World Cancer Congress
Kuala Lumpur, Malaysia
1—4 Oct 2018
Strengthen
Inspire
Deliver
UICC
global cancer control
WORLD CANCER CONGRESS

Making screening and early diagnosis in LMICs sustainable – overcoming sociocultural, financial and political barriers

Christine Campbell, Rita Isaac, Jay Evans and David Weller

Cervical screening in sub-Saharan Africa – plans, policies and personnel

Dr Christine Campbell

Usher Institute & Global Health Academy, University of Edinburgh, Scotland

Christine.Campbell@ed.ac.uk

Usher Institute
Population Health Sciences & Informatics

THE UNIVERSITY of EDINBURGH

World Cancer Congress
Kuala Lumpur, Malaysia
1–4 Oct 2018

Strengthen
Inspire
Deliver

uicc
global cancer control
WORLD CANCER CONGRESS

Disclosure of interest: None declared

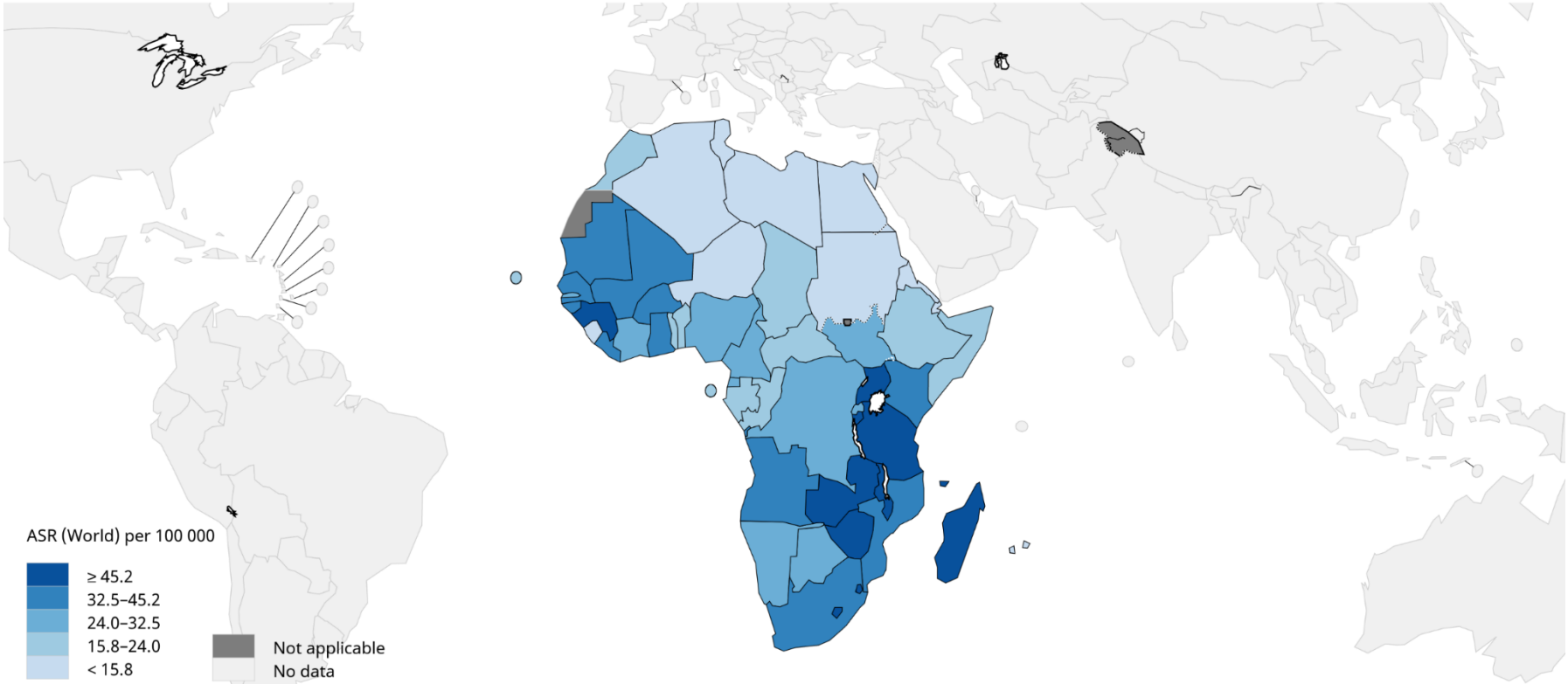
Aims

Recognising the cervical cancer burden in sub-Saharan Africa, to examine three overlapping issues:

- inclusion of cervical screening in national cancer control plans
- strategies to support implementation and delivery of these policies at national and local level
- the training and retention of the screening workforce to allow delivery at the health facility level

- Drawing on specific examples from Malawi and Nigeria

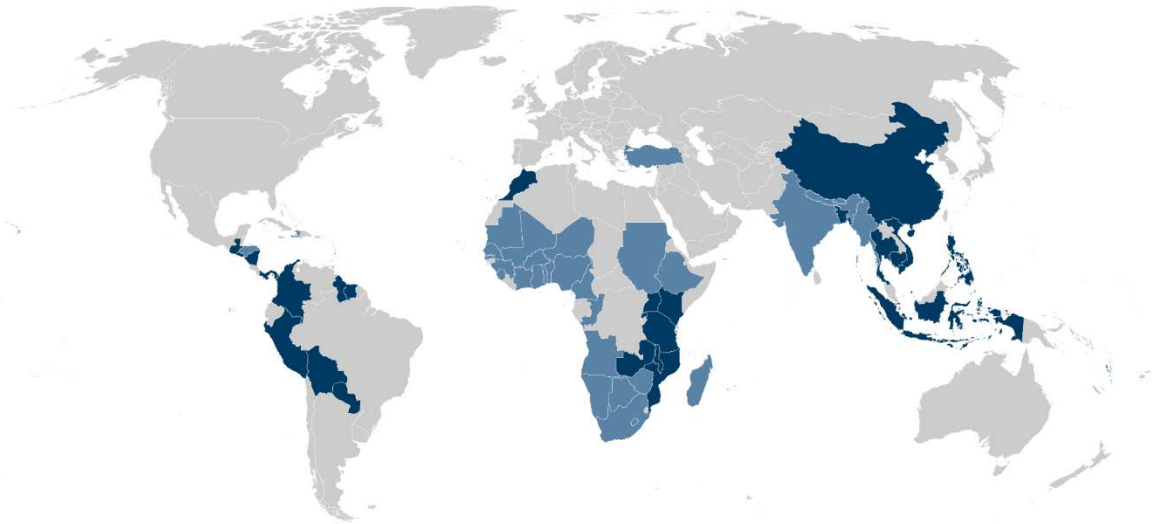
Estimated age-standardized incidence rates (World) in 2018, cervix uteri, all ages



Data source: GLOBOCAN 2018
Graph production: IARC
(http://gco.iarc.fr/today)
World Health Organization

World Health Organization

Global Progress in Visual Inspection (VIA) for Cervical Cancer Screening June 2017



