Biometric technology in healthcare

Health problem addressed

Tuberculosis (TB) is one of the biggest public health problems in India. The country holds one-fifth of the global TB burden with nearly 2 million new cases and 330,000 TB-caused deaths every year. Patients who do not complete the entire course of treatment often develop drug resistance.

Solution description

The system utilizes a simple interface with minimal text and color coding for ease of use in low-literacy areas. The system synchronizes up-to-date reports with a central Electronic Medical Record (EMR) database located at the office headquarters. The application uses .NET Framework and runs locally on any Windows machine. Primarily an offline application, it sends daily attendance reports through SMS to an online server, through the USB modem. When the patient registers onto the system they provide a fingerprint, which is used throughout their course of treatment to track their treatment schedule. If a patient misses a dose, an SMS is sent to their counselor by the end of the day.

Functionality

Patients registered at the terminal log their visit to a TB center on a fingerprint reader. At the end of each day, the attendance record is compressed into a text message and sent to an online server. If a patient misses a dose, the counselor receives a text message and must follow up with the patient within 48 hours to take their medication.

Developer’s claims of solution benefits

The eCompliance initiative is the first to apply biometric attendance monitoring to tuberculosis treatment. No other TB control system can provide verifiable evidence to back up their TB statistics. The innovation’s transparency and accountability are two of its strongest aspects. While other TB programs have digitized their systems, these programs rarely cater to impoverished areas, relying on the Internet or 3G networks to relay information.

Future work and challenges

Funding is needed for operations of the system and the ever-changing field of technology.

User and environment

User: technician, counselors.

Training: training on the system takes 3-4 hours and is given by one of the biometric team members.

Settings: rural, urban, home, ambulatory, primary, secondary, and tertiary.

Solution specifications

Solution is used to support: Electronic Health Record/Electronic Medical Record; mHealth.

Software/Hardware requirements: Netbooks for use in the treatment centers and access to SMS network to work with the netbook. The software is open-source and can be downloaded from the website for free.

Country used in: India

Evaluation: There has been one pilot study at the treatment centers, and a follow up of a qualitative study in 25 centers in two states. Over 2,300 patients have been registered. The qualitative study interviewed 8 health workers, 4 center owners and 23 patients. Findings suggest that the terminal helps draw patients to the center by incentivizing health workers and convincing patients to come.

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