

# Expanding an Electronic Medical Record to Support Community Health Worker and Nutritional Support Programs in Rural Rwanda

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## Abstract

Scaling up HIV and TB treatment rapidly in a resource poor setting is greatly facilitated when community health workers can monitor patient well-being and ensure that patients adhere to medication. In addition, it is almost essential that patients receive a food package while being treated for HIV and TB, since medication can be ineffective if patient is undernourished. However, a community health worker program and food program can add significant administrative overhead, particularly if reporting or evaluation is required. By expanding an Electronic Medical Record to cover these programs in addition to treatment programs, it becomes easier to administer them and combine interesting data from different sources.

## Overview

The HIV and TB treatment programs at Rwinkwavu Hospital in Rwanda use the OpenMRS[1] open source Electronic Medical Record (EMR) to track patient data. Being open source, it was fairly easy to expand functionality of OpenMRS to accommodate the community health worker and food programs. Then individuals from each program were trained to enter data in newly created interfaces. The result is more data related to each patient is collected and can be used for monitoring, programmatic support, and reporting.

## Community Health Worker Program

The system was altered to allow entry of forms and data pertaining to health care providers in addition to patients. This allowed the Community Health Worker program to track the monthly visits during which health workers pick up medication for patients. It also allowed an evaluation committee to record information about the quality of care given by a particular community health worker.

## Nutritional Support Program

Changes required to accommodate the Nutritional Support Program were more straightforward, since the data collected still relates directly to the patient. An electronic entry form was created to represent the data collected when a patient came to receive a food package. In order to do this, it was necessary to add new medical concepts to the OpenMRS dictionary[1]. In addition, customized reports were written to automate the weekly and monthly reporting performed by the program.

## Infrastructure and Implementation Details

In order to quickly expand to support these programs, it was necessary to have a way to add new forms and reports without much difficulty, which is straightforward with OpenMRS. This system can be set up in sites with limited infrastructure and support but does require at the very least, electricity and a working computer running Windows or linux. Also, entry of data for these programs require more staff dedicated to data entry and quality checking.

## Results and Lessons Learned

By March 2007, over 1,991 patients in the system have data from the Nutritional Support Program showing when they received packages, and how much food they received from each visit. In addition, the program monitors patient data such as weight, which can then be compared to clinical results for accuracy checking. Further, it has become possible to cross-reference data from the food program back to clinical data. For example, it is now possible to show patterns of weight gain/loss as patients go on or off the food program. At the same time, data for 873 community health workers was collected and used to support an evaluation program. The data is also used to print out attendance sheets when health workers come to collect medication to bring to patients.

## Future work

We hope to continue to harness the power and flexibility of OpenMRS to continue to expand to different programs at our hospitals and health centers. The next programs we hope to add to the system are the Malnutrition Program, the Patient Home Visit Program, and the Program on Social and Economic Rights, which provides services such as housing improvement and financial assistance for education.

## References

1. Mamlin, B., Biondich, P.G., et al., Cooking Up An Open Source EMR For Developing Countries: OpenMRS - A Recipe For Successful Collaboration. Proc AMIA Symp, 2006: p. 529-533.

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