National programs

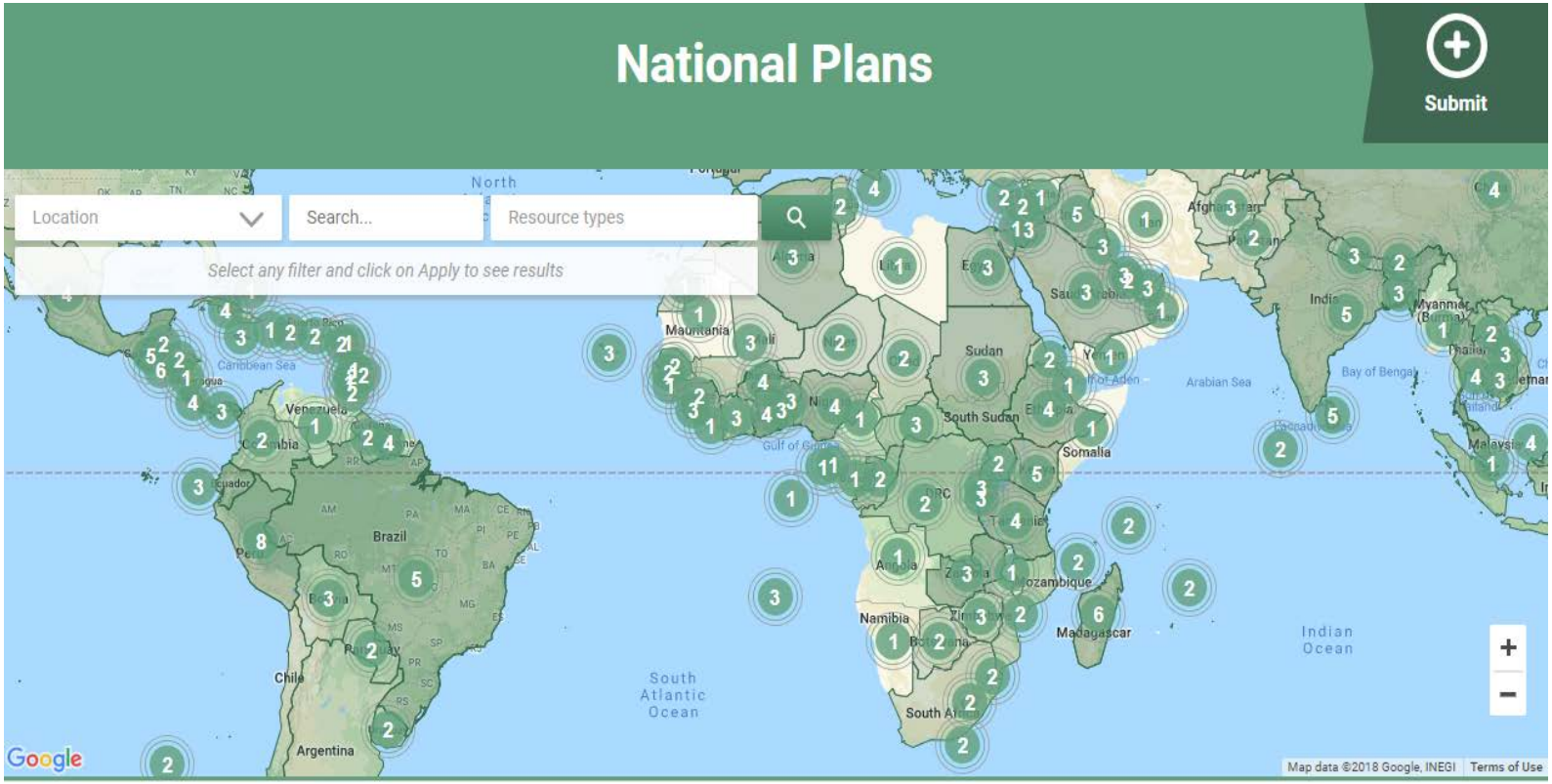
Bangladesh
Bolivia
Cambodia
China
Colombia
El Salvador
Guatemala
Guyana
Indonesia
Kenya
Kiribati
Malawi
Morocco
Mozambique
Nicaragua
Panama
Paraguay
Peru
Philippines
Rwanda
Suriname
Tanzania
Thailand
Uganda
Vietnam
Zambia

Pilot programs

Angola
Benin
Bhutan
Botswana
Burkina Faso
Cameroon
Côte d'Ivoire
Ethiopia
Gambia
Ghana
Grenada
Guinea
Haiti
Honduras
India
Lesotho
Madagascar
Maldives
Mali
Mauritania
Myanmar
Namibia
Nepal
Niger
Nigeria
Republic of Congo
Senegal
Sierra Leone
South Africa
St. Lucia
Sudan (North)
Togo
Turkey
Vanuatu
Zimbabwe

INTERNATIONAL CANCER CONTROL PARTNERSHIP

https://www.iccp-portal.org/map



Inclusion of cervical screening in national cancer control plans


Policy Review

National cancer control plans: a global analysis

Introduction

National cancer control plans: a global analysis. Romero et al. Lancet Oncol 2018

- A global analysis of available national cancer-related health plans (NCCPs) using a standardised assessment questionnaire, sent to international network of experts
- Included question domains on Prevention, Early Detection, Treatment, Palliative and survivorship care, Health workforce etc.
- 133/157 **(85%) of NCCPs include cervical cancer screening**
- Countries with NCCPs have **more comprehensive, coherent, and consistent national health plans** that where only NCD plans available
- However, **lack of details of costing the plans**, realistic priorities, **monitoring of implementation**, strengthening of information systems, etc.

- Continent-wide
- Ambitious for what should be achieved

Recognised challenges

- Lack of population-based cancer registries; Lack of trained personnel; Lack of access to treatment; Lack of radiology and radiation therapy facilities; Significant out of pocket expenses; Brain drain of African health care personnel; Lack of palliative care

Overarching goals

Overarching strategies

- Infrastructure; Workforce; Prevention and Risk Reduction; Cancer Information; Palliative care and survivorship; Access to optimal cancer care; Education and Training; Research; Advocacy; Policy

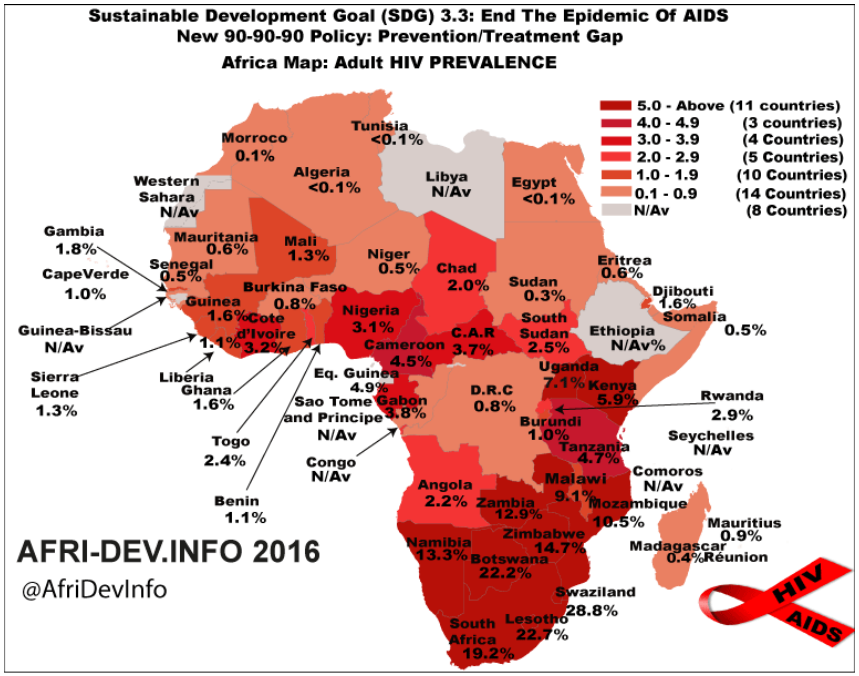
Responsibilities

- Individual; Employer; Non-Governmental Organizations; Policy-makers

Detailed strategies relating to different cancers, including cervical cancer

- Capacity development; Research; Training; Community engagement; Policy engagement

HIV / AIDS in sub-Saharan Africa: dual burden of HIV and cervical cancer



Women living with HIV:

- Have a higher prevalence of persistent HPV infection
- Progress more frequently and more quickly to pre-cancer and cancer
- Are at higher risk of invasive cervical cancer

"Early ART initiation and sustained adherence is likely to reduce incidence and progression of SIL and CIN and ultimately incidence of invasive cervical cancer."
Kelly et al Lancet HIV. 2018 Jan;5(1):e45-e58.

Type of integration and cervical cancer services provided.

