Integrated e-Diagnostic Approach (IeDA)
Progress to date and future work

For more information, contact **Guillaume Foutry** (gfo@tdh.ch)

Terre des hommes
Helping children worldwide.

IeDA is a mHealth solution aiming to improve quality of care at the PHC through a digital job aid, quality improvement processes and data management

IeDA 1st Implementation: IMCI Digitization in Burkina Faso

- IMCI (Integrated Management of Childhood Illness) is a WHO protocol applied in Primary Healthcare Centers (PHCs) in 50+ Low and Middle Income Countries (LMICs) to treat under 5 children

- IMCI suffers from poor implementation because of a lack of equipment, adequate staff training, reliable data, etc.:
  Only 32% of children are seen in IMCI consultations

IMCI with IeDA: _90%+_ of all children are diagnosed and treated following the IMCI protocol*

IeDA
Improving primary health care outcomes through mHealth

* Tdh internal data

Terre des hommes
tdh.ch

IeDA's Impact*

- **IMCI is better implemented**: **79%** of consultations done with IeDA follow rigorously all IMCI protocol steps (Vs 54% with paper-based version)

- **Diagnosis accuracy has increased**: **79%** of overall correct diagnosis (Vs 75%) with more gains on specific illnesses:
  - **Diarrhea**: **77%** Vs 66%
  - **Dysentery**: **83%** Vs 44%
  - **Malnutrition**: **75%** Vs 55%

- **Antibiotics overprescription has been reduced:** IeDA enables an antibiotics overprescription reduction between **6% and 15%**

IeDA
Improving primary health care outcomes through mHealth

* Impact study led by the London School of Hygiene and Tropical Medicine to be released in December 2018

Terre des hommes
tdh.ch

IeDA in Burkina Faso: Scale and Sustainability

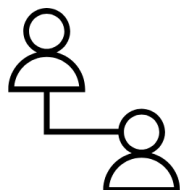**720+ PHC implement IeDA** *(1/3 of PHCs in Burkina Faso)*

4,000+ active users; over **90%** of patient under-5-consultations made with the tool

2 million patients registered *(About 10% of total population)*

~200,000 consultations per month on average, **4 million** consultations to date

Tdh will **transfer IeDA to the Burkina Faso MoH's in 2019-2020**

IeDA
Improving primary health care outcomes through mHealth

Terre des hommes
tdh.ch

IeDA: 1,132 PHC facilities by 2020

Projet IeDA au Burkina Faso
Couverture 2014-2020

Légendes
- Couverture 2014-2018: 720 CSPS au total
- Extension 2019-2020: 412 CSPS, soit 1132 au total

www.ieda-project.org

Improving primary health care outcomes through mHealth

IeDA in 2019-2020

Transfer IeDA to the MoH and scale up

IeDA

- IeDA has been **implemented jointly with the MoH since 2014**

- MoH is **supporting IeDA expansion** (Via the Global Fund Initiative)

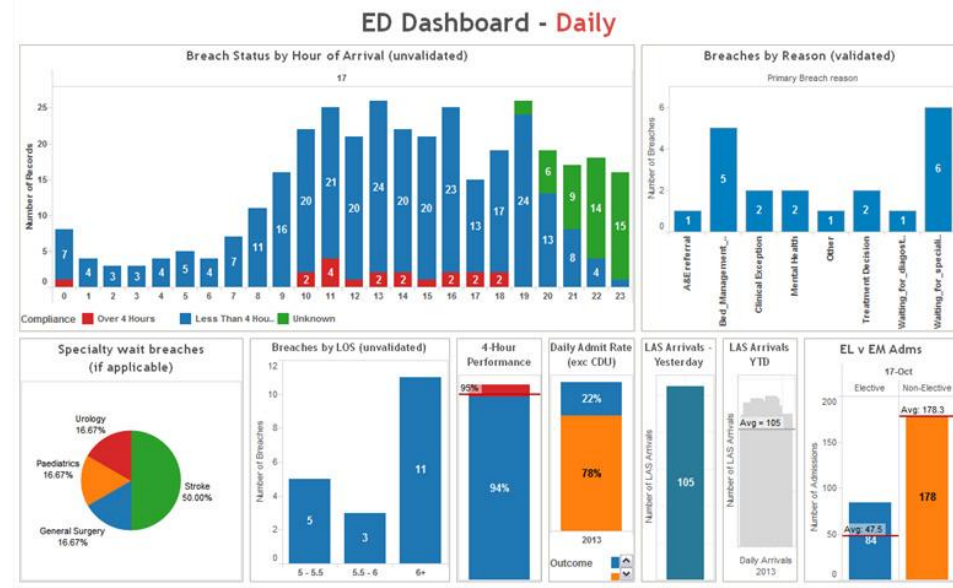- Tdh transfering the project to the MoH in 2019-2020 (GIZ and Global Fund)

