



ClickDiagnostics.com

Providing Mobile Telemedicine Anywhere



October 2009

Engaging Data Conference, MIT

Contact: info@clickdiagnostics.com

Click exists to enable access to health care in emerging countries, through technology and a sustainable business model

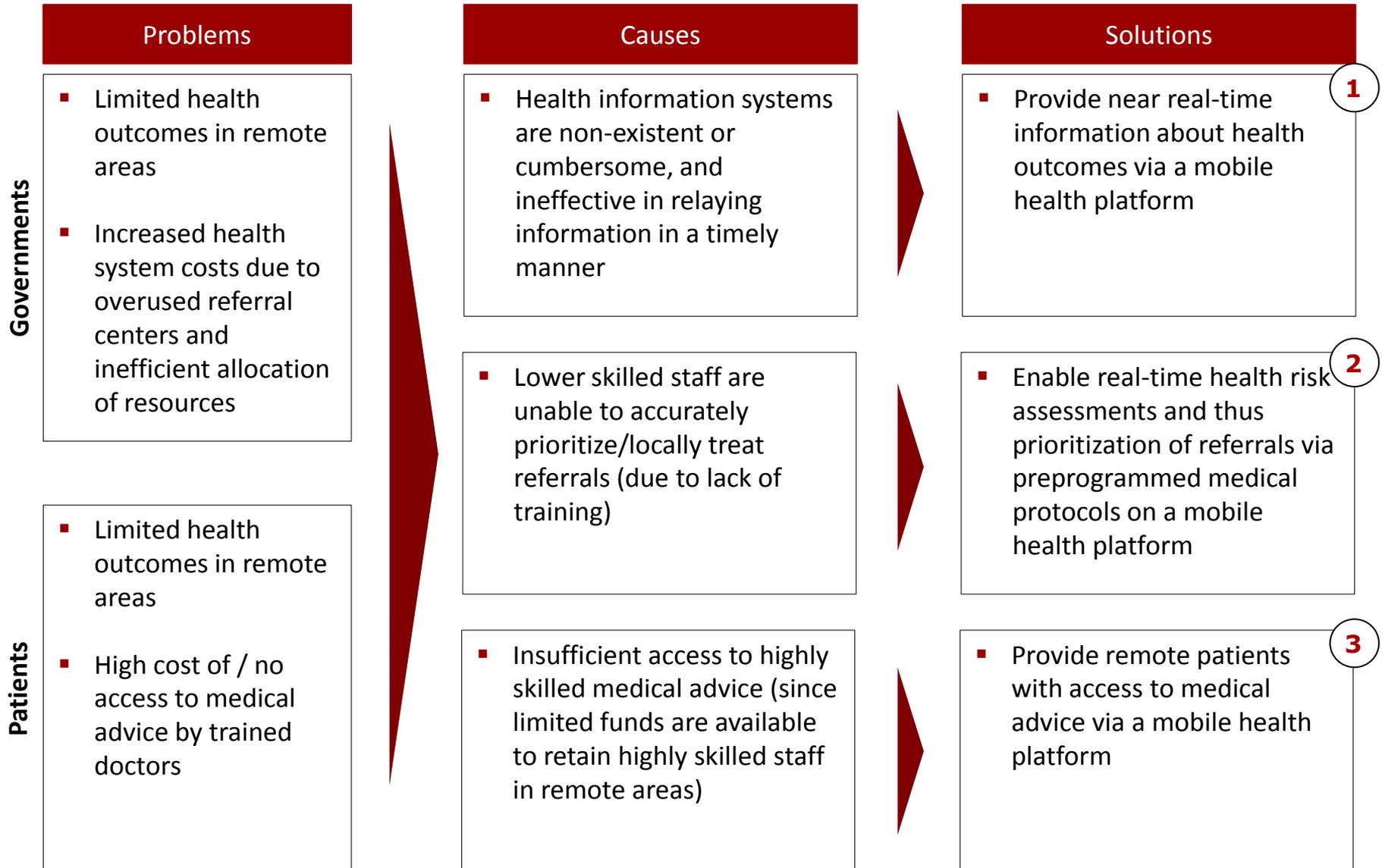
Key Health Problems

- Limited health outcomes in remote areas
- Increased health system costs due to overused referral centers and inefficient allocation of resources
- High cost of / no access to medical advice by trained doctors