Integration model	CaCx Services	CaCx methods	Setting	Author and Country
Within clinic integration using internal staff	**CaCx screening**	VIA	HIV clinics	• Morgan 2014 *[Guyana]*
		PAP	HIV / ID clinics	• Sirivongrangson 2007* *[Thailand]*
			GUM clinic	• Ibrahim 2013 *[England]*
	CaCx 'screen and treat' minor lesions	VIA + Cryotherapy	HIV clinics	• Ekong 2013 *[Uganda]*
			Family planning clinics	• Moon 2012 *[Mozambique]*
			Mobile HIV clinics	• Mulenga 2012 *[Zambia]*
	CaCx 'screen and treat' larger lesions	VIA + Cryotherapy + LEEP	HIV clinics and RCH clinics	• Anderson 2015 *[Côte d'Ivoire, Guyana, and Tanzania]* • Martin 2014 *[Guyana]*^
			HIV clinics	• Huchko 2011 *[Kenya]*
Coordination between co-located clinics/specialists	**CaCx screening**	VIA	HIV clinic and RCH clinic	• Odafe 2013 *[Nigeria]*
			ART and blood giving clinics	• Horo 2012 *[Côte d'Ivoire]***
		PAP+ colposcopy	HIV/ID clinic	• Fink 2012 *[Argentina]*
	CaCx 'screen and treat' minor lesions	VIA + Cryotherapy	Cervical Cancer Prevention Program clinics in HIV clinics	• Mwanahamuntu 2013 *[Zambia]*** • Ramogola-Masire 2012 *[Botswana]*
			Public health clinics	• Parham 2010 *[Zambia]****
	CaCx 'screen and treat' larger lesions			
Complex program of integration and coordination	**CaCx screening**	PAP	HIV / ID clinics	• McCree-Hale 2011 *[Tanzania]*
	CaCx 'screen and treat' minor lesions	VIA + Cryotherapy	Family planning, and child and maternal health clinics	• Khozaim 2014 *(Kenya)* • Plotkin 2014 *[Tanzania]*
	CaCx 'screen and treat' larger lesions	VIA + Cryotherapy + LEEP	HIV clinics and/or Public health clinics	• Mungo 2013 *[Kenya]* • Pfaendler [Zambia] • Shiferaw,2016 *[Ethiopia]*^^

^LEEP available in two of the 18 sites
^^LEEP available at some of the sites or by referral
*PAP and HPV testing
**VIA and VILI
***VIA and digital camera
CaCx: cervical cancer, VIA: visual inspection with acetic acid, PAP: Papanicolaou test, ID: infectious diseases, GUM: genitourinary medicine, LEEP: loop electrosurgical excision procedure, RCH: reproductive and child health.

https://doi.org/10.1371/journal.pone.0181156.t001

Sigfrid L, Murphy G, Haldane V, Chuah FLH, Ong SE, et al. (2017) Integrating cervical cancer with HIV healthcare services: A systematic review. PLOS ONE 12(7): e0181156. https://doi.org/10.1371/journal.pone.0181156
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0181156

A variety of models of integrated service delivery

1. Within clinic integration
2. Coordination between co-located clinics / specialists
3. High-level strategic integration of and coordination between services

- Feasible
- Acceptable to women living with HIV

However, a lack of data on long-term outcomes for HIV or cervical cancer

Using existing health infrastructure and funding, comprehensive staff training and supervision, community engagement and digital technology were important in many studies.

PLOS | ONE

THE STATE OF HEALTH in the WHO African Region

An analysis of the status of health, health services and health systems in the context of the *Sustainable Development Goals*

Where we are
Where we need to go

- I in 5 persons in the WHO Africa region between 30 – 70 years will die of cancer or an NCD
- **Recognises that in the past the health sector was fragmented and operated in independent silos**.
- Strongly advocates for health system planning to informed by the guidance from the 'Health Systems Strengthening for UHC framework for action'
- An integrated approach to addressing disease program outcomes, health systems and determinants of health.

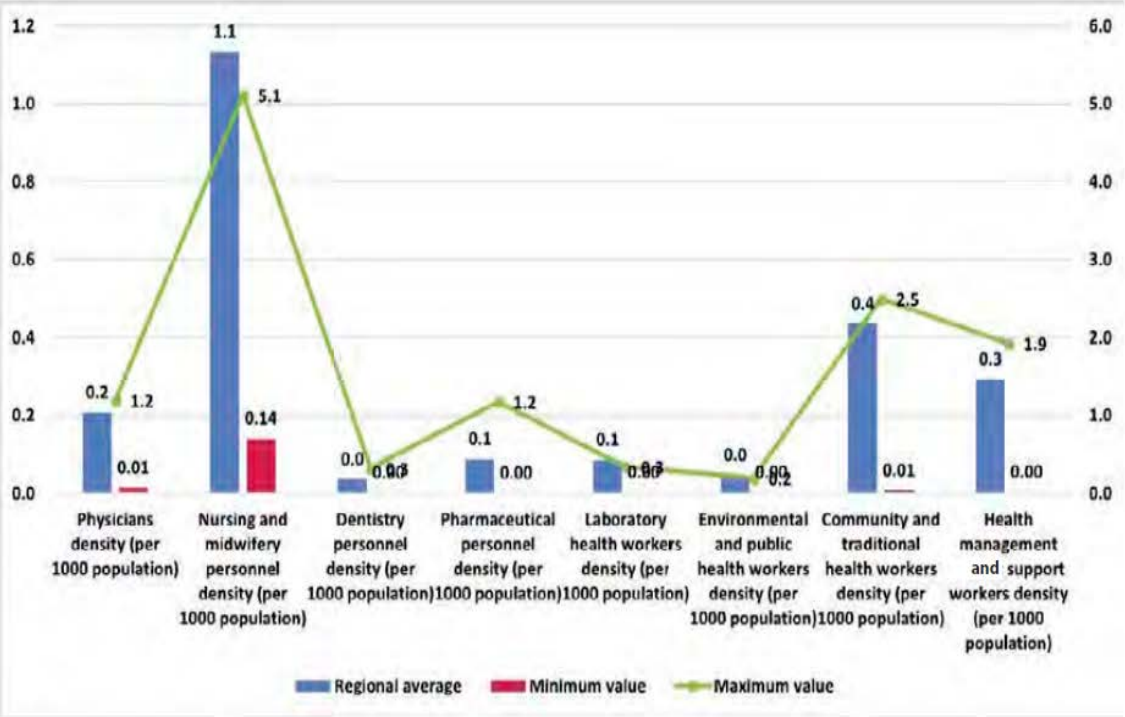
"Many countries have been designing their essential services as a basic package that is affordable…. However, this package is usually not aligned with the needs of the population."

"A strategic shift is needed for countries to move from a budgeting process to a planning process"

https://afro.who.int/sites/default/files/2018-08/State%20of%20health%20in%20the%20African%20Region.pdf

Health care staff availability

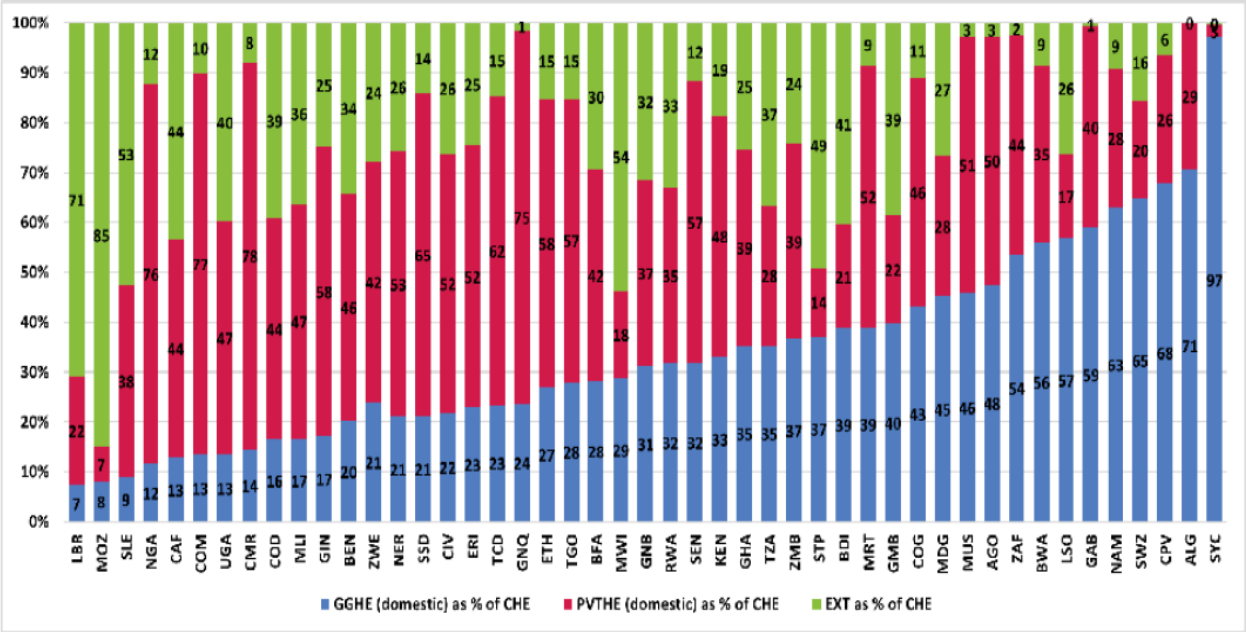
Figure 63. Availability of different health workers per 1000 population



https://afro.who.int/sites/default/files/2018-08/State%20of%20health%20in%20the%20African%20Region.pdf