Improving primary health care outcomes through mHealth

Improve MoH Data Use with Dynamic Dashboards

- Improved visualization to facilitate understanding and analysis

- Design automatically updated dashboards for MoH decisions makers
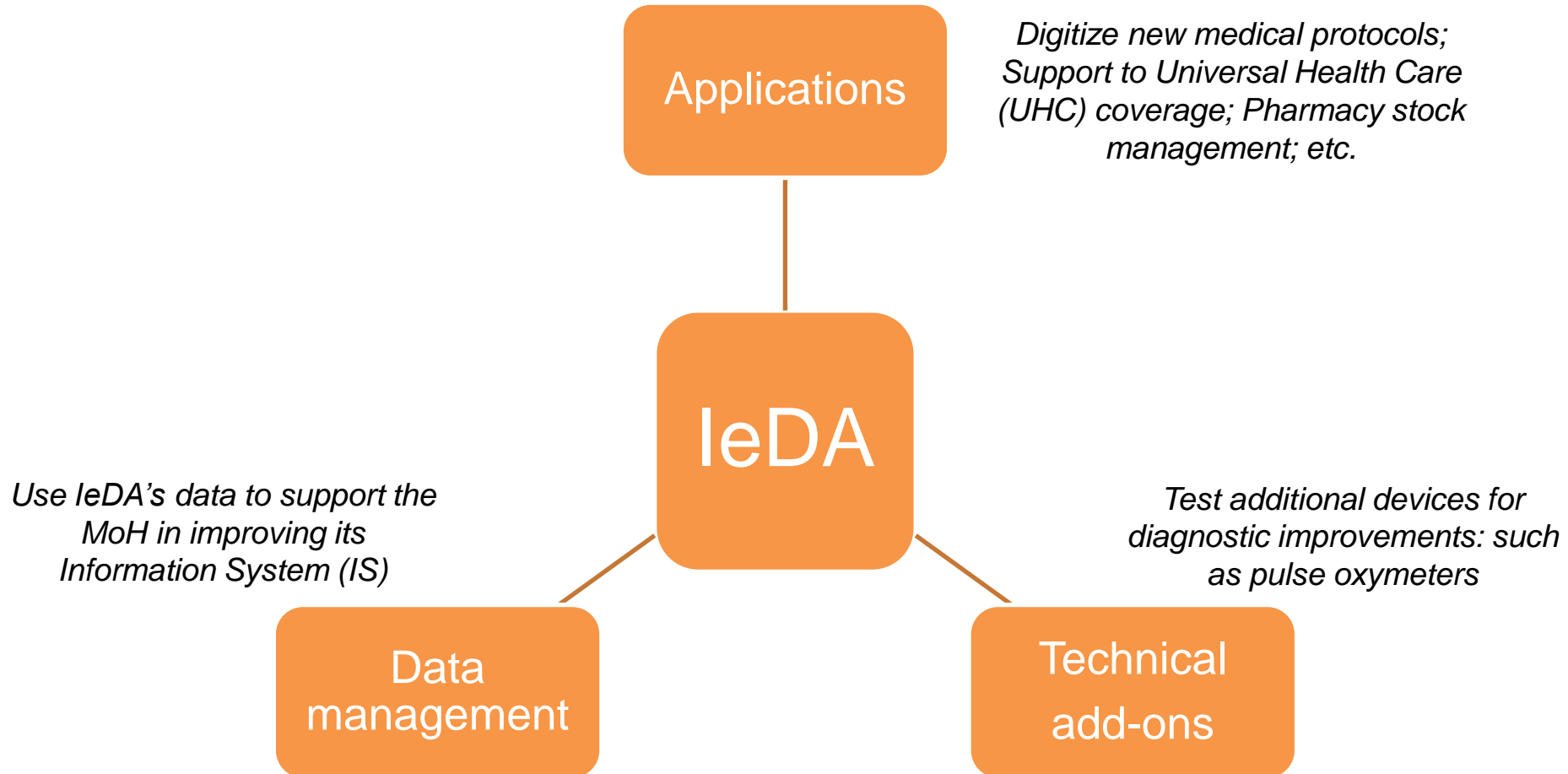
- Increased data use for decision-making processes