Click's Mission

- Enable improved health outcomes with a mobile health platform
- Reduce health system costs by providing access to almost real-time information on health outcomes
- Ensure sustainability by focusing on entrepreneurial models for front-line service delivery

Click is addressing the health problems of emerging countries by focusing on three solutions



The solutions that Click provides are: Health care information, Health risk assessment and Remote advice services

Solution

Services

Benefits

1

Health
information
services

- Patient record creation
- Patient record analysis

- Decreases diagnosis time for pre-existing ailments/referrals since historic diagnosis can be seen
- Improves treatment for pre-existing ailments/referrals since historic treatment options can be clearly seen
- Enables identification of critical disease categories & most successful treatments and resource optimization across health facilities

2

Health risk
assessment
services

- Health risk assessment in primary care
- Health risk assessment at home

- Ensures use of standard triage procedures for primary care assessments
- Leads to accurate prioritization of high-risk cases and thus better resource allocation across patients and quicker interventions for high-risk cases
- Enables cost-effective health intervention focused on high-risk cases

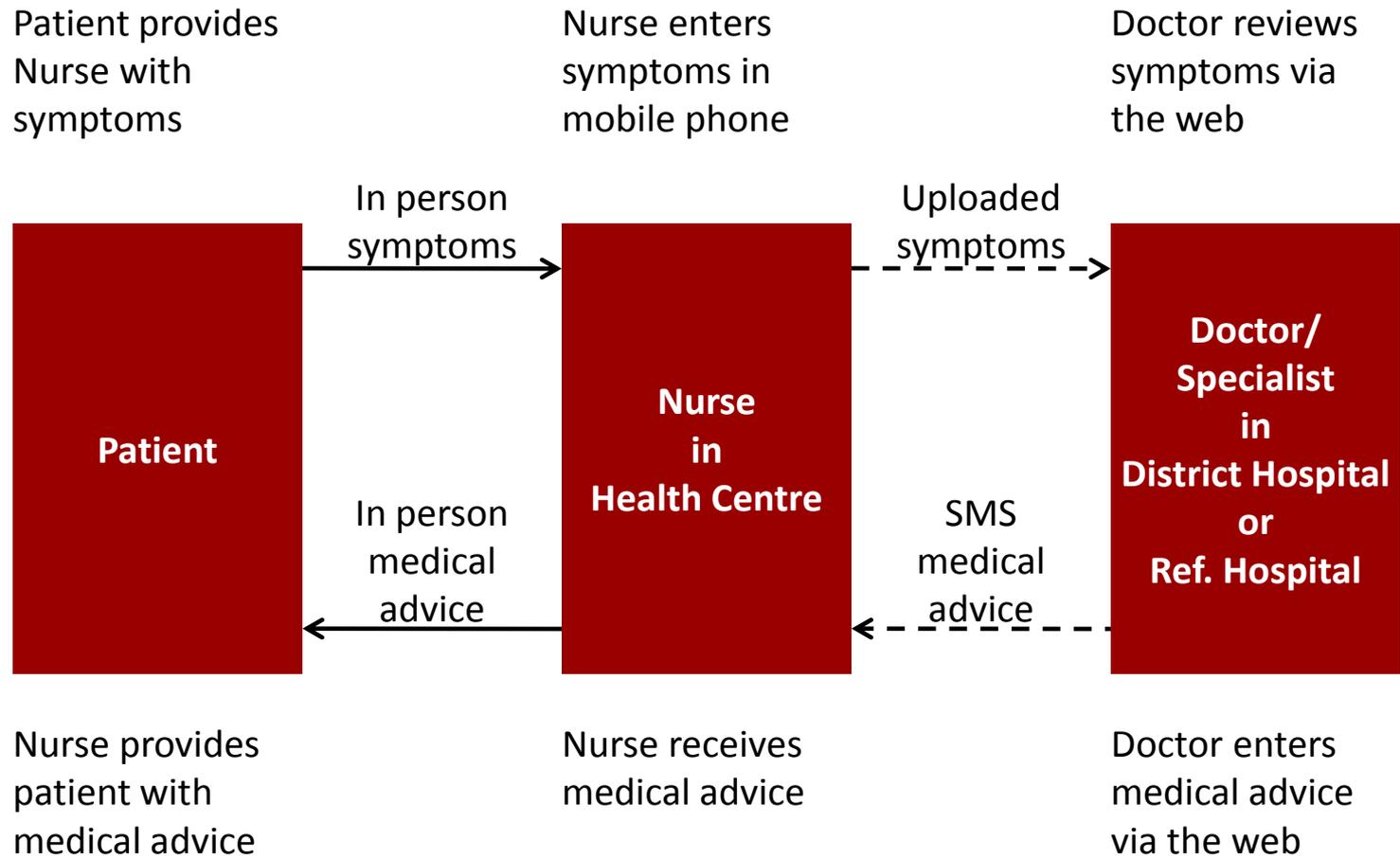
3

Remote
medical advice
services

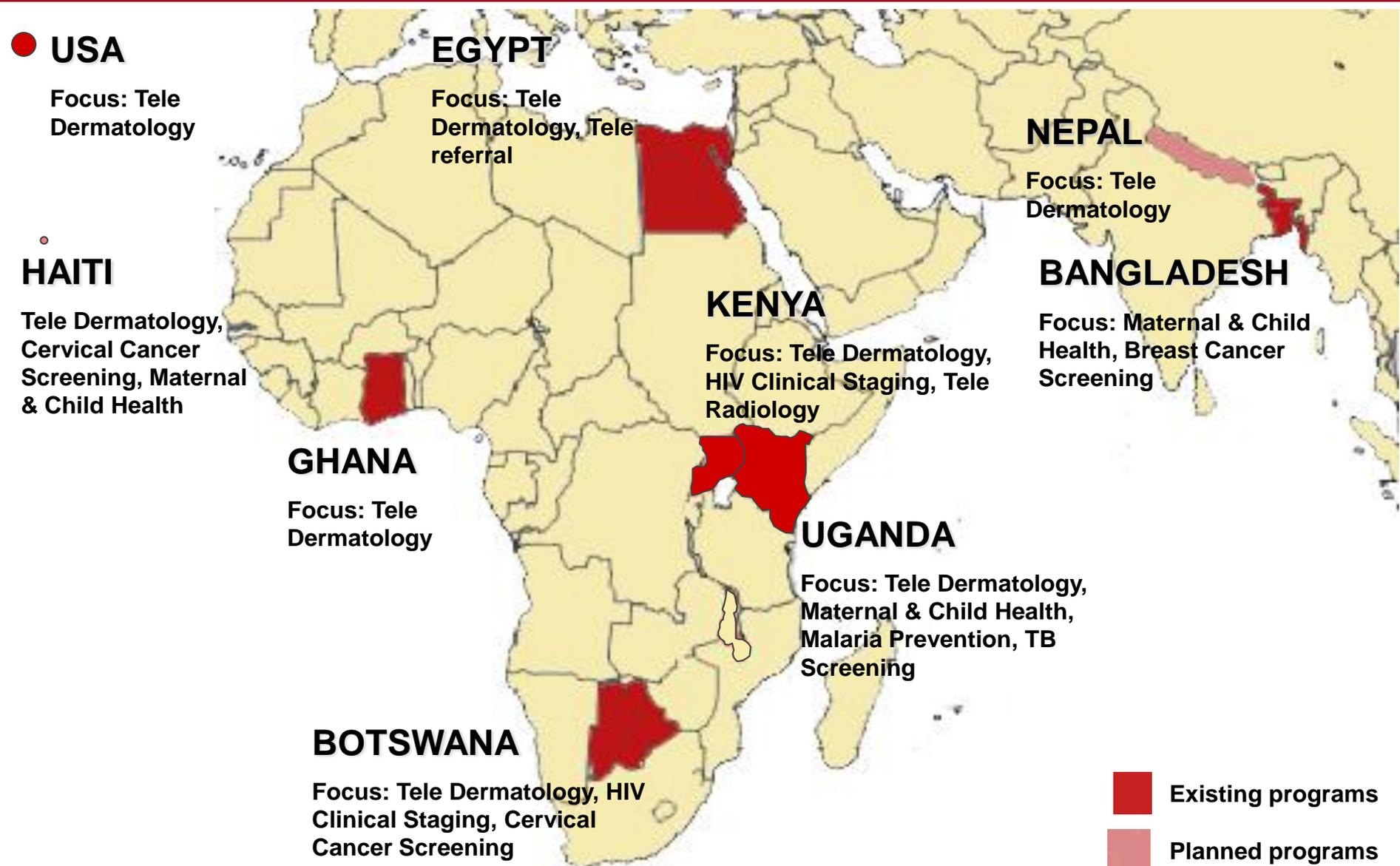
- Remote medical advice
- Remote mentorship
- Remote collaboration