Funding for health systems

Figure 83. Proportion of health funds from different sources in countries of the African Region, 2015



Note: GGHE – General Government Health Expenditure; PVTHE – Private Health Expenditure; CHE – Current health Expenditure; EXT – External health expenditure

https://afro.who.int/sites/default/files/2018-08/State%20of%20health%20in%20the%20African%20Region.pdf

Case study 1 – Malawi

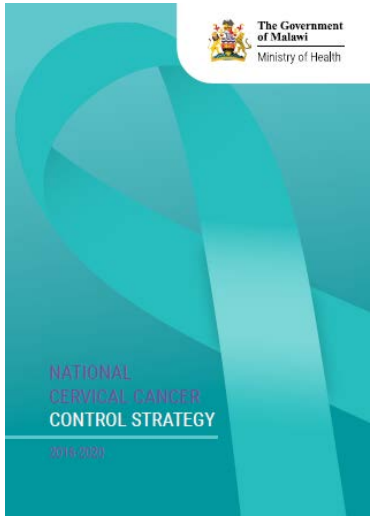
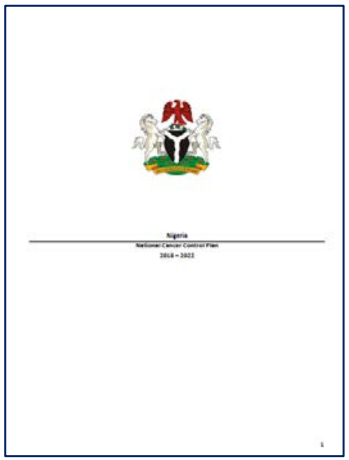


Table 2: Key indicators for the CECAP

Indicator	Target
1. **HPV vaccine coverage rate:** percentage of girls aged 9-13years who have received all the doses of the HPV vaccine in the previous 12-month period	90%
2. **Screening coverage rate:** percentage of women aged 25-49years who have been screened with VIA for the first time with in the previous 12-month period	80%
3. **Treatment rate for VIA positive women:** percentage of VIA-positive women receiving treatment in the previous 12-month period	90%
4. **Treatment of cancers:**	
a) Percentage of curable cervical cancer patients receiving adequate care	10% by 2020
b) Percentage of women receiving palliative care for advanced cervical cancer	50% by 2020

- Screening coverage currently approx. 30% of eligible women
- At Dec 2015, approx. 25% of screening sites had functional cryotherapy
- Recent Global Fund investment has allowed purchase of thermo-coagulators and cryo-therapy equipment
- Roll-out of HPV vaccination from January 2019
- Limited care pathways for women with advanced lesions; staff redeployment; lack of funds for awareness and M&E

Case study 2 - Nigeria



- Annual number of new cancer cases - 14,089
- Age-standardized incidence per 100,000 women per year – 29.0
- **10% of people living with HIV globally are in Nigeria; only ~ 30% receiving ART**

National Cancer Control Plan (2018 -2022) framework for cervical cancer:

- Attain 90% coverage for HPV Vaccination among eligible population (girls aged 9-13 years) by 2022 using – 2 doses
- Incorporate HPV Vaccination into National program on immunisation
- Implement HPV/DNA testing/VIA and management of precancerous lesions at primary health care level
- Establish a nationwide routine screening programme in order to achieve greater than 50% screening of eligible population by 2022.
- Establish National cancer screening guideline for all levels of health care

Thanks to…

- Mrs Beatrice Kabota (Nkhoma Hospital), Dr Kelias Msyamboza (WHO Malawi), Dr Bagrey Ngwira (University of Malawi)
- Dr Danladi Adamu (University of Edinburgh/ Gombe State, Nigeria)

Recommendations for future directions…

- ‘Elimination of cervical cancer’ under WHO 2018 leadership – fresh impetus, real possibilities
- Develop evidence base to demonstrate effectiveness and cost-effectiveness of working in cooperation across Ministries
- Workforce planning to ensure the whole screening pathway is strengthened in tandem

- “Approach cervical cancer as a disease of poverty” Groesbeck Parham, 01/10/2018

Christian Medical College
Vellore, India

Implementing cervical cancer screening in a poor rural region of Tamil Nadu, India

Lessons learned after more than a decade of screening

- **Prof. Rita Isaac M.D, MPH**, Rural Unit for Health and Social Affairs (RUHSA) Christian Medical College, Vellore, Tamilnadu, India

- Track 2 - Advances in screening and early detection

World Cancer Congress
Kuala Lumpur, Malaysia
1–4 Oct 2018
Strengthen
Inspire
Deliver

Disclosure of interest: None declared

• Background

- In the Western World, the incidence of Cervical cancer is largely controlled as a result of regular PAP/HPV based screening and the widespread knowledge of its existence
- In the South Asian subcontinent, this disease continue to be a great public health and social problem due to poor awareness and access to regular screening especially in the rural populations
- Rural-urban divide seen in LMIC like India with majority of medical practitioners located in urban areas has led to poor access to treatment facility in the rural areas
- Recent roll out of large scale cervical cancer screening programme in India by the public health sector in phases in many states face challenges in establishing clear treatment linkage paths

- **Christian Medical College, Vellore, Tamil Nadu, India**

➢ CMC's experiments in health care in India dates back to the story of its founder, Dr. Ida Scudder's (from US) call in 1900 and her whole hearted response to the dying young mothers in labour in our country.

➢ Today, CMC has 2700-bed hospital, attends to 9000 outpatients a day (about 2.5million outpatients annually), runs undergraduate, postgraduate and super-specialty medical courses and many allied health courses and many cutting edge research projects

➢ Not limited itself to high-tech tertiary care and training but actively promote secondary and primary healthcare models to deliver healthcare to hard to reach areas in the country

➢ Committed to reach out to the Poorest and Most Vulnerable in India

Model Cervical Cancer "Educate ,Screen, Treat Programme for Rural India since 2007

Strategies for Community based 'Educate, Screen & Treat' Cervical Cancer Programme

Partnerships

International

University of Edinburgh
University of Sydney
Cornell University, US
GIAHC, US

Within CMC

RUHSA
Gyne-Oncology
Radiation Oncology
General Surgery

- Train outreach/public health nurses in the use of low-tech inexpensive screening tests like Visual Inspection with Acetic Acid (VIA) /Lugol's iodine(VILI)
- Combine it with methods and appropriate tools for Community Engagement to increase community awareness
- Mobile phones apps to strengthen monitoring and evaluation

Fund Support

Internal

Integrated with ongoing MCH Outreach services of CMC

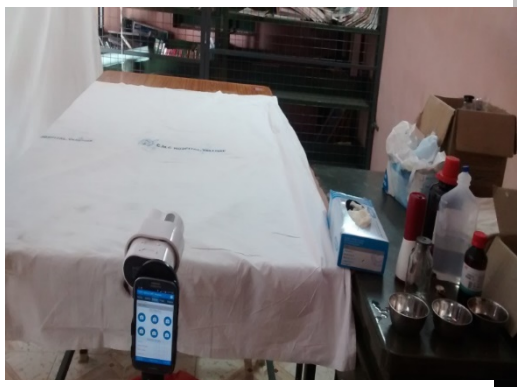
External

AUSAID
British Council (GII)
IPDF(AUS)
Cancer Council Australia
Jiv Daya Foundation

• Programme Components

- Women 30 and 50 years are invited for screening through Community awareness programmes
- 23 satellite clinics (1 clinic/7000 population)have facilities for screening with VIA/VILI
- Trained nurses perform screening
- VIA/VILI-positive are referred for colposcopy, Biopsy, cryotherapy at Community health Centre and for more advanced treatment to Christian Medical College Tertiary Care Hospital

Screening facility at the Satellite Clinic



Gyneocular Colposcopy by nurses

• Community engagement

Challenges for health-workers in delivering educational messages

- ❑ High levels of illiteracy amongst the women
- ❑ Significant information needs and gaps
- ❑ Substantial time and resource constraints
- ❑ Difficulty tailoring group and one-to-one education
- ❑ Need for consistent clear simple key messages

10 key messages developed through qualitative research

An Option Grid(Informed choice grid) for cervical cancer screening

ONE-TO ONE education in rural primary care practice

Option Grid for Cervical Cancer Screen and Treat

(Based on average sized village with 1000 eligible women & approximately 65% participation)

