IPCRG 2020: Weekly Series of Hot Topic
Clinical Practice Webinars & Abstract Presentations

A very warm IPCRG welcome to the 5th Hot Topic Webinar

Breathing and feeling well through universal access to right care

Today's Agenda

1500hrs BST	**Welcome and Introductions** Janwillem Kocks, President Elect IPCRG
1505hrs	**COVID-19** & the Challenges of Diagnosing Asthma in adults & children ***Presenters: Luke Daines, UK & Jim Stout, USA***
1535hrs	**Discussion with your questions**
1550hrs	**Video, Tai Chi & Comfort Break**
1600hrs	**Oral Abstract Presentations**
1715hrs	**Closing Remarks** Janwillem Kocks, President Elect IPCRG

Oral Abstract Presentations

1. **Effectiveness and acceptability of a smart inhaler asthma self-management programme: A cluster RCT study protocol** Susanne van de Hei, Netherlands
2. **The sensitivity and specificity of specific IgE in diagnosing asthma** Janwillem Kocks, Netherlands
3. **Informing the development of asthma review templates: A mixed-studies systematic review of long-term condition review templates in clinical consultations** Kirstie McClatchey, UK
4. **Efficacy and Safety of Indacaterol/Glycopyrronium/ Mometasone Furoate in Patients with Uncontrolled Asthma: The Phase III IRIDIUM Study** Huib Kerstjens, Netherlands
5. **Lung function Improvement and Asthma Exacerbation Reduction with Indacaterol/ Glycopyrronium/ Mometasone Furoate in Uncontrolled Asthma: IRIDIUM Study** Alberto Papi, Italy
6. **Indacaterol/Mometasone Furoate Fixed-dose Combination vs Salmeterol/Fluticasone in Uncontrolled Asthma: Results of PALLADIUM and IRIDIUM Studies** Kenneth Chapman, Canada
7. **Efficacy And Safety Of Indacaterol/Glycopyrronium/ Mometasone Furoate Versus Salmeterol/Fluticasone Plus Tiotropium In Uncontrolled Asthma: The ARGON Study** Richard van Zyl-Smit, South Africa

Presentation 1

Luke Daines, UK

COVID-19 & the challenges of diagnosing asthma in adults in primary care

Dr Luke Daines
CSO Academic Clinical Fellow, University of Edinburgh, UK
GP, Covid Telephone Triage Hub, NHS Lothian, Scotland

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Breathing and feeling well through universal access to right care

Conflicts of interest

- Member of the BTS/SIGN asthma guideline development group (2019)

Outline

- Mis-diagnosis of asthma
- Why is making an accurate diagnosis of asthma challenging?
- Achieving a diagnosis of asthma
- Trial of treatment and follow up
- Challenges in assessment due to Covid-19
- Providing good patient experience

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

Providing good patient experience

Misdiagnosis

Underdiagnosis

Overdiagnosis

Retrospective study of routinely collected health data* (Netherlands)

53.5% of the 652 children were over diagnosed:

- –5 children had no asthma
- –344 children unlikely to have asthma.

Prospective multicentre cohort study** (Canada) of adults recruited from the community who had been diagnosed with asthma within 5 years

33.1% of the 613 had no evidence of current asthma.

- – After a further 12 months 181 continued to have no features of asthma

Levy and Bell Br Med J (Clin Res Ed) 1984; Van Schayck and Chavannes ERJ 2003

*Loojmans van den Akker, BJGP, 2016; **Aaron *et al*., JAMA 2017

Consequences of misdiagnosis

Under-diagnosis

- Lack of treatment
- Untreated symptoms, reduced quality of life
- Avoidable mortality

Over-diagnosis

- Wrong / unnecessary treatment
- Side effects / untreated symptoms
- Cost of medication

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

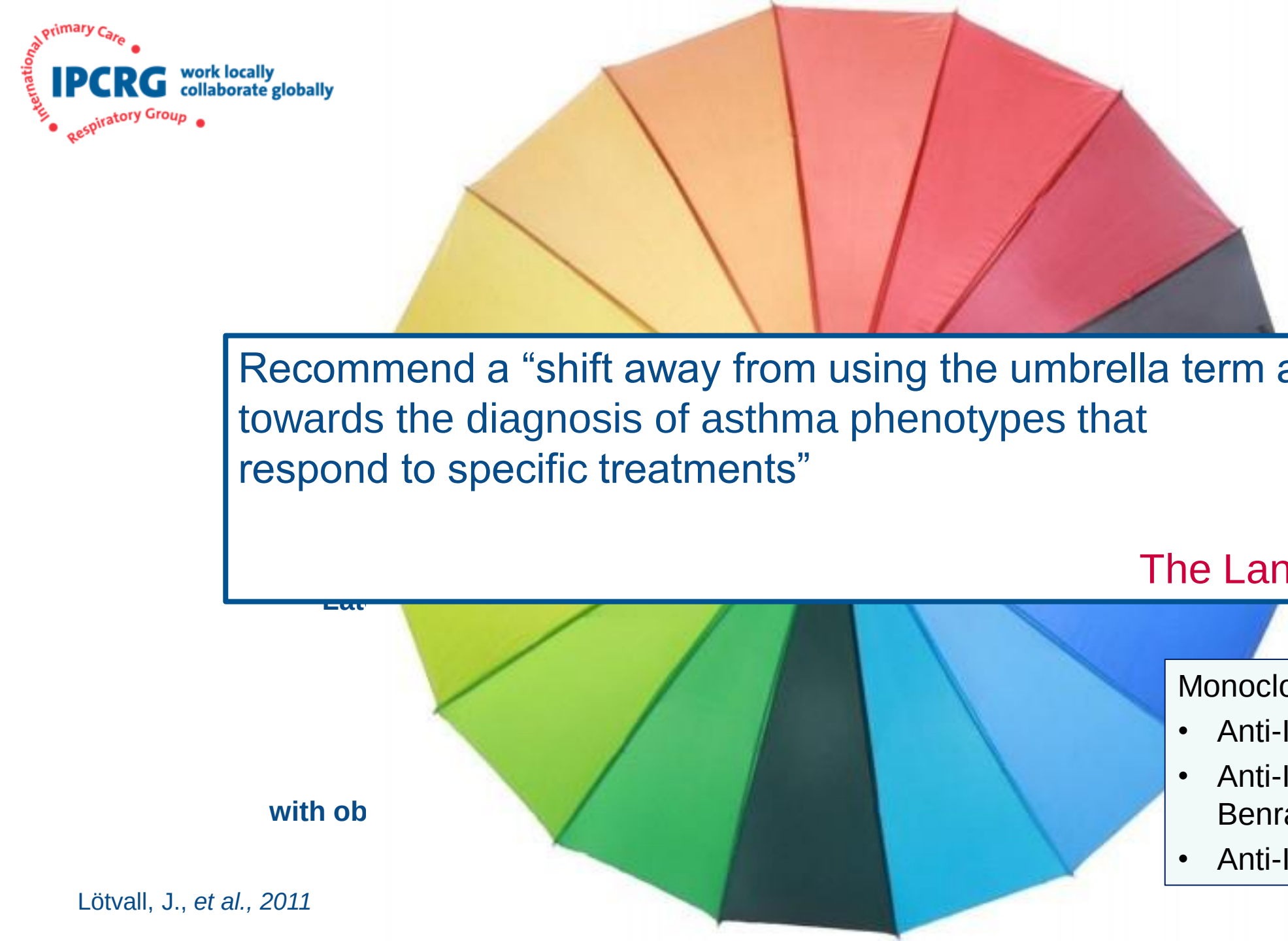
Providing good patient experience

1. Asthma is not a single disease
2. There is no ‘gold’ standard test
3. No ‘best’ approach for diagnosing asthma

Asthma is not a single disease

"Asthma is a heterogeneous disease, with different underlying disease processes. Recognizable clusters of demographic, clinical and/or pathophysiological characteristics are often called 'asthma phenotypes'…"

GINA 2020



Recommend a “shift away from using the umbrella term asthma towards the diagnosis of asthma phenotypes that respond to specific treatments”

The Lancet Asthma Commiss

Eat

with ob

Monoclonal antibodies

- Anti-IgE: Omalizumab
- Anti-IL5: Mepolizumab, Benralizumab & Reslizumab
- Anti-IL4 & IL13: Dupilimab

Lötvall, J., *et al., 2011*

There is no ‘gold standard’ test

”The absence of a ‘gold standard’ test makes it difficult to confirm or refute the diagnosis of asthma.

Investigations can determine key features of asthma, but all have limitations.

Consequently, the diagnosis of asthma is often made clinically.

