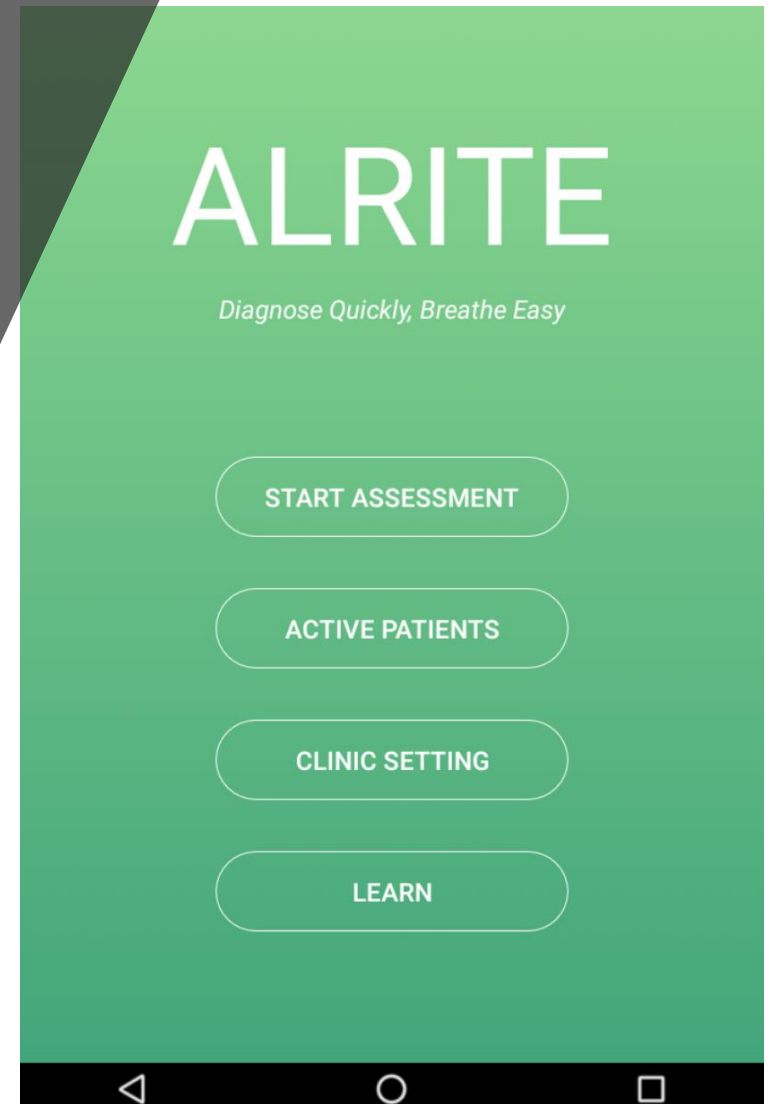# Abstract Presentation 4

Developing a mobile health decision support tool to improve diagnosis of asthma in young children in Uganda: Perceptions from frontline primary care health workers

Laura Ellington, MD MS
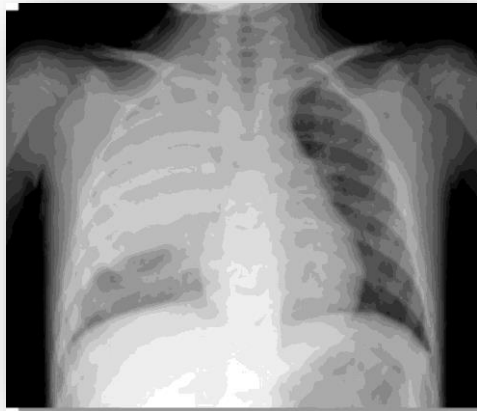
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IPCRG