Frequently Asked Questions	Screen and Treat	NO screen and treat
How common is cancer cervix?	If two-thirds of the eligible women have just one check-up and get treated, then 2 women per village could develop cancer cervix every 10 years. That's 1 new case every five years. Only 1 of these 3 women will die from their cancer. If more women are screened this could be even lower.	Approximately 3 women in each village could develop cancer cervix every 10 years. That's 1 new case every three years. 2 of these 3 women will die from their cancer. 27% of all cervical cancer in the world occurs in India. In many countries it is much, much less common because most women have screening and treatment. It is the most common women's cancer in India.
What are the signs and symptoms?	There are NO signs or symptoms until the cancer is in the later stages. That's why we try to detect it at the pre-cancer or early stage. One of the symptoms is bleeding after sex and in the later stages there may be a blood-stained, watery discharge and pain.	
How does cervical cancer happen?	It takes many years for cancer to develop and it is silent for up to 20 years. It is usually from an infection after first having sex in younger life.	
Can I catch cervical cancer from a friend, neighbour or relative?	No, you will not catch cancer cervix from sharing food or drink or coughing or sneezing. Most women with a positive check-up do NOT have cancer anyway. Most are false alarms. We give a simple treatment just to be on the safe side. The woman should not be isolated. They are perfectly healthy.	
Can cancer cervix be prevented and treated?	Yes. Pre-cancer AND early stage cancer can be cured. Most cases are completely cured if treated in the early stages	
What does the check-up involve?	A nurse or doctor will check inside your genitals putting a cotton swab with a liquid onto the cervix then looking for white patches when a light is shone onto the area.	
What are the benefits of the test?	The test will find cancer cervix-like changes in the pre-cancer and very early stages which can more easily be treated and cured. Most women having the test are reassured and have peace of mind that they are very unlikely to have cancer cervix. If all of the eligible women have just one check-up and get treated, then one life will be saved and one cancer prevented in each village.	
What does it mean if I have a positive test?	59 women may have a false positive. Another 6 are likely to need treatment. Since we don't know which of these women has the possible cancer, we recommended ALL women with a positive test go to a hospital clinic for closer inspection with a special microscope. It is a simple and painless test, done in the clinic.	
What sort of treatment might I need?	If you have a pre-cancer change, the treatment is usually a simple procedure using very cold liquid to freeze the pre-cancer and destroy it. It takes about 10 minutes and can be done at various clinics. The cost will depend where you have it done. You will need another follow-up check after one year. If you have later stage cancer you might need more serious treatment such as an operation or radiotherapy.	
Who should have the cancer cervix check-up?	All women aged 30 to 60 years should have the test. It is best to have the check-up when you do NOT have your period and it is recommended you have the check-up every 5 years.	

Community Engagement

Tools used

- Flash Cards
- Hand bills
- Posters
- Glove puppet Theatre
- Live Puppet Theatre
- LCD projector video shows
- Use of “Mobile Phone Interactive Voice Site(IVR)” to educate the community

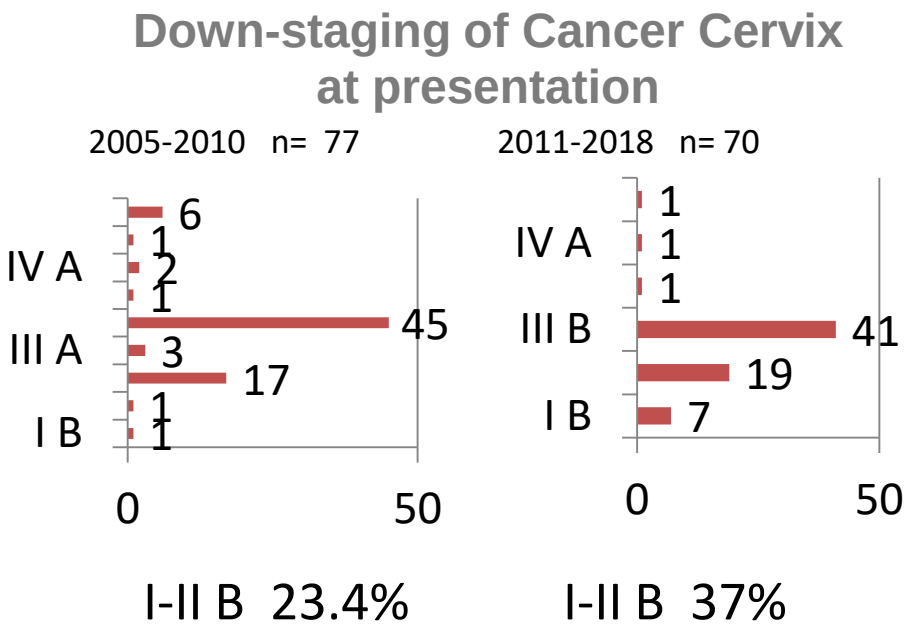
Puppet Theatre

Mobile Phone-IVR use

• Outcome

- 8613 women are screened ; 147 Invasive cancer; 88 VIA positive; 43 biopsy done; Pre-invasive biopsy proven 20- CIN I -12, CIN II- 2, CIN III- 6 ; 29 cryotherapy, 5 LEEP done
-

Indicators	Frequency %
Screening rate	57%
VIA/VILI Screen positivity	1%
Biopsy compliance	48.9%
Pre-invasive cancer treatment compliance	38.6%
Pre-invasive and invasive cancer positivity	3%



• …but many of the women at highest risk are not engaging with health clinics

- **Fear and stigma are major barriers**
- *"When a lady is suffering from this disease, when other people get to know this, people will go on talking about her. See there are some people, they use foul language to talk about this disease. If a lady get the disease and the message comes out, other people will look down upon her"*
- *"If I go for testing, if I find I have cancer , they will keep a separate plate and tumbler for me. They will isolate me"*

Competing demands were another major barrier

"When they are found to have cancer cervix and when they go for treatment, during that time, no one is helping in their house for cooking and other works. No one is supporting them in their day to day work so they hesitate to go for treatment"

Role of others

"Definitely the husband should know this message. This is very important for the life and future support"

- **Key implementation Issues in low health literacy, poor and rural communities**

- Find the resources for cancer screening services
- Institution's priority to other competing preventive services
- Difficulty in keeping the screening team motivated
- Cultural and financial barriers to screening
- Task to raise awareness

- **Future Plans**

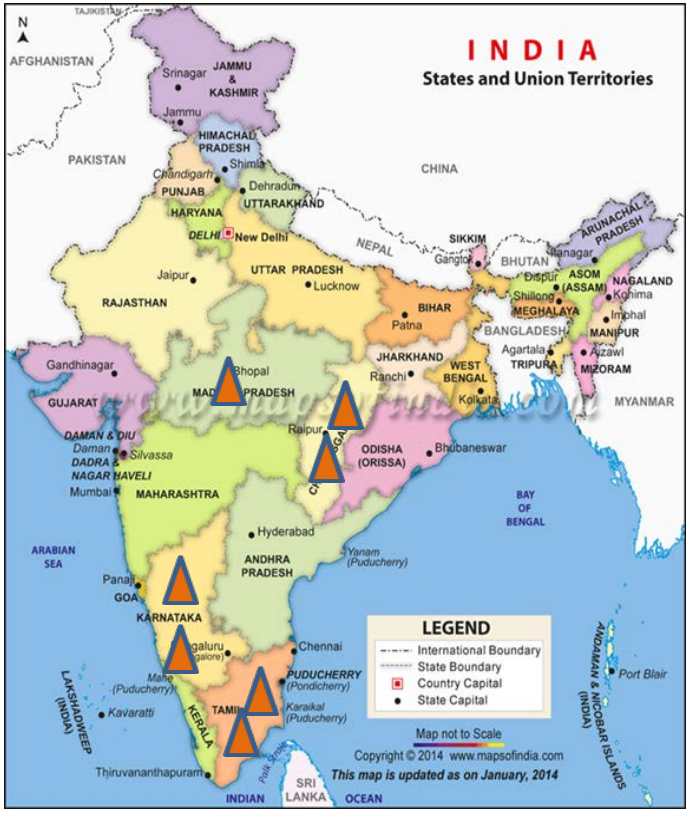
- Establish an international network of researchers and healthcare providers with the capacity to undertake demonstration projects and feasibility studies to help inform the rollout of cervical screening in India
- Plan to focus on HPV testing as a first stage screening modality from self-collected samples
- Study how will women of low health literacy respond to an invitation for HPV testing and how will they interpret the result?
- Find ways to share knowledge and experience gained during the last decade with the cancer control policy makers in India

Future Plans:

