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

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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.
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.*

* Tdh internal data
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%

* Impact study led by the London School of Hygiene and Tropical Medicine to be released in December 2018
IeDA in Burkina Faso: Scale and Sustainability

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

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

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

~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: 1,132 PHC facilities by 2020
leDA in 2019-2020
Transfer leDA to the MoH and scale up

- leDA has been implemented jointly with the MoH since 2014
- MoH is supporting leDA expansion (Via the Global Fund Initiative)
- Tdh transferring the project to the MoH in 2019-2020 (GIZ and Global Fund)
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

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

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

Test additional devices for diagnostic improvements: such as pulse oxymeters

IeDA

Applications

Data management

Technical add-ons
Projet LeDA 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
- REH maternité
- E-ANLE

www.ieda-project.org

LeDA
Improving primary health care outcomes through mHealth
Improve Nutrition Quality of Care

- 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

Example of malnutrition diagnostic in the REC-IMCI
Automate Epidemiological Surveillance

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

Use LeDA 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
- Inform stakeholders immediately via SMS
- Provide reliable data for monitoring

[LeDA logo]

[Humanitarian Aid emblem]

Project funded by ECHO (EU)
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**
Support the Public Records Office (PRO)

LeDA 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

Patient personal data entered in the REC
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.
Anthropometric 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:
  - ProCalciTolin (PCT) test
  - C-Reactive Protein (CRP) test

Projects with FIND in Burkina Faso in 2019/2020
Deploy IeDA Beyond Burkina Faso

- **Deployed**
  - (2019)

- **In preparation**
  - (2019)

- **Assessment**
  - (2018)

- **Potential**
  - (2019-2020)
Future Developments

• Immunization

• Stock management

• Support to the Health Information System for UHC

• Birth delivery (Protocol digitization)