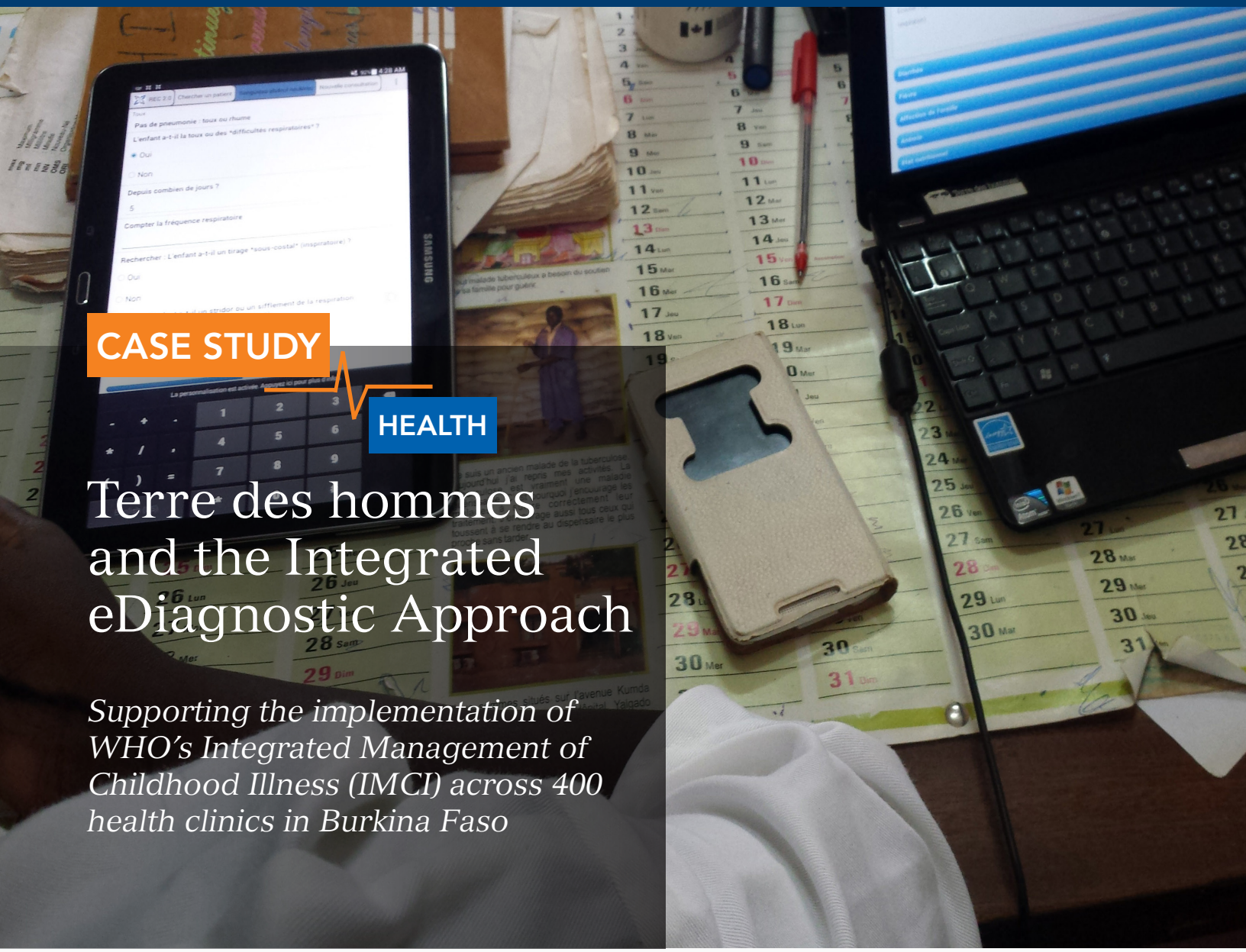
dimagi



CASE STUDY

HEALTH

Terre des hommes and the Integrated eDiagnostic Approach

Supporting the implementation of WHO's Integrated Management of Childhood Illness (IMCI) across 400 health clinics in Burkina Faso

PROJECT OVERVIEW

Terre des hommes (Tdh, www.tdh.ch) partnered with Dimagi to create a tablet-based application known as the Electronic Register of Consultations (REC). Built on Dimagi's CommCare platform, the REC aims to increase nurses' adherence to IMCI protocols by providing enhanced decision support and case management capacity. At the completion of the project, it is expected that the REC will used in 25% of health clinics in Burkina Faso, reaching a total of 600,000 children.

At a Glance

Implementation: Burkina Faso, 2014

Sectors: Child health

Features: Case management, decision & diagnostic support, fully HIPAA compliant data collection, various growth charts, clinical workflows, data validation, multimedia

Goal: Improve nurses' adherence to the IMCI protocol from an estimated 15% to 75% with REC

BACKGROUND

According to the World Bank, in 2010 one in six children died in Burkina Faso before the age of five due to a lack of access to operating health services. Most of these deaths are linked to a limited number of treatable pathologies, such as malaria, diarrhea, acute respiratory infections, measles, and acute malnutrition. In order to improve nurses' ability to treat and diagnosis child illness, the WHO and UNICEF developed the Integrated Management of Childhood Illnesses (IMCI) strategy in 2002. IMCI is a simple, systematic approach to diagnosing child illness in low-resource settings. Adopted throughout Burkina Faso, IMCI has been used around the globe in over 75 countries (WHO).

