waiting according to the assessed probability of asthma.

Aim of asthma management[1]

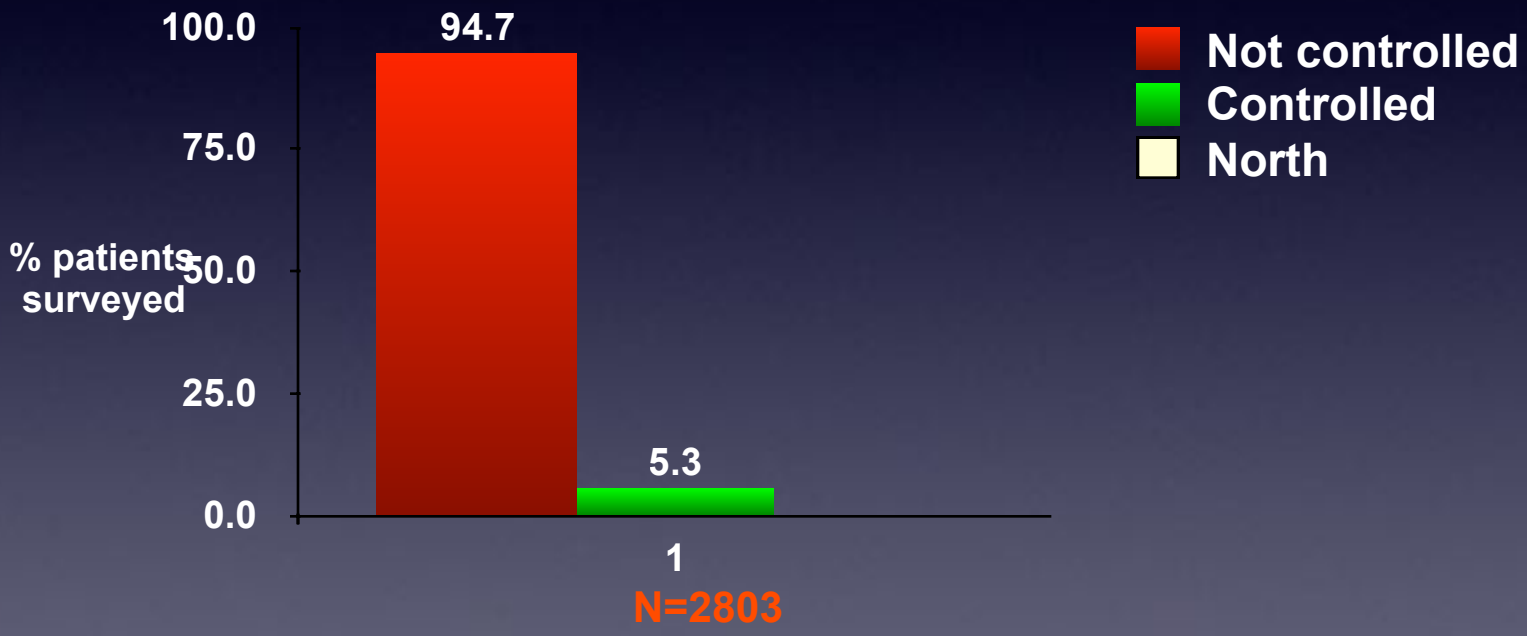
- The aim should be to achieve early control and to maintain this by stepping up when necessary and stepping down when control is good

- Standards:
  - **minimal symptoms during day and night**
  - **minimal need for reliever medication**
  - **no exacerbations**
  - **no limitation of physical activity**
  - **normal lung function (FEV1 and/or PEF>80% predicted or best)**

1. British Guideline on the Management of Asthma, British Thoracic Society, Scottish Intercollegiate Guidelines Network, February 2003

Current asthma control - AIRE Study

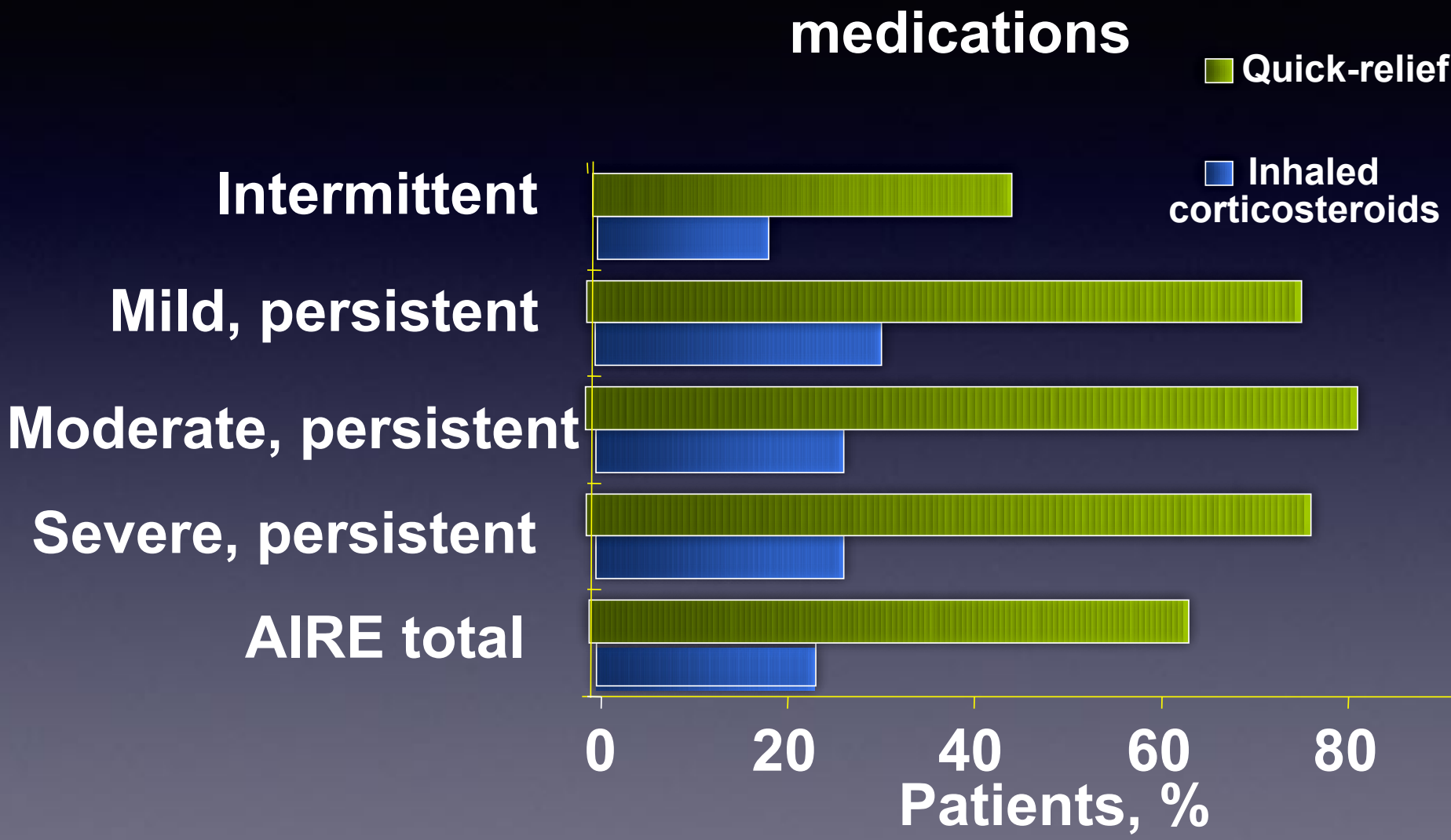
Only 5% of patients met all the goals for asthma control*



* **Control defined by GINA** *(Global Initiative for Asthma)*

Rabe KF et al. Clinical management of asthma in 1999: the Asthma Insights and Reality in Europe (AIRE) study. Eur Resp J 2000;16:802-807

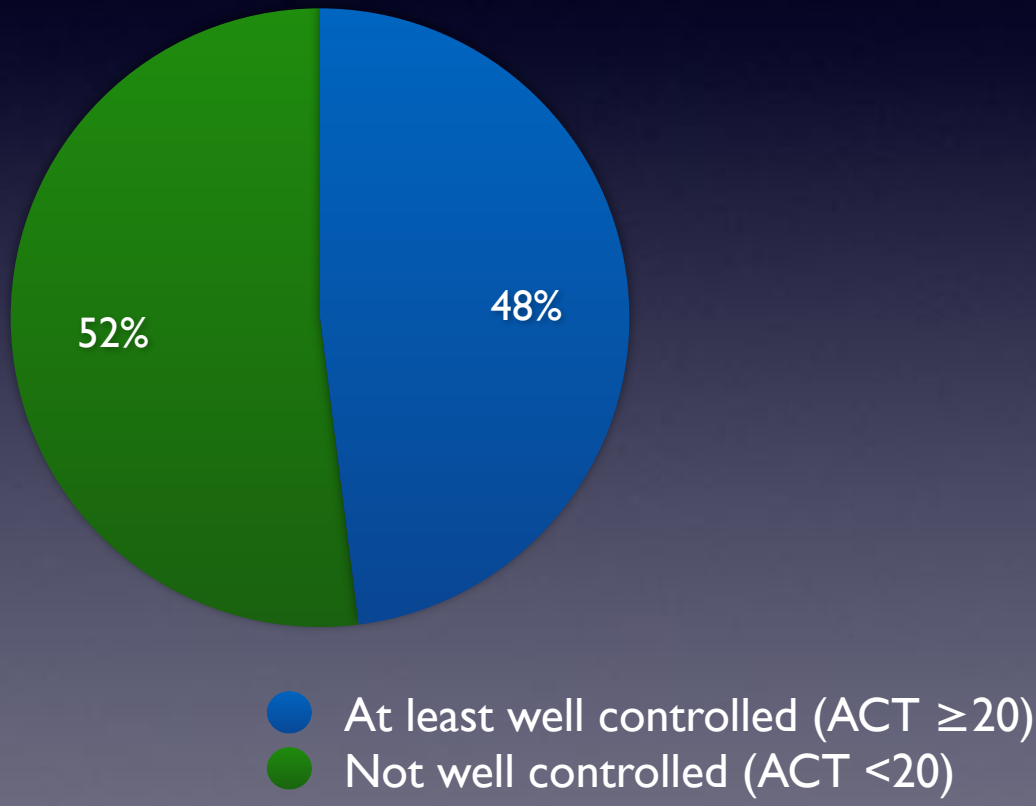
Underuse of inhaled corticosteroids



AIRE = Asthma Insights & Reality in Europe.
Data from http://www.respirar.org/eng/news/aire.htm.

Asthma Control in UK

NHWS: A population-based cross-sectional survey conducted in 2008 in 3619 patients diagnosed with asthma in France, Germany, Italy, Spain and the UK



Foo et al Thorax 2009;64(Supp IV):A132

Possible explanations…

Patient factors

- Low expectations
- Acceptance of limitations
- Compliance/ concordance
- Inhaler technique
- Other

Healthcare Professional factors

- Low expectations
- Overestimate control
- Not aiming for guideline-defined control
- Guideline-defined control not achievable
- Other

Effective questions……..?

How is your asthma – Fine? = X

- How does your asthma make you feel?
- Have you had any asthma symptoms recently?
- Have you needed your blue inhaler recently?
- Do you ever wake up in the night due to your asthma?
- Have you had an attack or needed an emergency visit recently?
- Do you ever avoid doing things because of your asthma?

Many UK patients are non-adherent

In the UK, 25% of patients have asthma adherence rates estimated at 30% or less[1]

Non-adherence problems typically involve the under use of preventer medications[2]

In the UK, non-adherence is thought to contribute to 18% to 48% of asthma deaths[3]

Lack of adherence may be related to

Limited patient knowledge of condition or medication

Lack of motivation to take medication

Issues with medication

1. Dasgupta R, et al. *Pharmacoeconomics.* 2003;21:357-69.
2. Farber HJ, et al. *J Asthma.* 2003;40:17-25.
3. National Asthma Campaign. *Asthma J.* 2001;6(suppl 3).

Treatment-related barriers to adherence

- Method of administration[1]
- Complex regimen[1,2]
- Frequent dosing[1]
- Fear of, or experience of, side effects[1,2]
- Lack of understanding of asthma or treatment[2]
- Forgetting to take medications or in denial[2]
- Omit from treatment regimen, because multiple medications are involved in treatment strategy[2]

1. Medicine Partnership. October 2003.
2. Asthma UK; 31 October 2003.

In an Asthma care Clinic…

- *Dosages…?*
- Generally start with appropriate dosage, usually high and bring down if low then step up
- Patient happy with results… will get early control…. Confidence in doctor….Will carry on with medications… less exacerbations..

