Assuring the Long-term Value of a Critical Public Health Tool: e-TB Manager

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Proposal Status: Postponing for Future Calls for Proposals

Executive Summary

The emergence of drug-resistant tuberculosis (DR-TB) around the world has made it more difficult to manage both individual patient cases and ensure the uninterrupted availability of complex set of medicines needed to treat the disease[1]. Many national TB programs in low- and middle-income countries still manage patient data with unsophisticated spreadsheets or even paper-based systems. As a result, although standardized international guidelines for TB control exist, TB programs often have problems managing and analyzing the data needed to follow these guidelines, which results in poorly timed treatment interventions.

In 2004 with funding from the US Agency for International Development (USAID), Management Sciences for Health (MSH) worked with TB experts in Brazil to develop a software tool to tackle these increasingly complicated DR-TB program variables. The new tool—**e-TB Manager**—combined the ability to monitor diagnosis, prescribing, and patient information with the information needed to ensure that TB medicines were available for patients when needed. e-TB Manager version 2.0, upgraded in 2008, has expanded capacity to manage the information needed by national TB control programs. It integrates data across all components of TB control, including suspected cases, medicines, laboratory testing, diagnosis, treatment, and outcome and incorporates specialized data analytical tools, including cohort analysis.

USAID and other national and donor-supported programs have supported the implementation of e-TB Manager 2.0 in more than 10 countries, where it supports the management of more than half a million patients. The tool is available in English, French, Russian, Spanish, Ukrainian, Bahasa, Armenian, Portuguese, Romanian, Vietnamese, and Uzbek. The use of e-TB Manager has produced better data quality and timeliness, which has reduced the number of supervision visits by 70%. Its built-in alerts have improved treatment adherence to maintain a DR-TB cure rate of approximately 60%, while doubling case reporting. In addition, use of the tool has helped promote countrywide TB monitoring and surveillance by allowing managers to identify high- and low-performing TB sites and targeting quality improvement interventions accordingly. We propose to upgrade the e-TB Manager 2.0 by creating additional functions and interoperability with DHIS2.

Consortium

For more than 40 years, MSH has been establishing, managing, and evaluating pharmaceutical sector activities in low- and middle-income countries. We began developing specialized database software in 1987 to improve medicines procurement and inventory management because we could not find suitable commercial software. Our work with electronic management tools has evolved over the years, but our goal has always been to help resource-limited countries manage pharmaceuticals efficiently. e-TB Manager has been one of our most popular products and TB remains one of the most critical infectious diseases to be managed, which is why we feel strongly about making sure that it continues to serve the needs of national TB program managers.

Our Principal Data Scientist, Michael Brown, will oversee program management and provide technical leadership to the software upgrade. Julie Frye, who has almost 20 years of experience working with MSH electronic tools will be responsible for day-to-day implementation of the application development. She will also serve as a liaison to potential technical organizations that we partner through this opportunity. Andre Zagorski, who is MSH's Senior Principal Technical Advisor for TB will provide technical input on TB program needs by engaging global and national stakeholders and potential users for their inputs, support, and use.

Project Description

Because TB care requirements are standardized internationally, [2] e-TB Manager is usable in every country without the need for country-specific adaptations. This quality makes the product enhancements a global good. MSH has continued to increase e-TB Manager functionality over the years, for instance, by improving the user interface and building capacity to collect data and resynchronize if an internet connection is

not available. We have also made e-TB Manager 2.0 available through an open source platform, GitHub, along with documentation such as a user guide and implementation guide.

Almost all low-income countries manage their TB programs as a vertical public health program with specialized guidelines, management structure, and budget streams; therefore, while the integration of TB data management and analytical capability into the country's overall health information system would be ideal, we anticipate that a tool with capability of specialized data and analysis that national- and district-level TB managers need to manage their programs effectively will remain critical. In addition, based on our experience, we believe that TB programs will benefit from enhancements to the current product; for example, building the ability to correlate and link data with other health information systems such as DHIS2 expands data reporting and analytical capabilities. Similarly, the interoperability will support the flow of the TB data into other health information systems. We propose investing in this popular tool to expand its long-term value and usefulness.

Our proposed upgrades include the following steps:

- **Allowing the integration and interoperability with DHIS2 to complement TB data reporting and analysis**
- **Implementing standardized diagnostic and pharmaceutical codes to simplify data entry and implementation**
- **Enabling Cloud-storage of data**

- **Simplifying the installation system for mass installation**
- **Enhancing the laboratory module**

MSH will work with an interested and capable technology partner or a third-party vendor to complete the upgrades over a six- to nine-month period. Once the software update is completed, we will continue to maintain e-TB Manager 3.0 as an open source product, and we will offer technical support to implement either the new version or an upgrade from older product versions and coordinate support with other global technical agencies and programs. We expect this investment to extend the life of e-TB Manager for another decade.

You can access the userr guide at http://pdf.usaid.gov/pdf_docs/PA00K6KN.pdf

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[1] H. Timimi, D. Falzon, P. Glaziou, C. Sismanidis, K. Floyd. WHO guidance on electronic systems to manage data for tuberculosis care and control. J. Am. Med. Inform. Assoc., 19 (6) (2012), pp. 939-941, 10.1136/amiajnl-2011-00075

[2] TB CARE I. International Standards for Tuberculosis Care, Edition 3. TB CARE I, The Hague, 2014.