BTS/SIGN Asthma Guideline 2019

No definitive evidence for the ‘best’ way to diagnose asthma

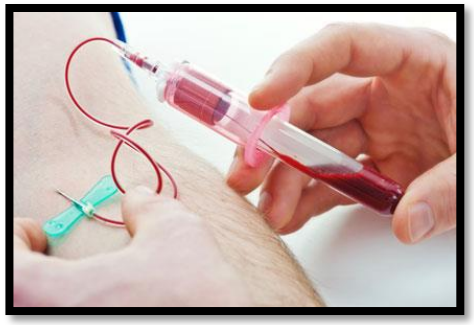
On the one hand…

Test before treatment
“move away from the current no-test culture in clinical practice”

The Lancet Asthma Commission 2017

Diagnosing asthma without testing for airflow obstruction is like diagnosing diabetes without testing a patients blood sugar

Professor Shawn Aaron
ERS Congress 2017



No definitive evidence for the ‘best’ way to diagnose asthma

On the other hand…

Asthma status and the outcome of diagnostic tests can vary over time

- A key feature of an episodic disease
- Explains the often negative tests (especially in primary care)
- ‘Active’ and ‘inactive’ asthma

Individual tests influence the probability of asthma but do not prove a diagnosis

No definitive evidence for the ‘best’ way to diagnose asthma

The situation is complicated by different availability of tests!

“I have a spirometer in my office and […] I love to d

in a week
have to wait
tient] would
, it depends

“We don’t h
have very l
if I have a patient at the clinic presenting with wheezing and some degree of asthma history, the aim is to provide a treatment so that they can go home better rather than really getting the diagnosis”

Each professional had developed strategies for diagnostic investigation in the context that they worked

Daines *et al*., 2020 BMJ Open

Poll Question: Spirometry availability

Q: How soon would you be able to gain spirometry for a patient presenting with symptoms of asthma? (prior to covid-19)

1. On the day of presentation
2. Within a week of presentation
3. Within 2 weeks of presentation
4. Within a month of presentation
5. More than a month
6. Unable to access spirometry

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

Providing good patient experience

Clinical assessment

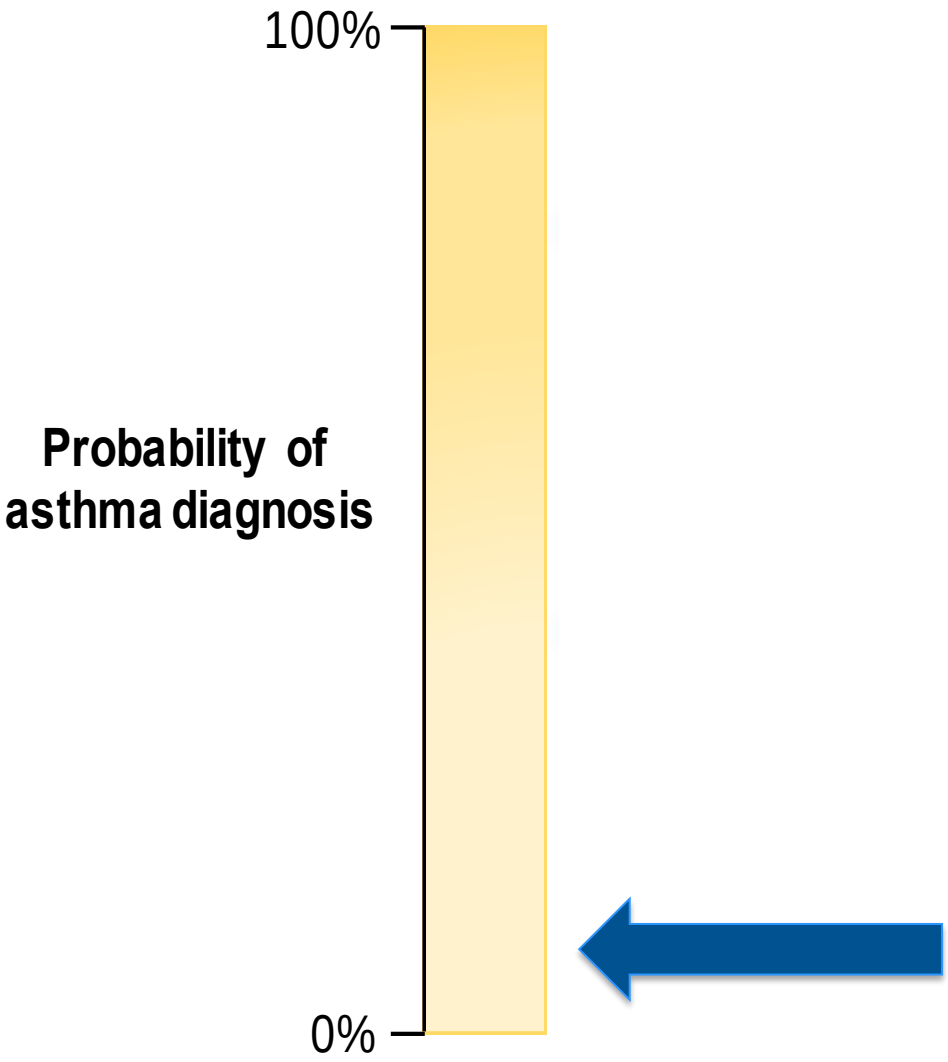
Confirmation

Structured clinical assessment

- Symptoms of wheeze, cough, breathlessness and chest tightness that vary over time and in intensity
- Recurrent episodes (attacks) of symptoms
- Symptoms triggered by exercise, allergen exposure, viral infections
- Personal/family history of other atopic conditions

Not just about the history

- All available information including previous clinical records
- Recorded observation of wheeze heard by a professional?
- Past lung function measurements or allergy testing?


100%
Probability of asthma diagnosis
0%

Annete

Age: 61 years

Cough and sputum

Progressively worsening breathlessness

Lifelong smoker

Alternative diagnosis more likely

GLOBAL INITIATIVE FOR ASTHMA

Patient with respiratory symptoms
Are symptoms typical of asthma?

Yes

Detailed history/exam for asthma
History/exam supports asthma diagnosis?

No

No

Further history/ tests for alternative diagnoses

Alternative diagnosis confirmed?

Yes

Treat for alternative diagnosis

Sarah

Age: 22 years

Wheeze, breathless, cough, tight chest

Episodic symptoms, triggered by pollen

Asymptomatic between episodes

Never-smoker

Asthma is probable

Khalil

Age: 39 years

Persistent cough - no diurnal pattern

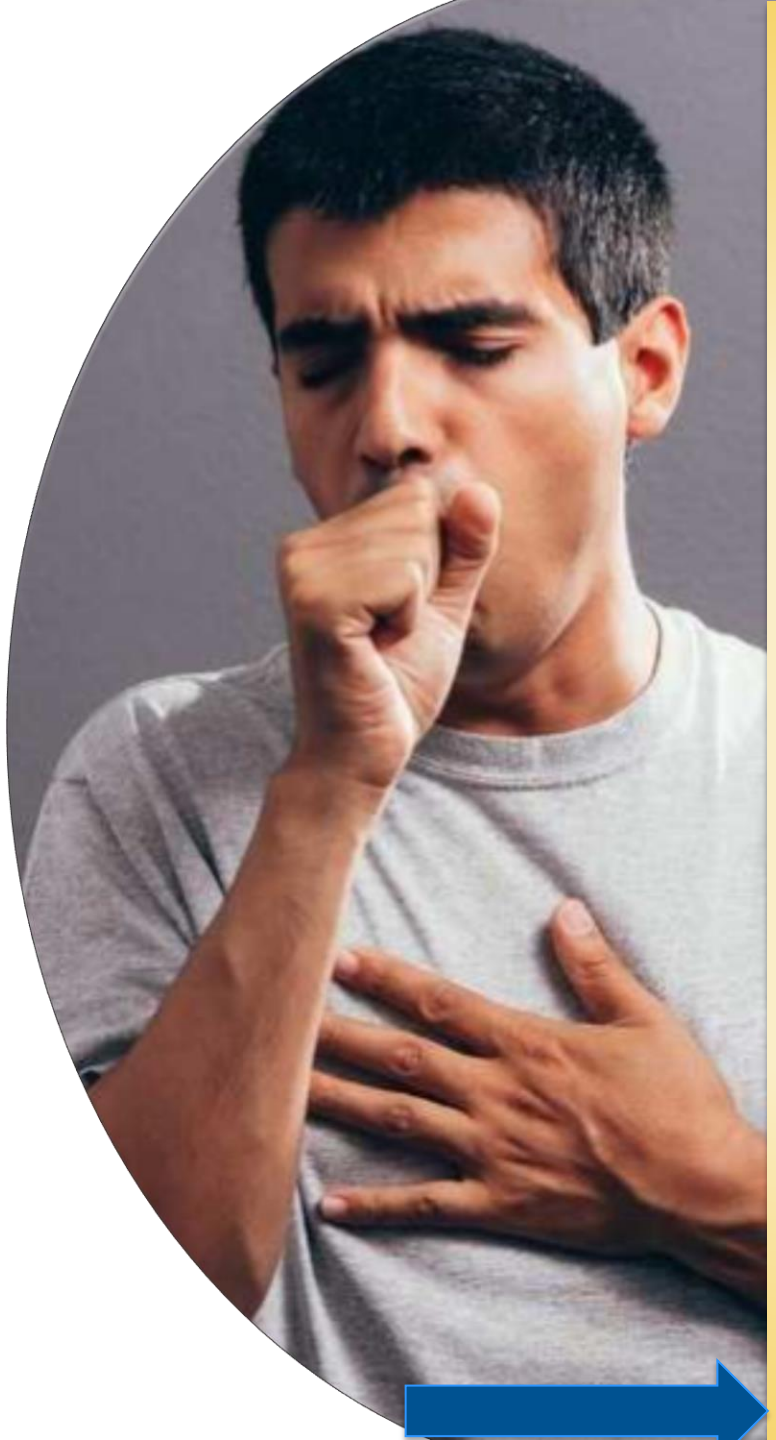
Not breathless. No wheeze.