In an Asthma care Clinic…

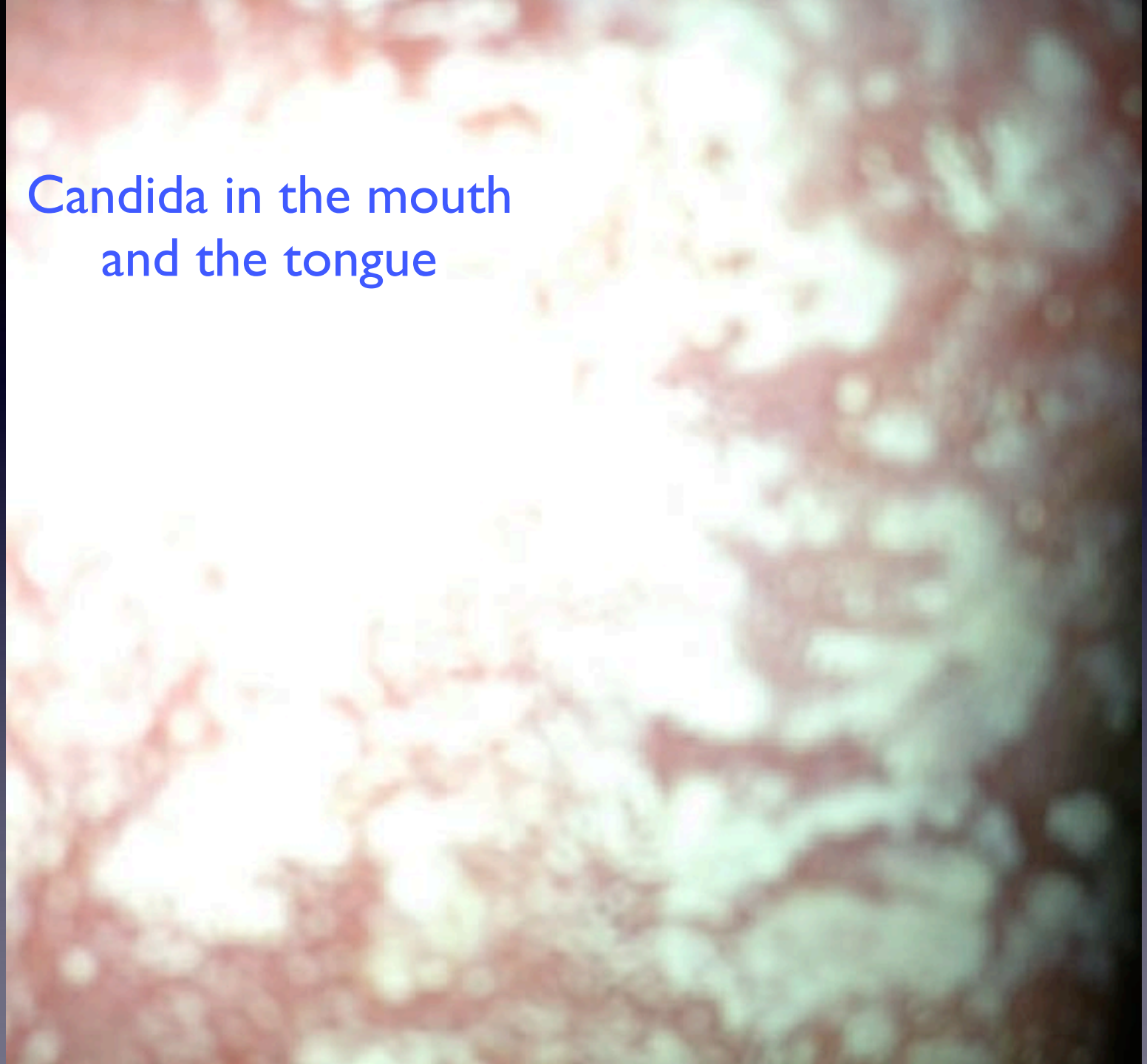
- *Inhaler techniques*
- Patients can find this hard…. Never assume…
- Find out which is best suited to the patient and which is *preferred* by the patient..
- Advice re mouth care always
- Never omit to ask about active or passive smoking

In an Asthma care Clinic…

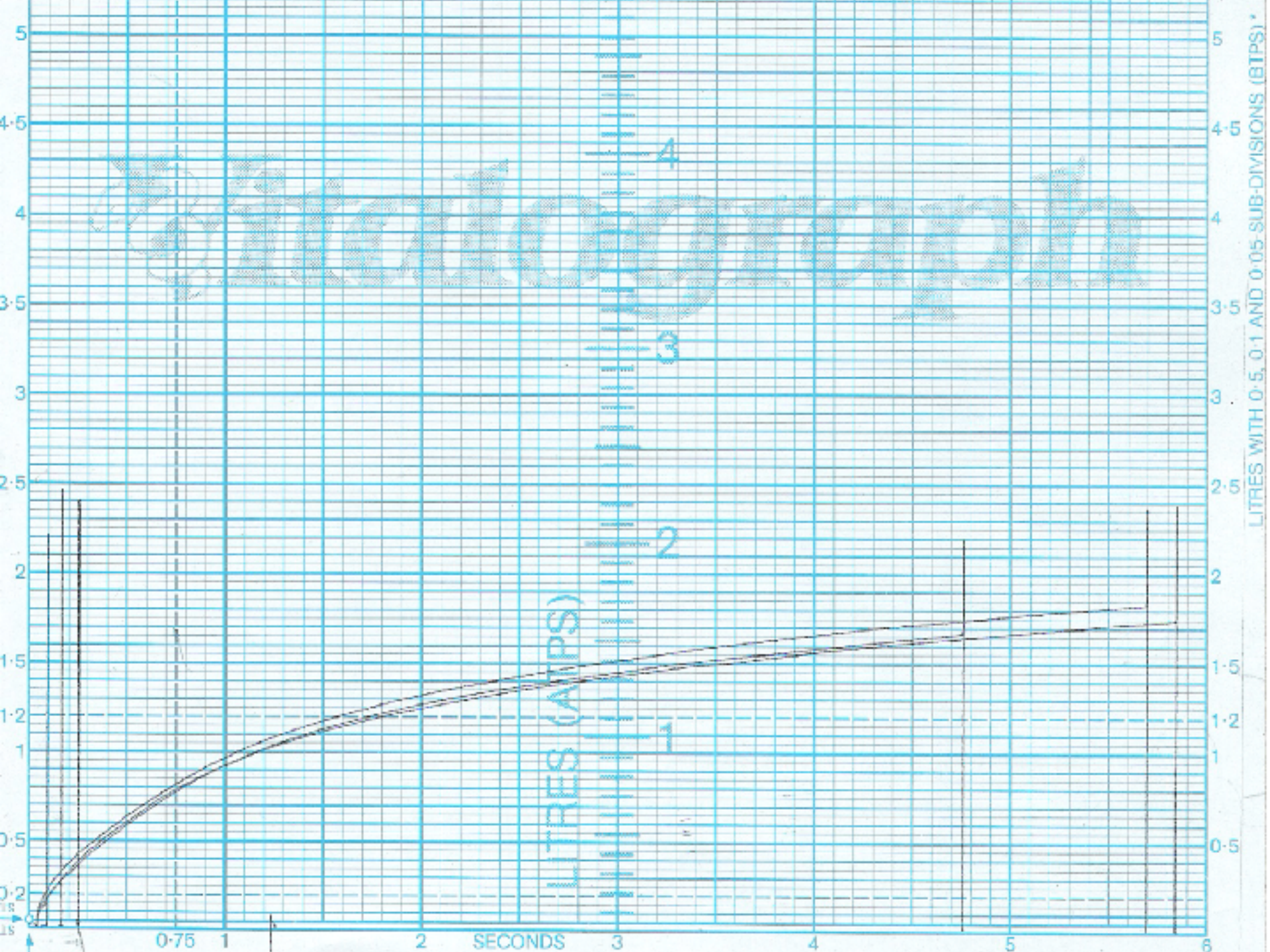
- Explore…… …compliance / adherence / concordance
- And try to address potential fears/issues
- 1600 deaths from asthma p.a.
- 70 - 80% preventable?
- "Adverse Psychosocial factors" – the major factor

http://www.nhs.uk/Video/Pages/Childrensasthmainhaler.aspx

Candida in the mouth and the tongue

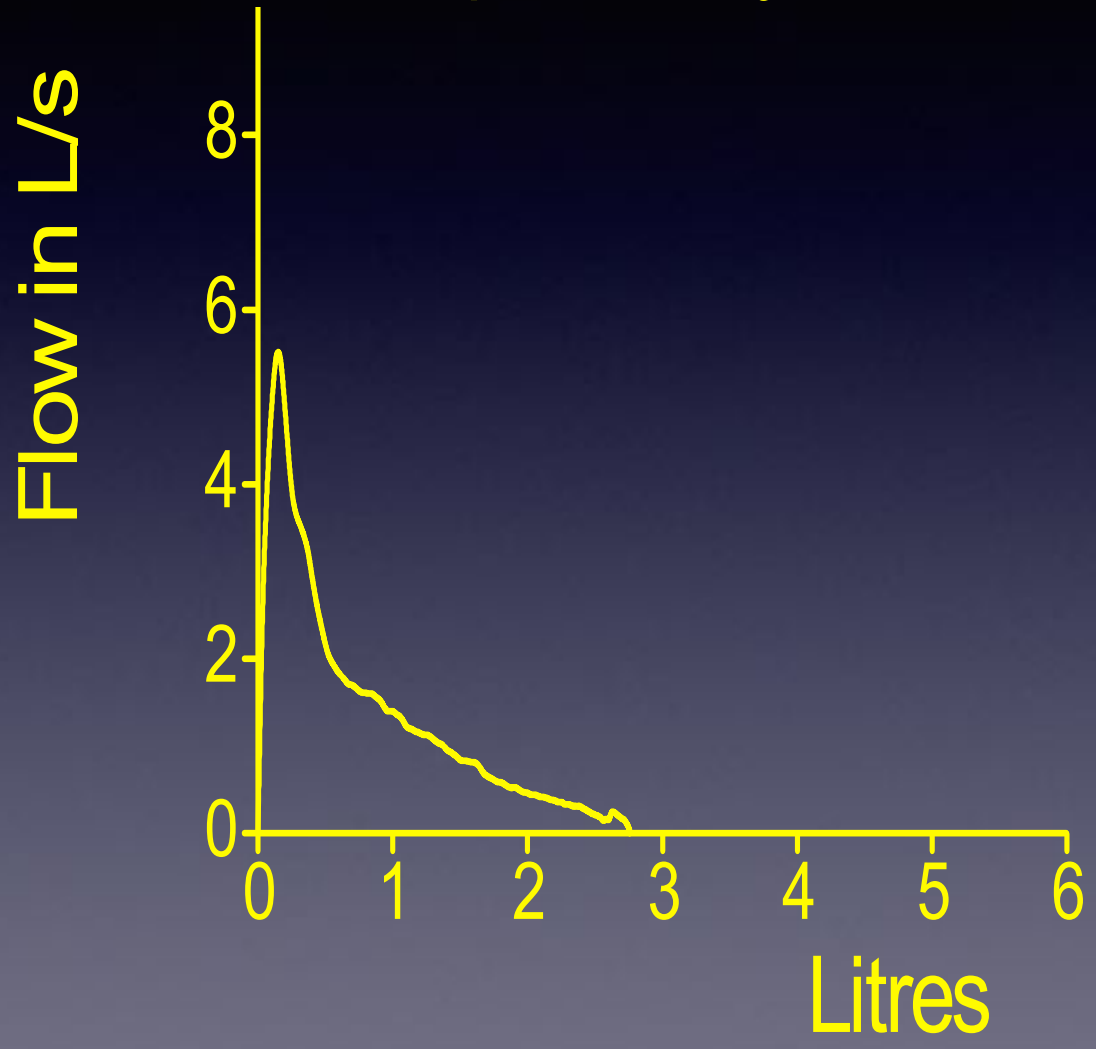


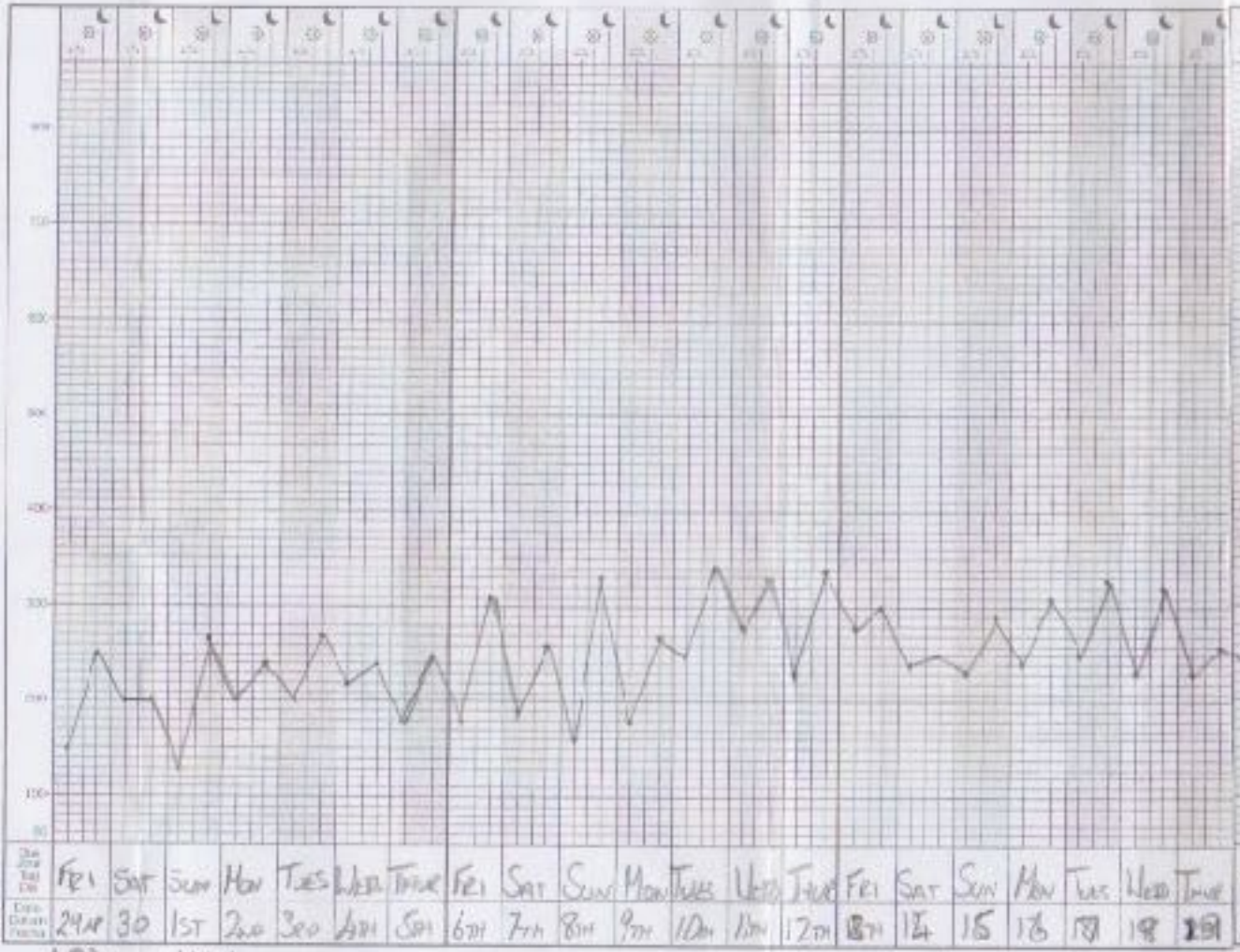

micro
VIASYS
VIASYS


LITRES (ATPS)
SECONDS
0·75
1
2
3
4
5
6
LITRES WITH 0·5, 0·1 AND 0·05 SUB-DIVISIONS (BTPS)

Bronchial Asthma

concave FV curve intrapulmonary airflow obstruction





APRIL MAY

How to Record Your Peak Flow

It is important to keep a record of your peak flow. Ideally you should be taken twice a day, first thing in the morning, and at bed time, or as directed by your Doctor. Use the chart provided to record the highest reading on the chart with a cross corresponding to the right and leaving adjacent the result of the morning and bed time readings every day. By plotting the two readings you can see how your peak flow varies from day to day. You should also measure and note your peak flow if you suddenly become wheezy or breathless at anytime of the day or night.

