Point of care screening, supportive supervision and real-time monitoring and evaluation

Dr. Safina Yuma, MD, MPH
Cervical Cancer Focal Person, MoHCDGEC (Tanzania)
The Cervical Mobile Application

- Smartphone Enhance Visual Inspection with Acetic Acid (SEVIA) is an mHealth platform for provider supportive supervision to build capacity in cervical screening
- Web-based dashboard which collects all client data, diagnosis and treatment provided or treatment plan in real-time
- SEVIA was designed to be a more scalable version of the Cervicography, which uses a digital camera to achieve enhanced visualization of the cervix
Why we built the app?

- Not enough clients during limited practical training days to consolidate skills
- Refresher trainings are often costly and not done regularly due funding shortfalls
- Limited time for monitoring and evaluation
  - Most CCS providers had not received evaluation of their CCS (VIA) skills or quality of their screening since first training
- As alternative innovation and technology to improve program results
- Simple to use-Dashboard can be used as reporting tool (collects all required CECAP data)
- Challenges with client follow-up
  - Treatment Adherence
  - Returning for screening
Opportunities

• Exponential growth in availability and acceptability of mobile phones

• Existing CCS sites in every region

• Existing platforms where data can be stored securely
The sevia Dashboard

E-SURVEILLANCE DASHBOARDS

CERVICAL  UAV  RABIES
Login Screen and home page
# Health facilities

## Facilities assigned to the System

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>District</th>
<th>Region</th>
<th>Country</th>
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Provider management

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## Monitoring and Evaluation

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<th>null</th>
<th>VIA neg</th>
<th>2017-03-10 10:04:41</th>
<th>2017-03-10 10:04:41</th>
<th>-</th>
<th>106</th>
<th>92</th>
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<tbody>
<tr>
<td>VIA neg</td>
<td>No treatment required</td>
<td>VIA neg</td>
<td>2017-03-10 11:34:19</td>
<td>2017-03-10 11:27:58</td>
<td>2017-03-10 11:34:19</td>
<td>106</td>
<td>92</td>
<td></td>
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### Mt Meru Regional Hospital

**Arusha Municipal, Arusha, Tanzania**

- **Total cases submitted:** 1244
- **Overall agreement rate this facility:** 92.0%

### Providers

1. Dr. Mwanahamisi Gembe
2. Dr. Kasimani
3. Noela Kijilinga

### Reviewers

1. Margaret John Kimala
2. Flora Lyimo
3. Dr. Agness Feksi
4. Dr. Macheko
Provider Monitoring

Noela Kijilinga
06220g0281, CCS Provider

- 727 Total cases submitted
- 95.2% Overall agreement rate

Facilities, 1
- Mt Meru Regional Hospital, Arusha Municipal, Arusha, Tanzania

Last activity: 2018-03-15 13:02:56
Data Navigation
Screening results

- From July 2016, over 13,000 women have been screened in 4 regions of Tanzania

- VIA Positivity rate: **6.9%**
  - VIA Positive and received/referred for Cryotherapy: **2.6%**
  - VIA Positive and received/referred for LEEP: **0.7%**
  - VIA Positive and referred and suspect: **1.5%**

- HIV VIA Positivity rate: **8.9%**
  - VIA Positive and received/referred for Cryotherapy: **5.6%**
  - VIA Positive and received/referred for LEEP: **2.2%**
  - VIA Positive and Referred or Suspect: Cancer **1.3%**
Successes

• Rapidly improvement in CCS provider skills
• High acceptability among clients (98%)
• Provides opportunity for education
• Facilitated identification of results after screening
• Decreasing number of discrepancies in the data decreased compared to previous year
Confidentiality/Privacy/Security

- Clients were educated about the program and gave consent to have their personal information and images collected.
- All CCS providers and reviewers have a secure login and password.
- Only administrators have access to the dashboard.
- One partner cannot see the other partner’s data.
- All data is encrypted on the COSTECH server.
Conclusion

- Smartphone Enhanced Visual Inspection With acetic Acid Provides:
  - Provides Quality Assurance to the VIA screening method
  - Real-time support, mentorship and follow-up to CSS provider
  - Real-time Monitoring and Evaluation and Quality data capture
- Facilitated reporting Data:
  - Data from the dashboard can be used for acquiring future funding and future directions
Acknowledgement

- Canadian non-profit organization WEMA (Women’s Health Equity through Mobile Approaches)
- Global Health Grant - Grand Challenges Canada
- Tanzania mHealth leader Skyconnect Inc. to build the Cervical Application and Dashboard
Integration of mHealth tools into national cancer screening programs