Mission to train personnel at other Centers in India

Kolar Medical College

Manipal Medical College



Padhar Mission Hospital

Mungeli Christian Hospital

TILDA Mission Hospital

Umayalachi College of Nursing Research Center

RUHSA, CMC Vellore

- **Acknowledgements**
- **Our Team in Christian Medical College, India**
- **International partners**

- Contact Details:
- Prof. Rita Isaac
- RUHSA Deaprtment
- Christian Medical College, Vellore, Tamilnadu India
- Email: rita.isaac@cmcvellore.ac.in

MEDIC MOBILE™

Mobile Health Approaches to Cervical and Oral Cancer Screening

Jay Evans,, University of Edinburgh
Global Health Academy

JAN 2017

GLOBAL DIGITAL SNAPSHOT

KEY STATISTICAL INDICATORS FOR THE WORLD'S INTERNET, MOBILE, AND SOCIAL MEDIA USERS

TOTAL POPULATION	INTERNET USERS	ACTIVE SOCIAL MEDIA USERS	UNIQUE MOBILE USERS	ACTIVE MOBILE SOCIAL USERS
7.476 BILLION	3.773 BILLION	2.789 BILLION	4.917 BILLION	2.549 BILLION
URBANISATION: 54%	PENETRATION: 50%	PENETRATION: 37%	PENETRATION: 66%	PENETRATION: 34%

SOURCES: POPULATION: UNITED NATIONS; U.S. CENSUS BUREAU; INTERNET: INTERNETWORLDSTATS; ITU; INTERNETLIVESTATS; CIA WORLD FACTBOOK; FACEBOOK; NATIONAL REGULATORY AUTHORITIES; SOCIAL MEDIA AND MOBILE SOCIAL MEDIA: FACEBOOK; TENCENT; VKONTAKTE; LIVEINTERNET.RU; KAKAO; NAVER; NIKI AGHAEI; CAFEBAZAAR.IR; SIMILARWEB; DING; EXTRAPOLATION OF TNS DATA; MOBILE: GSMA INTELLIGENCE; EXTRAPOLATION OF EMARKETER AND ERICSSON DATA.

MHealth Approaches to Cervical and Oral Cancer Screening in India

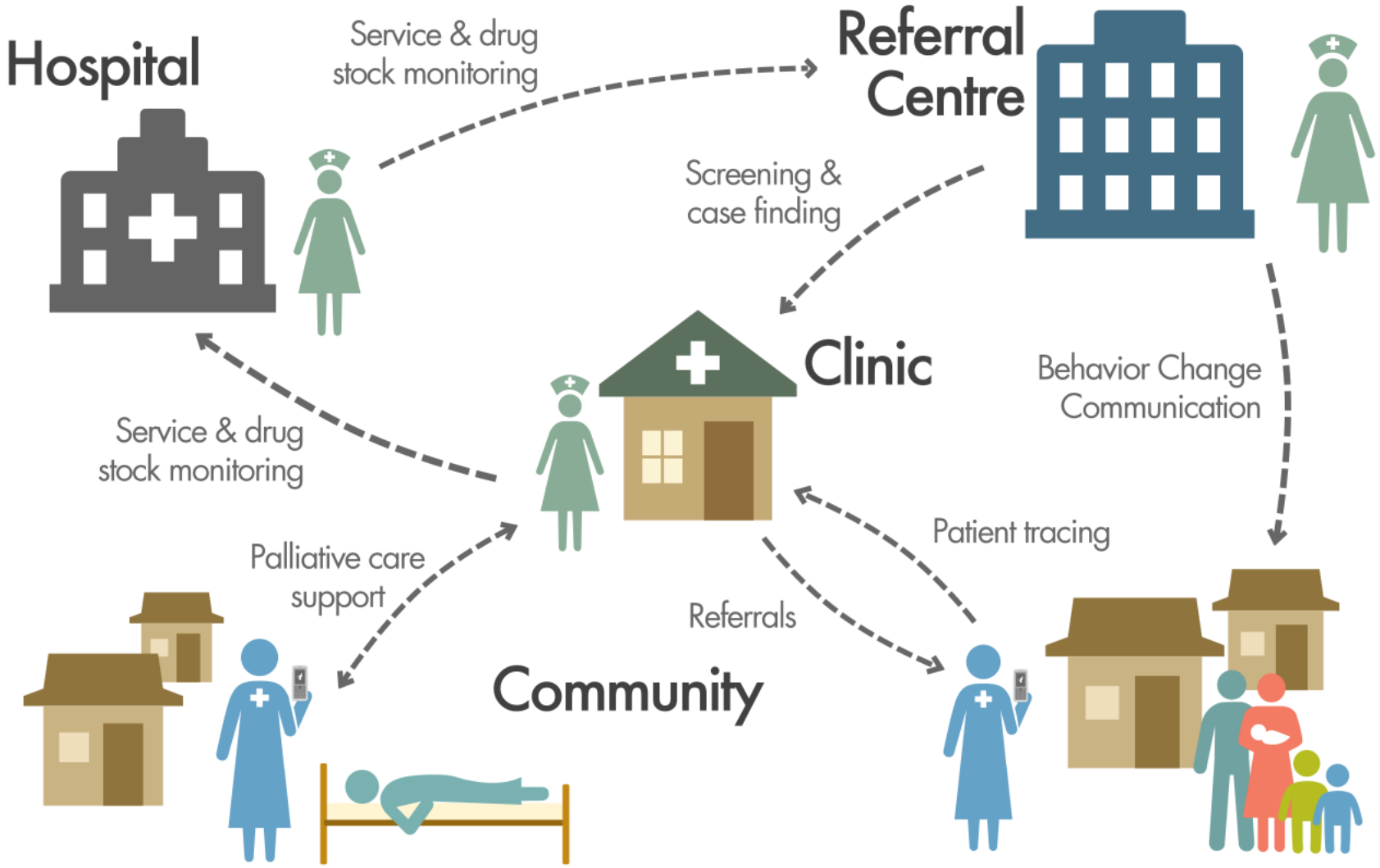
MHealth Workflows and Methodology


NOKIA
Made in Mexico

“Using paper was very time-consuming but with phones, we can get our work done quickly. It is very easy for us and beneficial to the community.”

“The community needs a lot of motivation to get screened and treated.”

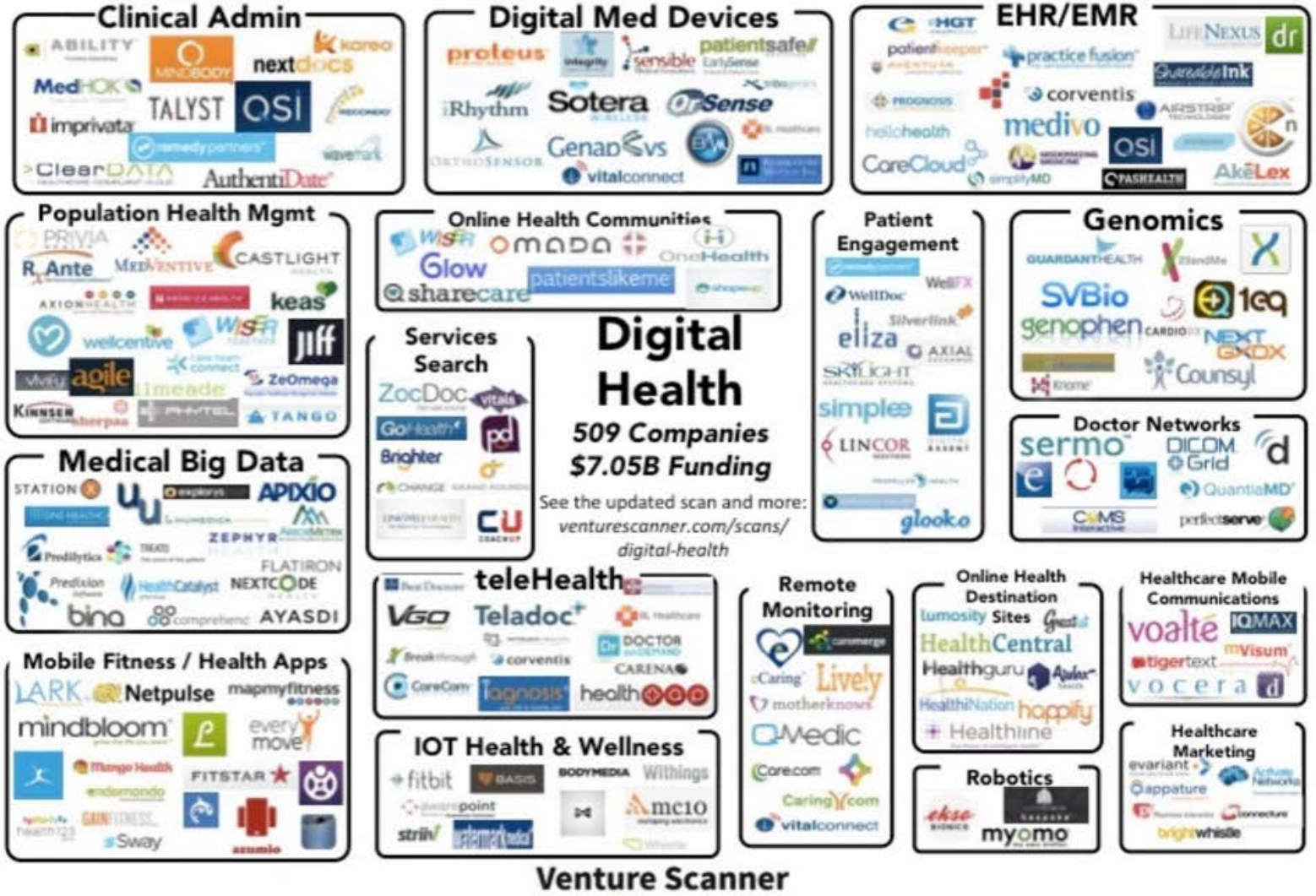
Opportunities for MHealth in Cancer Care



