

Successful transfer of a Web-based TB medical record from Peru to the Philippines

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Introduction

Tuberculosis is a leading cause of death worldwide with a particularly high incidence in Peru, the Philippines, Africa and South Asia. Cases of multidrug-resistant TB (MDR-TB) have been rising dangerously in Peru and other countries. The more prolonged and complex treatment for MDR-TB was recently believed to be beyond the means of developing countries but excellent results have been achieved by Partners In Health (PIH) and its sister organization, Socios en Salud (SES), in Peru, where 4600 patients have started or completed treatment to date. To support this treatment, PIH developed an open source, web-based medical record, the PIH-EMR [1]. In 2004, PIH was asked to set up the PIH-EMR for the MDR-TB treatment program at the Tropical Disease Foundation (TDF) clinic in Manila, Philippines.

Background and requirements

The PIH-EMR includes functions to track patients in treatment including their baseline clinical assessment, laboratory tests, response to treatment based on sputum smear and culture, and drug regimens. The system is viewable in both English and Spanish and is heavily used by Peruvian staff. Transferring software from the original organization where it was developed to a very different environment can be challenging, particularly when there are changes in both language and culture.

Strategy and implementation

The PIH-EMR code was set up on a new server in Boston and the changes to the forms, layout and language were made in discussion with TDF staff. In the Philippines, more emphasis is placed on clinical viewing of patients and use of the EMR in the TB laboratory. The EMR is required for all screened TB patients in addition to those on treatment. In Peru, bacteriology data comes secondhand from many small labs; the EMR is also used to forecast drug requirements. Once the basic code changes were made, three of the authors (SC, DJ & HF) traveled to Manila to install the system locally, complete implementation of the changes and do training. The PIH-EMR code was then merged with the Philippines system (TDF-EMR) and configuration tools added to allow switching between the two system "views."

Results

The TDF-EMR has been used for 17 months and has records on 1279 patients who have started or com-

pleted treatment, 489 with MDR-TB. It is regularly used for viewing clinical records and reporting on patients with ongoing treatment. Laboratory results are entered into the system as soon as these are available, thereby minimizing printing of results. Standardization of data collection and definitions should simplify comparisons of treatment between sites.

Lessons learned

Problems encountered included the challenging job of supporting and upgrading program code from a distance after the initial visit. The web accessibility of the system greatly helped but two further visits were required and some problems have been slow to correct. Regular conference calls have helped troubleshooting and training. One author (MG) visited Boston for training in analysis and some programming. Integration with other laboratory software systems is requiring additional work.

The initial implementation showed that a number of complicated functions in the PIH-EMR catered to a small number of users at SES. In the TDF-EMR, we avoided the temptation to add complicated functionality that was only useful to a few. In the case of the analysis functions, for example, generalizing the search pages made the EMR more usable to a larger number of people in both organizations.

In adapting the PIH-EMR software, instructions for many of the complicated functions became obsolete. Updating training materials took longer than expected. These difficulties reaffirmed the need to maintain a less organization-specific set of functions in the EMR.

Future work

Lessons from this project have helped the design of a new EMR system (OpenMRS) for developing countries which is more flexible in configuration, extension to collect new data and use of multiple languages. The goal is independent local support and extension of an EMR system.

Acknowledgements

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References

- 1) Fraser HS, Jazayeri D, Mitnick CD, Mukherjee JS, Bayona J. Informatics tools to monitor progress and outcomes of patients with drug resistant tuberculosis in Peru. Proc AMIA Symp. 2002:270-4.