Demand generation through tailored education and referral pathways

Sharon Kapambwe
Assistant Director Non Communicable Diseases, Ministry of Health (Zambia)
mHealth role in eHealth Strategy

- mhealth is one of the strategic priorities areas in the Ministry of Health eHealth strategy

- **Objective of mHealth in eHealth strategy:** To increase access to quality healthcare and health-related information through the use of mobile technologies

- **Main objective mHealth:** To leverage the potential of mobile devices to improve health outcomes at population level
Cervical Cancer: entry point for mhealth for NCDs in Zambia

• Zambia has one of the highest incidence and mortality rates of cervical cancer in the world.
• Cervical cancer is the most frequent cancer in Zambia
• Accounts for 30% of new cases of cancers
• Cervical cancer is a highly preventable
Demand Generation for Cervical Cancer

Sending SMS as initial phase

Inadequate awareness on cervical cancer in the community

Women still presenting with advanced stage of cervical cancer

Inadequate information on existing screening services

SMS campaigns to increase awareness and encourage women of screening age (25-59) years to access screening services
Program set

- mhealth Task force set up
- Broad based-Gynaecologists, oncologists, public health, social scientists, ICT experts, regulators, marketing, etc.
- Continued in country partnerships with Ministry of Communications and Transport, and Zambia Information and Communications and Technology (ZICTA)-Regulator
- Content for SMS developed
- M&E framework developed
Results
Perceptions on SMSs

- Frequency good: 74
- Time of day good: 84
- Info easy to understand: 97
- Language ok: 88
- Preferred other language: 44
<table>
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<tr>
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<th>Perceptions on SMS intervention</th>
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<tbody>
<tr>
<td>1</td>
<td>Creates awareness among communities</td>
</tr>
<tr>
<td>2</td>
<td>SMS makes it easy to share info with friends</td>
</tr>
<tr>
<td>3</td>
<td>Have helped those who thought Cervical Cancer was not real.</td>
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<tr>
<td>4</td>
<td>SMS content ...varied perceptions:</td>
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- Contains a lot of information, educative.
- Lack details about the disease ...just screening issues
# Source of information (motivation) on cervical cancer screening

<table>
<thead>
<tr>
<th>Source</th>
<th>Before (N=3,719)</th>
<th>Intervention period (14,118)</th>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
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<tr>
<td>Community</td>
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<td>Family</td>
<td>146</td>
<td>3.9</td>
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<tr>
<td>Peer</td>
<td>2,089</td>
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<tr>
<td>Health facility</td>
<td>707</td>
<td>19.0</td>
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<tr>
<td>Media – radio</td>
<td>123</td>
<td>3.3</td>
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<tr>
<td>Media - TV</td>
<td>81</td>
<td>2.2</td>
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<tr>
<td>Referral from ART</td>
<td>11</td>
<td>0.3</td>
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<tr>
<td>SMS</td>
<td>0</td>
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</table>

Other: Church, print media, ZANIS megaphone, school, workplace
# The mobile Platform (Airtel) for SMS

<table>
<thead>
<tr>
<th>Achievements</th>
<th>Challenges</th>
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<tbody>
<tr>
<td>Transmit messages</td>
<td>Inability to determine number of people that actually read SMS.</td>
</tr>
<tr>
<td>Report on number of SMS sent</td>
<td>Inability to send messages on time and report on time due to:</td>
</tr>
<tr>
<td>Estimate number of people that received SMS</td>
<td>Outsourced components from their system</td>
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<tr>
<td></td>
<td>Authorisation from ZICTA.</td>
</tr>
</tbody>
</table>
mHealth Challenges

- Integration with other existing mHealth programs within MoH
- Cost of SMS
  - negotiated still high
- Data not yet aggregated by telecoms
  - Makes sending SMS to selected group impossible
- Regulatory Framework: ZICTA has very strict rules that govern transmission of SMS.
Next Steps

- Utilizing mhealth to address the continuum of care for cancer of the cervix
- Closing barriers in the referral system and lost to follow
- Include other NCDs to platform
- Awareness on NCDs
Be He@lthy, Be Mobile: Expanding access to health
Noncommunicable diseases (NCDs) represent one of the major development challenges of the 21st century. 98% of the world has access to a mobile phone.

A joint UN initiative was founded to reduce the global burden of NCDs by using mobile technology to reach populations in need.

Empower people to protect themselves from common NCD risk factors.

Support governments set up large-scale, sustainable mHealth services.

A UN response: Be He@lthy, Be Mobile
What is BHBM?

BHBM is a WHO / ITU initiative that uses mobile technology to improve the health of people who are at risk or suffering from an NCD.

How does it work?