Eczema as child

Smoked cigarettes rarely as a student

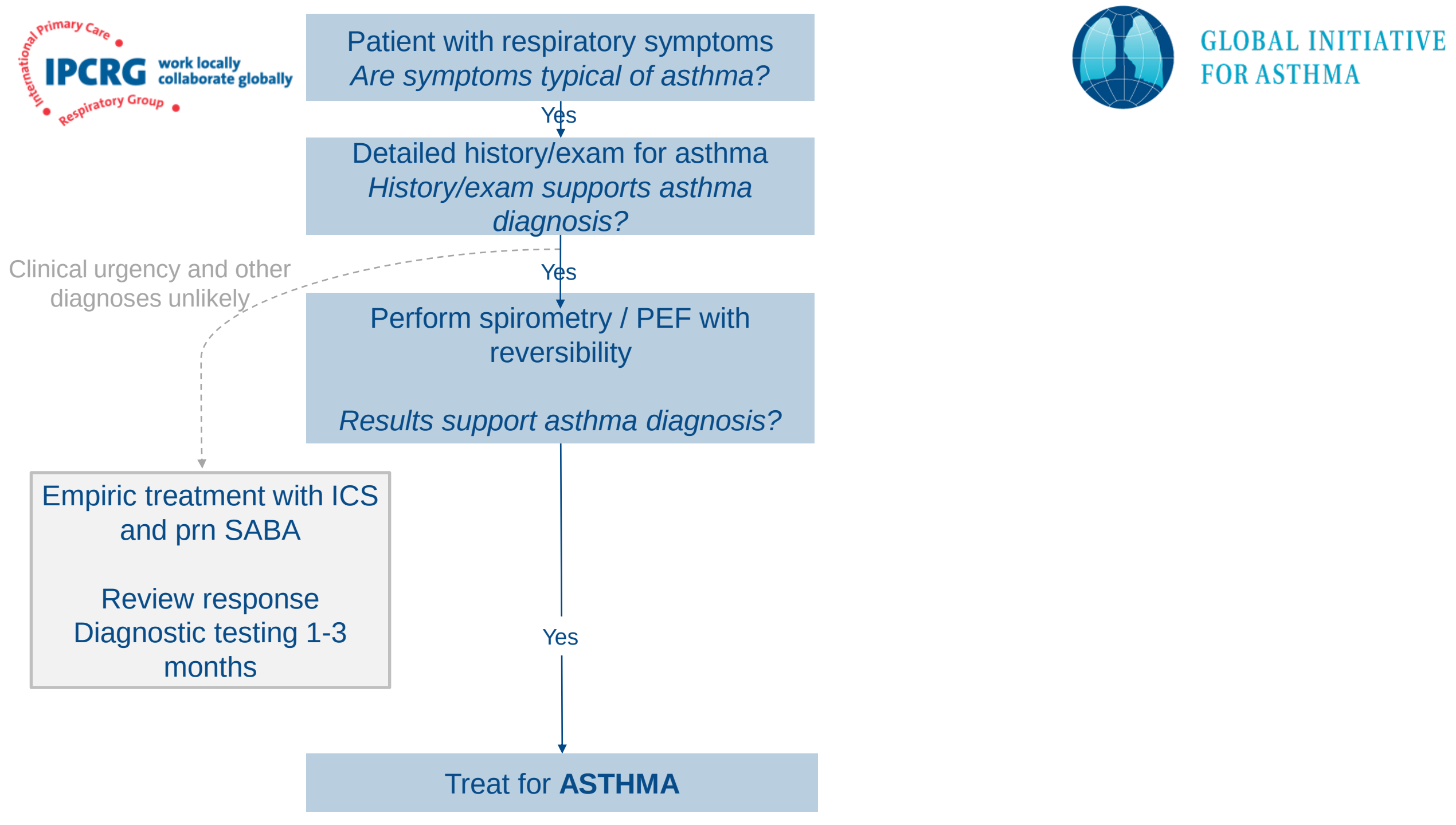
Otherwise healthy

Asthma is possible



Clinical assessment

Confirmation


Patient with respiratory symptoms
Are symptoms typical of asthma?
Yes
Detailed history/exam for asthma
History/exam supports asthma diagnosis?
Clinical urgency and other diagnoses unlikely
Yes
Perform spirometry / PEF with reversibility
Results support asthma diagnosis?
Empiric treatment with ICS and prn SABA
Review response
Diagnostic testing 1-3 months
Yes
Treat for ASTHMA

International Primary Care Respiratory Group
IPCRG work locally collaborate globally

GLOBAL INITIATIVE FOR ASTHMA

Patient with respiratory symptoms
Are symptoms typical of asthma?

Yes

Detailed history/exam for asthma
History/exam supports asthma diagnosis?

Yes

Perform spirometry / PEF with reversibility

Results support asthma diagnosis?

No → Repeat on other occasion or arrange other tests
Confirms asthma diagnosis?

Yes ←

No

Consider trial of treatment for most likely diagnosis, or refer for further tests

Treat for **ASTHMA**

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

Providing good patient experience

Trial of treatment

The concept of a ‘trial of treatment’ has been criticised as potentially leading to commencement of lifelong treatment without a clear diagnosis.

- ✓ Use an inhaled corticosteroid
- ✓ Review after 6-8 weeks. Use a clinical questionnaire to assess asthma symptoms (e.g. ACT or ACQ)
- ✓ Was the improvement a coincidence? Stop the treatment and re-assess. If symptoms re-occur the diagnosis is likely.

Daines *et al*., 2020 BMJ Open

Follow up

Being able to review a patient felt to be crucial in confirming (or changing) a diagnosis…

…but, ensuring the review of individuals can be challenging

- ✓ Use a suspected asthma code to identify that the diagnosis is unconfirmed
- ✓ Once confirmed, record the basis for the diagnosis in the medical record

Daines *et al*., 2020 BMJ Open

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

Providing good patient experience

Challenges in assessment due to Covid-19

(Greater reliance on remote consulting)

Clinical assessment

Confirmation

Challenges in assessment due to Covid-19

Largely achievable

- ✓ Medical record available
- ✓ Structured history
- ✗ Examination

✓ Clinical assessment

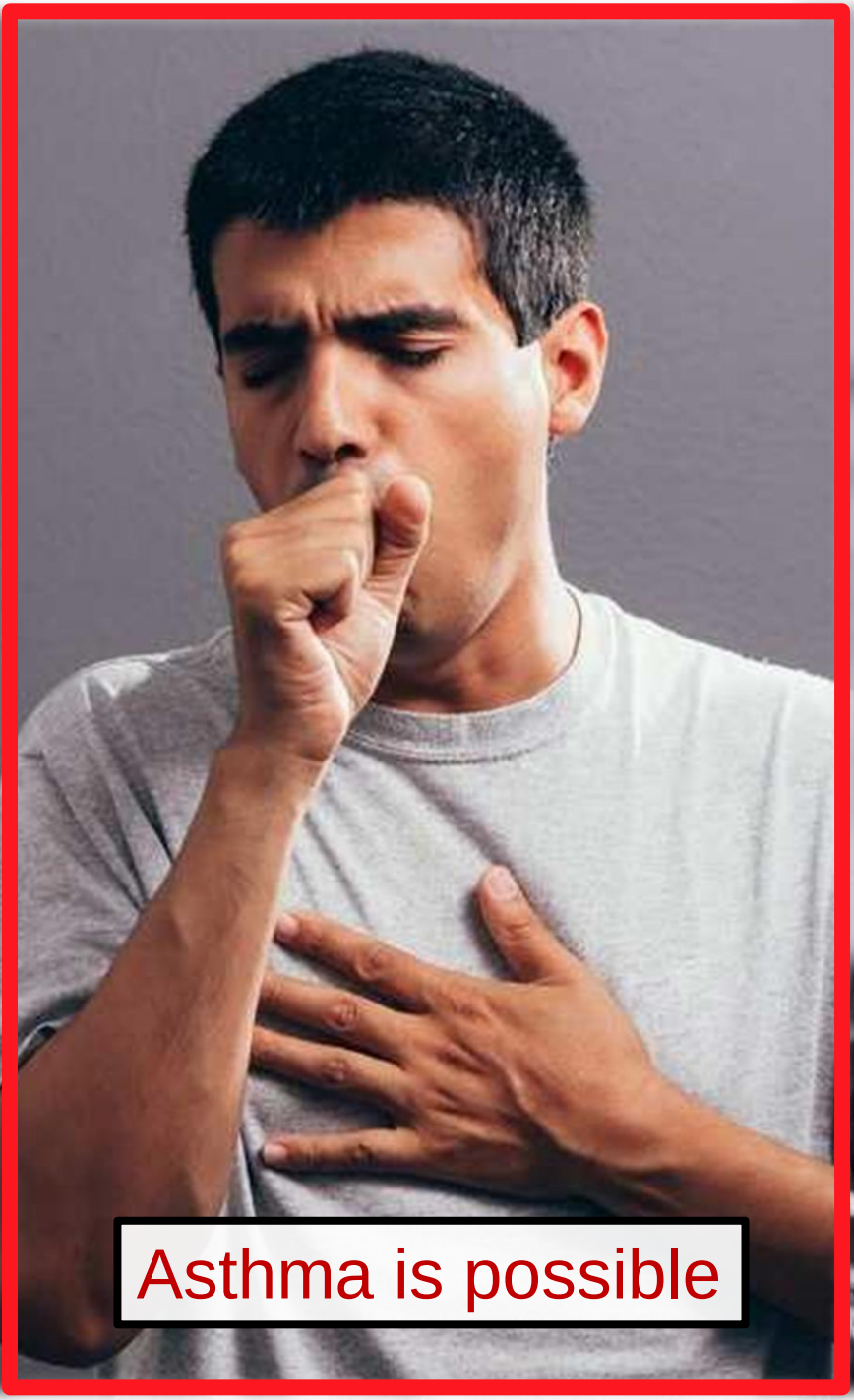
Confirmation

Alterations likely

- ? Spirometry
- ? FeNO

- ✓ Peak expiratory flow
- ✓ Clinical Questionnaires
- ✓ Trial of treatment


Asthma is probable


Asthma is possible


Asthma unlikely

Outline

Mis-diagnosis of asthma

Why is making an accurate diagnosis of asthma challenging?

