

**Republic of Kenya**



**Ministry of Health**

# **CHALLENGES IMPLEMENTING HEALTH SYSTEMS IN LOW AND MIDDLE – INCOME COUNTRIES WITHOUT A PATIENT UNIQUE IDENTIFIER**

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# Nature of Health Systems in LMICs..

- Glaring disparities evidenced in terms of accessibility, affordability ( high out of pocket payments with just a few individuals with an insurance (cover ) coverage and unique health seeking behaviour
- **Use of Technology expected to play an important role in areas challenges by geographic and bridging the financial barriers .**
- **Overcoming barriers and improving health coverage and health outcomes high on agenda**
- Currently, there is considerable challenges in providing high-quality, affordable and universally accessible care by most governments
  - Resulted in high unprecedented search for innovative approaches to eliminate the geographic and financial barriers to health



# Healthcare challenges in LMICs...

- e-Health being explored as a means to addressing these challenges in resource-constrained health markets in LMICs in terms of the availability, quality and financing of health care though still at nascent stages in most countries



# Healthcare challenges in LMICs

**Generally, Healthcare in LMICs is characterised by:**

- 1. High Cost of seeking care:** Affordable healthcare is a major barrier in most LMICs and in response to such deficiencies in health care system,
- 2. Lack of financial protection for the costs of health care**  
Lack of financial support for those who need health care, deterring service use and burdening household budgets
- 3. Inequitable Distribution of Healthcare facilities** Accessibility and geographical distribution of health facilities not determined by population dynamics. Political environment an important determinant



# Healthcare challenges in LMICs...

## 4. Limited resources and inefficiencies in resource utilization

1. Public hospitals lack the requisite specialized equipment, human and financial resources to realize proper healthcare service delivery.
2. Health systems is in the hands of private providers who tend to predominate and household out-of-pocket spending is a major source of health financing.



# Healthcare challenges in LMICs...

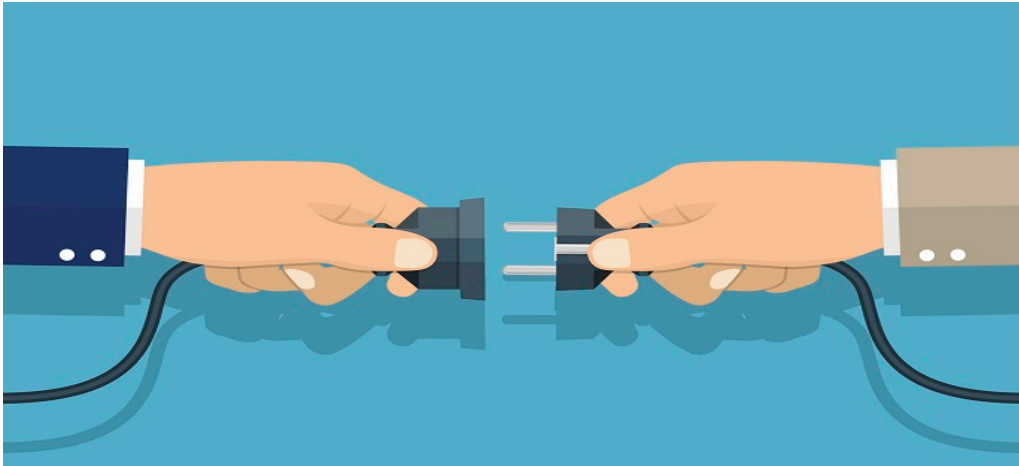
## 5. Emergence of other communicable conditions

- The convergence of non-communicable disease (NCD) and infectious disease (ID) in low- and middle-income countries (LMICs) presents new challenges and new opportunities.
- Most LMICs have significant dual disease burdens of NCDs such as cardiovascular disease, diabetes and cancer, and infectious diseases including tuberculosis, HIV/AIDS and parasitic diseases. .
- Health Budgets in LMICs constitutes about 20% of their National Budgets while developed countries allocate about 80% of the National Budgets for Healthcare and the emerging conditions competes for the 20% of the budgets thus exerting pressure on health systems



# Healthcare challenges in LMICs...

## 6. Lack of Interoperability between different Health Systems



- Interoperability describes the extent to which systems and devices can exchange data, and interpret that shared data ( Both Homogeneous and Heterogeneous systems)
- For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.
- Interoperability also eases the process of data analytics to support programming needs or to inform a decision making process



# Healthcare challenges in LMICs...

## 7. Lack of portability of patient's medical records

- There is a lot of inefficiencies in health facilities in LMICs because patients are not able to receive care in different clinics since their records are not portable.
- The visits tend to be point visits with little access to patients past medical history from other encounters.
- That has lead to higher medical costs in developing countries because utilization is non-uniform.



