

Innovation-to-Impact Assessment: ICChange Kibera Medical Records Initiative

Run by Babyl Technologies

WHAT IS IT? A secure Electronic Medical Record (EMR) health program that creates a protected medical identity for individuals.

Current Status: Kibera, with one million people, is the second largest slum area in Africa. The EMR health program will be deployed first in the Kibera informal settlement (slum area) in Nairobi, and then applied exponentially at a national level throughout Kenya. The cloud-based EMR pilot has already been successfully validated and scale-up of the open platform has been approved by the Kenyan Ministry of Health for national deployment.

Description: Secure and portable, an Electronic Health Record (EHR) is shareable within a live Geographic Information System (GIS), informing environmental and health realities in the area. It is built on the OpenMRS platform and includes functionalities like primary care and GIS customization.

- 1 | **Goal:** To establish functional health services and a patient centered health network. EMR facilitates continuation of service between health providers (doctors, pharmacists etc.)
- 2 | **Impact:** Access to health services for the urban poor.
- 3 | **Why:** Lack of access to and referral within an affordable high-quality healthcare network does not exist in the world's slum areas. This results in medical care that is higher-cost, time-consuming and not synchronized.

The
ICChange
EMR system
will provide:

- a) **Development** of a referral network between high quality health facilities leading to improved utilization of local health services, cost savings and decreased repeat investigations and misdiagnoses;
- b) **Empowerment** of patients, making them the focus, providing access to a network of health facilities;
- c) **Understanding** of the physical environment and local health context of users
- d) **Facilitating** risk stratified and risk aggregated health insurance strategies through a more comprehensive understanding of disease epidemiology

4 | Current Status & Successes:

- a) Pilot had **3 partner clinics** (100,000 patient visits/year) in the Kibera slum area in Nairobi. Others are currently being evaluated.
- b) Successfully permitted **2 clinics to cross-refer** patients (maternal health, HIV care and laboratory services) resulting in improved efficiencies.
- c) **V2 of the EMR software** at 90% completion.
- d) **Collaboration with Kenyan Ministry of Health** to use the KMRI code as the basis for the national EMR system, including a partnership request for system implementation.

ICChange is striving for **2M system users** in 3 years
and **>10M** within 5 years.

5 | Who / The Team: ICChange has a multitalented team that has worked together for over nine years with backgrounds in business, health informatics, health policy, science, software, IT networks, infectious diseases, surgery and medicine.

Dr. Abullah Saleh, General Surgeon
Chief ED of ICChange

Dr. Abraam Isaac, Infectious Disease Physician
Co-ED of ICChange

Dr. Byron Berenger
Medical Microbiology Doctor
Medical Technical Liaison

Serghei Luchianov & Kevin Nichol
Lead Software Developers

Badeia Jaqhari
HR Specialist, MSc Candidate in Health Informatics
4 yrs experience EMR implementation

6 | Where: First deployment in Kibera slum in Nairobi, Kenya with next scale across Kenya.

7 | How : ICChange's key partnerships include:



8 | Core Impact success elements:

- a) **Technology:** V2 software completion.
- b) **Professional Acceptance:** Implementation by clinics, health facilities, hospitals, governmental, private and nongovernmental organizations/companies that service these populations including universities and research institutes
- c) **Patient Acceptance:** Willingness of patients to pay 5 USD to have access to the enrolled clinics in the network. An informative marketing program dedicated to slum areas will be pursued. Subsidies will also be sought.

9 | Risk Factors:

Internal: Challenging physical and technical implementation environments. Risk of security and confidentiality exposure which would result in legality issues.

Mitigation: Teams have proven on-the-ground experience implementing the EMR system in the Kibera slum area. Attention to security is paramount and best practices will be deployed.

Competitors: Includes disease-specific software focusing on HIV or TB care, and small/localized EMR systems already in place in East Africa and South Asia.

Mitigation: Disease-specific approaches can be migrated to a central EMR system through partnerships. Initial deployment focused on slum areas where EMR systems not in place.

Regulatory: Widespread health solutions requires government support. Managing data sensitivity and confidentiality (e.g. exposing potentially illegal settler populations) is important.

Mitigation: Kenyan Ministry of Health has approved Babyl Technologies solution for deployment. Data management protocols exist, but require further attention as scale is achieved.

Deployment pathway risk – Training & Sales: Investments in hardware and training required and unreliable access to power and network/connectivity. Acceptance of both health professionals and patients is critical.

Mitigation: Team deployment experience, partnerships to enable provision of hardware, adequate power solutions and attention to training are important.

10 | 9BL LENS

- ✓ **Is there 9BL Vision Alignment?** EMR can form the basis of an efficient health system for those who require it most.
- ✓ **Can scale occur for exponential impact?** Fully developed, EMR software will be scalable across Africa and informal settlements around the world.
- ✓ **Is there a minimum double impact win with the top interconnected impact areas?** EMR addresses health primarily, but that is a backbone for education, wealth creation and development of a strong local community.
- ✓ **Is the innovation missing something that 9BL can deliver to drive even bigger impact?** Missing capital to expand the software and global connections to facilitate expansion outside of Kenya.
- ✓ **What is the time to impact? Can it be quickly realized?** V2 of software can be completed and ready for implementation within 6 months. Application to populations of ~25M can occur within 2 years. Full health impacts will take several years to be realized.
- ✓ **Side effects:** We anticipate better targeted insurance plans based on aggregate data received, which can be both beneficial and challenging. However, it doesn't diminish overall effectiveness of an EMR program and can be managed.
- ✓ **Are desired outcomes and Impacts aligned?** Yes.
- ✓ **Are objectives measurable and trackable?** Usage metrics can be directly tracked – both by medical professionals and patients. Overall health of slum area populations is an global health metric, however direct attribution to the EMR may be difficult.

500,000
people can be reached
within 5 sq km
in Kenya's informal
settlements

9 Domains of Sustainability Interconnectivity Assessment:

The Kibera EMR initiative inter-connects with 3 domains of sustainability.

Innovation-to-Impact Investment Plan:

\$275,000 deployed in a staged manner. Initial financing will be used to complete version 2 of software and establish deployment team. Subsequent financing will be dispersed to support initial deployment and will be based upon successful staged completion of work.



**FOR
MORE
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