November 28, 2020

Disclosures

- None

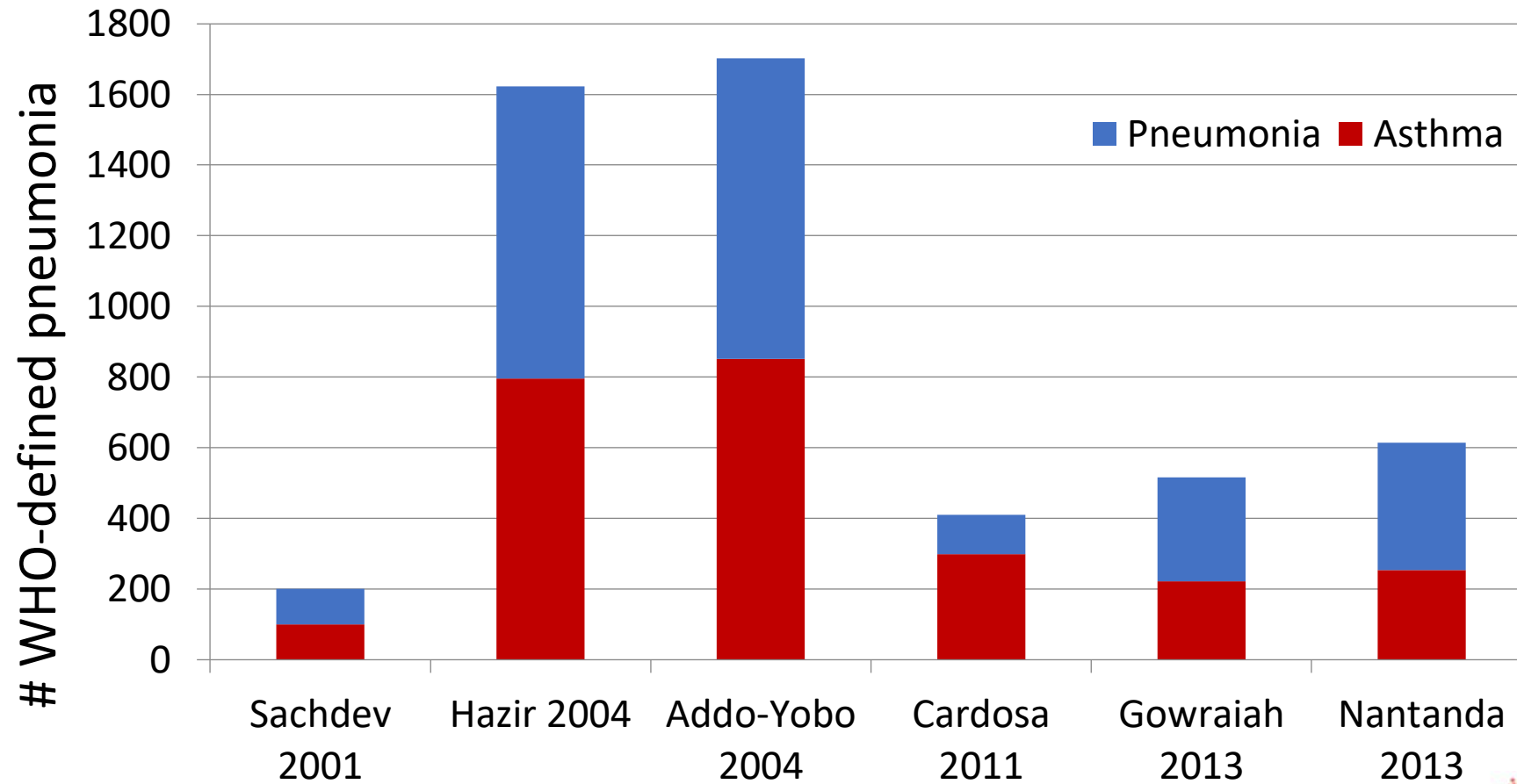# Pediatric asthma is challenging to diagnose and manage in LMIC
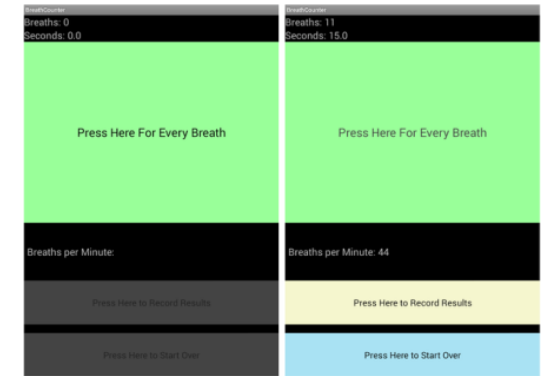
Asthma remains underdiagnosed