Achieving a diagnosis of asthma

Trial of treatment and follow up

Challenges in assessment due to Covid-19

Providing good patient experience

Diagnosis uncertainty shapes patient experience

Pulm Ther (2019) 5:97–102
https://doi.org/10.1007/s41030-019-0094-x

COMMENTARY

Why Is It Difficult to Diagnose My C
A Patient Physician Perspective of A
Management

Kerri Jones · Prasad Nagakumar · Satish Rao

What caused this?

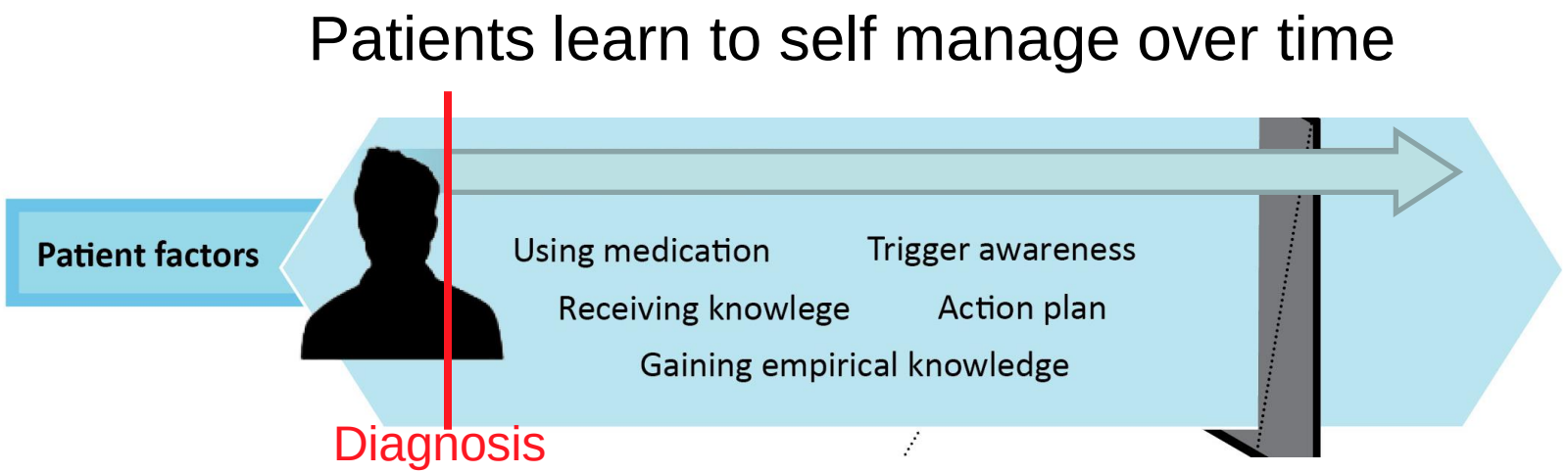
How long will it last?

What should I look out for?

I just want to feel better

How do I use that thing?

Diagnosis a ‘window of opportunity’



“We also said that receiving information should always start sooner, you know that the valuable time is probably the first 3 months after you’ve been diagnosed.” Participant 23

Daines *et al.*, *BJGP*, 2020

Conclusions

- Build up evidence for an asthma diagnosis using a structured clinical assessment
- A diagnosis of asthma often takes time to confirm
- Objective evidence to support an asthma diagnosis should ideally be sought however likely the diagnosis appears to be
- Considering a trial of treatment? Have a clear structure and use a suspected code
- Diagnosis provides a ‘window of opportunity’ for patient learning

COVID-19 & the challenges of diagnosing asthma in adults in primary care

Any questions?

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Breathing and feeling well through universal access to right care

Presentation 2

Jim Stout, USA

COVID-19 and the Challenges of Diagnosing Asthma in Children in Primary Care

James W. Stout MD MPH

Professor of Pediatrics

University of Washington, Seattle WA

Pediatrician

Odessa Brown Children's Clinic

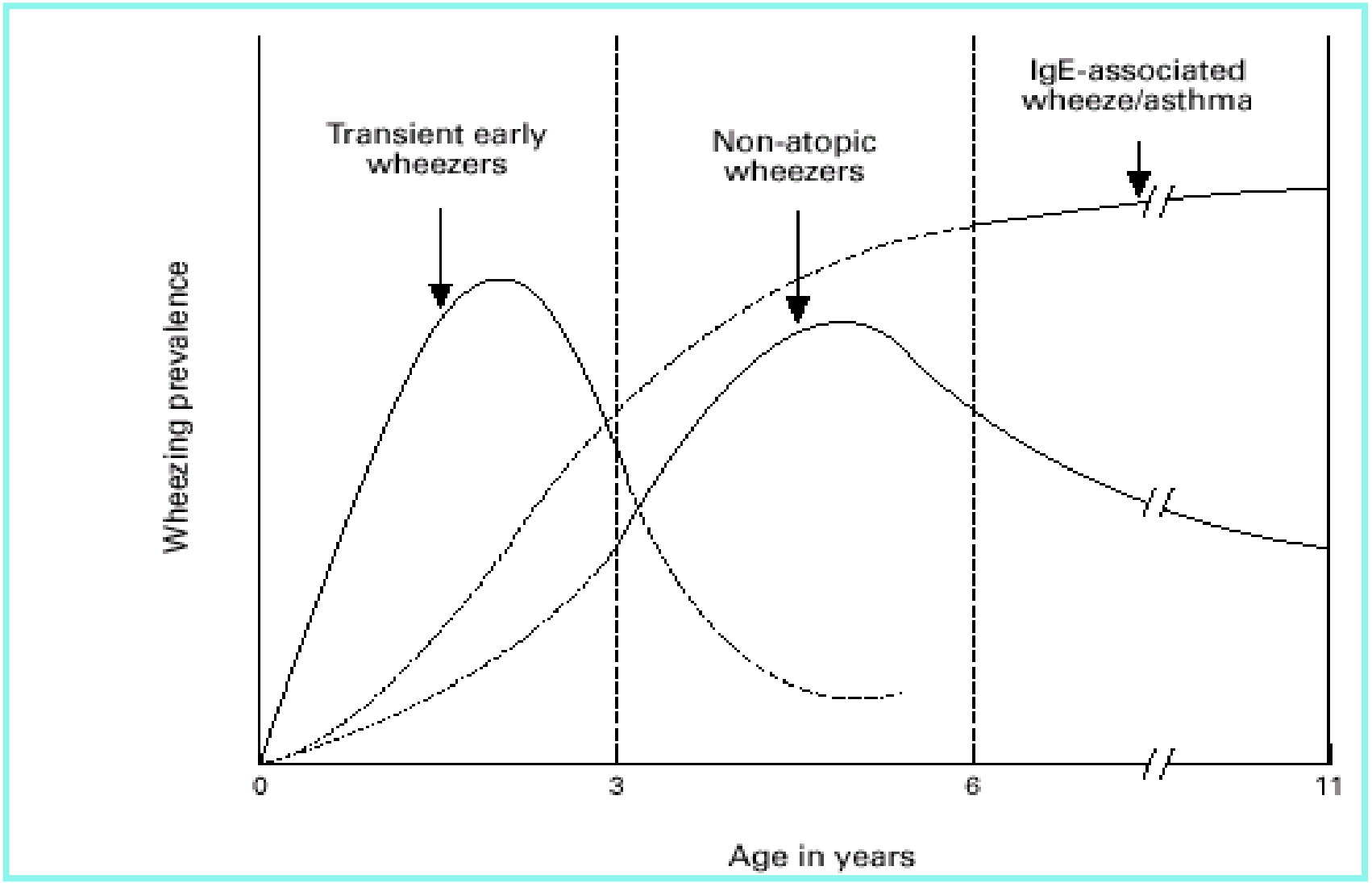
What we'll cover

- The challenges of diagnosing asthma in children
- COVID issues specific to pediatric asthma
- Increasing disparities as a result of the pandemic

Diagnostic Challenges in High-Income Countries

- **A one year-old girl presents in respiratory distress.**
- In our toolbelt:
- Structured illness history, stethoscopes, thermometers, X-ray, ultrasound, reliable electricity, bloodwork, readily available medications (bronchodilators oral corticosteroids) point-of-care and laboratory diagnostic tests (respiratory viral panel)

Recurrent Wheeze Phenotypes



The questions about these little children: (beyond a history of recurrent wheezing)

- Does the child respond to a bronchodilator? (albuterol/salbutamol)
- Does a biologic parent or full sibling have asthma?
- Does the child have eczema?
- Does the child have a chronic runny nose?