But ...

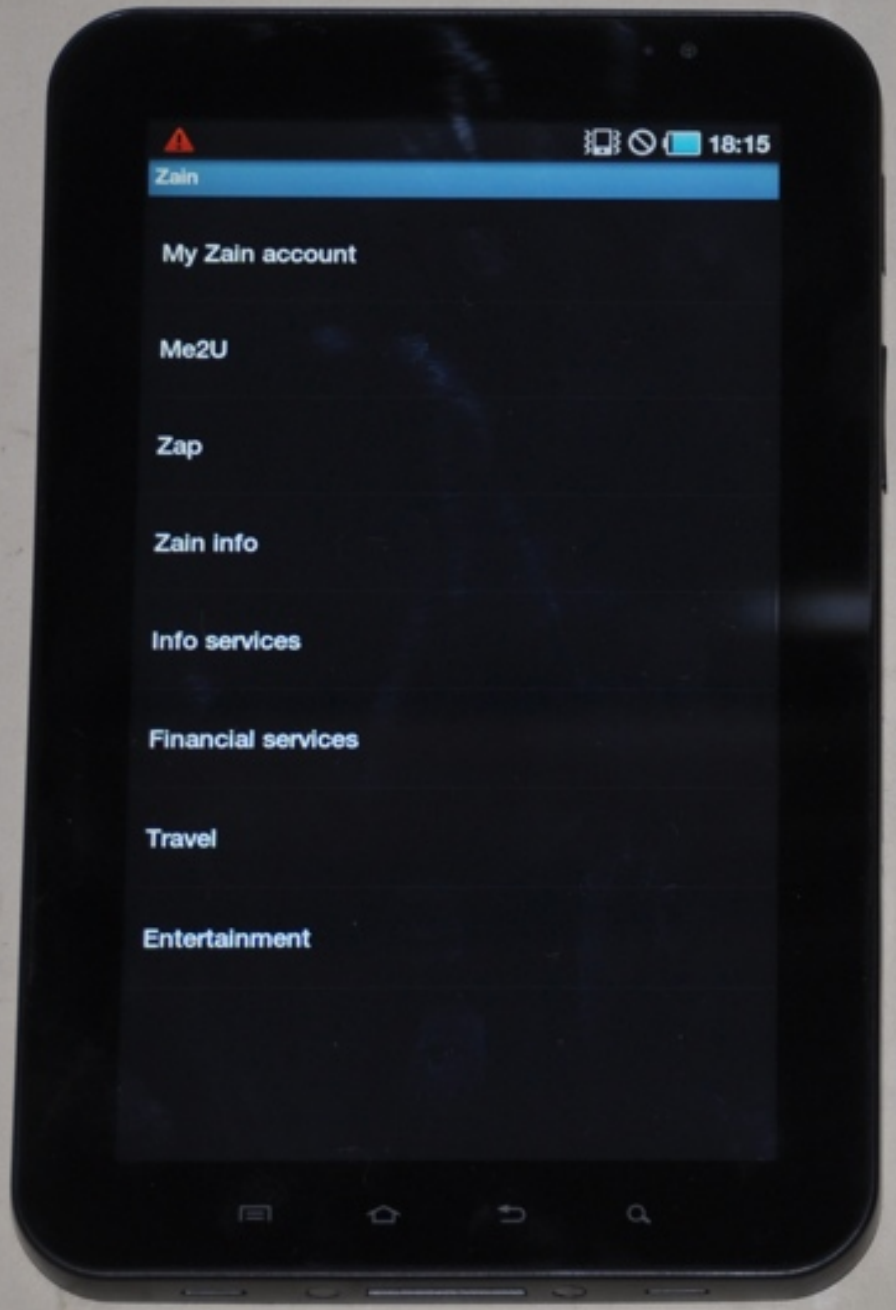
Important Considerations for MHealth in Cancer Care

eHealth systems



Tech ≠ data

Technology =
Better Health
Outcomes &
ACTION!

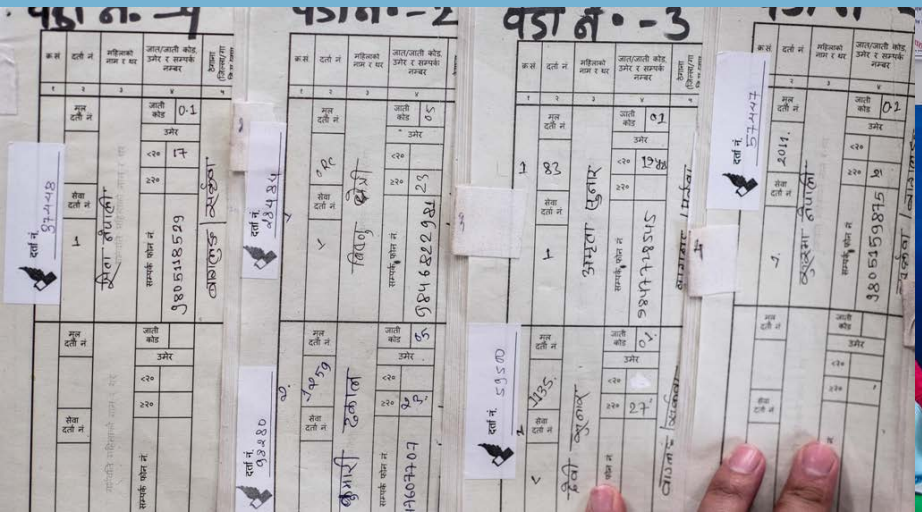

18:15
Zain
My Zain account
Me2U
Zap
Zain info
Info services
Financial services
Travel
Entertainment


No Service
6:18 PM
Phone
SIM Applications
Zain
My Zain account
Me2U
Zap
Zain Info
Info services
Financial services
Travel
Entertainment


NOKIA
Zain
My Zain account
Me2U
Zap
Zain info
Info services
Select
Back

Working together to:

- Build an evidence base
- Implement digital principles + best practices
- Scale what we know works and develop a protocol around it
- Ecosystem information/background in country



We are all health workers

j

medicmobile.org

World Cancer Congress
Kuala Lumpur, Malaysia
1—4 Oct 2018

Strengthen
Inspire
Deliver

uicc
global cancer control
WORLD CANCER CONGRESS

Oral (and cervical) screening in 3 sites in India: pilot study using mHealth strategies