Mobile health decision support tools in LMIC

- Improved IMCI guideline adherence compared to paper tools

- Acceptability and usability

- Ongoing development

- Few have achieved large scale implementation

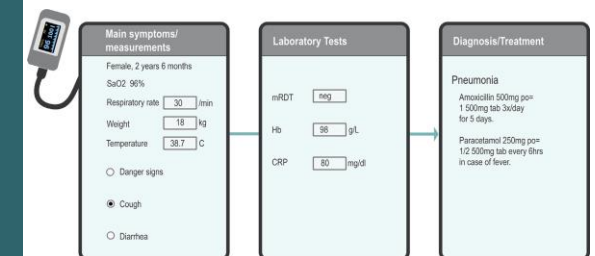- None focus on asthma diagnosis and treatment
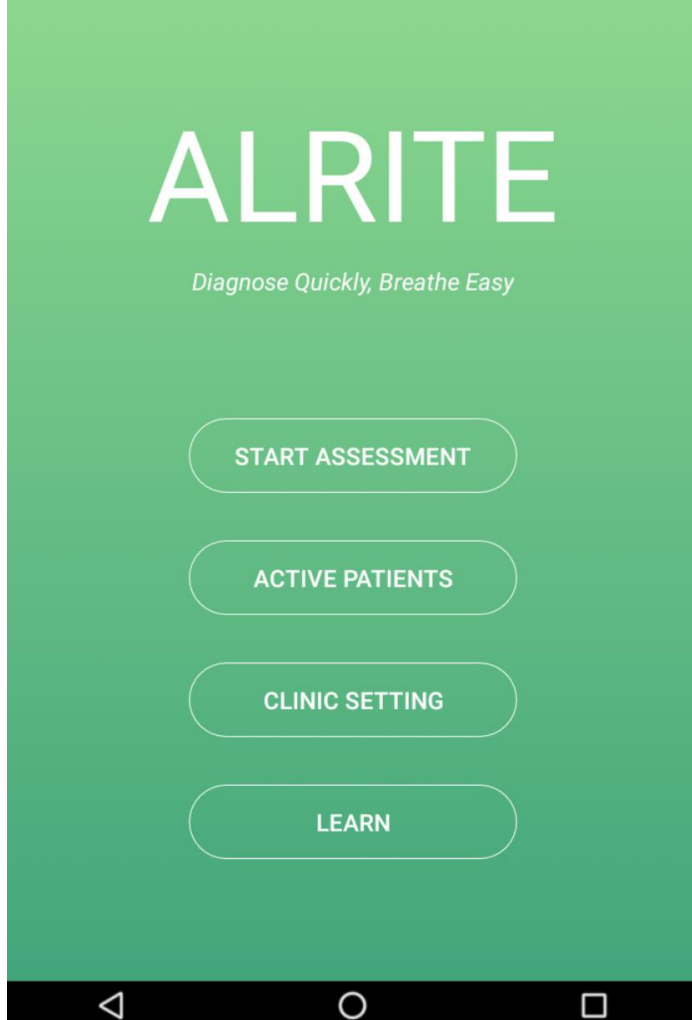

eIMCI (Tanzania, Zambia)

mPneumonia (Ghana)