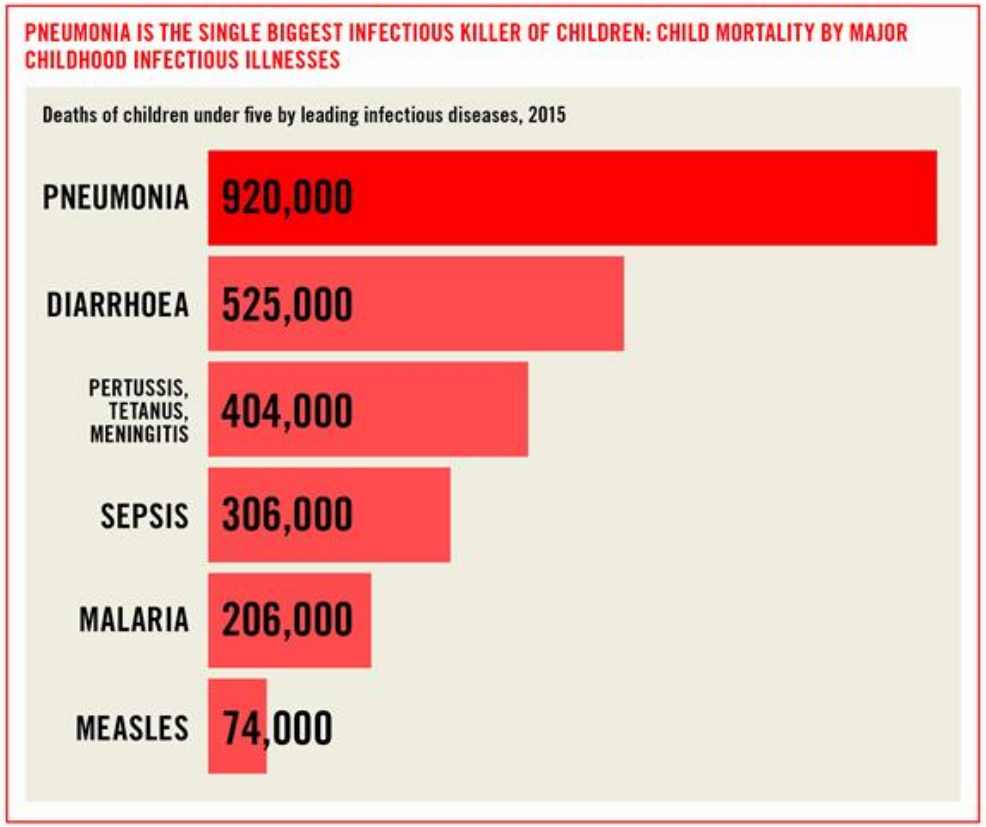
Diagnostic Challenges in Low- and Middle-Income Countries:

- **A one year-old girl presents in respiratory distress.**
- In our toolbelt:
- Structured illness history
- Stethoscopes? Thermometers? Reliable electricity? Readily available medications?

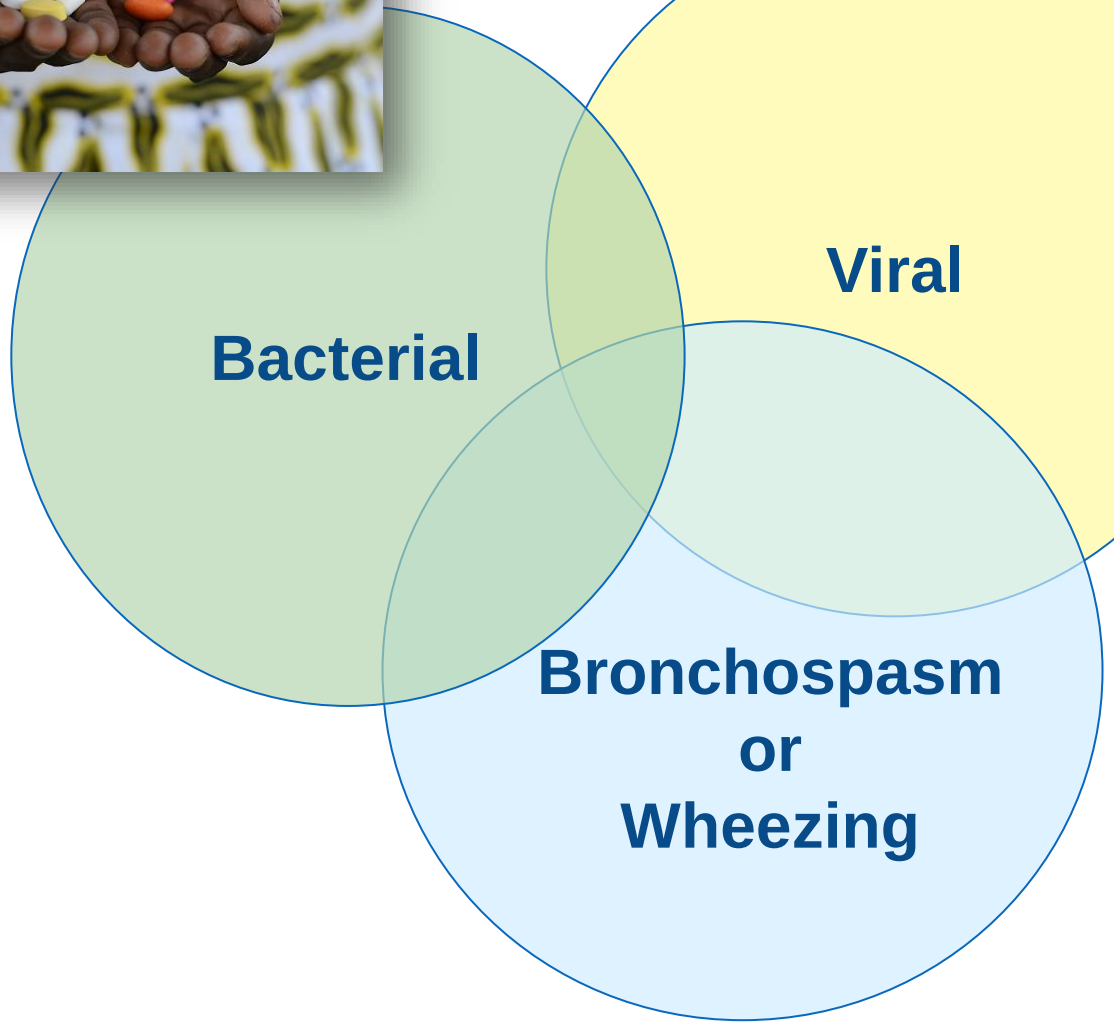
AND:

- The enormous public health problem and distraction…

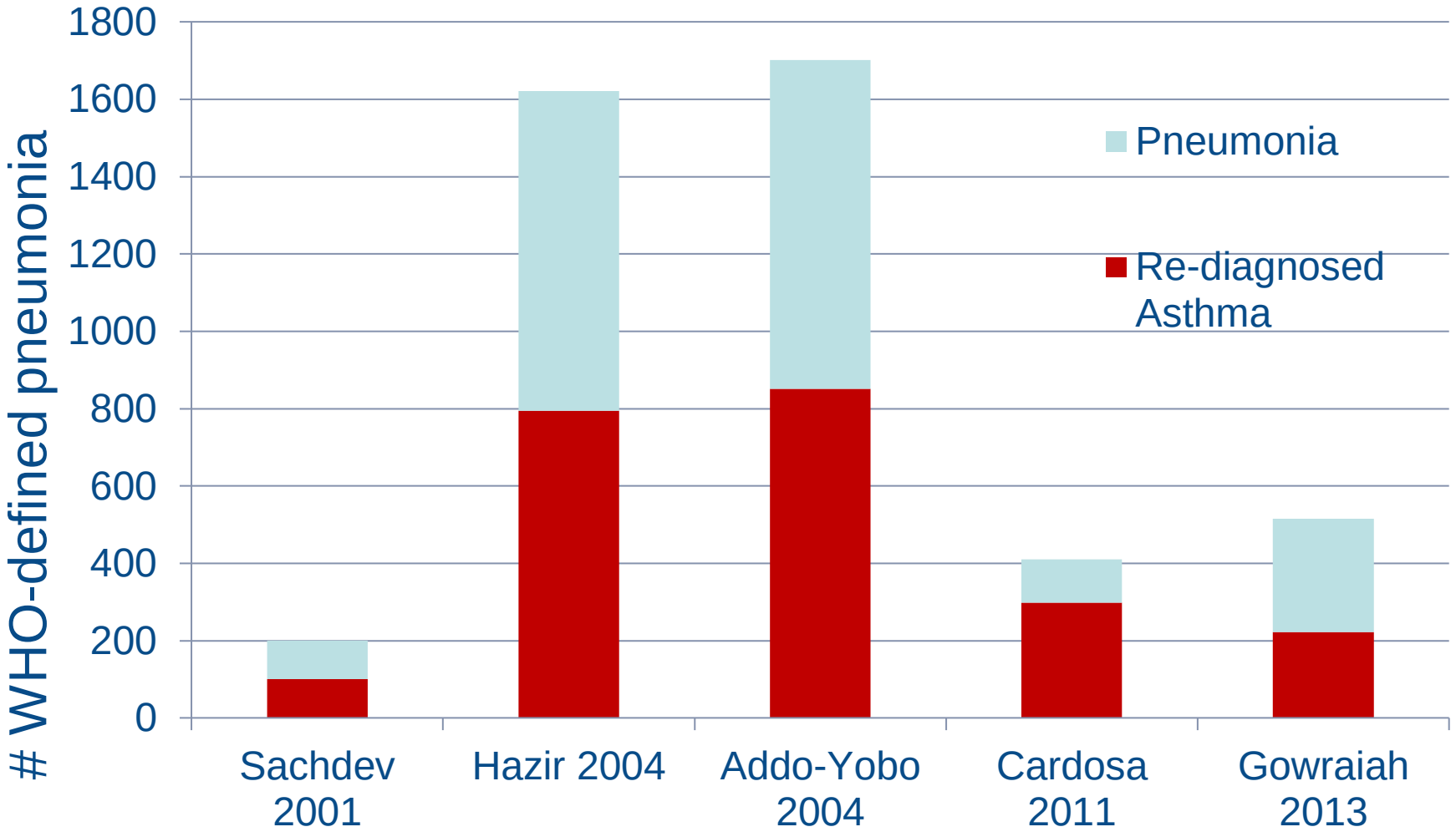
Global Burden of Disease for Pediatric Pneumonia