An audit of Burkina Faso's Ministry of Health found that despite significantly funding annual IMCI trainings, nurses in rural clinics rarely practice IMCI. In 2013, IMCI adherence at health clinics in some districts was less than 30%. These nurses are often faced with high numbers of patients, have limited literacy, and have a limited amount of time to fill out diagnostics reporting, all which dissuade them from adhering to time-consuming, technical IMCI protocols.

TDH & A STRATEGY TO IMPROVE DIAGNOSIS

In order to increase IMCI uptake and adherence, Tdh partnered with Dimagi, the London School of Hygiene and Tropical Medicine (LSHTM), and the University Research Company (URC) to introduce the Integrated e-Diagnostic Approach (IeDA). The goal of IeDA is to train nurses to better manage the quality of health care services they provide using a diagnostic support tool. Designed to support health workers and enhance their performance, the low-cost IMCI diagnostic tool aims to make it easier to follow IMCI protocols, thus helping to ensure comprehensive childcare. Tdh tapped Dimagi to develop the system, building off of Dimagi's prior experience deploying IMCI-compliant tools in Tanzania, Mozambique, Malawi, and Niger.

THE REC

The REC mobile health system is built off Dimagi's CommCare platform, and includes a tablet-based mobile application and web dashboard. The entire system aims to improve the capacity of participating clinics to engage in robust, data-driven workforce management. It will also be compatible with MOTECH - a software platform that enables communication between different mHealth products. As a result, Tdh will be integrating the REC into a larger health information ecosystem in Burkina Faso.

THE REC APPLICATION FOR NURSES

The REC guides nurses throughout regular consultations of patients under five years old, using decision support to apply IMCI and reduce the number of diagnostic and treatment errors. Nurses use the REC to register patients, record their vital signs,

and input other relevant information in response to the application's prompts. At each successive consult, the nurse can update the patient's information, and is prompted by the application with what immediate steps to take. For example, after a nurse identifies their patient's symptoms, the REC determines their illness in real-time and identifies proper treatment and accurate dosage of medicine according to IMCI.

Key features of the REC

- Diagnosis according to the IMCI
- Automatic posology according to the IMCI, based on the presentation of symptoms
- A simplified user interface and intuitive application workflow with an easy learning curve;
- Data validation mechanisms at input to ensure data quality; and
- Summary screens with graphical visualizations of data according to z-scores and presentation of warning signs

Feature Spotlight

Graphing Infant Growth

The REC CommCare app uses the WHO's Child Growth Standards to determine measures such as weight-for-height, weight-for-age, and height-for-age, as well as mid upper arm circumference (MUAC), which is shown on the right. During visits, nurses enters the child's current height, weight, temperature, and MUAC. On the next screen, the app displays a z-score and an icon for the standard deviation range presented for the WHO standards. Based on the child's resulting z-scores, the application produces icons that signal whether the child's nutritional condition is 'good', 'bad' or in 'danger,' and helps the nurse proceed with appropriate diagnosis and care. Using these tools, nurses can quickly determine whether a child is severely or moderately malnourished.

Designed for users with variable levels of literacy and/or exposure to mobile technology, the REC provides an enhanced user interface that allows nurses to immediately save and access patient information, such as vaccination history. The REC also utilizes growth distribution charts to present where a patient falls on various scales, and supports advanced posology in accordance with IMCI based on the presentation of symptoms. This enables nurses to more easily diagnose patients based on a variety of factors, including presented risk factors.

WEB INTERFACE

By syncing over mobile networks with a cloud-based server, the REC automatically backs up and stores patient data, and enables project and Ministry staff to view reports in real time. Ministry staff can also refer to the web interface for epidemiological surveillance data. The web interface defines threshold levels for disease statistical indicators, and pushes these alerts to the tablet devices to be viewed by nurses in the field. The cloud-based server features an application programming interface (API), enabling the export of program data to ENDOS, Burkina Faso's district health information system (DHIS2).

IMPLEMENTING THE IEDA

2014 marked the first year of the IeDA implementation. All system design and field-testing activities took place in the first year, in preparation for a roll out to 100 primary health clinics reaching 175,000 children by the end of the year. In 2017, the REC will be deployed to a total of 400 clinics, reaching 600,000 children.

MONITORING & EVALUATION

Tdh aims to achieve a 75% adherence to the protocol by 2017, and plans to eventually move the program to national scale up. **LSHTM** will continually perform monitoring and evaluation on the project throughout its roll out on a district by district basis; therefore, all target districts will be evaluated by LSHTM during the whole duration of the project. **URC** will focus on quality improvement activities, by ensuring that the REC and IeDA as a whole effectively aid nurses in treating children. Lastly, **Dimagi** will continue to incorporate feedback from the nurses, Tdh, LSHTM, URC and the Ministry of Health to refine the REC and ensure that it meets the needs of the nurses, the primary end users. To ensure the accuracy and completeness of the new digital records, the overall project will be evaluated against the current paper-based system.

TRAINING FOR IMPROVED IMCI PROTOCOL RETENTION

Dimagi and Tdh are exploring opportunities to create built-in training and refresher course modules in the application. The aim of these modules is to help nurses retain their awareness of IMCI-related knowledge and practice long after they have initially been trained. CommCare's evidence supports a link between users' increased knowledge retention and improved quality of services, which supports future research that looks at how nurses' performance data could inform individual training reinforcement, including delivery of refresher training directly over a mobile device.

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