First prototype available in February 2019

Data visualization with Tableau (example)

IeDA as a Platform

A base upon which other applications, processes or technologies are developed or implemented to improve quality of care

Applications

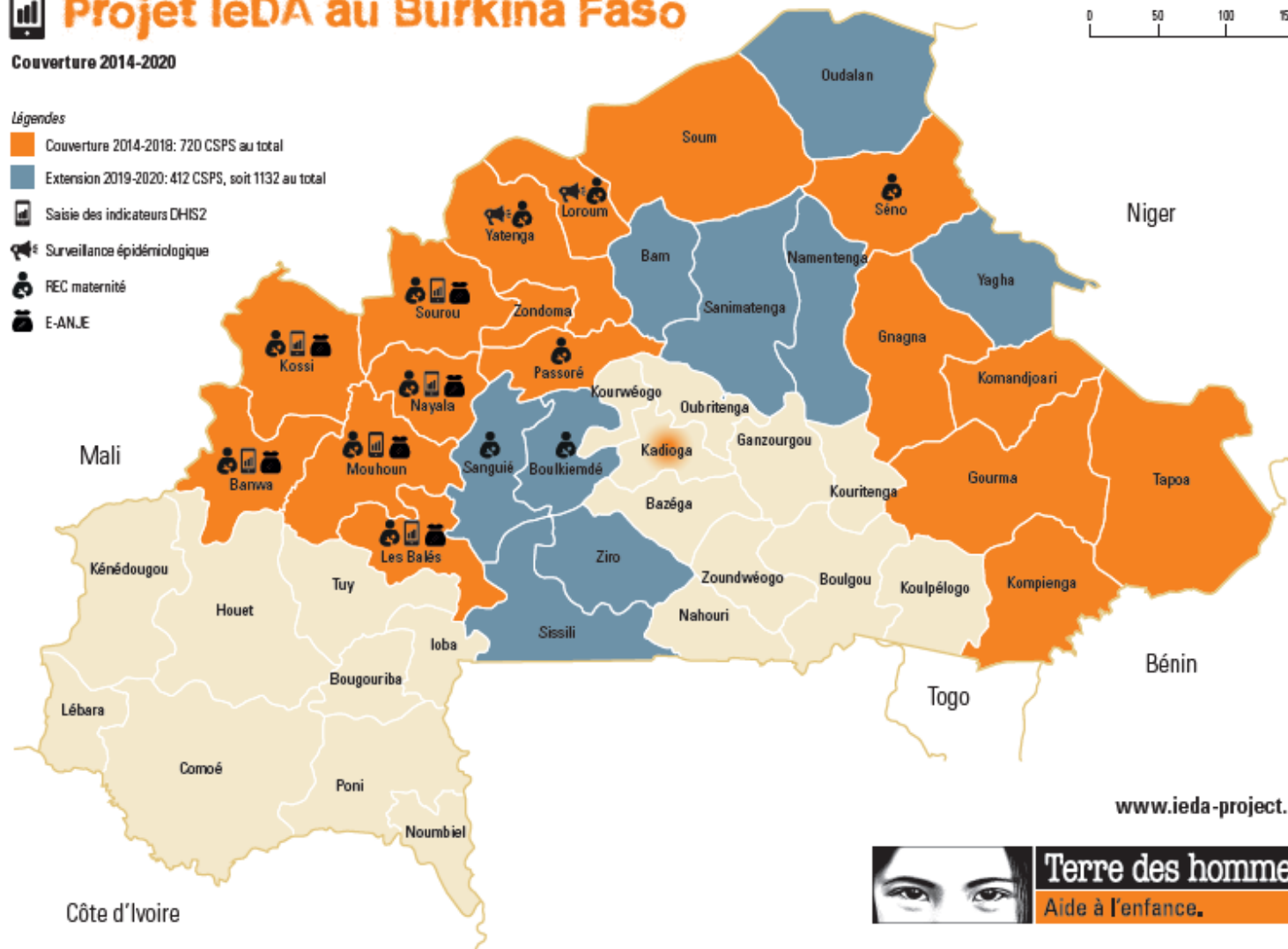*Digitize new medical protocols; Support to Universal Health Care (UHC) coverage; Pharmacy stock management; etc.*