World Health Organization, Global Health Observatory data repository. Liu L, Oza S, Hogan D, et al. Lancet


Bacterial
Viral
Bronchospasm
or
Wheezing

Bronchospasm masquerading as pneumonia



Symptom-based screening tool for asthma syndrome among young children in Uganda R. Nantanda et .al. PCRM May 2020

- Among 614 children under 5y presenting with severe respiratory distress at Mulago Hospital in Uganda, 41% had “asthma syndrome” (asthma; bronchiolitis; bacterial pneumonia and asthma).

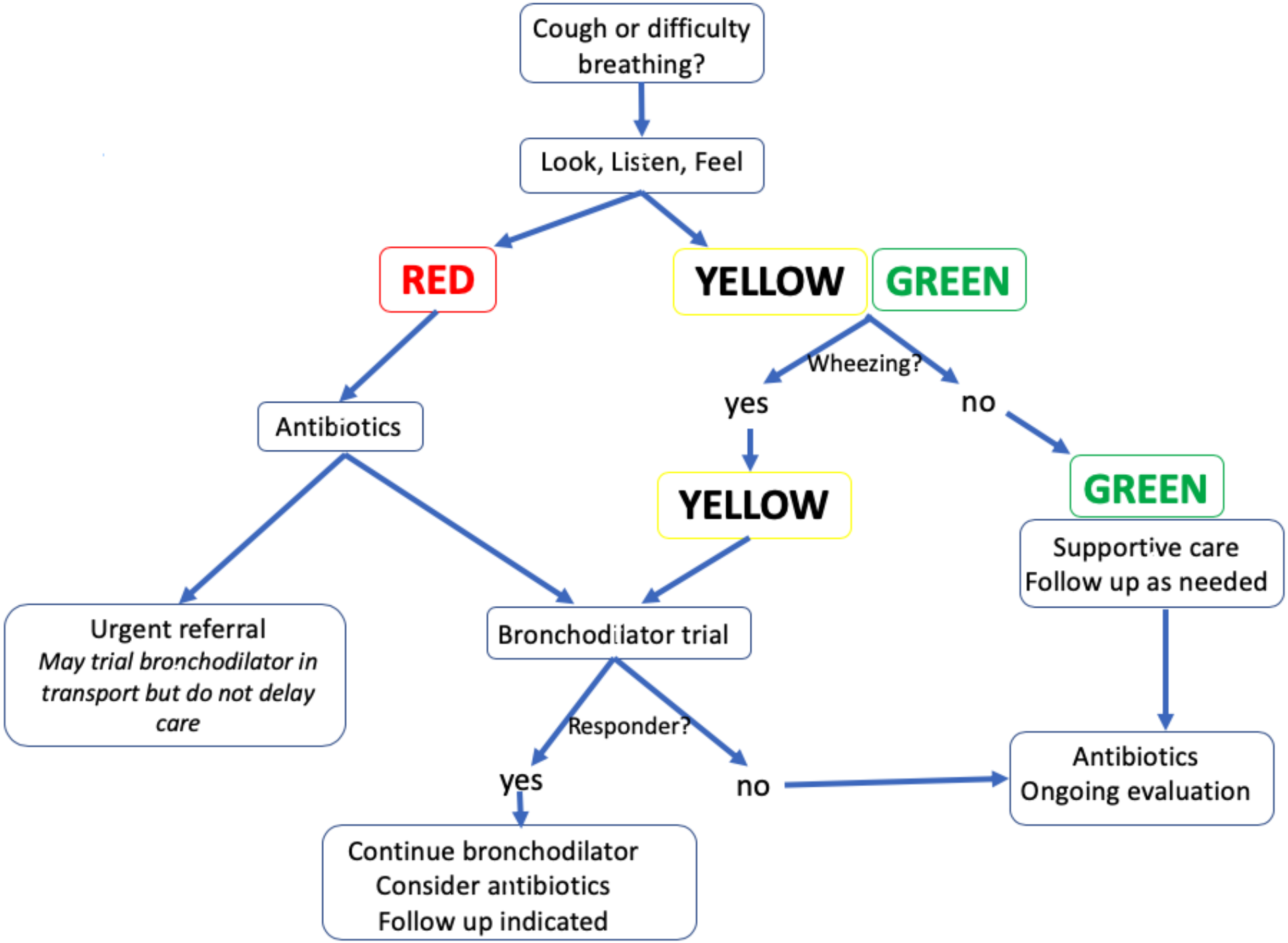
npj Primary Care Respiratory Medicine (2020)30:18 ; https://doi.org/10.1038/s41533-020-0175-1

Symptom-based screening tool for asthma syndrome among young children in Uganda R. Nantanda et .al.

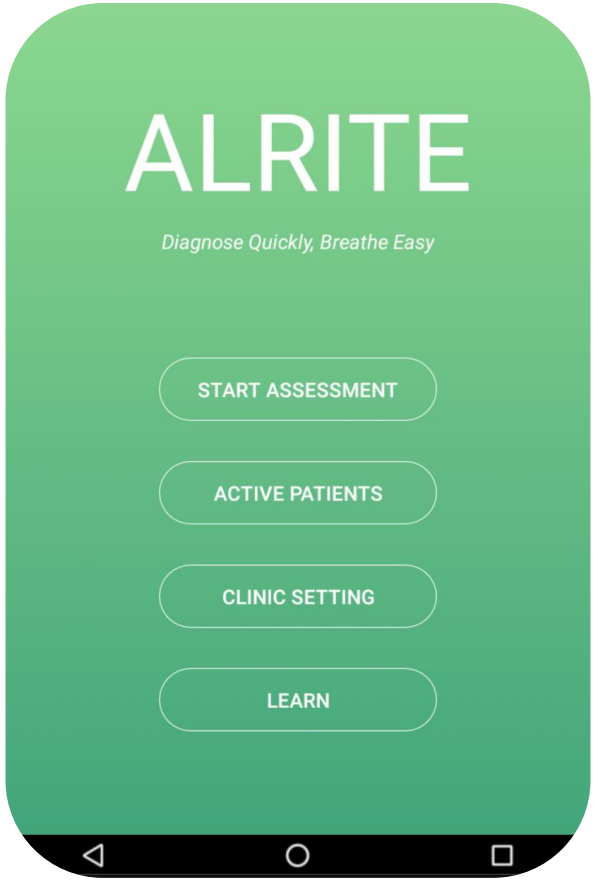
- Best performing questions

(sensitivity 81%, specificity 85%):