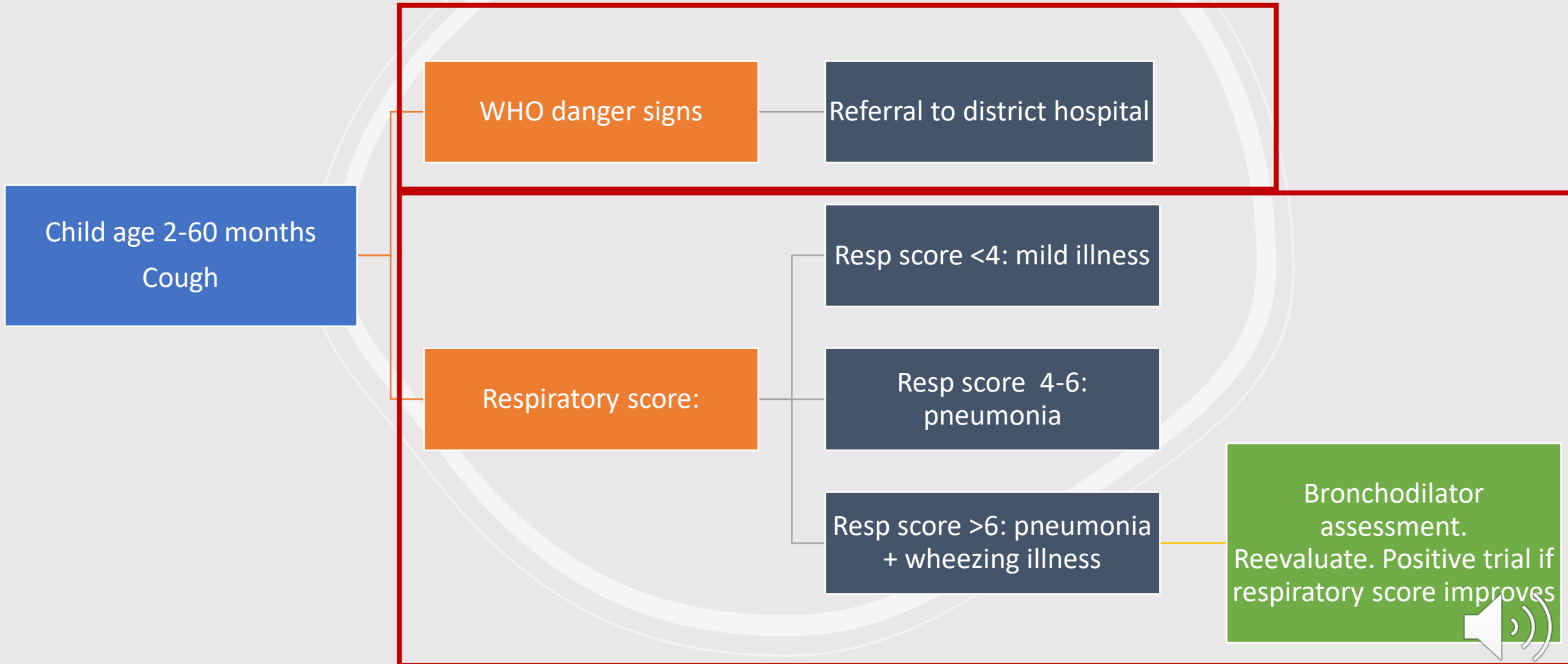IeDA (Burkina Faso)

ePOCT (Tanzania)

An ALRITE Collaboration

- Makerere Lung Institute
  - Rebecca Nantanda, MBChB PhD
  - Irene Najjingo

- University of Washington School of Computer Science & Engineering
  - Richard Anderson, PhD
  - Aditya Vashistha, PhD
  - AJ Kruse

- University of Washington School of Public Health
  - Stephanie Farquhar, PhD

- University of Washington School of Medicine
  - Laura Ellington, MD MS
  - Margaret Rosenfeld, MD MPH
  - Jim Stout, MD MPH