Comment Noter Votre Debit de Pointe

Il est important de noter vos résultats. Suivez les instructions de votre médecin. Généralement, les mesures se font au lever, le matin, et le soir au coucher. Utilisez la feuille de relation fournie pour noter avec un point votre meilleur résultat du matin et du soir. En reliant ces points, vous pourrez voir l'évolution de votre débit de pointe au jour le jour. Notez aussi vos résultats en cas de différences au cours de la journée ou de la nuit.

How to Record Your

It is important to keep a record o
should be taken twice a day, firs
bed time, or as directed by your
provided to record the highest re
corresponding to the highest re
morning and bed time readings
two readings you can see how
day to day. You should also me
if you suddenly become wheezy
the day or night.

Role of Fe NO

NIOX

FeNO aids in Asthma diagnosis

- The diagnosis of asthma is traditionally made based on clinical symptomatology together with spirometry. This had led to many patients being misdiagnosed.[1]
- No single test is used alone to diagnose asthma
- Spirometry is not sensitive nor specific for airway inflammation in asthma
- Biomarkers such as FeNO and blood eosinophils improve the diagnostic accuracy for detecting airway inflammation in asthma [2.3]
- While sputum eosinophils are considered the gold standard tor detecting airway inflammation; it is a technically difficult test that is not typically done in physician clinics and offices
- ATS Guidelines for FeNO in asthma rate the evidence to support use in the diagnosis of eosinophilic airway inflammation as: strong recommendation, moderate quality of evidence.[4]

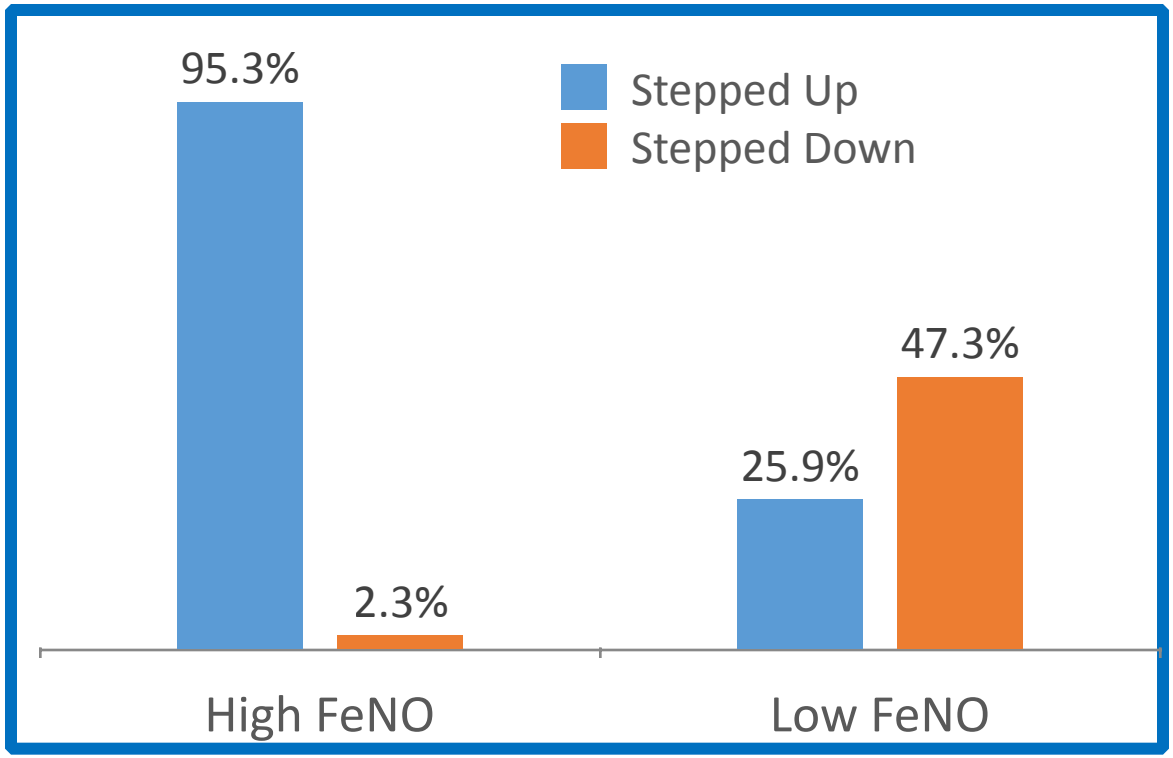
1. Pakhale et al, BMC Pulm 2011
2. Wagener et al Thorax 2015
3. Westerhof et al, Eur Resp J, 2015
4. Dweik et al, Am J Resp Crit Care Med 2011

Helps identify patients for treatment with biologic

- A small minority of asthma patients cannot achieve control of their disease with traditional therapies and are considered for treatment with biologic therapy. [1]
- Decision making in these patients is difficult; FeNO helps to confirm ICS failures, non-adherence/compliance and identifies patients that have persistent airway inflammation despite optimization on current therapy.
- Baseline measurement of FeNO identifies patients with persistent inflammation and who will benefit most from a biologic such as omalizumab. [2]

1. Hekking et al, J Allergy Clin Immunol 2015;135:896-902.)
2. Hanania NA, Wenzel S, Rosen K, et al. Exploring the effects of omalizumab in allergic asthma. Am J Respir Crit Care Med. 2013;187(8):804-811.

Effect of FeNO Measurement on Treatment Decisions



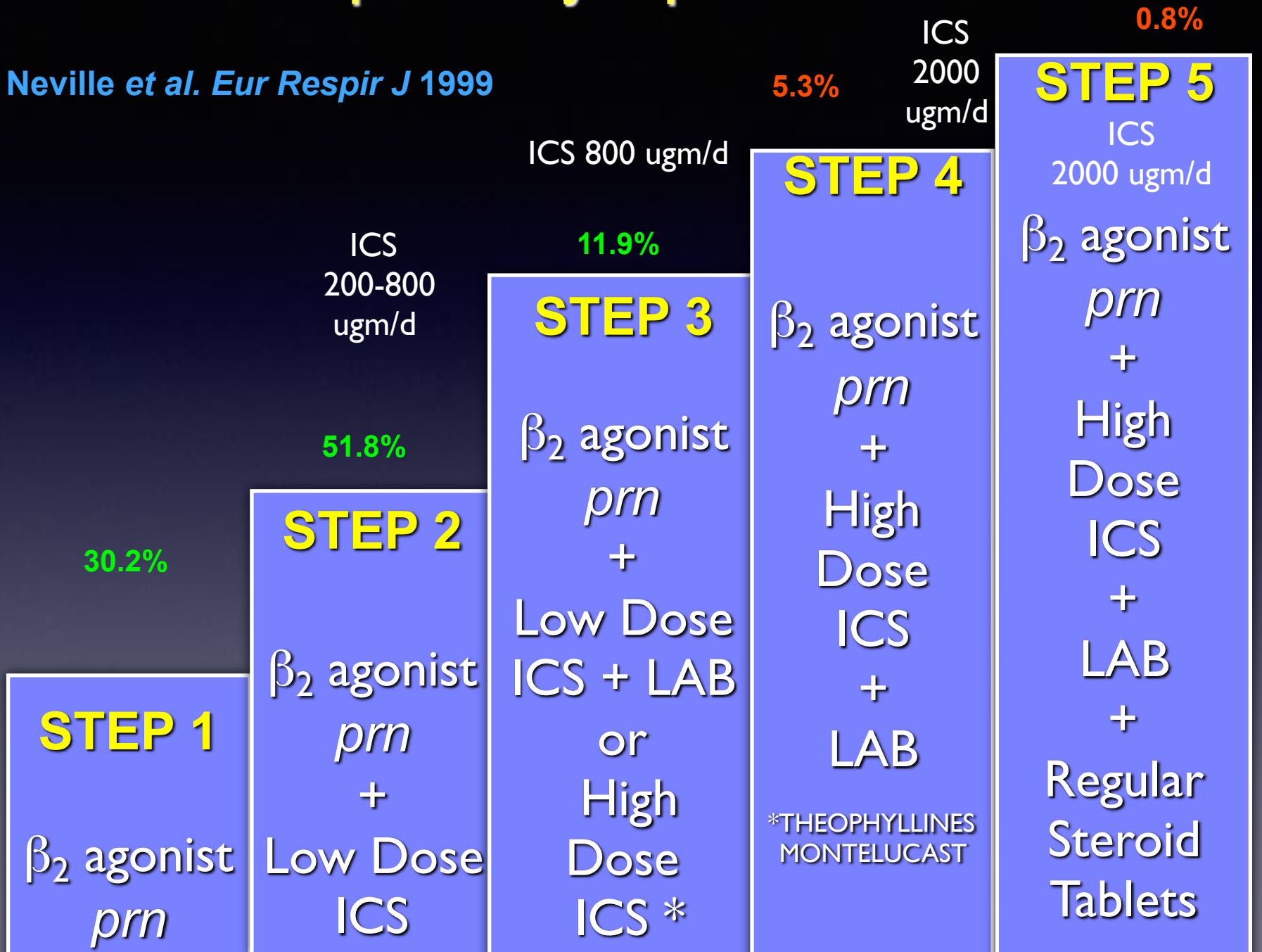
Hanania et al, ACAAI Abstract San Francisco, 2016

FeNO

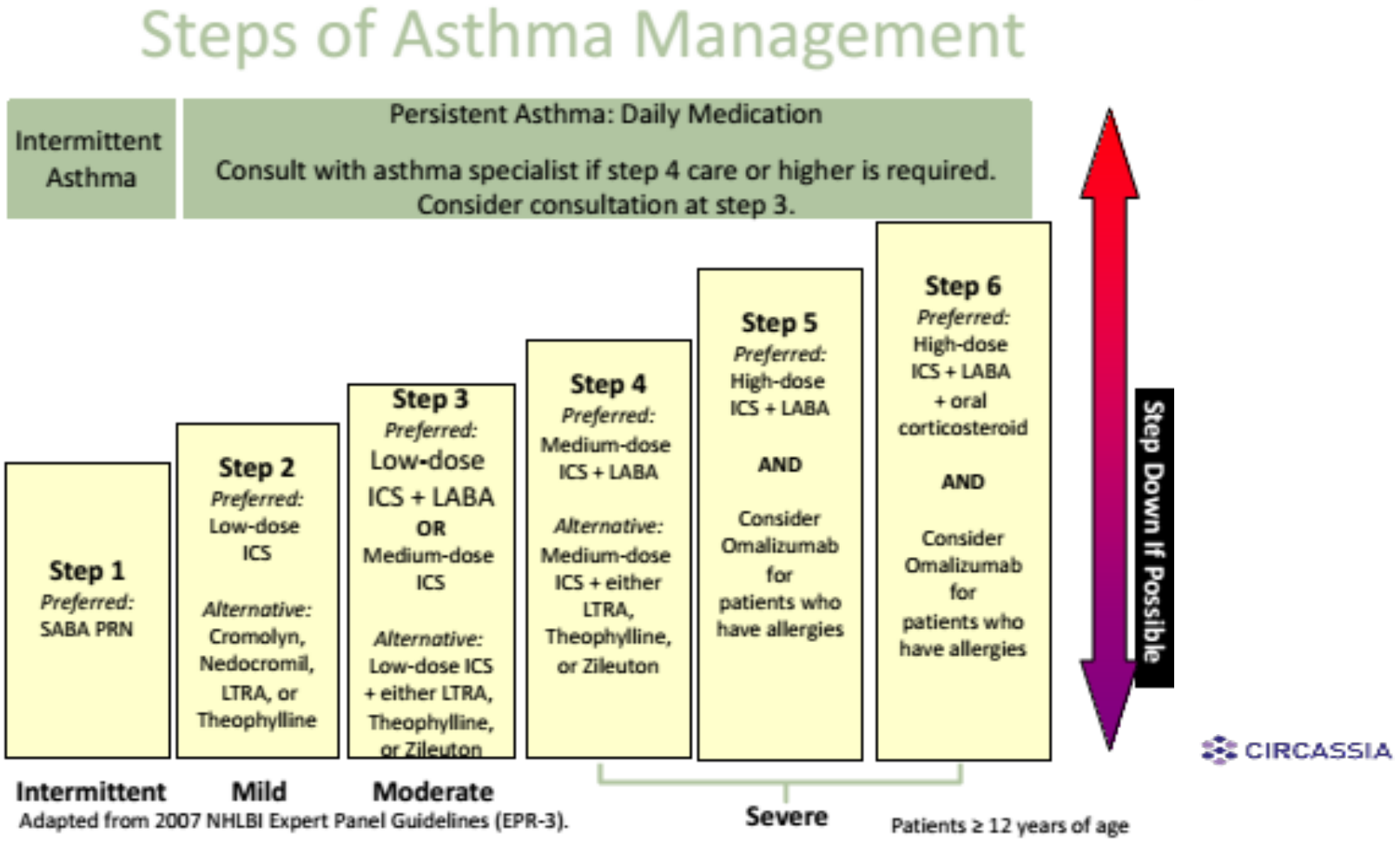
- Aids the diagnosis of Asthma and identifies patients with T2 inflammatory Phenotype
- Instrument in optimising the dose of ICS
- Uncovers Non adherence to ICS
- Reduces likelihood of exacerbations in patients with risk of future events
- Helps to identify Asthmatics who are a possible candidate for treatment with a biologic
- Results considered positive if more than 40ppb in adults and 35 ppm for children

Distribution of patients by steps of the Guidelines

Neville *et al. Eur Respir J* 1999



Guideline Recommendations for Stepwise Treatment of Asthma



Moderate Asthma Exacerbation

- Increasing symptoms
- PEFR>50-70%.