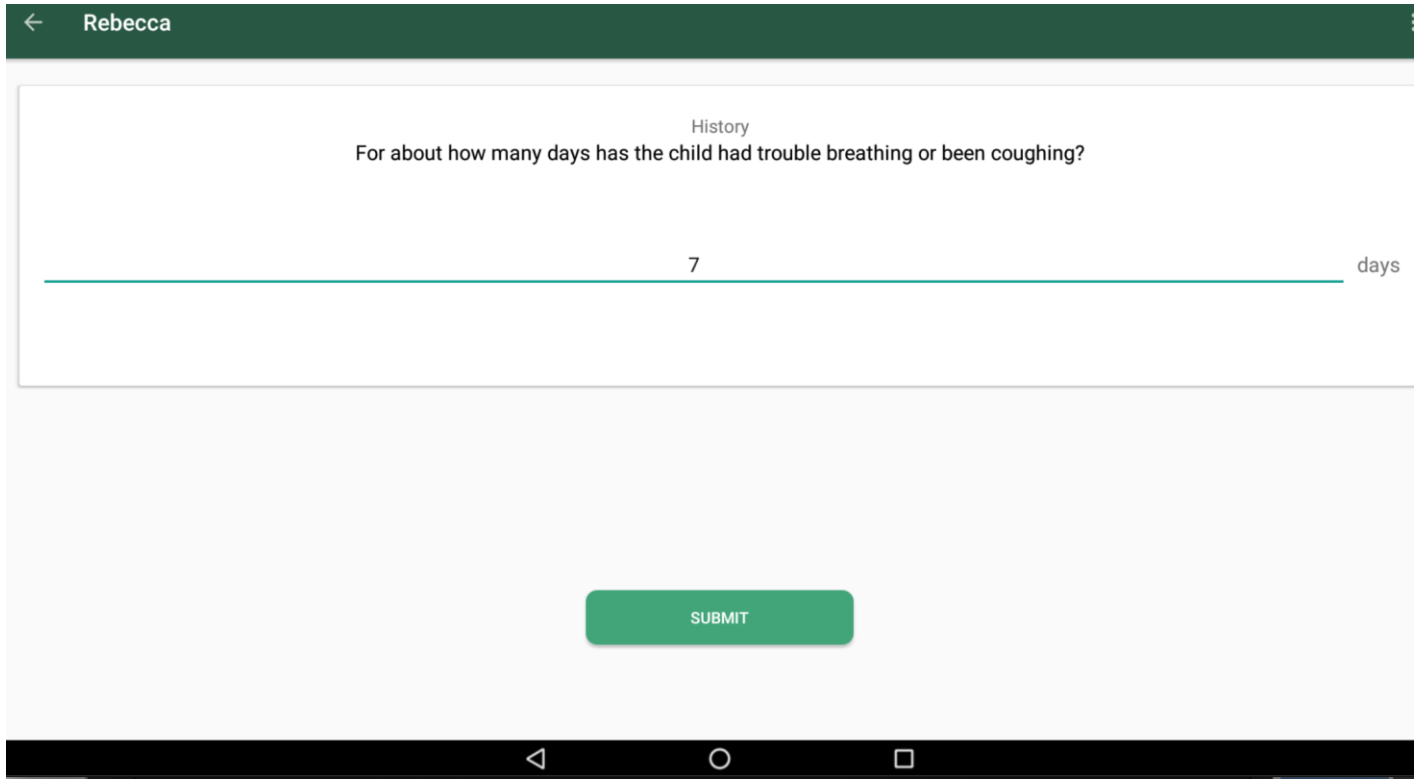
- **Does your child have a *history* of breathing difficulties?**
- **Does your child *currently* have breathing difficulties, cough, or wheezing?**
- This combination performed only slightly better than:
- **“Is the child currently wheezing?”** (sens. 77%, spec. 88%)


Cough or difficulty breathing?
Look, Listen, Feel
RED
YELLOW
GREEN
Wheezing?
yes
no
Antibiotics
YELLOW
GREEN
Supportive care
Follow up as needed
Urgent referral
May trial bronchodilator in transport but do not delay care
Bronchodilator trial
Responder?
yes
no
Antibiotics
Ongoing evaluation
Continue bronchodilator
Consider antibiotics
Follow up indicated

Acute Lower Respiratory Illness Treatment Evaluation (ALRITE)



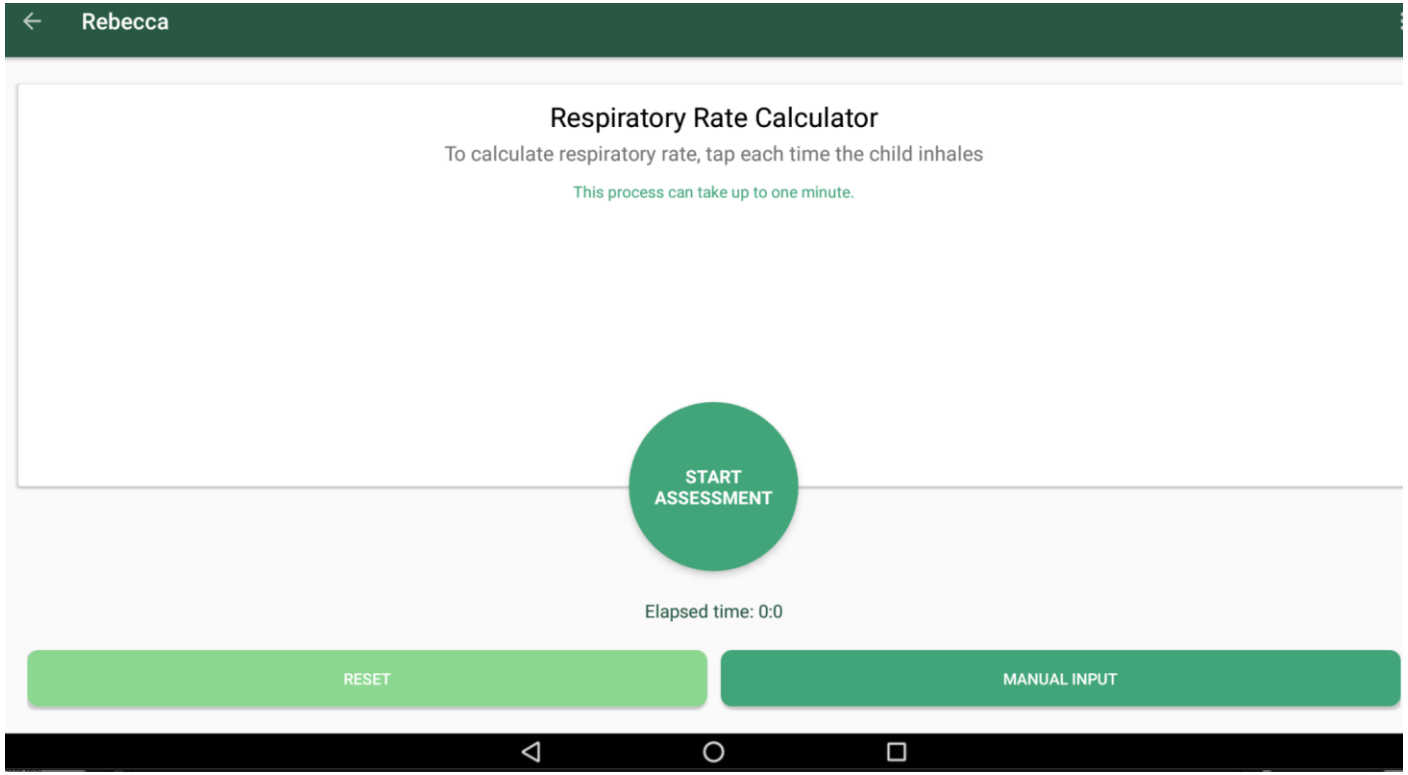
History



- Cough or difficulty breathing?
- For how long?
- Risk of HIV exposure?
- History of wheezing or difficulty breathing before present illness?

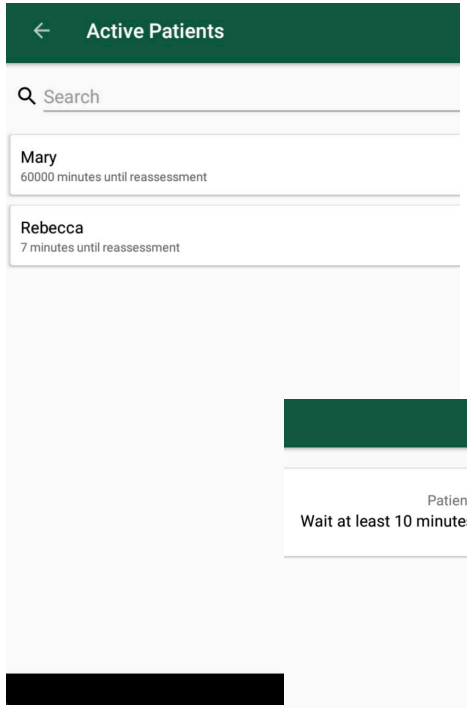
Examination

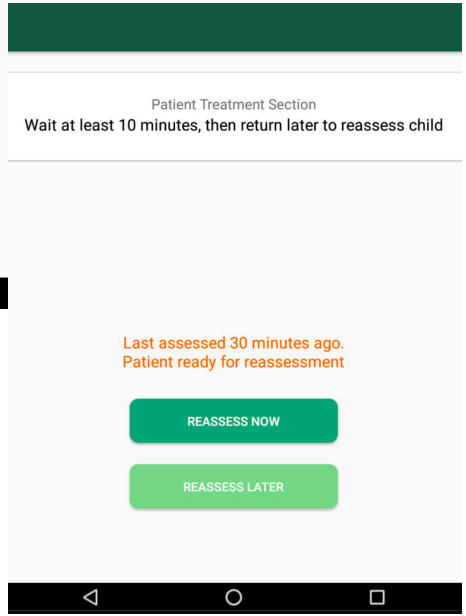
- Temperature or Fever
- Oxygen saturations
- Respiratory rate counter