- Eliminates unnecessary travel and time lost for patients treated locally
- Decreases time high-risk patients have to wait for life-saving treatment
- Reduces health system costs, since some cases that previously would have been referred are handled locally (freeing up tertiary hospital doctors)
- Increases medical knowledge of user, since local medical staff see and implement the remote medical specialist/centre's medical advice for each case
- Enables the transfer of expert medical knowledge through mentorship and collaboration

Below is an overview of how Click's remote medical advice services operates



To date, Click has established mobile health service pilots in several countries



Click is considering a pilot in Rwanda, which has low health outcomes in rural areas and a strong acceptance of ICT

Rwandan Health System

- Large differentials in health outcomes between rural and urban areas: rural rates of mortality 1.5x urban
- Rwanda has just 25% of the average density of doctors in Africa (for perspective: 5 doctors per 100,000 in Rwanda vs. 230 per 100,000 in the US)
- However, Rwanda also has 300% of the average density of community health workers in Africa—ideal for mobile health services to bridge health provision gaps
- Well-established *physical* network of health centers, an important complement to *virtual*, mobile health services

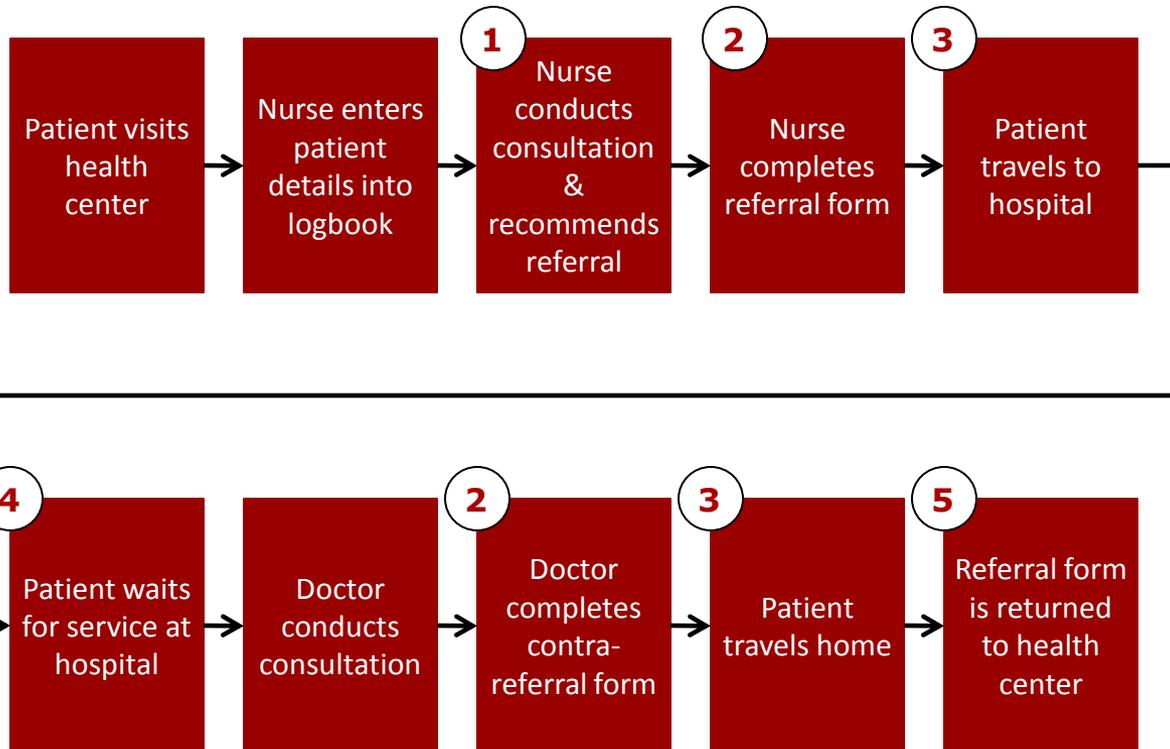
Rwandan ICT Motivation

- A handful of targeted ICT health services have successfully been rolled out in the country: TRACnet, Phones for Health, OpenMRS deployment
- President Kagame: “*ensure that the people of Rwanda are able to have health problems solved beyond the limitations of the places where they are*”



In particular the Rwandan health centre to hospital referral process has several challenges

