



PROJECT BRIEF

Field trials of acute respiratory infection diagnostic aids

The Acute Respiratory Infection Diagnostic Aids (ARIDA) project will evaluate community health workers' use of automated respiratory rate counting aids on children under five in Ethiopia.

Countries

Ethiopia

Donors

"la Caixa" Foundation

Partners

UNICEF

Ethiopia Ministry of Health

Length of project

July 2016 - June 2017

Pneumonia is one of the leading causes of death among children under five globally. Many pneumonia deaths result from late care seeking and inappropriate treatment due to misdiagnosis of symptoms.

Diagnosis remains largely presumptive or is made by counting the respiratory rates (RR) in children with a cough or difficulty breathing, to assess whether a RR is higher than what is considered normal. However, counting RR is a difficult exercise, even for trained health workers. Misclassification of an observed rate is common, which often leads to incorrect diagnosis and consequently inappropriate treatment.

The United Nations Children's Fund's (UNICEF's) Acute Respiratory Infection Diagnostic Aids (ARIDA) project aims to introduce automated RR counting aids for use by frontline health care workers in resource limited community settings and health facilities. These RR counting aids aim to offer improved accuracy, effectiveness and acceptability compared to current practices for counting and classifying RR to detect fast breathing pneumonia.

Stages of introducing a new technology

ARIDA project phases

Areas to address

Outcome measure

Next phase
ARIDA field trial (effectiveness study, acceptability study, cost-effectiveness study)
ARIDA controlled accuracy study
ARIDA dossier review and laboratory testing

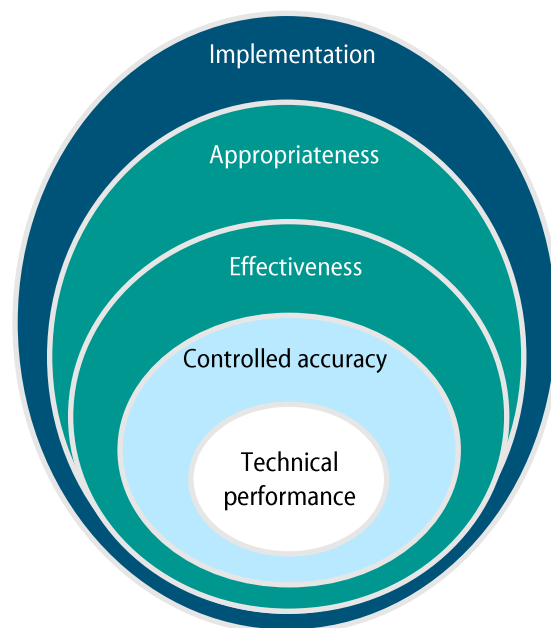
- ▶ How should the technology be scaled up in this setting?

- ▶ Should the technology be implemented in this setting?
 - Is it acceptable to health workers at different levels of the system and caregivers in this setting?
 - Is it cost-effective in this setting?

- ▶ Does ARIDA improve the correct classification of fast breathing and treatment of children under 59 months with cough and/or difficult breathing by community health workers?

- ▶ Does ARIDA accurately measure RR in children under 59 months in a controlled setting?

- ▶ Are there any concerns regarding whether the device meets the safety and technical specification required?



**Adapted from 'Health technology assessment of medical devices' by WHO (2011) and 'Introducing new technology safely' by Mytton et al. (2010).*

This project will evaluate ARIDA devices when used by frontline community health workers on children under 59 months to determine whether to scale-up their use on an international scale. The ARIDA devices will be evaluated based on a series of sub-studies, which address areas typically assessed when introducing medical devices (see above figure). This will include:

- ▶ **Dossier review and laboratory testing:** involves review of the device technical file and testing the device in a laboratory setting. This will include reviewing device regulatory approval, tests for accuracy using a simulator, a device lifespan evaluation and tests for environmental robustness, including those for heat, humidity and dust.
- ▶ **Controlled accuracy study:** involves testing the device in a controlled clinical setting to measure its accuracy and repeatability in counting RR in children under 59 months as compared to a reference standard.

- ▶ **Effectiveness study:** involves evaluating the device in the frontline community health workers' routine setting to establish if the device improves correct classification of children under 59 months compared to standard practice.
- ▶ **Acceptability study:** involves interviewing caregivers and community health workers, and conducting focus group discussions with community health workers to understand whether the device is acceptable and user-friendly.
- ▶ **Cost-effectiveness study:** involves providing evidence on the cost and cost-effectiveness of frontline community health workers using an ARIDA device for counting and classifying RR to detect fast breathing pneumonia, compared to that of the current practice.

To learn more about the ARIDA project, click here:

https://www.unicef.org/innovation/innovation_81722.html

Malaria Consortium

Development House 56-64 Leonard Street,
London EC2A 4LT, United Kingdom
info@malariaconsortium.org / www.malariaconsortium.org
UK Registered Charity No: 1099776