ALRITE

Diagnose Quickly, Breathe Easy

START ASSESSMENT

ACTIVE PATIENTS

CLINIC SETTING

LEARN

Acute Lower Respiratory Illness Treatment & Evaluation

ALRITE algorithm
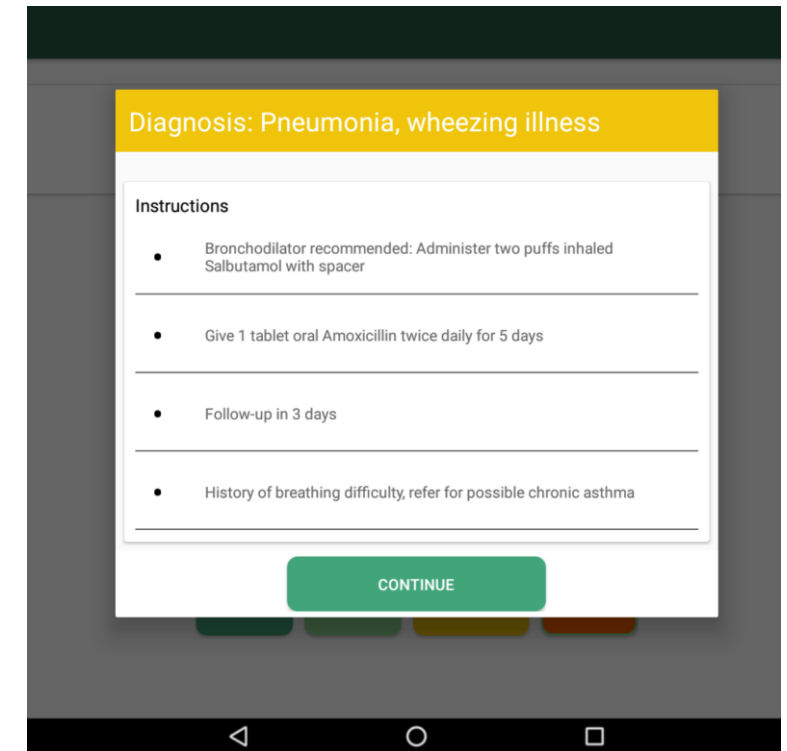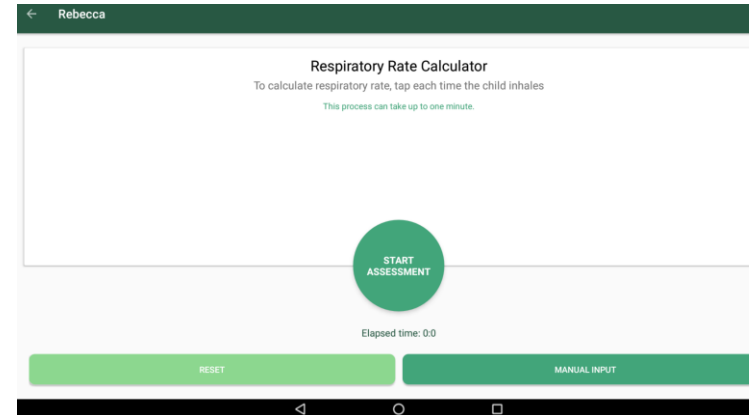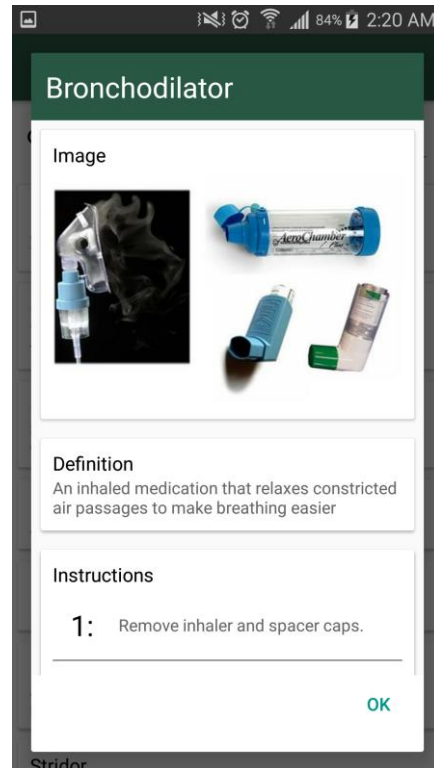
ALRITE components

- Educational toolkit
- Respiratory rate counter
- Diagnosis and treatment recommendations

Objectives

To evaluate health workers' perceptions of acceptability, usability, and feasibility of ALRITE

Methods

Design: Qualitative human-centered approach

Study sites: 2 higher level health centers in rural and peri-urban Uganda

Methods: Participants and data collection

Stakeholder interviews

Focus groups with frontline health workers

Usability evaluations

Results

Participants

- Health center in-charges: 3

- Frontline health workers: 25

	Rural (n=12)	Peri-urban (n=13)
Role		
Clinical officer	2	3
Nurse	10	10
Female	9	10
Age		
<30 years	5	5
30-40 years	5	6
>40 years	2	2
Years experience		
< 5 years	2	3
5-10 years	8	4
> 10 years	2	6