Overview of existing health centre to hospital referral process



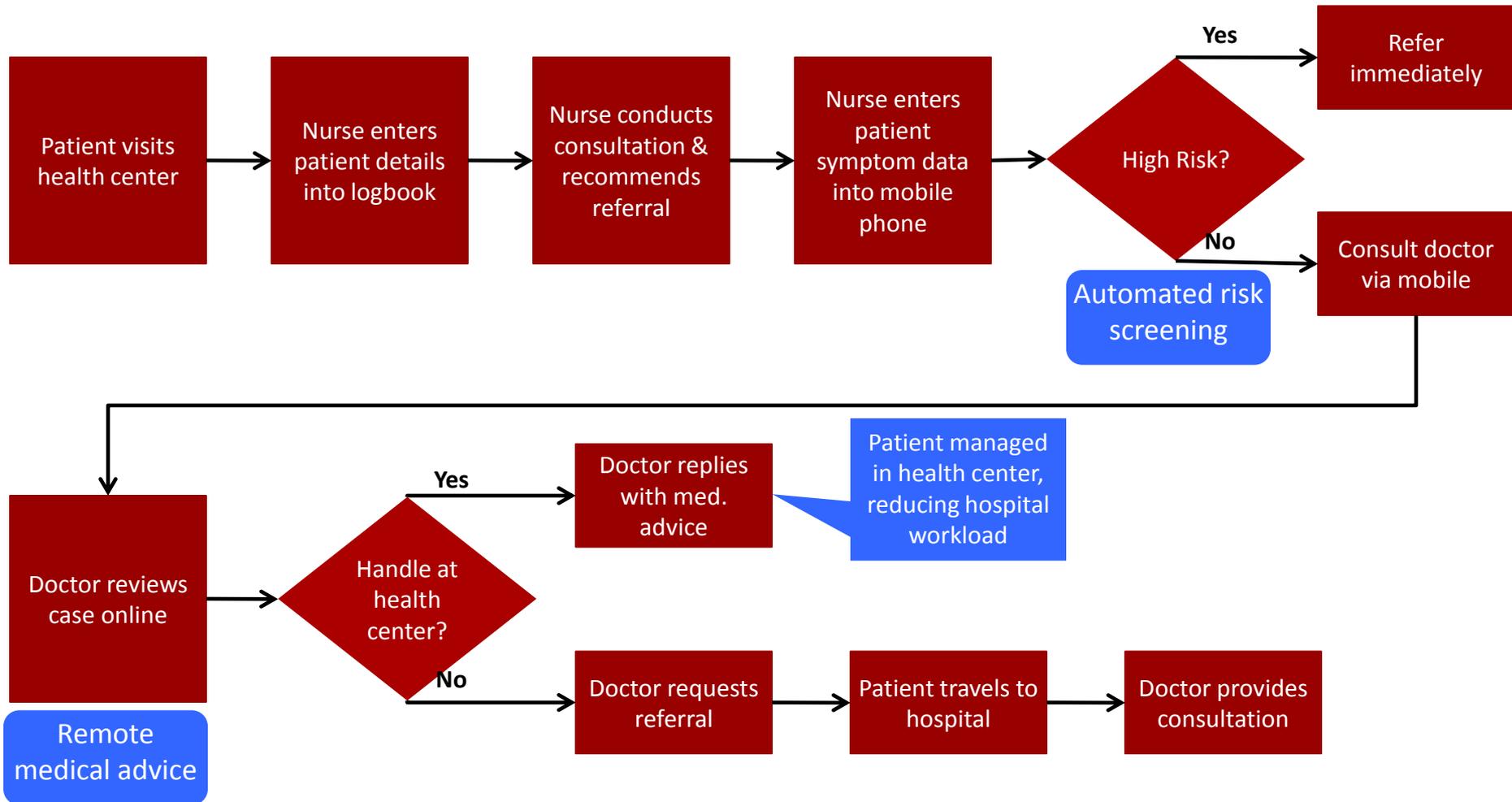
Critical issues

- 1 A large portion (20-50%)¹ of cases referred to hospitals can be managed in health centers
- 2 All referral documentation is paper based, which means historic patient medical data cannot be easily searched or acted on
- 3 Patient travels to and from hospital at their expense (includes travel cost and loss of work)
- 4 Patients wait for long intervals at hospitals - no way of setting appointment times
- 5 Limited case learning by nurse since she is not included in the referral doctor's diagnosis

¹As discussed in initial meetings with Dr. Blaise Uhagaze, Kibagabaga Hospital Director

Click is proposing the use of a mobile phone to provide automate risk screening and remote medical advice services

Overview of proposed health centre to hospital referral process



Click's data strategy design focuses on four key areas: data privacy, data integrity, data security and data analytics

Area

Data Strategy Design

Data Privacy

- Privacy of patient health data is of paramount concern to Click's clients
- Medical data will be tagged with authorizations such that only the referring health worker and reviewing specialist have the ability to access the data collected during that specific referral
- Referring doctors have access to a patient's prior medical history only if authorized by the patient
- Uploaded patient health information is erased from the device upon successful synchronization

Data Integrity