Asthma in Primary care

- Symptomatic control
- Lung function assessment by Spirometer and PEF
- Asthma attacks, steroid use
- Inhaler technique
- Adherence
- Bronchodilator reliance
- Self management plans / Personal action plan

Life Threatening Asthma

- Acute severe Asthma with one feature
- PEF< 30% predicted
- Bradycardia
- Sats less than 92
- Dysrhythmias
- PaO2 <8 or Normal PaCO2
- Exhaustion
- Silent Chest, Confusion, Cyanosis & Coma
- Feeble Respiratory efforts

Investigations in Asthma

- FBC (Eosinophilia)
- IgE
- Allergy testing (skin prick)
- CXR
- Exhaled Nitric Oxide (Fe NO)
- Challenge testing-Histamine, Methacholine or Mannitol
- Spirometry or Peak Flow meters
- Aspergillus Pricipitans

FeNO levels

- Increased in Allergic Rhinitis
- Increased by Rhinovirus infection
- Increased in Tall, Men, Nitrates
- Low in children, smokers and Steroids

Challenge testing-Histamine, Methacholine or Mannitol

- Concentration of Histamine or Methacholine required to cause 20% fall in FEV1
- So a PC20 of 8mg or less is predicted as positive results
- 2/3rd of positive adults will have Asthma false negative is less than 10%
- Negative Methacholine test in children have a high negative predictive value
- Fall of more than 15% FEV1 on Mannitol inhalation
- less sensitive test

When should you step down asthma therapy?

When control is maintained for at least 3 months, treatment be stepped down with the aim of establishing the lowest step and dose of treatment that maintains control

BTS/SIGN. 2008 British Guideline on the Management of Asthma – revised Jan 2012

Role of Steroids in Asthma

- Corticosteroids:Reduce inflammation of bronchial mucosa, inhibit Phospholipase A2 and block inflammatory mediators
  - Prednisolone
  - ICS(FIuticasone,Beclomethasone, Budenoside)

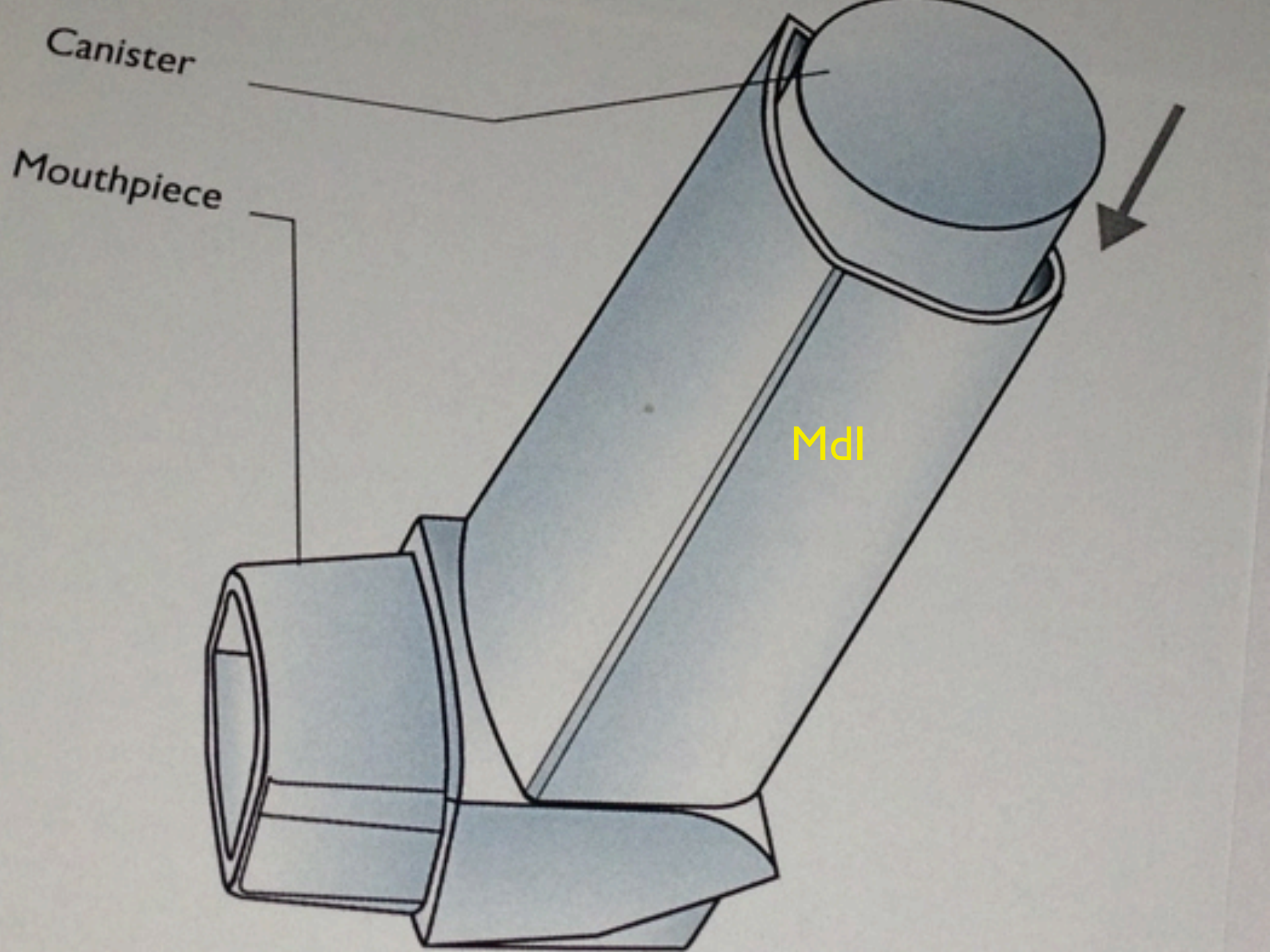
Combination Inhalers

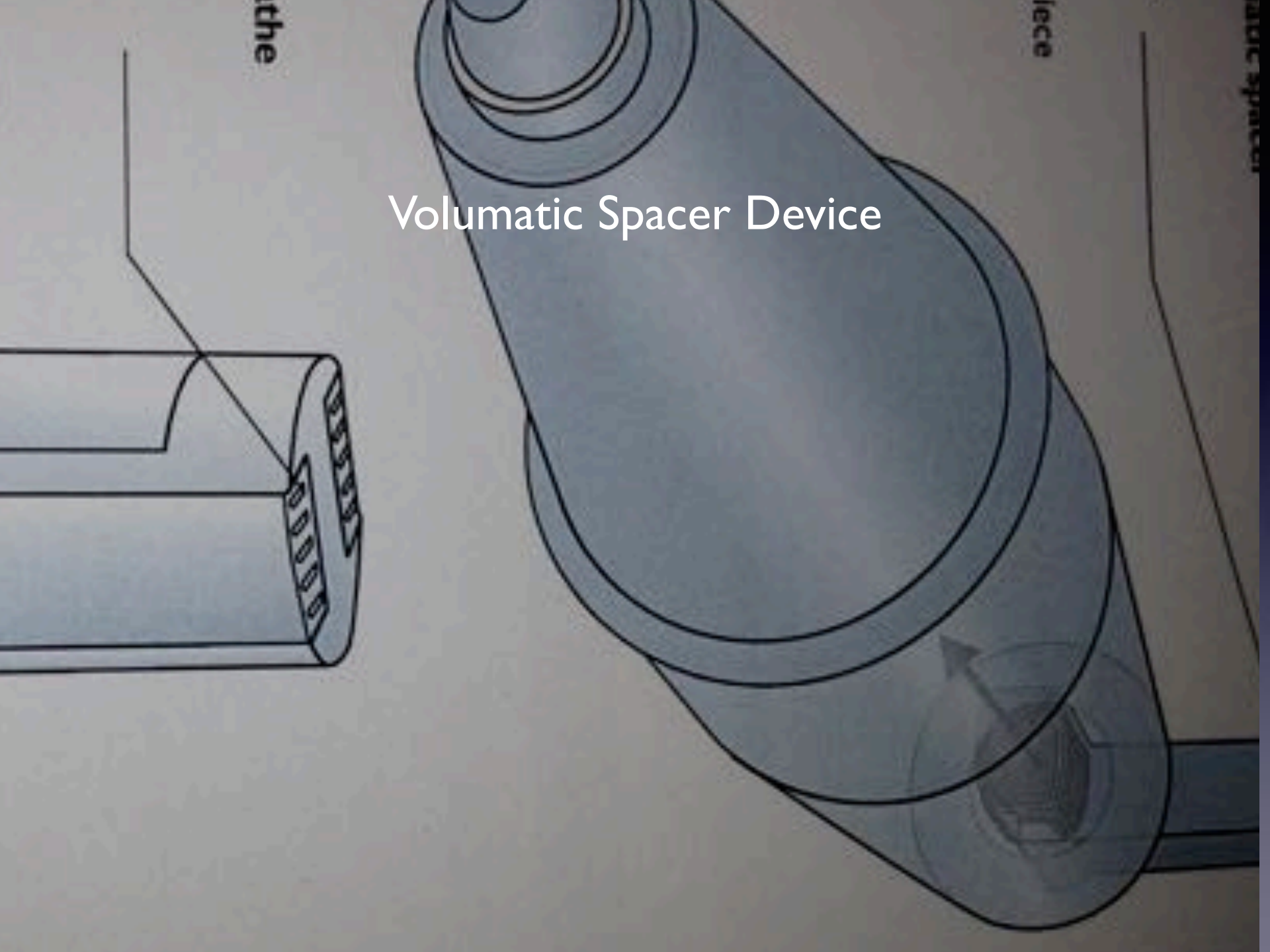
ICS & LABA has a strong scientific rationale as both target different but complementary aspect of asthma pathophysiology

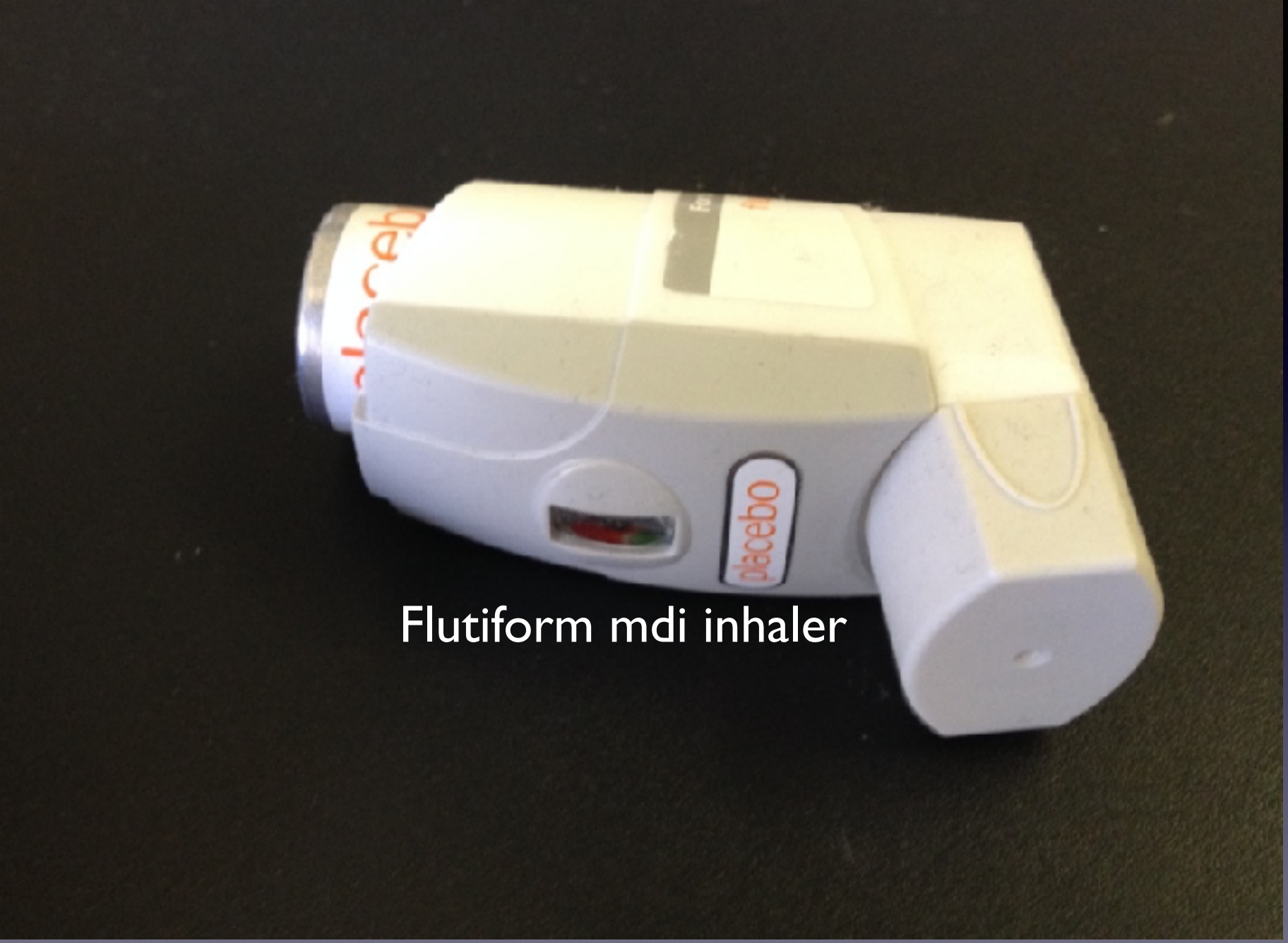
Facet trails have proven benefits of using high dose steroids with LABA in preventing exacerbations & better quality of life Corticosteroids prevent down-regulation of Beta 2 receptors due to continued exposure to LABA,& conversily LABA appears to enhance the anti-inflammatory action of corticosteroids by enhansing nuclear translocation of Glucocorticosteroid receptors

