

# Synergy that saves children's lives: Integration of two mobile applications for improved management of childhood illnesses and malnutrition

Submitted by Happy Kumah (World Vision) on January 19, 2018 - 4:21pm

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**Proposal Status:** Out of Scope

## I. EXECUTIVE SUMMARY

This project will bring together two existing mobile solutions independently developed by World Vision (WV) and Terre des hommes (Tdh), to address the management of malnutrition and the management of childhood illnesses, respectively. **The integrated digital tool will improve the coordination and timeliness of treatments that saves children's lives.**

**Background & Rationale:** Despite the progress in reducing child mortality in the past two decades, treatable conditions such as diarrhea, pneumonia, malaria and malnutrition remain the leading causes of death among children under five in Mali[1] and other parts of the developing world. Despite the existence of effective clinical protocols from the World Health Organization (WHO), namely, the *Integrated Management of Childhood Illnesses (IMCI)* and the *Community Management of Acute Malnutrition (CMAM)*, **the adherence to these protocols is low[2], thus limiting their impact on child morbidity and mortality.** Furthermore, at rural health facilities IMCI and CMAM services are often not well coordinated, and children presenting with *both* an infection *and* severe acute malnutrition are at risk of not receiving the comprehensive treatment they need, resulting in delayed recovery and potentially death. This situation is particularly important given malnourished children's higher risk of dying from an infection[3]. To improve protocol adherence and treatment outcomes, World Vision developed a mobile app on the CommCare platform[4], in collaboration with Dimagi, to support CMAM implementation in Chad, Niger and Mali[5]. Similarly, Tdh developed and scaled to 1/3 of Burkina Faso, a digital solution to improve adherence to IMCI using Commcare. **Recognizing the need to decrease fragmentation in the digital space,** WV and Tdh are working towards the formation of a *Mobile Health Consortium* and seeking to integrate the two mobile applications to better meet the needs of children suffering from infections, or malnutrition, or both.

**Expected Outputs and Results:** Through this project we will achieve **(1) an Integrated IMCI+CMAM App** that contributes to improving protocol adherence, and timeliness of management of children who need both IMCI and CMAM treatment; **(2) a clear strategy and work plan** for the introduction of the IMCI+CMAM App into routine care and the national health information system (SNISI) in Mali; and **(3) additional resources** – financial, in-kind and human resources – developed or acquired to continue developing the tool in Mali and potentially other countries in the region.

## II. CONSORTIUM

The Consortium is a collaboration between *World Vision* and *Terre des hommes*. Both organizations have strong track records of implementing health projects in Mali and have established rapport with local ministry of health, as well as community health structures. The proposed project will leverage the existing apps for IMCI and CMAM, their 10+ years[6] of combined experience in developing and deploying mHealth solutions, and their health expertise and academic partnerships[7].

**World Vision (WV)** is a child-focused international relief organization, development and advocacy organization working to create lasting change in the lives of children, families, and communities to overcome poverty and injustice since 1950. WV is active in over 100 countries worldwide and is a global leader in health, nutrition and community health worker programs. Over the past decade, WV has developed a portfolio of mHealth programs to support **community health workers** (CHWs) and health facility staff with deployments over 20 countries in

Africa, Asia and Latin America. World Vision has developed its applications using CommCare/Motech, initially through a partnership with Dimagi and Grameen Foundation with early support from the Bill & Melinda Gates Foundation for our technology partners to co-design/build common global applications for specific health & nutrition project models. Among many grants awarded for WV mHealth projects over the years, World Vision received a grant in 2014 from US OFDA for introduction of the CMAM application in Chad, Mali and Niger. This project has formed the basis of current efforts to further scale this mobile tool. Lessons learned from that project were published in 2016 in partnership with Transform Nutrition[8] and have been integrated into the deployments.

**Terre des hommes (Tdh)** is the leading Swiss child relief agency, committed to improving the lives of millions of the world's most vulnerable children. Tdh works in over 40 countries worldwide, including Mali. Tdh developed, in partnership with Dimagi, an innovative suite of apps to improve IMCI adherence by healthcare workers with funding from the Bill & Melinda Gates Foundation. The digital tools include a job aid for IMCI and a supervision app, together with a set of dashboards for managers and health workers. Since 2015, the IMCI app has been scaled to over 30% health facilities in Burkina Faso (600 facilities) and integrated with the government's health management information system (HMIS). To date, almost 2 million consultations have been conducted with the IMCI app by more than 2,500 healthcare workers and almost 80% adoption of the tool. Preliminary results from the impact evaluation show an improvement of IMCI adherence and quality of the care provided to children under five. Tdh is currently in the process of adapting and introducing the IMCI app in Mali, Niger and Mauritania.

### III. PROJECT DESCRIPTION

The project will be executed in Segou Region Mali over 15 months, with estimated budget of \$200,000 through the 4 phases described below:

**Phase 1. Consultation** (3 months): The Consortium will follow sound digital development principles[9] and engage relevant stakeholders in a series of consultations to identify the key considerations for the Integrated IMCI+CMAM app, and agree on the processes of development, testing, training and support for the Integrated app. The consultations will focus on how the integrated app will fit into the digital health ecosystem, integration and/or interoperability with government health information systems, and the app specifications to meet the needs and considerations identified through a user-centric design approach with health workers, supervisors and beneficiary groups. The **products** during this phase will be (i) a development, training, testing and implementation plan for the new IMCI+CMAM App; (ii) a monitoring & evaluation plan. Furthermore, additional funding will be sought during this phase for a transition to scale assessment and design.