Results: Determinants of ALRITE implementation

System

Health Center

Health worker - Patient
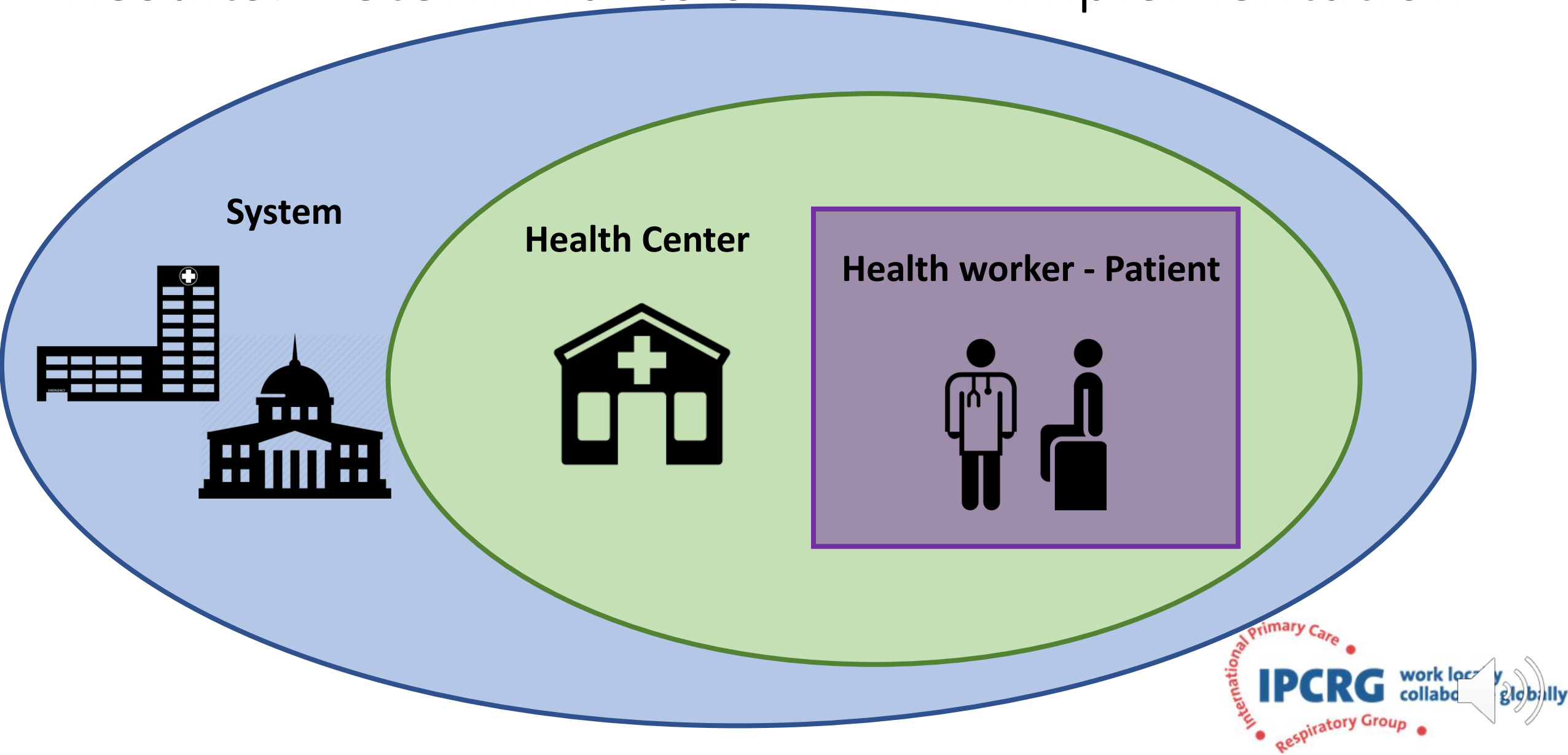
Health worker – patient determinants