ICS / LABA Combinations in Asthma at step 3 / 4

- Seretide-Fluticasone / Salmetrol 250
- Symbicort -Budesonide / Formoterol fumarate 200/6, 400/12 1-2 Puff bd
- Fostair-Beclometasone / Formoterol fumarate 100/6 2Puff BD
- Flutiform-Fluticasone / Formoterol fumarate 250/10,125/5, 50/5mu 2 Puffs BD
- Relvar Ellipta-Fluticasone Furoate / Vilanterol 92/22mcg 184/22 mcg OD


Canister
Mouthpiece
MdI


Volumatic Spacer Device

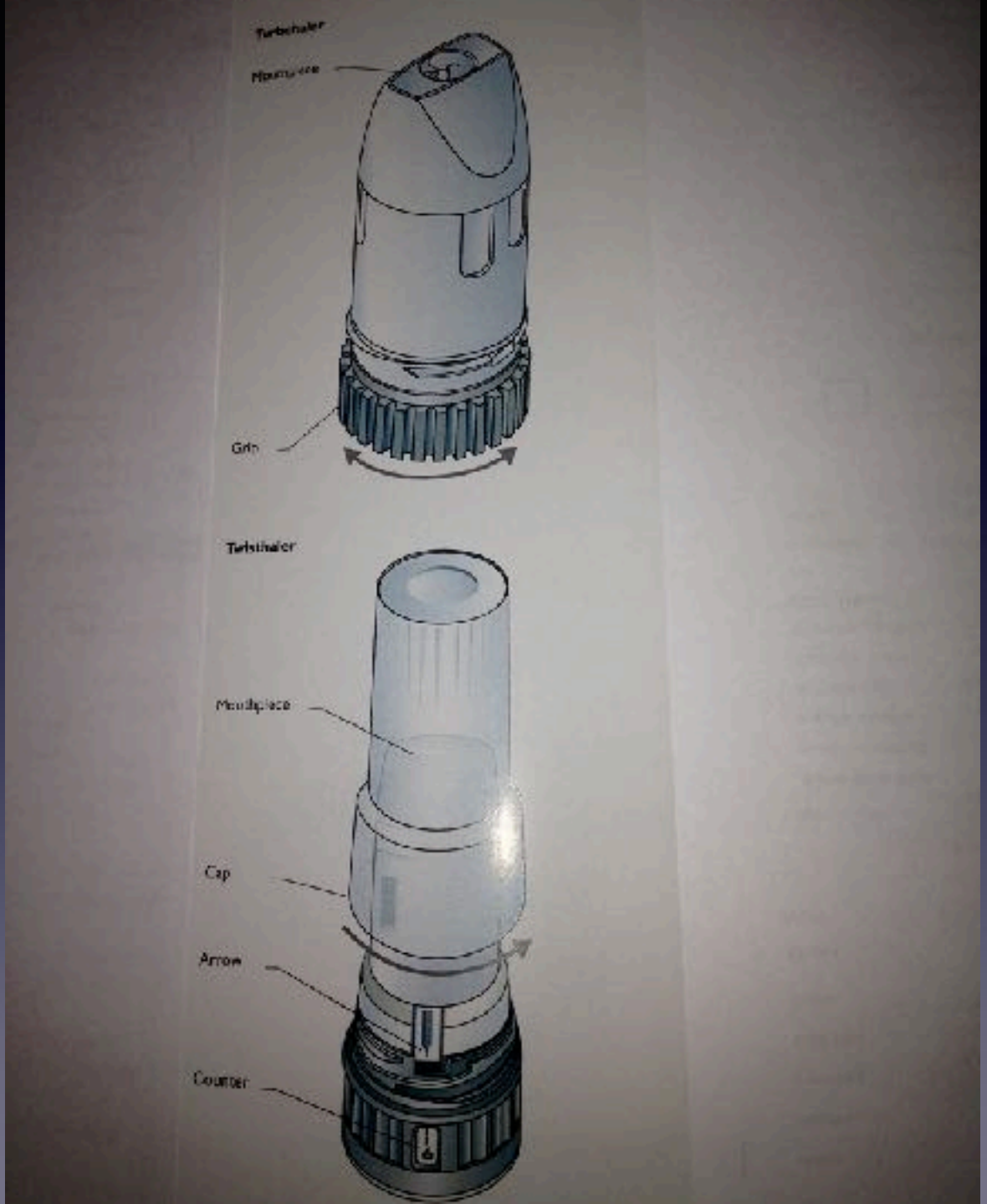


Flutiform mdi inhaler


gsk
RELVAR®
ELLIPTA®
92/22 mcg
92/22 µg
inhalation powder/Pulver zur Inhalation/
inhalatiepoeder
fluticasone furoate/vilanterol
Fluticasonfuroat/Vilanterol
fluticasonfuroaat/
vilanterol
30
doses
Dosen
0129834

Turbohaler

Twisthaler




DuoResp
Spiromax
160 mcg/4,5 mcg
inhalatiepoeder
budesonide/
formoterol-
fumaraat-
dihydraat

DRY POWDER INHALERS

Easi breathe

Disc haler

Twist haler

Turbohaler

NEBULISER THERAPY

Studies compared to Symbicort® and Seretide™ (ICAT)[1,2]

ICAT-SY[1]

FOSTAIR

100µg beclometasone +

6µg formoterol

vs

Symbicort® DPI

200µg budesonide +

6µg formoterol

ICAT-SE[2]

FOSTAIR

100µg beclometasone +

6µg formoterol

vs

Seretide™ MDI

125µg fluticasone +

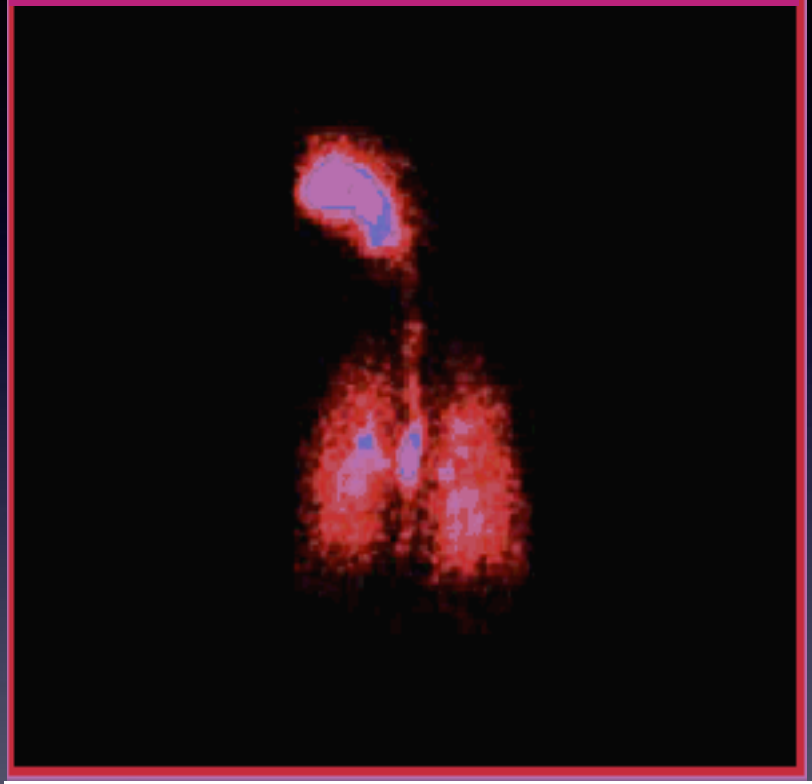
25µg salmeterol

ICAT = Inhaled Combination Asthma Treatment

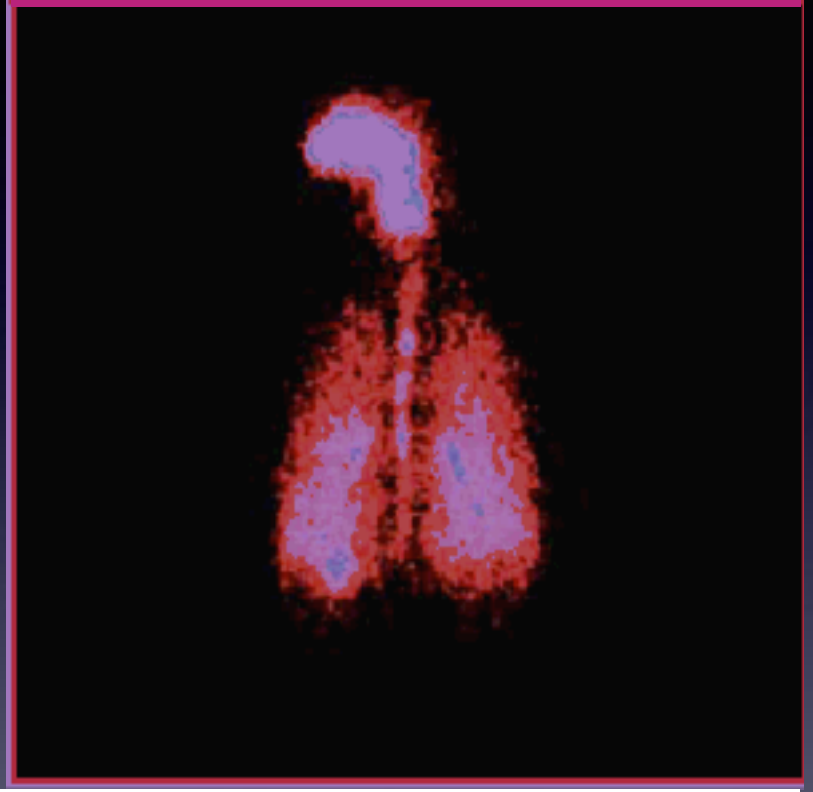
MDI = Metered Dose Inhaler DPI = Dry Powder Inhaler

1.Papi A, Paggiaro PL, Nicolini G et al. Beclometasone/formoterol vs budesonide/formoterol combination therapy in asthma. Eur Resp J 2007; 29: 682–689. 2 Papi A, Paggiaro P, Nicolini G et al. ICAT SE study group. Beclometasone /formoterol vs fluticasone/salmeterol inhaled combination in moderate to severe asthma. Allergy 2007; 62(10); 1182-1188.

Asthmatic patient



Healthy subject



Scintigraphic images

- 31-34% of the inhaled combination of beclometasone / formoterol was deposited in the lung
  - low variability in asthmatic patients and healthy subjects respectively, thus confirming the good delivery to the lung regardless of the pathophysiological condition[1]

NEXThaler
Training Device
Not for therapeutic use.
For training purposes only.
20'2'11-E-03015
03006v0
Chiesi

Power Breathe Device

Think about other conditions i.e Allergic Bronchopulmonary Aspergillosis

It is a hypersensitive reaction in patients with asthma to spores of aspergillus. It occurs when bronchi become colonized by Aspergillus

- Commonest cause of pulmonary eosinophilia in UK. Almost all ass. with asthma
- IgE antibodies play a role in pathogenesis

Allergic Bronchopulmonary Aspergillosis

Diagnostic criteria – no individual test for it

- History of Asthma
- Eosinophilia (>0.5 x 10^9 per litre)
- Pulmonary infiltrates on CXR
- Positive skin test to *Aspergillus fumigatus*
- Raised IgE RAST to aspergillus
- Proximal bronchiectasis
- Total IgE >1000

(A prick test should be first. If negative very unlikely)

Allergic Bronchopulmonary Aspergillosis

- Airways contain mucous plugs
- Presents with worsening asthma
- Bronchiectasis is a result of worsening disease
- Management with oral steroids and Anti-fungals

How should you step down ICS in asthma?

- Reduction in inhaled steroid dose should be slow as patients deteriorate at different rates
- Reductions should be considered every three months, decreasing the dose by approximately 25-50% each time in inhaled steroid dose should be slow as patients deteriorate at different rates

BTS/SIGN. 2008
British Guideline on the Management of Asthma – revised Jan 2012

Other strategies in Asthma care

- Allergen avoidance
- Immunotherapy
- Complementary & Alternative Medicine
- Dietary Manipulations

Chronic Asthma

- Methotrexate
- Gold
- Cyclosporine
- Nebulised Lignocaine
- TNFa
- Hydroxychroquine

?? Role of New Treatment Regimes

ANTI IgE

(INNOVATE STUDY*)

- New drug in moderate to severe asthma

OMALIZUMAB High affinity humanised blocking antibody to IgE.

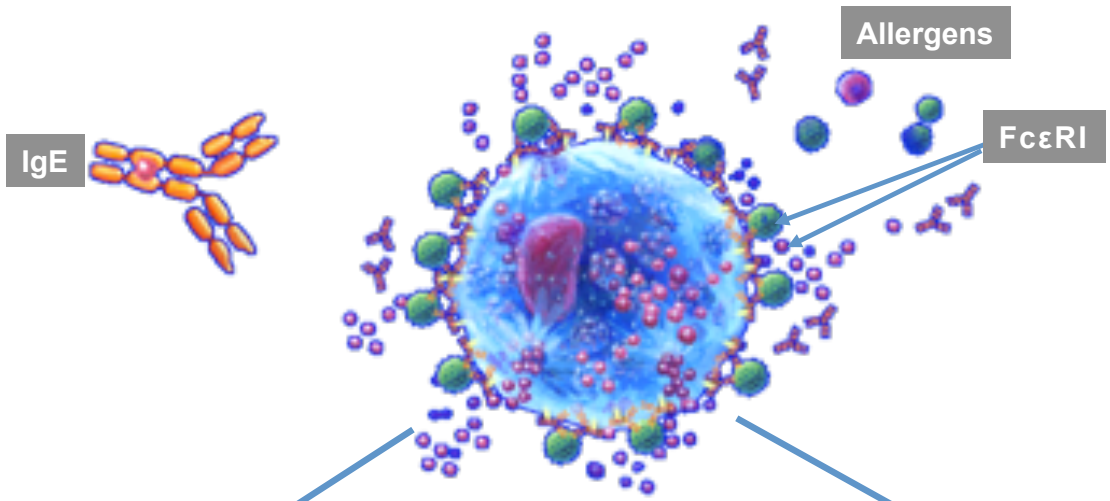
*Found to beneficial in improving spirometry reducing exacerbations & steroid requirements

It is an expensive drug be can be selectively used in severe allergic asthma.