IeDA

Use IeDA's data to support the MoH in improving its Information System (IS)

Test additional devices for diagnostic improvements: such as pulse oxymeters

Data management

Technical add-ons

IeDA

Improving primary health care outcomes through mHealth

Terre des hommes

tdh.ch

IeDA Spin's off

Projet IeDA au Burkina Faso
Couverture 2014-2020

Légendes
- Couverture 2014-2018: 720 CSPS au total
- Extension 2019-2020: 412 CSPS, soit 1132 au total
- Saisie des indicateurs DHIS2
- Surveillance épidémiologique
- REC maternité
- E-ANJE

www.ieda-project.org

Terre des hommes
Aide à l'enfance.

IeDA
Improving primary health care outcomes through mHealth

Terre des hommes
tdh.ch

Improve Nutrition Quality of Care

Rapport Poids/Age: valeur du z-score: **-3.53**

Example of malnutrition diagnostic in the REC-IMCI

- **Partnership between Alive and Thrive and Tdh**

- Integrate Infant and Young Child Feeding (IYCF) information and advice into the digital job-aid to provide stronger guidance to HCWs

- Currently being designed and tested in 20 facilities, to be deployed in 264 facilities by the end of 2019

Automate Epidemiological Surveillance

Disaster Risk Reduction Project in Burkina Faso (2018-2021): Deployed in 105 PHC faciilties and 13 municipalities

Use IeDA to build an alert and surveillance system for infectious diseases and natural disasters to:

- Report events in real-time

- Make data available via web dashboards

Humanitarian Aid

- Inform stakeholders immediately via SMS

Project funded by ECHO (EU)

- Provide reliable data for monitoring

IeDA
Improving primary health care
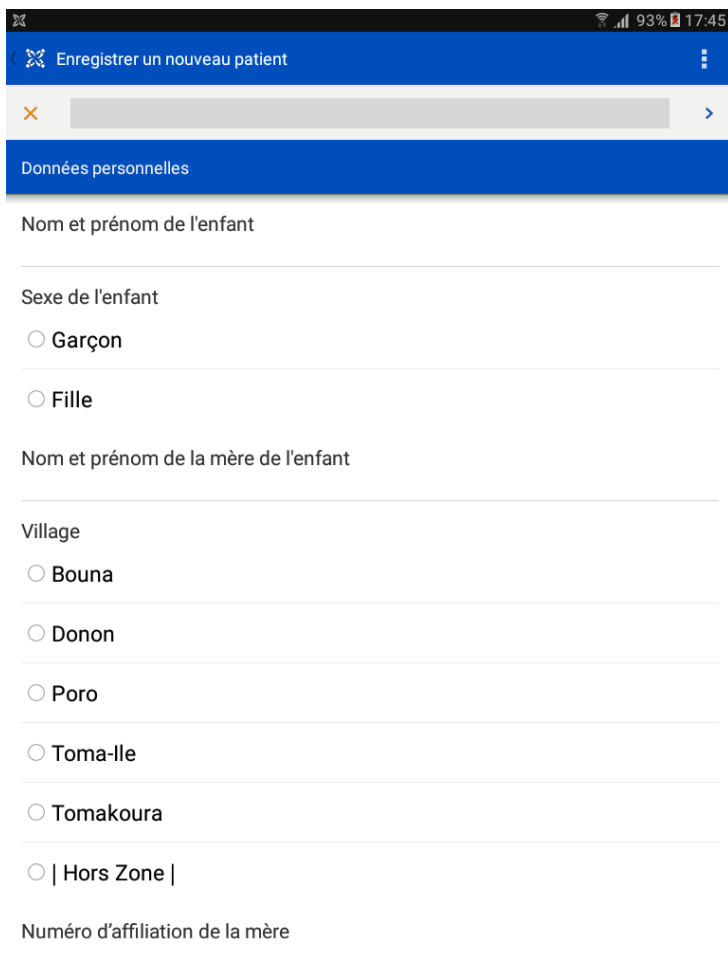outcomes through mHealth

