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Digital Health – A Blessing or Curse for Global Health?

Qualitative health care by digital health in West Africa

leDA – An innovative technology to save children's lives

By Guillaume Foutry

Millions of children in the world still die due to preventable or treatable diseases. Terre des hommes Foundation (Tdh) is implementing leDA (Integrated e-Diagnostic Approach), a mobile application on digital tablets as a solution to improve the quality of child care in remote areas in low and middle-income countries. This application strengthens primary health care in West Africa's rural areas: based on a WHO-recommended protocol, health personnel is guided to diagnose sick children accurately and propose the adapted medical management. Data is stored and processed for analysis, reporting and quality control.



In Burkina Faso, one in 10 die before the age of 5. leDA can help improve the situation. Photo: © Terre des hommes Foundation (Tdh)

After the implementation of an electronic consultation register in Burkina Faso in 2011, Terre des hommes foundation (Tdh) launched the Integrated e-Diagnostic Approach (leDA) application on tablets in 2014 as a pilot project in 39 centres in Burkina Faso's Tougan district. leDA guides health workers in rural areas to do a correct diagnosis and proposes adequate medical treatment which saves children's lives. As less than 10% of frontline health workers were adhering to the WHO-recommended guidelines for the Integrated Management of Childhood Illnesses (IMCI), Tdh with leDA contributed to overcome this problem by assisting health workers during consultations with children under five. Illnesses like pneumonia, diarrhoea or malaria can easily be diagnosed by following the questionnaire step by step with examples and pictures on how to measure and detect certain signs and symptoms. After the diagnosis, an adequate treatment is proposed. In collaboration with the Ministry of Health of Burkina Faso, Tdh reached almost 15% of all centres in the country by 2016 and developed an e-learning application in the same year, thanks to which health workers could increase their medical knowledge to treat child patients.

A better diagnosis

What used to be a pilot project in one district is now a major technological innovation: leDA has been deployed in 39% of all health centres (over 720) in Burkina Faso and its use has spread to 40 health centres in Mali since late 2017. More than 4,000 health professionals use leDA and run 180,000 consultations in Burkina Faso each month. This is a major achievement for the health of children, especially in rural areas: diagnosis has improved and treatment is more adapted to the children's medical needs. With more than 1.8 million children consulted with the help of this tool, Tdh has made a further step towards guaranteeing the right to health to the children of West Africa.

Data to help understand the local situation

Digital tools generate large amounts of data. We made a leap from where data is scarce to a situation with digital tools in which we can extract valuable information from big datasets. In Burkina Faso, leDA is an important source of first-hand information for the national vital statistics. Real-time data collection provides valuable and essential information to monitor early warning for epidemic outbreaks.



leDA uses an electronic form to guide nurses diagnosing children and then records the medical data using the software. Photo: © Ollivier Girard / Terre des hommes Foundation (Tdh)

Training staff

As quality of care is strongly determined by health workers' skills, it is essential to develop and maintain these competencies through regular trainings. Through e-learning, leDA develops the skills of local staff in rural and remote areas on illnesses and different conditions, such as fever, dehydration or diarrhoea. *“This is another advantage of this product: it **includes coaching and***

supervision systems, and enables us to improve health care workers training through an e-learning platform accessible on the tablet. It makes them more efficient at diagnosing and treating patients,” says Thierry Agagliate, project co-founder and Head of Disruptive Innovation at Tdh.

Perspectives

The goal of leDA is to make qualitative health care sustainable in West Africa. With Burkina Faso and Mali using it in their primary health facilities, it already shows substantial impact and high acceptability by health workers and the population. The London School of Hygiene and Tropical Medicines (LSHTM) has evaluated its impact and cost. Preliminary results clearly show high acceptance and reduction of unneeded medicines prescription. In 2018, Tdh launched ALeDIA (Alliance for e-DIAGnostic) a consortium with World Vision and Action Contre la Faim, with the goal of integrating the management of malnutrition into leDA and deploy the tool in Burkina Faso and neighbouring countries. Tdh is also developing new projects based on leDA to address other issues such as adherence to Ante Natal and Post Natal Care consultations, epidemiological surveillance and pharmacy stock management. What Tdh has seen so far in the digital health space is probably just the start of a revolution that will change the way health services are managed and provided.

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www.tdh.ch/video/ieda

We are proud to work on this project with the Ministry of Health from Burkina Faso and Mali; Dimagi (USA), our technological partner developing and maintaining the applications; the LSHTM (UK), running three independent studies which evaluate the project impact, cost-effectiveness and feasibility; the Swiss TPH, to improve the algorithm and project analysis; EPFL, working with leDA to develop new tools to improve diagnostic of malnutrition; and the University Hospital of Geneva, undertaking research to mine and extrapolate data's meaning.

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