- Over 60% health workers owned a smartphone
- Those with smartphones more facile during usability testing
- High acceptability and perceived benefit
  - Educational tools
  - RR counter
  - Guideline adherence
  - Fast, improved work efficiency
- Patient experience unclear
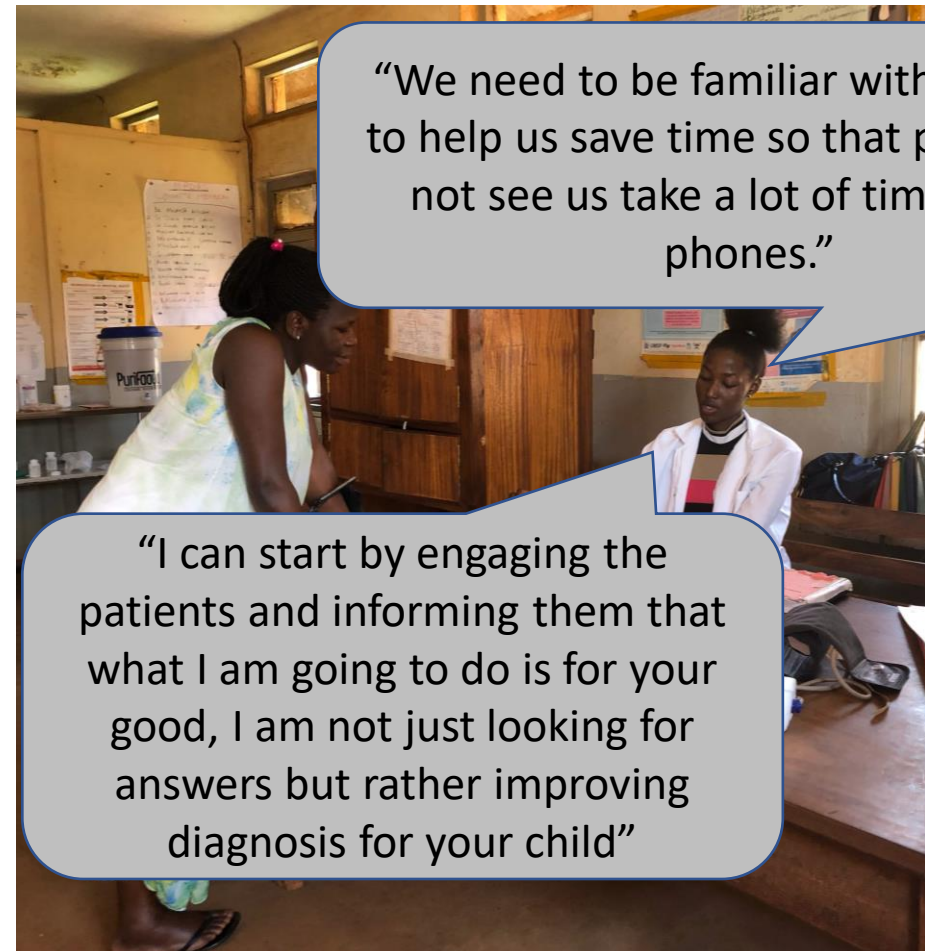
"We need to be familiar with [the app] to help us save time so that patients do not see us take a lot of time on the phones."

"I can start by engaging the patients and informing them that what I am going to do is for your good, I am not just looking for answers but rather improving diagnosis for your child"

Health center determinants

Current state

- High patient volume
- Lack of staffing
- Limited diagnostic tools

**Impact of ALRITE**

- Opportunities for training
- Change in workflow
- Triage

System determinants

"We are not independent when it comes to drugs. Supplies are from National Medical Stores, and they usually give what they have unless you have an independent source outside of the usual supply chain"

- Medication supply
  - Bronchodilators
  - Inhaled and systemic corticosteroids
  - Antibiotics
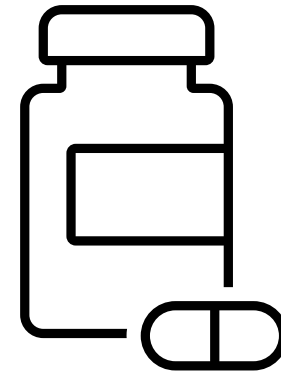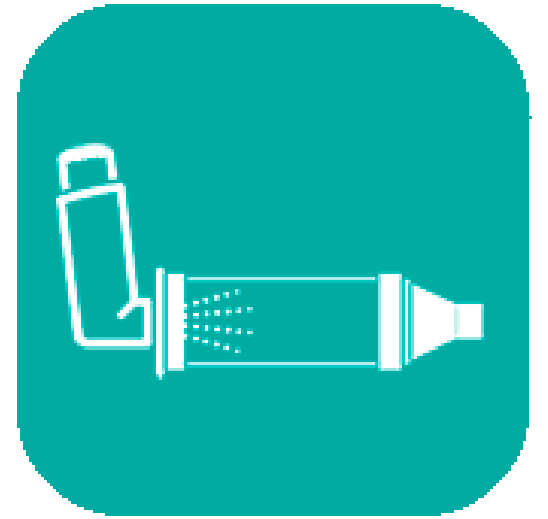
Conclusions

- Early engagement of end users provided key determinants influencing the diagnosis and treatment of pediatric ALRI, focusing on asthma

- Results support the continued development of tailored mHealth decision support tools

Next steps

- Updating ALRITE based on user feedback

- Field testing with frontline health workers

- Addressing key barriers to success

Thank you!

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IPCRG — International Primary Care Respiratory Group — work locally collaborate globally

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