# Health Challenges cntd.

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- Use of mobile applications that allow patients to port their records using standard formats between hospital networks. proving to be revolutionary and a game changer due to ease of aggregating data
- Resulted in a Huge competition in health sector with resultant drop in the cost for seeking the healthcare

# Why a Health Identifier or Health ID?

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## Four (4) basic functions of a Unique Patient ID

### 1. Positive identification of the individual:

- for delivery of care (e.g. diagnosis, treatment, blood transfusion and medication)
- for administrative functions (e.g. eligibility, reimbursement, billing and payment)

### 2. Identification of information:

- access patient information, coordination of multi-disciplinary patient care services during current encounters and communication of orders, results, supplies, etc.
- Organization of patient care information into a manual medical record chart or an automated electronic medical record for both current and future use.

# Unique ID contd..

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**3. Support the protection of privacy and confidentiality** through, accurate identification (explicit identification of patient information) and dis- identification (mask/encrypt/hide patient information).

**4. Reduce healthcare operational cost** and enhance the health status of the nation by supporting both automated and manual patient record management, access to care and information sharing

# Examples Unique Patient Identifiers Options



- Social Security Number/ National ID Number
- Facility-based Implementation
- Smart Card-based Method
- Cryptography-based Identifier
- Number based on the Birth Certificate
- Biometric Identification
- Passports, Driving Licenses,, Social Securities e.t.c



# Considerations for Unique Patient Identifier Implementation

- Need for Legislation to Protect the Privacy and Confidentiality of Healthcare Information which could either be through:
  - Design and building with privacy at its core, OR
  - Use of a number that is ONLY linked under the control of the patient and facilitate patients to be followed between encounters but to remain anonymous (Chose when disclose)
- An Issuing Authority.
- Standardize Access to Patient Care Information.
- Systems Interoperability.
- Capacity building



# Critical Components of Unique Patient Identification Implementation

- An Identifier Scheme.
- Patient Identifying Information required.
- Records Indexing scheme.
- Mechanism to hide and encrypt the Identifiers.
- Technology infrastructure to search, identify, match encrypt data.
- Administrative infrastructure; Central Governing Authority.



# What other options do we have for Unique Patient Identifications / Authentications?

## An Example on the use Biometrics for an Authentication Process

- Authentication is the process of determining whether a person is who he or she claims to be.
- Can occur in one of two ways. Verification asks “Is this the person who he or she claims?” and consists of a single comparison.
- Identification makes a one-to-N comparison and tries to determine if the person is one of the N people.
- Several factors, such as what you know, what you have, or what you are can be used for authentication, all three options (have pros and cons)
- It is advisable to use more than one factor, if possible for improved security.



## contd...

- Biometric authentication is a “what you are” factor and is based on unique individual characteristics.
- Two types of biometric properties are useful for authentication. -  
Physical biometrics which include DNA, fingerprints, facial recognition, and eye scans (iris, retina) and Behavioral biometrics include voice recognition and handwritten signatures.
- Very clearly demonstrated in the exhibition Booths by different Partners





# Strengths and Weaknesses of using Biometric Authentications

- Strengths of Biometric Authentications:
  - Improved security - Patients records access is **assured**
  - Improved customer experience
  - Portability – Not transferable whatsoever
  - Sustainable – Could easily be part of standard of care thus reducing costs
- Weaknesses of biometric Authentications:
  - Environment and usage can affect measurements

# Strengths and weaknesses contd...

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- Systems are not 100% accurate.
  - Normally affected by two types of errors in a typical biometric system.
    - A false reject (FR) error is the rejection of an authorized person trying to access the system.
    - A false accept (FA) error is the acceptance of a person who is not in fact who he or she claims to be.
- Require integration and/or additional hardware
- Cannot be reset once compromised

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**Transforming Health Systems**  
**Using Unique Health ID to enhance health data and information**  
**Exchange for improved health outcomes”**

**Question and Answer..**