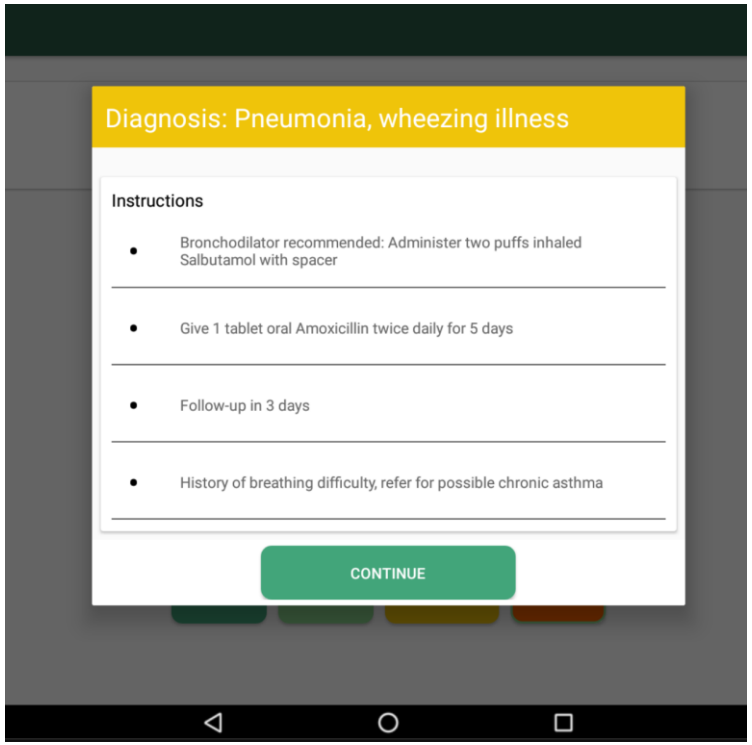
Bronchodilator trial (for Under 5's presenting acutely)

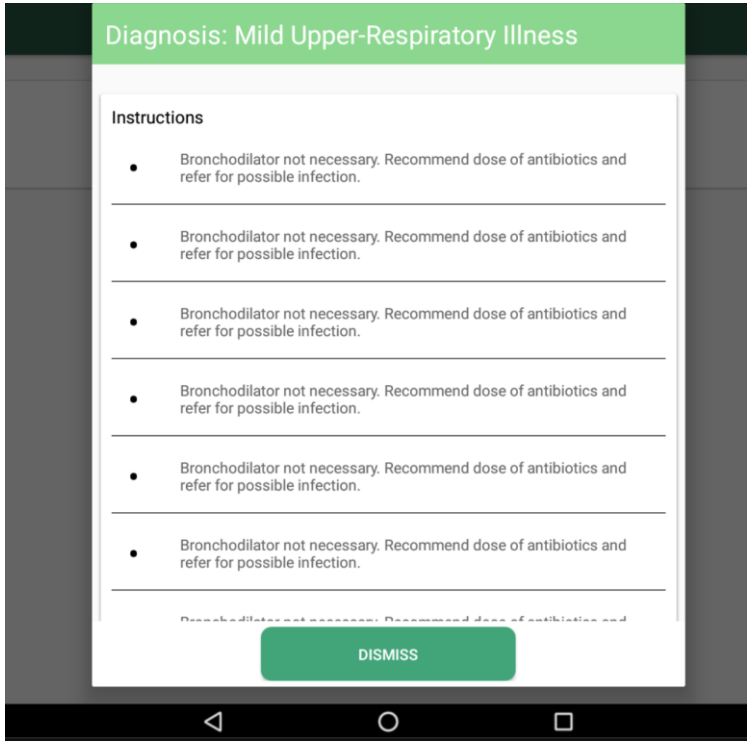
- Dose and how to administer
- Recommend reassessment in at least 10 minutes (up to 4 hours)
- Stores patient and timer for reassessment
- Rescore patient with respiratory assessment
  - Oxygen saturation
  - Respiratory rate
  - Chest indrawing
  - Wheezing
- Based on reassessment, final diagnosis and treatment recommendations provided

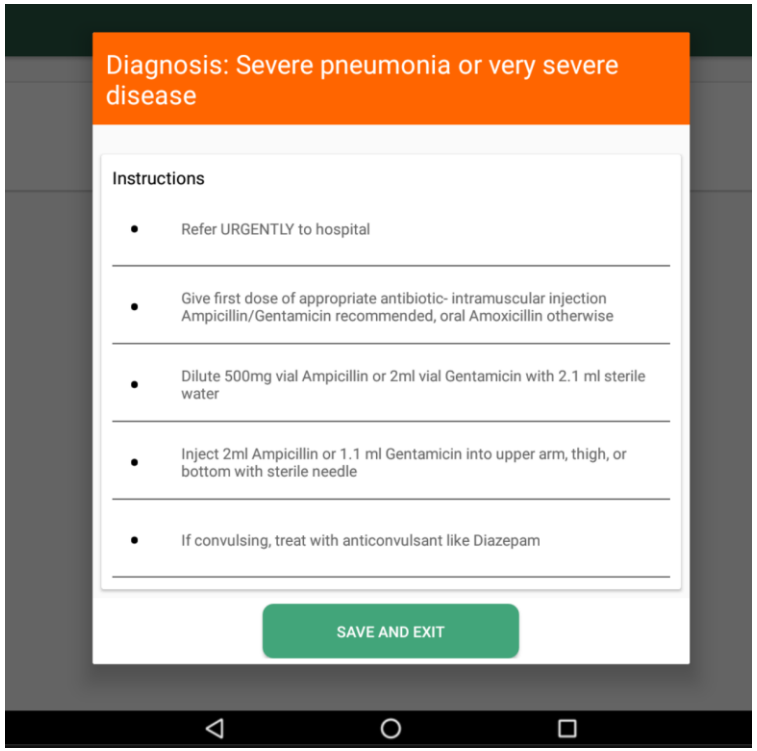




Diagnosis and Treatment







Children with Asthma and COVID

- Dry cough, shortness of breath, fatigue, sore throat, diarrhea
- Unclear whether asthma is an independent risk factor in children, but let common sense prevail
- Remain on current asthma medications
- Albuterol/salbutamol shortage driven by its use for COVID—first generic albuterol approved in US April 8th 2020

Pediatric Asthma and COVID

- Coronaviruses→20% of pediatric colds
- Oral corticosteroids→prolonged viral replication
- Virtual visits for all mild/moderate asthma patients

International Primary Care Respiratory Group
IPCRG work locally collaborate globally

Odessa Brown Children's Clinic, Winter '96

Avoid nebulizers during the pandemic, if possible

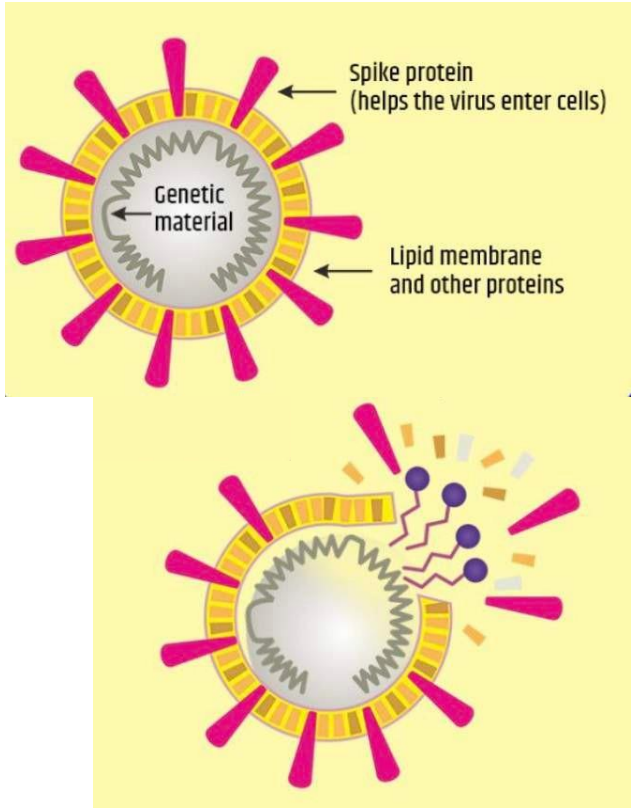
- Nebulizers:
- Increase the risk of lower lung viral deposition
- Could transmit viable coronavirus to bystanders

Three important things to remember about COVID

1. Soap is very effective at helping to remove and deactivate the virus

2. Hand washing preferred to hand Sanitizer

3. Clean surfaces before disinfecting (disinfect with discretion)



COVID amplifies health disparities

- Pre-existing chronic illnesses
- Many low income jobs require physical presence
- Indoor air quality
- School closures
- Transportation issues
- Health literacy
- Access to and comfort with technology

International Primary Care Respiratory Group
IPCRG work locally collaborate globally

School closures

Sheltering in place, Seattle area

Worldwide, almost 40% of people use solid fuel for heating and cooking

Sheltering in Place, Kyrgyzstan

International Primary Care Respiratory Group

IPCRG work locally collaborate globally

Sheltering in place, Uganda

In summary:

- Diagonosing asthma in children under 5y is challenging, and presents different issues in different countries
- Keep your distance, wear a mask
- Wash hands with soap and water
- Find ways to help those less fortunate