- The integrity of data originating on the mobile is critical to ensuring accurate medical advice
- The system will rely on data verification technology that triggers alerts and re-synchronization actions in the event of an incomplete data transmission
- If data synchronization failed during upload the referring health worker is alerted and the record is marked as incomplete and cannot be accessed by remote specialists

Data Security

- In dealing with data security issues, robust identity verification and secure access is essential
- The system will work such that each patient has a unique patient ID as well as critical information to authenticate a patient and their association to the medical record
- All data transmitted is encrypted for privacy protection and typically medical record data transmissions are kept in the country via locally-hosted web servers and databases

Data Analytics

- Click enables reporting and macro-level public health analyses, and facilitates the customization of reports and analyses as per client needs
- The system will ensure privacy of data by aggregating at a sufficiently high level that individual identification is not possible

Click is collaborating with a growing set of distinguished partners

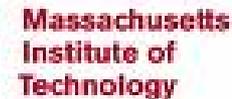
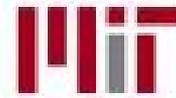
Mobile Network



Medical



Technology



Governments / NGOs

Botswana



Ministry of Health

Egypt



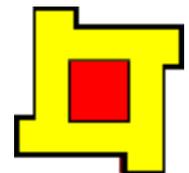
Ministry of Health,
Education and Ed.

Kenya



Communications
Commission

BRAC



Bangladesh,
Uganda