**Phase 2. App Development** (3 months) : The development will leverage the fact that both CMAM and IMCI apps are already built on the CommCare platform. Based on the user-centric design described above, the prototype IMCI+CMAM App will be developed jointly with the Government of Mali, leveraging dedicated IT staff of the Consortium member organizations, with advanced support from Dimagi. This arrangement will support the strengthening of the two NGOs' existing capacity to undertake most of the CommCare development and configuration internally. WV will contribute financial support to the training of IT staff from WV's Mali and/or West Africa Regional Office through Dimagi's CommCare Academy. Overall, this increase in technical capacity will reduce costs and dependence on external technology partners for the development, further contextualization, training, and roll-out and maintenance of the digital tool. The **product** of this phase will be the IMCI+CMAM app, including the dashboard functions for reporting and supervision. During development, the app will be field-tested extensively with a selected group of health workers (users) and health service supervisors.

**Phase 3. Pilot implementation**(6 months): The IMCI+CMAM app will be tested in two different districts in Mali, to reach a total of **20 health facilities** and **60+ healthcare workers**. Facilities with existing experience with digital job aids will be prioritized. WV will fund the replacement of some of the mobile devices from the previous mHealth project. Training and support of users (healthcare workers and managers) will be performed by Consortium staff proficient in CommCare and the IMCI+CMAM app. Training to select government officials by Consortium staff will provide the opportunity to test and learn from how the tool is used for management purposes at the central level. Close technical support will be provided during the initial weeks of introducing the app. Periodic review meetings will be held to troubleshoot, obtain feedback from users, and collect select data for monitoring, evaluation and learning purposes.

**Phase 4. Evaluation, dissemination of lessons learned and action plan development** (3 months):Monitoring data will be used for

the evaluation of the pilot according to the plan developed in Phase 1. Primary focus will be the feasibility of implementing the integrated app. Leveraging WV's mHealth M&E Framework and Toolkit, as well as Tdh M&E expertise, the project will measure contribution to improvements in health outcomes and attribution of digital health value-add through improved efficiencies, quality of service and cost effectiveness[10]. In addition, a lesson learned workshop will be held to discuss and disseminate lessons learned and insights gained throughout the whole project. Under the guidance of the Ministry of Health and other government entities, the Consortium will seek additional resources to work jointly with government stakeholders and technology partners on a development plan that includes the progressive roll out of the tool, evaluation phases and integration/interoperability with the national data structure and enterprise/technical architecture. Evaluation and lessons learned will also be disseminated outside Mali through Consortium members' spheres of influence, and if additional resources are available, through relevant conferences and technical forums.

In summary, this project will support the integration of efforts by WV and Tdh to improve the management of childhood illness and malnutrition, and strengthen the Consortium's capacity to leverage their joint expertise and global presence for the advance of digital health.

**A Letter of Collaboration from Tdh has been submitted with this concept note as a supporting document.**

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[1] <http://countdown2030.org/country-profiles/mali>

[2] Krüger *et al.* BMC Health Services Research (2017) 17:822. Lange S *et al.* Soc Sci Med. 2014;104:56–63.

[3] Caulfield *et al.* Am J Clin Nutr 2004;80:193–8

[4] CommCare Evidence Base for Frontline Workers: <http://www.dimagi.com/wp-content/uploads/2016/06/CommCare-Evidence-Base-July-2016.pdf>

[5] The CMAM app was developed and piloted with funding from OFDA and private donations.. <http://nutritioncluster.net/wp-content/uploads/sites/4/2016/10/Health-Application-for-Acute-Malnutrition-Programming.pdf>

[6] WV FY17 Global mHealth Summary: [http://wvi.org/sites/default/files/FY17\\_mHealth\\_Global\\_Summary\\_FINAL.pdf](http://wvi.org/sites/default/files/FY17_mHealth_Global_Summary_FINAL.pdf)

[7] WV partners with Johns Hopkins University, London School of Hygiene & Tropical Medicine (LSHTM), the Global Centre for Child Health at Sickkids in Toronto, Canada, and many more; Tdh collaborates with LHSTM and the École Polytechnique Fédérale de Lausanne.

[8] [http://www.transformnutrition.org/wp-content/uploads/sites/3/2017/04/TN\\_WorkingPaper1\\_MobileApp\\_Online.pdf](http://www.transformnutrition.org/wp-content/uploads/sites/3/2017/04/TN_WorkingPaper1_MobileApp_Online.pdf)

[9] From 2012, World Vision contributed toward the formulation of what later became the Principles of Digital Development, which WV also formally endorsed in early 2016.

[10] Key indicators will include the percentage of consultations in which the app is used, percentage of supervision visits that used the app functionalities and data, and select standard performance indicators for IMCI and CMAM programs.

**Supporting Documents:**  [loc\\_tdh\\_-\\_wv\\_signed\\_19.01.18.pdf](#)