BHBM provides evidence-based content and technical support to governments who want to develop their own mHealth programmes for their citizens.
What we do

Text messages with useful information at the right time to support behaviour change
mHealth Handbooks: The Key Components

- Content Development and Adaptation
- Operations Management
- Technology Specification
- Monitoring and Evaluation
- Promotion and Recruitment
Continuum of Care for mCervicalCancer in Zambia

mHealth Intervention throughout the flow:
1. SMS notification to facility to alert clinicians of incoming patient and book appointment.
2. After booking...
3. SMS notification to client to confirm booking (date, time) at every stage.
4. SMS reminder to client to attend appointment (at every stage of treatment, including follow-up).

Diagram:
- Woman seen at the LEEP Clinic and found with cervical cancer.
- Referral to Cancer Diseases Hospital.
- Book appointment for consultation.
- Consultation.
- Investigations with results.
- Palliative chemotherapy.
- Surgery.
- Simulation.
- Chemotherapy and radiotherapy.
- Radiotherapy.
- Palliative care.
- Follow-up.
mTobaccoCessation

• India
  – January 2016 - National mTobaccoCessation service launched
  – Over 2.4 million users registered
  – The service is available in all 29 states and in English and Hindi.
  – Results to date: 19% quit rate amongst program users

• Philippines
  – June 2017 – Launch of mTobaccoCessation and national quit line
  – 50,000 total subscribers are expected by the end of 2018

• Tunisia
  – In December 2017, the programme was launched with a name: “Yakfi”
    (‘Enough!’ in traditional Arabic).
  – 50,000 users are currently enrolled.
THANK YOU!
mHealth in Cancer Care in Disadvantaged Rural Settings

Mridul Chowdhury
CEO and Founder
mPower Social Enterprises Ltd.
Healthcare setting in rural areas of typical developing nations

- **Primary healthcare facility**
  - Few doctors
  - Distance and transportation costs are a deterrent
  - Mostly catered towards MNCH services

- **Secondary and tertiary facility**
  - Distance and transportation costs are a very significant deterrent
  - People in rural areas make visits to these as last resort

- **Community health workers (CHW)**
  - Employed by government and NGOs
  - Make regular visits to households/communities

- **Rural medical practitioners (RMPs)**
  - Sell medicines and make referrals
  - Often the first line of service for rural population
mHealth in cancer care has an “equalizing” effect

- **CHW and clinician capacity development**
  - Helps build capacity of CHWs in resource-constrained settings

- **Influencing patient care-seeking behavior**
  - Helps in motivation and awareness in settings burdened with social stigmas and limited literacy

- **Managing cancer**
  - Helps in remote management of cancer of patients in disadvantaged locations
CHW and clinician capacity development

- **e-Learning tools**
  - Smart device-based applications that guide CHWs (with little medical training) into taking appropriate actions depending on circumstances

- **Tele-radiological support**
  - Sending images to remote experts for consultation
    - Cervical cancer
    - Oral cancer (Rural South India)

- **Tele-education**
  - Remote training through audio-visual means
Influencing patient care-seeking behavior

- Audio-visual tools for CHWs to influence behavior
  - Combination of “peer and fear” factors

- Digital notifications to potential cancer patients
  - Timely prompts for action

- Digital alerts and notifications for CHWs
  - Guide CHWs to appropriate household visits/ phone-call follow ups/ physical accompaniment to healthcare facilities
Managing cancer

- **Tele-consultations and remote post therapy supervision**
  - Blend of in-person and remote consultations
  - Already popular in places like rural Australia and the US
  - Tele-links between urban facilities and RMPs (drug sellers)/community clinics

- **Palliative care**
  - Not common in developing countries
  - Mostly urban-based
  - Engagement of CHWs since they visit HHs for routine health services anyway
  - Role of digital tools to:
    - support CHWs in giving appropriate advice
    - scheduling visits and automated notifications
Issues around mHealth in cancer care

- **Ethical and privacy issues**
  - Digitization of healthcare records poses challenge in developing countries with limited data security protocols

- **Policy issues**
  - Regulations around remote consultations still pending in most developing countries
  - Regulations and enforcement around standardization of medical data to allow for inter-operability among healthcare facilities

- **Equity issues**
  - Digital divide due to issues of literacy and smartphone access
  - Smartphone access in rural areas on the rise
  - Have to focus on making applications voice and text-based
Key elements of scale-up and sustainability

- Governments may take up cancer prevention and care as part of public health service delivery through CHWs at HH-level
- Digital tools need to be embedded within government processes
- Regulatory framework and enforcement mechanisms for tele-consultations and data standardizations
- Role of international bodies such as WHO in promoting and sometimes spearheading the above
THANK YOU!