Drug is useful in a moderate rise in IgE levels

Given S/C 2 weekly injections- hence good compliance can be achieved

IgE-dependent Release of Inflammatory Mediators



Immediate release
Granule contents:
Histamine, TNF-α,
Proteases, Heparin

Sneezing
Nasal congestion
Itchy, runny nose
Watery eyes

Over minutes
Lipid mediators:
Prostaglandins
Leukotrienes

Wheezing
Bronchoconstriction

Over hours
Cytokine production:
Specifically IL-4, IL-13

Mucus production
Eosinophil recruitment

NICE GUIDELINES ON OMALUZIMAB

- Omalizumab treatment should be given along with the person's current asthma medicines. It should be prescribed by a doctor who is experienced in asthma and allergy medicine at a specialist centre.
- If omalizumab does not control the asthma after 16 weeks, treatment should be stopped.

? Role of New treatments

- Thermoplasty (Radiofrequency ablation of smooth muscles)

versions

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Last Updated: Thursday, 29 March 2007, 00:41 GMT 01:41 UK

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Drug-free therapy 'fights asthma'

A drug-free treatment has helped people control their asthma symptoms for up to a year, a study has found.

Over a million children in the UK have asthma

Bronchial thermoplasty uses radio frequency currents to reduce the amount of smooth muscle in the airways, stopping the narrowing seen in asthma.

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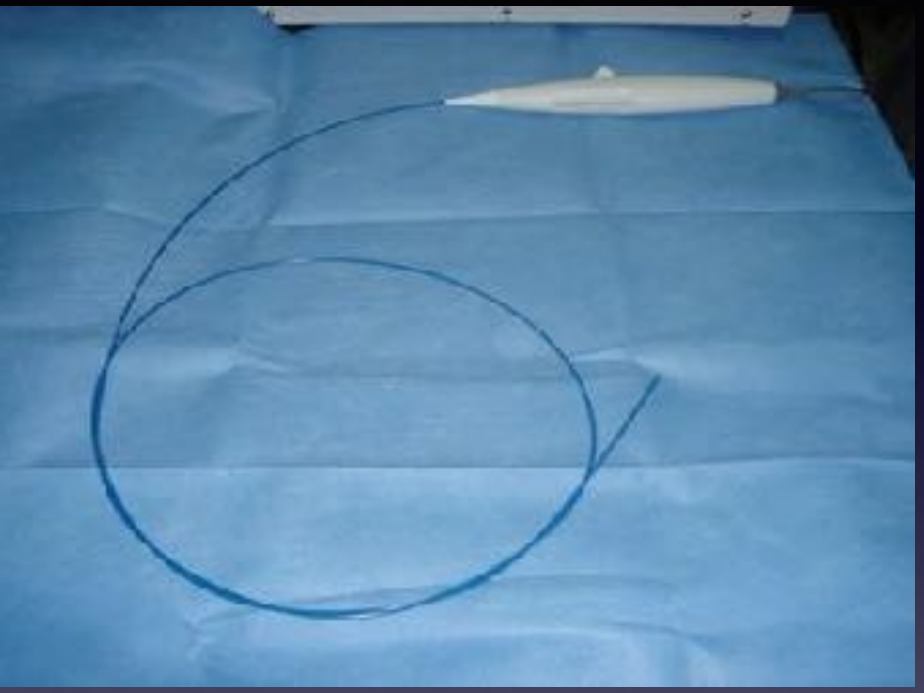
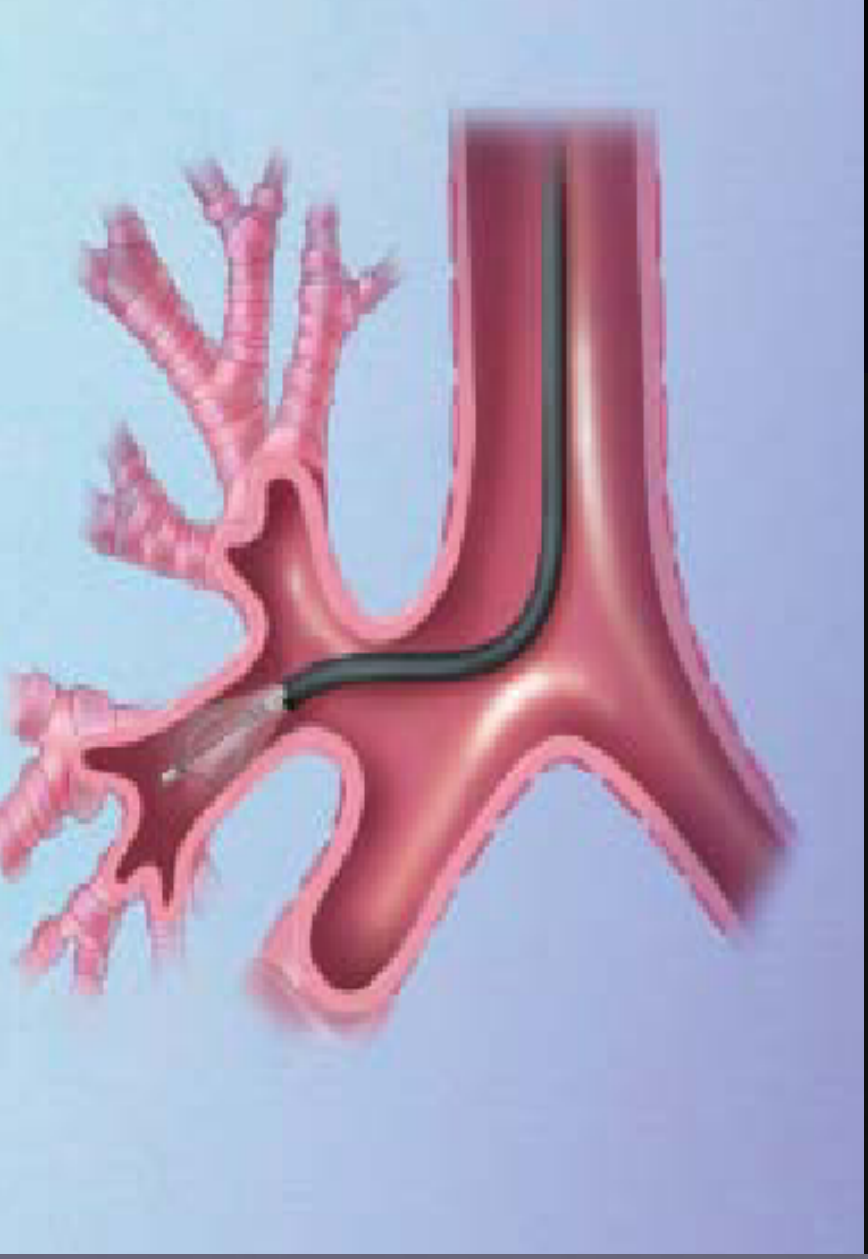
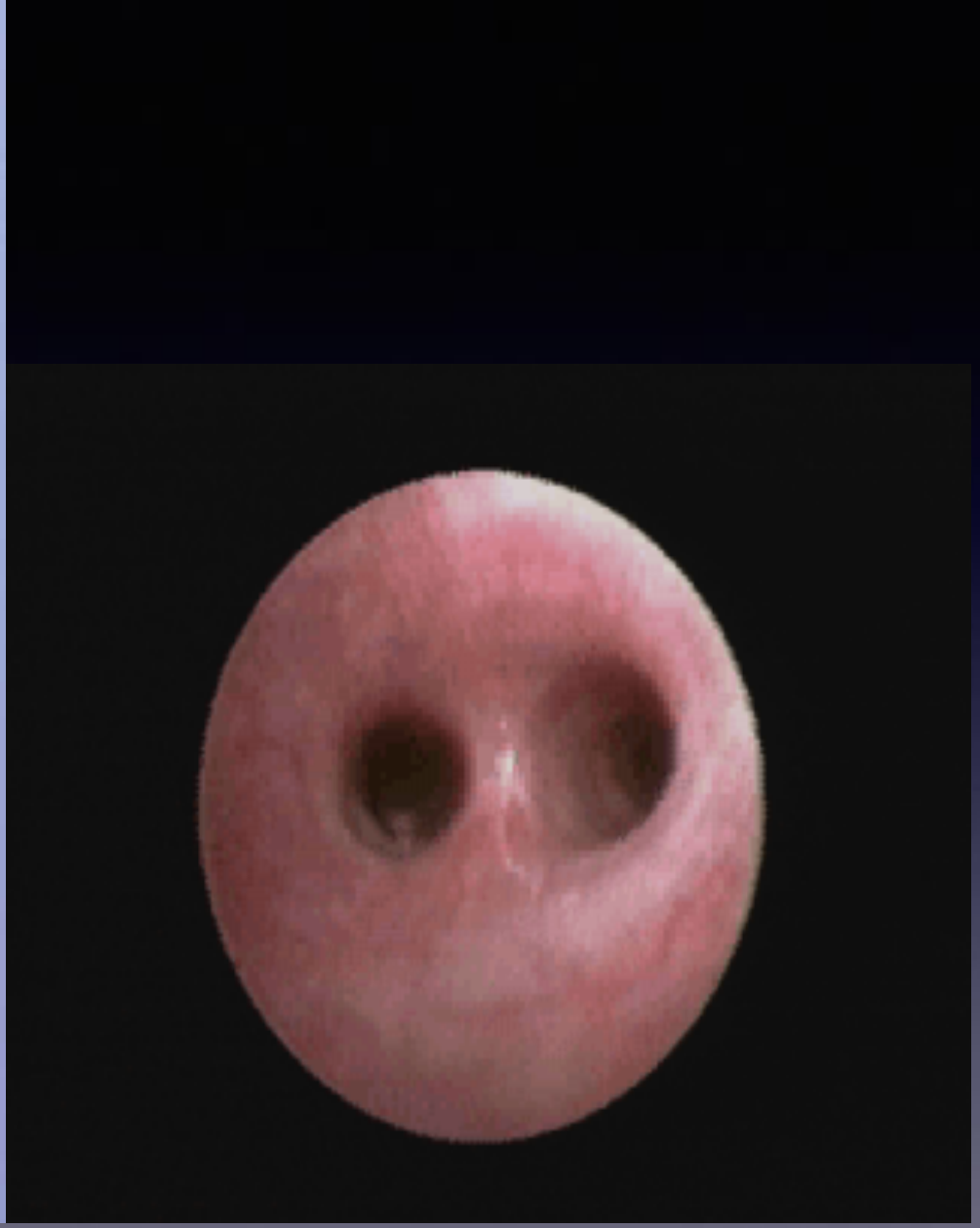
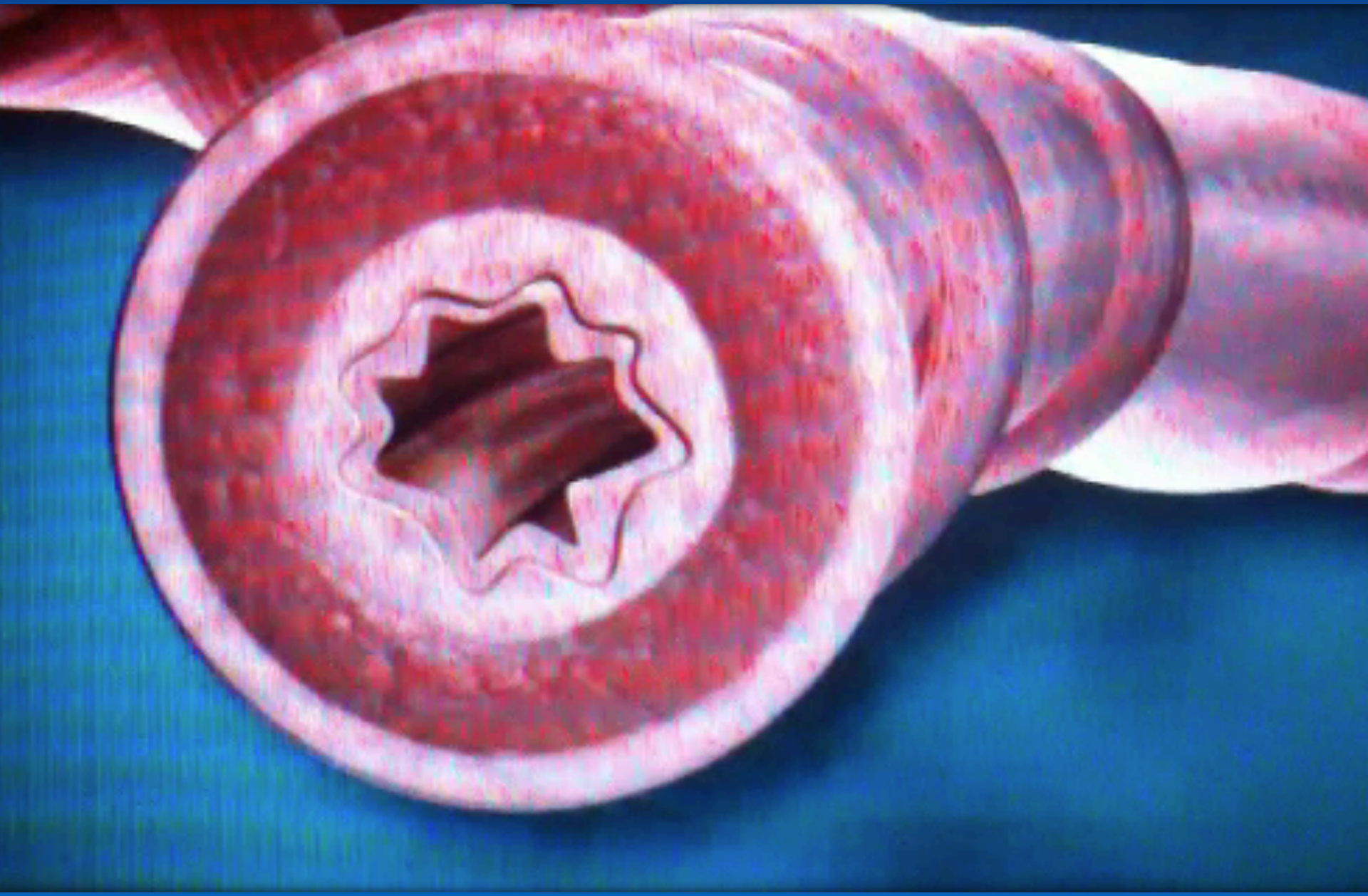
Bronchial Thermoplasty for Asthma