Terre des hommes
tdh.ch

Digitize Maternal Care and Family Planning

Design and launch a digital job-aid for maternities to facilitate patients follow-up:

- **Digital patient file:** Pregnant women and newborn children will be registered in the database

- **All follow-up activities will be recorded:**
  - Ante Natal Care (ANC), Postnatal visits and Family planning visits

- Digitization of these activities will **enable HCWs to reduce patient dropout rates and provide the MoH with better data** (Connection to DHIS2)

2019: Develop a first prototype

IeDA
Improving primary health care
outcomes through mHealth

Terre des hommes
tdh.ch

Support the Public Records Office (PRO)

Patient personal data entered in the REC

IeDA for ID4D:

1. **Increase the number of children registered in the PRO** by bridging the gap between the PHCs and the local administration Information Systems:

   To be launched in 2019

2. Ensure user's identity integrity by **testing new data protection technologies** (Blockchain; Bubble tag; etc.)

   Still at concept stage

REC-IMCI-CMAM Integration

- ***ALeDIA (Alliance for e-DIAgnostic)*** is a partnership between Tdh, World Vision and Action Against Hunger

- **Goal: Improve malnutrition diagnostic and treatment** with a REC-IMCI-CMAM solution

- **Next steps 2019-2020:**
  - Fund raising
  - Design and test a prototype in several West African countries

Improve Anthropometric Measurement Accuracy

- Anthropometic measurement inaccuracy is a major source of misdiagnosis

- Tdh and the EPFL are working jointly to **design a mobile application based on machine learning to provide a child's height and weight from a picture**

- The application will be connected to IeDA's digital job aid and used in real-time in consultations

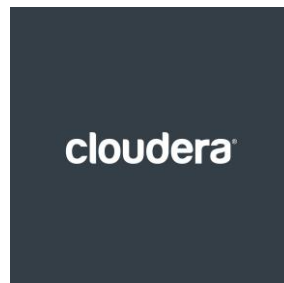- **First results expected in early 2020**

Improve Data Management with AI

Cloudera's technology in Artificial Intelligence (AI) will help Tdh to leverage IeDA's data to improve decision making:

- **PHC facilities:** Provide HCWs with real-time recommendations based on their performance history to make accurate diagnosis or treatment recommendation

- **District level:** Use smart dashboards to identify issues and provide solutions

- **Central levels:** Point out of the norm situations to decision-makers through predictive analyses (e.g. Epidemiological surveillance

REC-Multimodal:
Improve Febrile Illnesses Diagnosis

Improve febrile illnesses diagnosis with connected devices:

- Pulse oxymeter to measure respiratory rate, pulse and the level of oxygen in the blood
- Wireless device connected to the REC

UNITAID project in 4 countries
(in Mali and Burkina Faso with Tdh)

