



Sana.PCHR

NCD Guidelines and mHealth Records for Refugees in Lebanon

Sana.PCHR is a mobile Patient-Controlled Health Record (PCHR) app designed to understand and improve the health status and needs of patients with non-communicable diseases (NCDs), namely diabetes and hypertension. Specifically, the app enables clinicians to access longitudinal consultation records in case the patient moves or unexpectedly seeks care from another provider, which is common in the context of refugees. The key components of the app are the integration of decision-making tools for providers, based on treatment guidelines adapted to the context from standard protocols, and printouts of educational materials for patients. The decision support tools strengthen care by identifying key milestones, aiding in referral to secondary care where indicated, managing prescriptions, and scheduling patient follow up. Outputs of the application include a full printable patient health record as well as an abbreviated version of the record that can be shared via SMS. By using Sana.PCHR, physicians can provide patients with their disease history and the medications prescribed at every visit by sending an SMS to the patient's cellular phone. The app also tracks the date of the next follow up visit and sends a reminder to the patient's cellular phone. Sana.PCHR allows patients to engage in their care as it seeks to improve patients' ability to monitor their own chronic conditions. It assists both patients and providers in managing diabetes and hypertension.

Implementation

The Sana.PCHR was tested and implemented in ten primary health care facilities in Lebanon for use with Syrian refugees and host communities in

January of 2016. A local supplier able to accommodate the SMS service within Sana.PCHR was selected for the implementation. Account information and credentials were verified in order to enable the application to send automated text messages through the chosen supplier. The SMS functionality of the application was activated in April 2016. It also includes an easy to interpret risk card with lifestyle and biometric components. During facility visits, the team met with clinic providers and administrators to introduce the app and provided a hands-on training. The teams also worked with the clinics to ensure all facilities had adequate Wi-Fi access and printing capabilities for seamless use of the app. These trainings and visits also allowed opportunities for study team members to collect user feedback and tailor the app to changing needs.

Technical Components

Data input into Sana.PCHR can be stored on an off site server either with Amazon Web Services or in-house. In the case of a connection interruption, data is stored locally and to be uploaded the next time Internet is available. The app utilizes an Android operating system requiring Android 4.4.2 software and Android tablets able to run the aforementioned software. Sana.PCHR installation is simple, requiring users to download and run the provided apk file (i.e. installer). Once the application is installed, users set up a clinic account. Language can be chosen based on the clinic location. Identified administrators can set up users and enter further configuration information within the administrative interface on the server rather than in the application itself.

Key Functions

-  **Medical History:** Allows clinicians to enter details of a patient's history including reasons for presentation, chief complaints, diabetes and hypertension status, symptoms, and other medical information.
-  **Physical Exam:** Allows clinicians to enter clinical measurements and observations based on physical examination. Fields include height, weight, blood pressure, etc.
-  **Lab Test:** Allows clinicians to enter and keep track of results of lab tests conducted on patient including blood glucose level and cholesterol.
-  **Treatment Plan:** Allows clinicians to see and edit current treatments and medications. This page also allows the clinician to make new recommendations for medication, tests, referrals, and return visits.
-  **SMS:** Allows clinicians to send an abbreviated version of the health record via SMS, providing patients with their disease history and medications prescribed at every visit. This functionality also tracks the date of the next follow up visit and sends a reminder to the patient's cellular phone.
-  **Printing:** After relevant information is provided, this feature allows clinicians to print the record and exit the patient's profile.

The Sana.PCHR application can be used with or without technical support.
To learn more, visit <http://sana.mit.edu/pchr>



About Sana

MIT-Sana follows a unique multidisciplinary integrative approach to improving global health by leveraging technology to overcome resource limitations, focusing on analytics to drive evidence-based quality improvement, and implementing an educational program for capacity building, promoting locally sustained innovation. To encourage rapid and widespread adoption that will expand global access to mobile technologies, Sana promotes open source technologies and licenses. Sana is a cross-disciplinary organization that includes clinicians, engineers, policy, public health, and business experts along the entire healthcare value chain. The

mission of Sana is to democratize access to quality healthcare through open source technologies, share knowledge through the exchange of learning across partners, and to extend global networks of multidisciplinary experts to all.

The Team

With teams from Johns Hopkins Bloomberg School of Public Health (JHSPH) and the International Organization for Migration (IOM), Sana conducted field visits at clinics in Lebanon in order to test and roll out the new Sana.PCHR application.