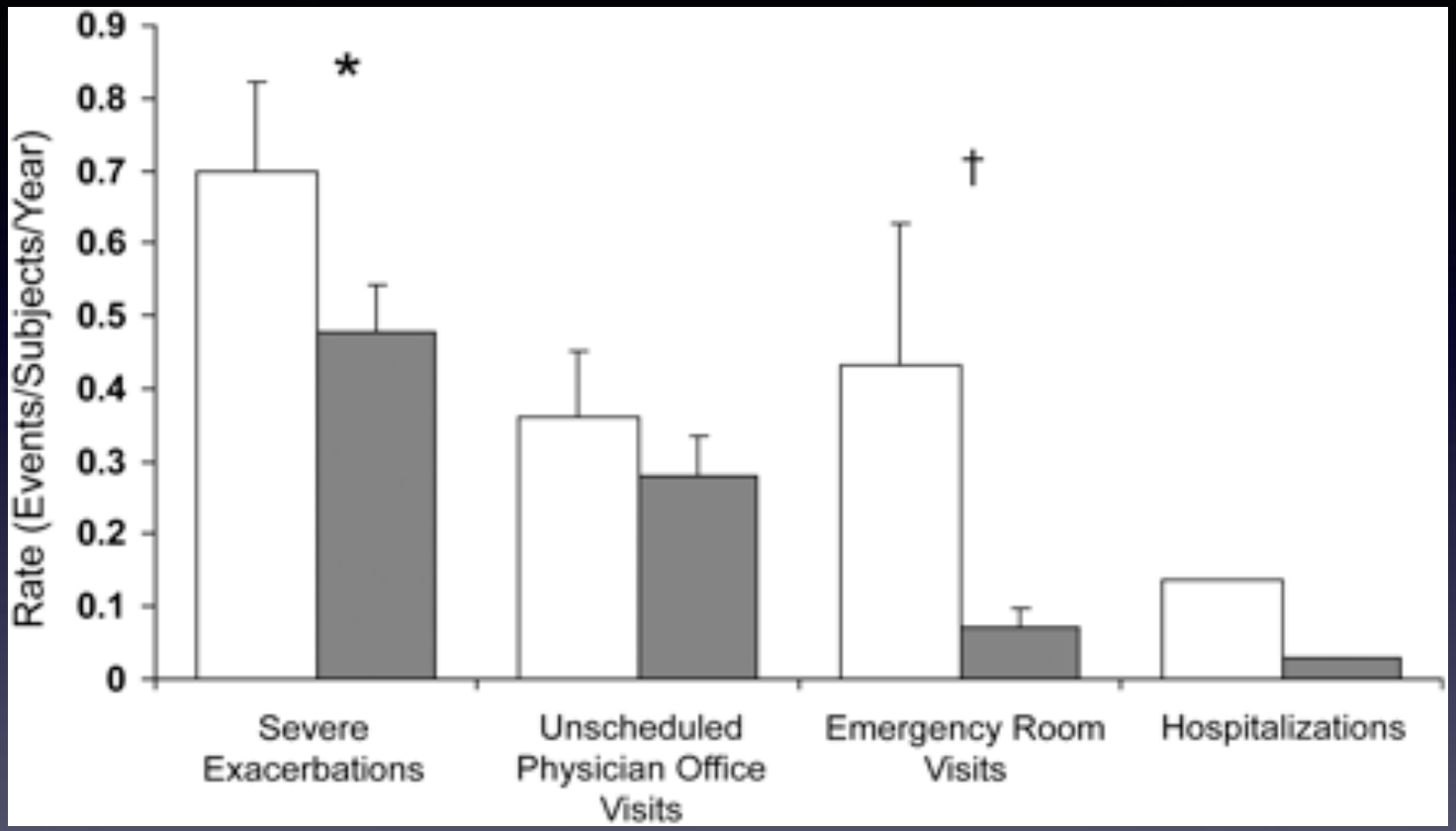






BRONCHIAL THERMOPLASTY




Rate (Events/Subjects/Year)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
*
†
Severe Exacerbations
Unscheduled Physician Office Visits
Emergency Room Visits
Hospitalizations

Summary: Bronchial Thermoplasty

- Safe in moderate, severe and severe refractory asthma
- Improves asthma symptom scores
- Improves peak flow (but not FEV_1)
- Reduces exacerbations
- Reduces use of bronchodilators

ANTI-INFLAMMATORY EFFECT BY AERO-ALLERGEN AVOIDANCE

Many patients who have perennial atopic asthma remain poorly controlled despite the use of high intensity pharmacotherapy

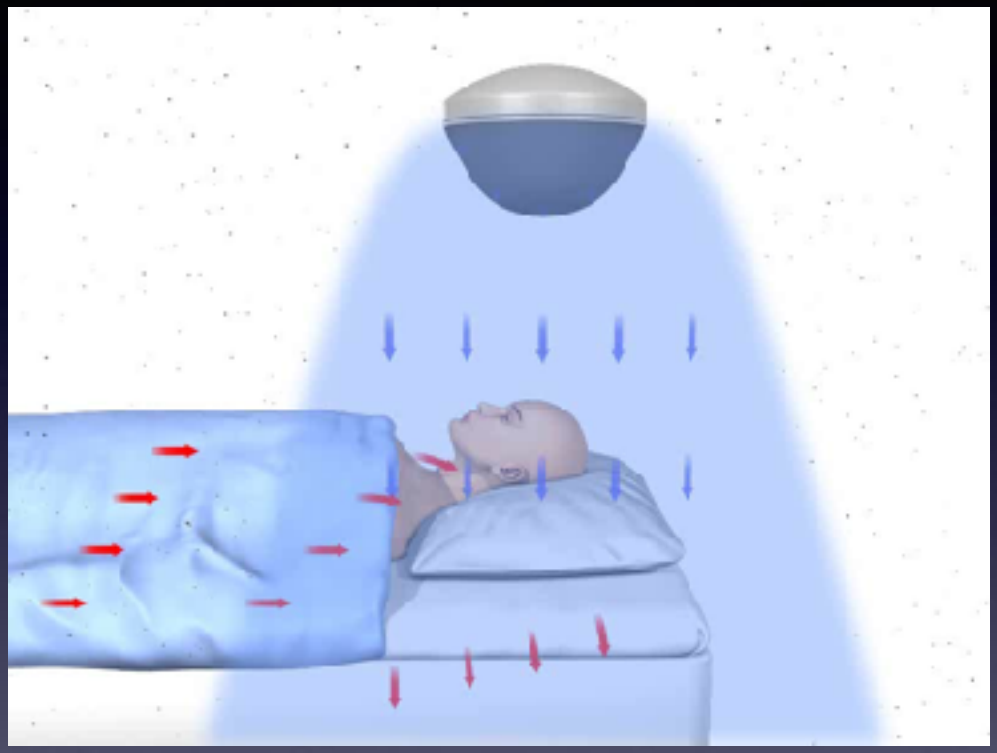
At long last there is now a product which can reduce exposure to indoor aeroallergens (house dust mite, cat, dog, mould, etc) sufficient enough to reduce inflammation and have a significant clinical effect

SIZE OF EXCLUSION ZONE

THE ANSWER

Temperature controlled laminar airflow (TLA) focused on the breathing zone of the sleeping patient

Filtered and slightly cooled laminar airflow descends by gravity and breaks the body convection current pushing away the warm air and the aero-allergens within it



Deaths in Asthma

- In us 4000 deaths per year
- 1,400 deaths in UK per year

Deaths in Asthma

- Females
- Long standing Asthma
- Overuse of Beta Agonists
- Brittle Asthma marked PEF fluctuations
- Steroid dependant Asthma, Fungal sensitive Asthma
- Previous admission with very severe Asthma
- Psychosocial problems, Psychoactive drugs
- Poor understanding, compliance with medications and follow up

Asthma Deaths

- Continues to occur but in 70% of patients remains preventable
- Confidential Inquiries in Asthma death have shown due to under-appreciation of the severity without PEF s, Underuse of Oral Steroids, overuse of inhaled Beta 2 agonists and delay

YOUR ASTHMA IS UNDER CONTROL

- If you are active daily & can sleep through the night
- Need fewer than 4 DOSES OF QUICK RELIEF medication per week
- Are FREE of wheeze, cough and SOB
- Achieve an acceptable PEAK FLOW

PATIENT EDUCATION:

- Asthma management plan for patients
- Clear instruction to step-up treatment when needed
- Education about the role of different inhalers especially reliever and preventer inhalers
- Not to fluctuate with treatment in rapid succession
- Step up or down according to symptoms control

Smoking in Asthma

SMOKING

- Offer help to stop smoking at every opportunity
- Combine pharmacotherapy with appropriate support as part of a programme

Asthma Action Plan

Name---------- Date-------

Personal best PEFR-------Todays Peak Flow-------

- Green-This is where you should be everyday. No symptoms of Asthma, usual activities. No Asthma related sleep problems PEFR 80-100%----------
- You need medicines to keep you in this zone Quick reliever ----------as needed Long acting reliever----------maximum 2 times per day Controller ----------every day

Yellow Medical Alert

- Caution you are having an Asthma attack you may be coughing, wheezing and breathless. Sleep affected and might not be able to do usual activities
- Peak Flow between 50-80%----------
  1-Check you Peak Flow
  2-Take 2-4 puffs of your quick reliever inhaler---------you can repeat this treatment in 20 mins and another in 20 mins(12 puffs in 1hr) Check Peak flow again assess the response as below

Good response

- Peak Flow 80% or more stays high 4hrs
- Decrease in SOB,Cough continues to feel better for 4 hours
- Treatment-Continue with reliever medication when required long term reliever twice a day

Not so good response

Peak Flow 50-80%
still SOB, coughing wheezing Feeling better for less than 4 hours
Treatment-Continue quick reliever medications
If you have a home Nebuliser than start insted of inhalers
Add or continue these medications--------

COME TO THE OFFICE TODAY

Poor response
Red Medical Alert

- This is an emergency
- You may be coughing, very short of breath, unable to walk or talk easily,may or may not be wheezing
- Above treatment is not helping much or not for long
- Peak Flow less than 50%----------
- CONTINUE YOUR MEDICINES & GET HELP RIGHT AWAY

ASTHMA ACTION PLAN

- Vaccines
- Antibiotics pack
- 2 Weeks Steroid pack
- Peak Flow Measurements

Education to Asthmatics who do not respond well to conventional treatment

Nature of disease

Allergen or Trigger avoidance

Nature of Treatment

Rationale-bronchdilators
Reasons of usage of regular medications and follow ups

Self Management plans

Use of Treatments

Instruction on the use of an inhaler
Instruction on the use PEFR

Self Monitoring

Identification of goals
Asthma action plan
Recognition and actions for exacerbations

Cough

Acute Cough

- Lasting < 3 weeks
- most commonly - viral URTI
- common symptom in acute exacerbations of asthma & COPD

Chronic Cough

- Lasting > 8 weeks
- significant sputum production may indicate primary lung pathology

Normal duration of cough

- 78% at least 1 week
- 58% at least 2 weeks
- 35% at least 3 weeks

Jones BF et al. Aust Fam Physician 2002;31:971-3

Types of Cough

- Dry Cough, Tickly cough
- Chesty cough

Dry cough

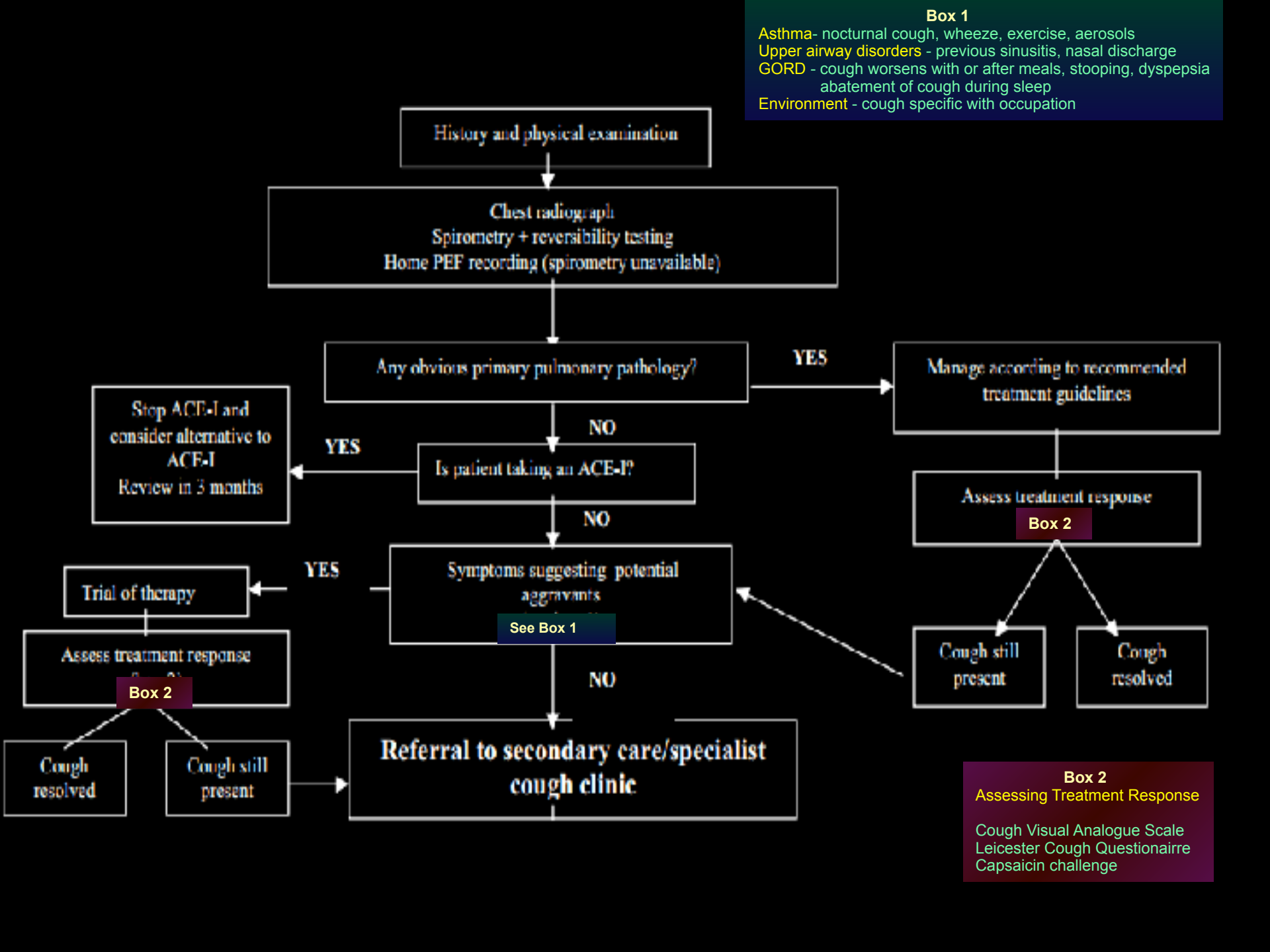
- Viral infection
- Allergies
- Air Pollutants
- Acid Reflex
- Medicines-ACE Inhibitors
- Psychological conditions
- Nerves and Stress