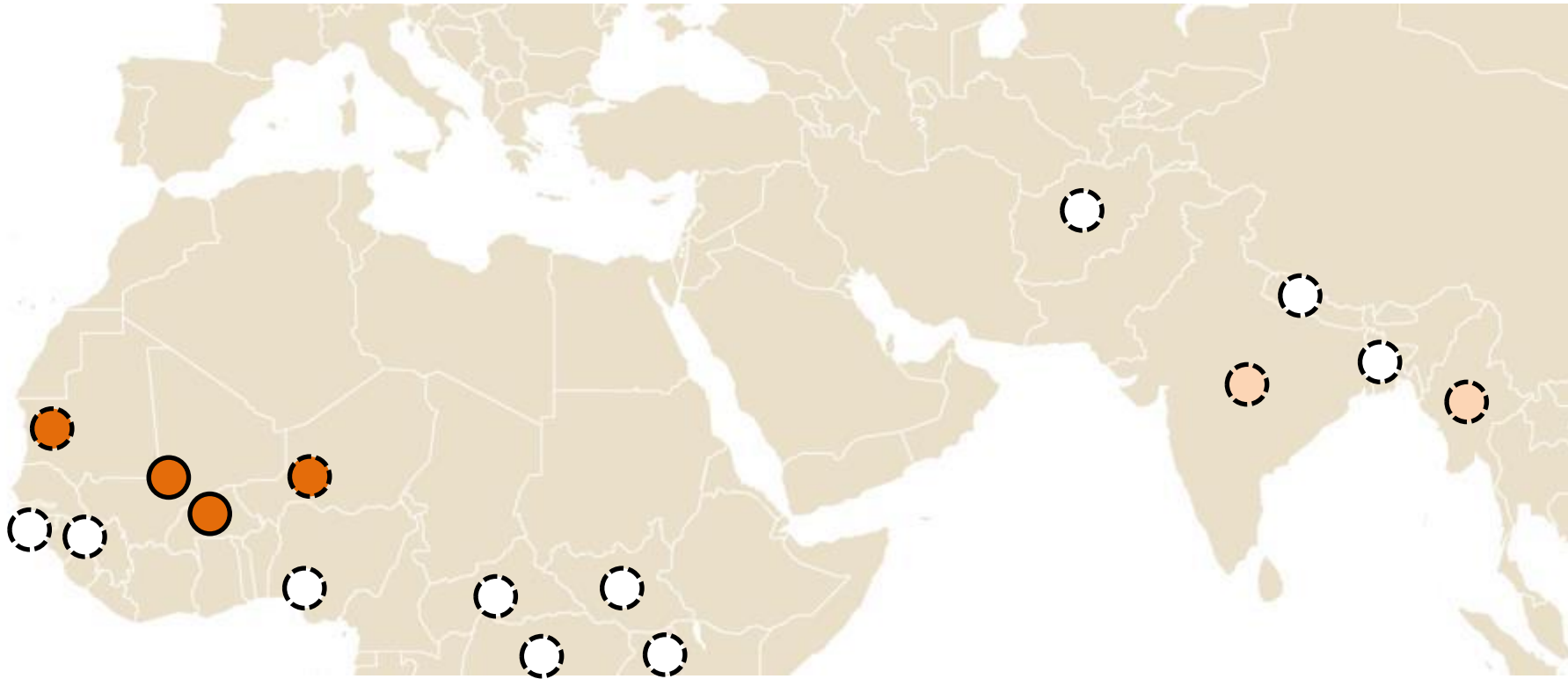# Improve Diagnosis with Point of Care Tools (POCTs)

Overcome IMCI over-reliance on clinical assessments to detect more accurately:

- Tuberculosis
- Pneumonia
- Anemia

- **Integrate Digital POCTs:**
  - ProCalciTonin (PCT) test
  - C-Reactive Protein (CRP) test

Projects with FIND in Burkina Faso in 2019/2020

Deploy IeDA Beyond Burkina Faso

Deployed · **In preparation** (2019) · **Assessment** (2018) · **Potential** (2019-2020)

IeDA — Improving primary health care outcomes through mHealth
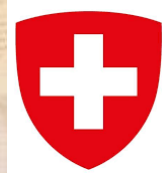
Terre des hommes — tdh.ch

Future Developments

- Immunization

- Stock management

- Support to the Health Information System for UHC

- Birth delivery (Protocol digitization)

Current sponsor

The Global Fund

Humanitarian Aid

Past sponsors

NOVARTIS FOUNDATION

BILL & MELINDA GATES foundation

unicef

ieda-project.org

IeDA

Questions? gfo@tdh.ch