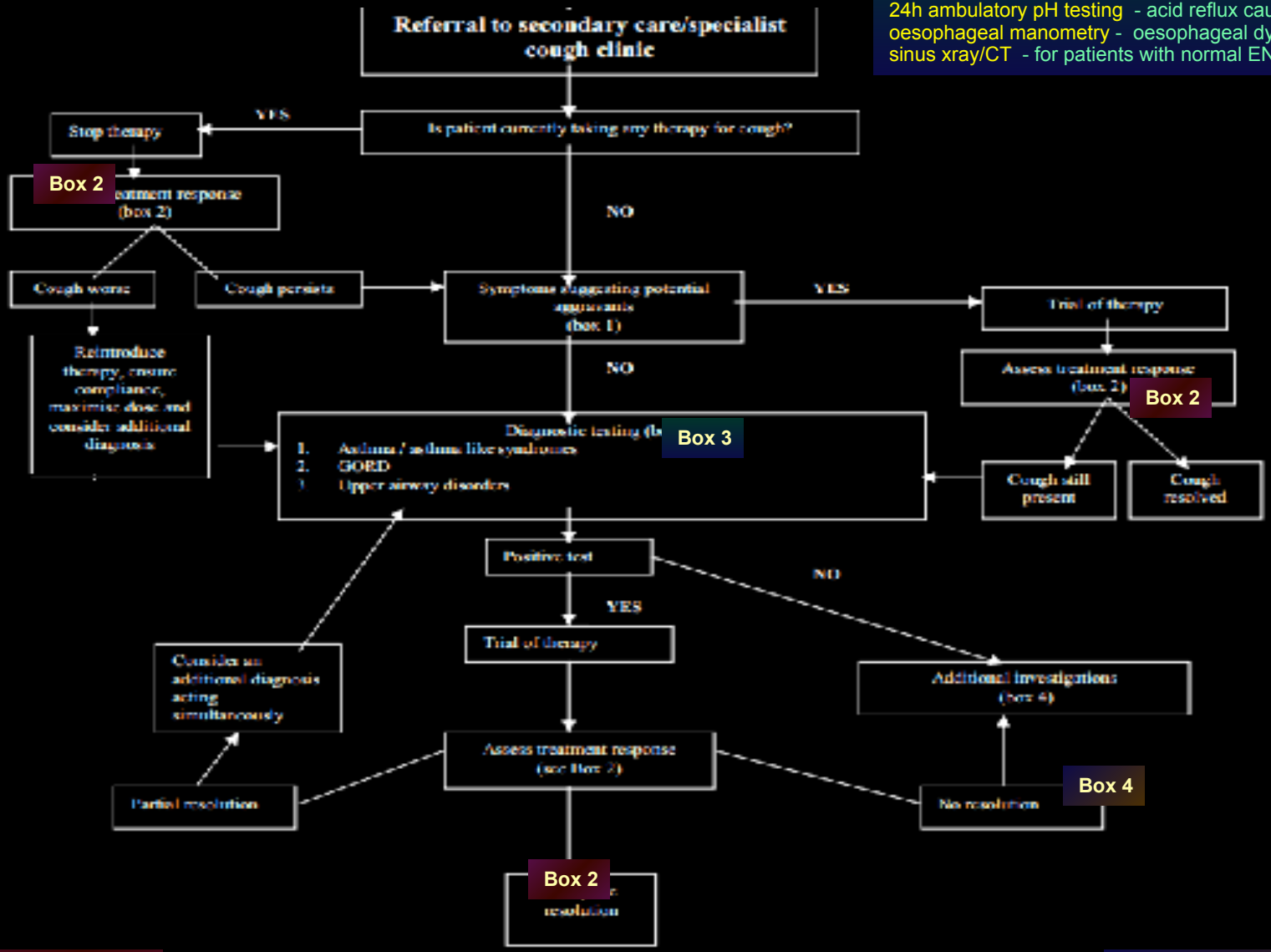
Unexplained Cough but X-Ray NAD

- Intractable difficult cough-persistent or on / off
- Duration-years / months
- Winter/Summer-Wheezing/Breathless/Nasal blockage,Indigestion
- Time of worsening / Dizziness / Blackouts / Incontinence
- Hay fever/Asthma /Allergies
- Drug history-tablets, Inhalers
- Smokers
- Pets i.e Cats

Chronic Persistent 8 weeks cough

- Pertusis
- FB
- Lung cancer
- TB
- Bronchiectasis, COPD, Upper Airways syndrome, Ashma, ILD


Box 1
Asthma- nocturnal cough, wheeze, exercise, aerosols
Upper airway disorders - previous sinusitis, nasal discharge
GORD - cough worsens with or after meals, stooping, dyspepsia
abatement of cough during sleep
Environment - cough specific with occupation
History and physical examination
Chest radiograph
Spirometry + reversibility testing
Home PEF recording (spirometry unavailable)
Any obvious primary pulmonary pathology?
YES
Manage according to recommended treatment guidelines
NO
Is patient taking an ACE-I?
YES
Stop ACE-I and consider alternative to ACE-I
Review in 3 months
NO
Assess treatment response
Box 2
Symptoms suggesting potential aggravants
See Box 1
YES
Trial of therapy
Assess treatment response
Box 2
Cough still present
Cough resolved
NO
Cough resolved
Cough still present
Referral to secondary care/specialist cough clinic
Box 2
Assessing Treatment Response
Cough Visual Analogue Scale
Leicester Cough Questionairre
Capsaicin challenge



Box 3

Bronchial provocation (methacoline) +ve test = Asthma
Induced sputum analysis - eosinophilic bronchitis
24h ambulatory pH testing - acid reflux causes
oesophageal manometry - oesophageal dysmotility
sinus xray/CT - for patients with normal ENT

Box 2

Assessing Treatment Response

Cough Visual Analogue Scale
Leicester Cough Questionairre
Capsaicin challenge

Box 4

Additional Investigation
High Res CT
Fibrooptic brochoscopy
Psychiatric appraisal
Cardiac ECHO

Cough Treatment

- Honey & Lemon
- Dextromethorphan-Actafid, Benylin, Sudafed Linctus
- Menthol-Benylin, Vicks
- Sedative Antihistamines
- Codeine / Pholcodine
- Opiates

Interesting cases

Interesting real cases
Case no: 1

- 38 year old asthmatic, increasingly sob for 6-8 weeks already on Symbicort, Montelukast recent trial of Prednisolone and on Uniphyllin
- CXR Lt lower lobe collapse
- What investigations are needed
- what treatment strategies could help

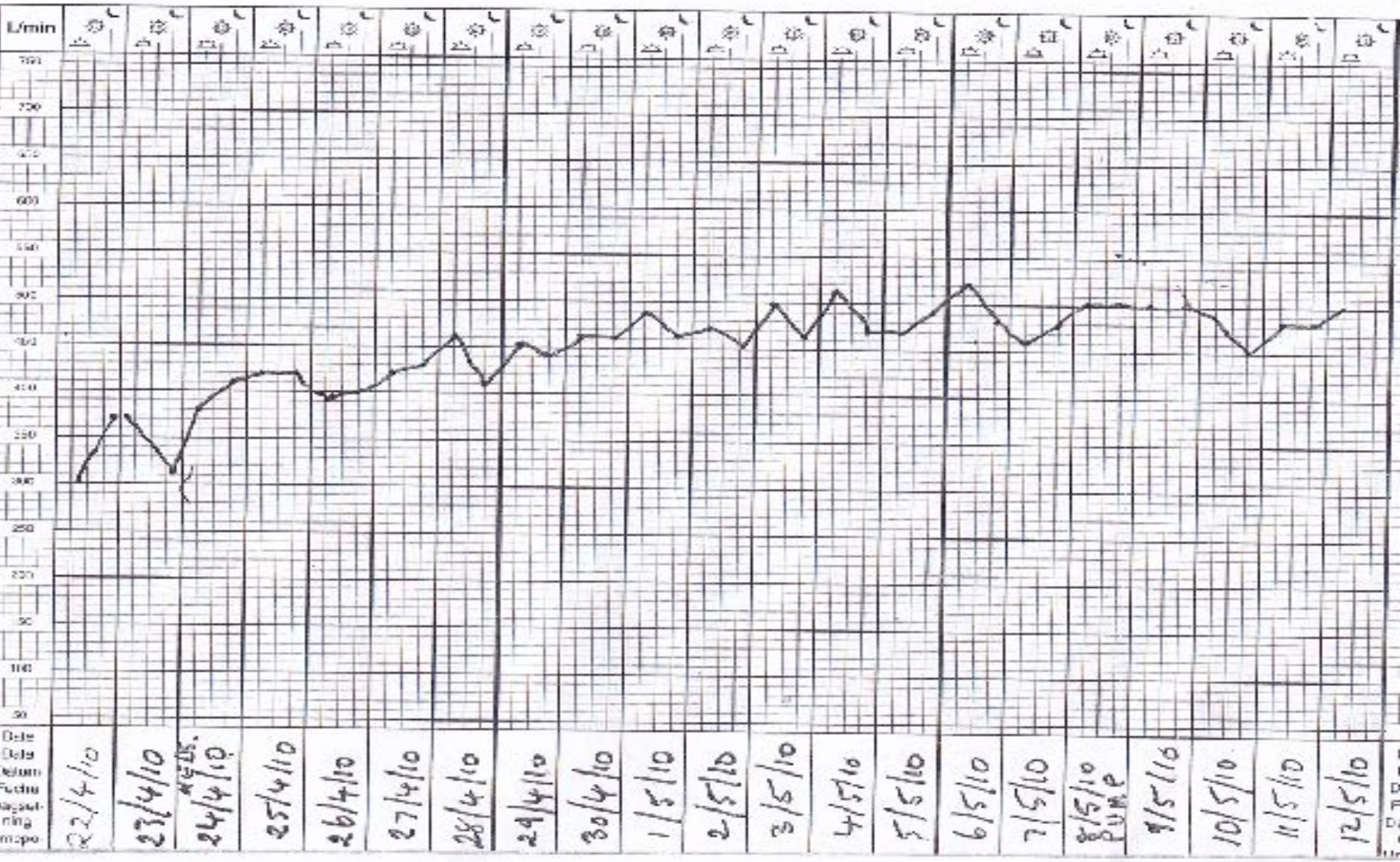
Proposed investigations

- FBC
- IgE
- Aspergillus Precepitans
- CT Chest
- Bronchoscopy

Difficult real cases / problems no-2

- 28 lady with intractable cough for 4 months
- Post Nasal dripping, indigestion symptoms on Lisinopril treatment for 4 months on Timolol Eye drop treatment for similar time period
- Wheezing, sob on talking laughing moving from a warm room to a cold room

PEFR Chartings



Case No-3

- 38 year old lady with intractable cough for 12 weeks, Slight SOB on exertion, no response to Inhaler treatment, no GORD, no post nasal dripping
- O/E: Chest clear but upper airways noise transmitted, heard at neck auscultations all investigations including Spirometry were normal
- Cough continues and worse during examination
- What is the diagnosis and how could we manage this case

Case No 4

- 29 year old Asthmatic patient seen at home with cough, SOB and wheeze, agitated and fidgety.
- H/R 110/mins, BP=100/60, clear chest
- R/R 25/min, PEFR 200L/min best PEFR 550L/min
- How will you manage this patient

Take home messages

Deaths in young Asthmatics are avoidable & should not happen

In most asthmatics, total disease control is a realistic aim (but hard work!)

In an important minority, total control is not possible with current anti-asthma drugs (problem….?)

The fact that many asthmatics report less than total control most likely reflects under treatment and/or poor compliance

Where possible use appropriate treatment by stepping up or down remembering combined products – greater control and better patient satisfaction.

Thanks to

- Dr Leon D Cruz Research Fellow Cardiff University
- Sarah Jane Reed Lung Physiologist Medway Hospital
- Krupa Patel Airsonett
- Dr Alan Croft Regional Director, Circassia
- Phizer, Bayer, Teva, Napp, BMS
- Somerfield Hospital, Spires Alexandra Hospital Chatham
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