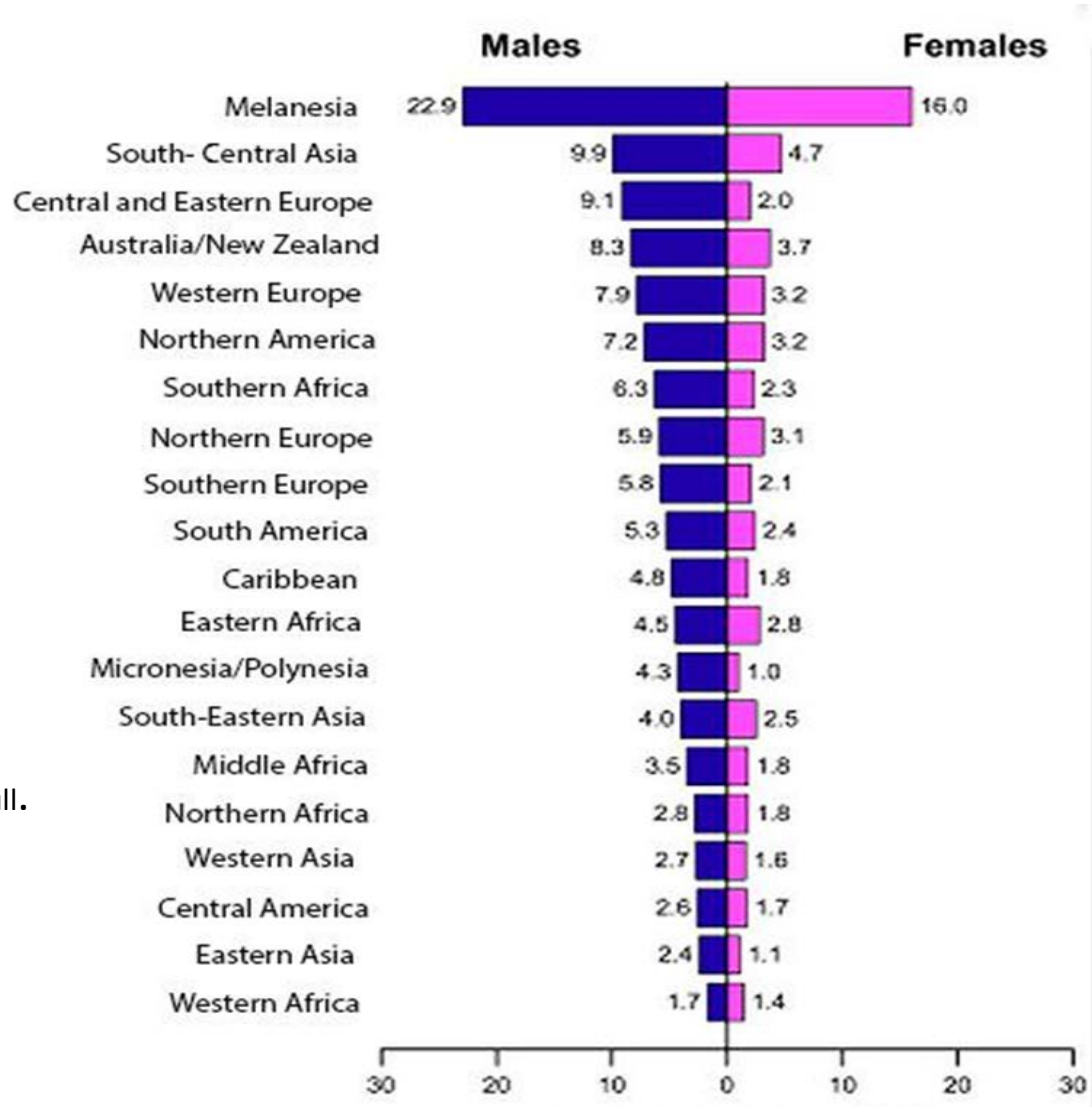
David Weller, Madelon Finkel, Rita Isaac, Jay Evans on behalf of the Global Innovation Initiative Team

- incidence of oral cancer in India is the highest of any cancer among men and ranks third among women; across the population of India incidence is about 20 per 100,000 per year

- 57% of all men and 11% of women between 15-49 years of age use some form of tobacco, and the use of Betel quid (pan) is very common in many parts of India .

Byakodi R, Byakodi S Hiremath S et al. Oral Cancer in India: An Epidemiologic and Clinical Review. *J Community Health* 2012; 37:316–319

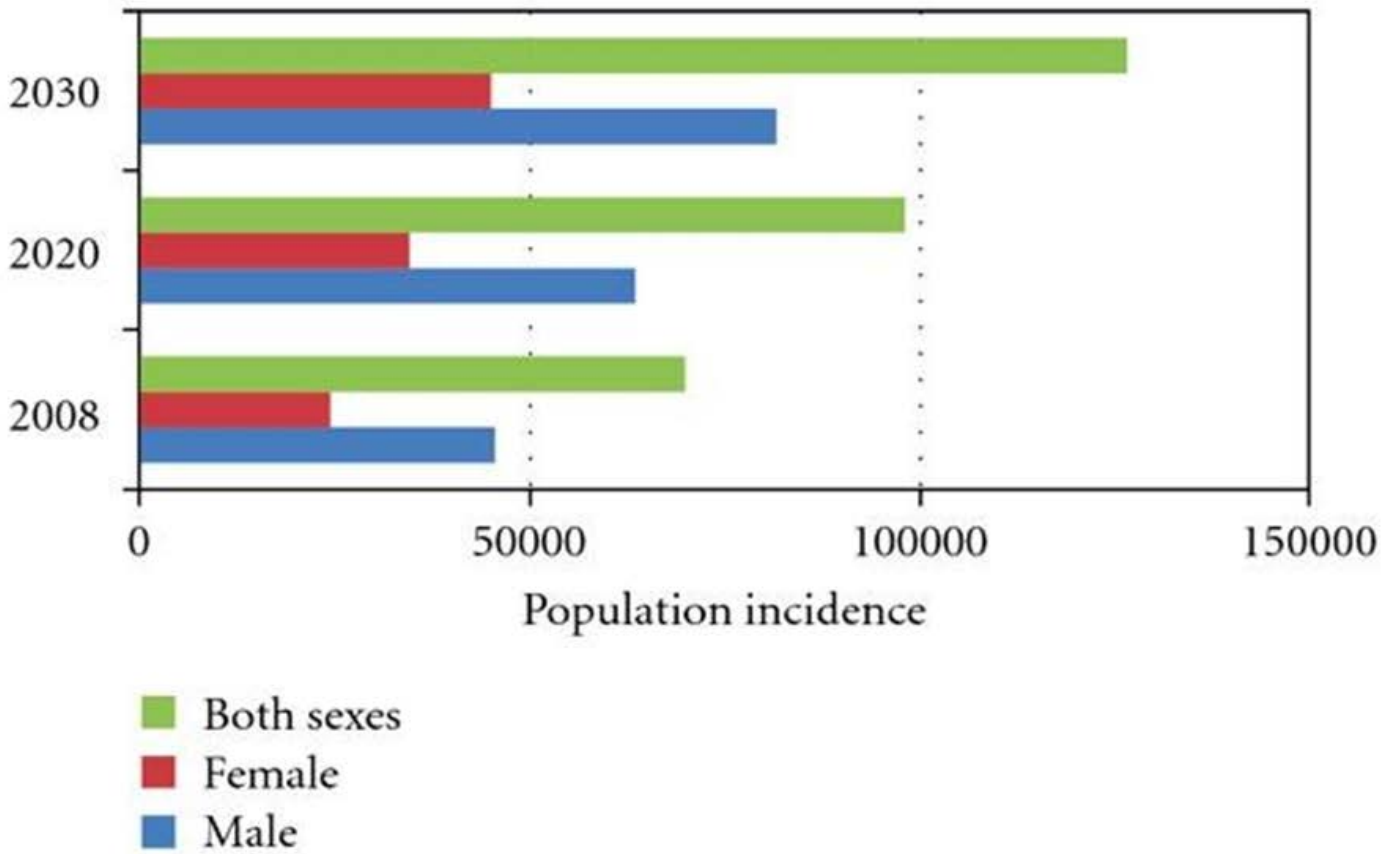
Oral Cavity Cancer Incidence Rates by Sex by World Region, 2012



Age-standardized rate per 100,000
Source: Torre, L. A., Bray, F., Siegel, R. L., Ferlay, J., Lortet-Tieulent, J. and Jemal, A. (2015),
Global cancer statistics, 2012. CA: A Cancer Journal for Clinicians, 65: 87–108.

http://onlinelibrary.wiley.com/doi/10.3322/caac.21262/full.

Crude incidence projections for lip/oral cavity cancer in India (2008 to 2030)



Source: Coelho, KR. Challenges of the Oral Cancer Burden in India. Journal of Cancer Epidemiology. 2012;. vol. 2012, Article ID 701932 http://dx.doi.org/10.1155/2012/701932

RUHSA Rural Unit for Health and Social Affairs (RUHSA, CMC)

- for over 30 years RUHSA has been providing primary health care services to an estimated 120,000 rural population in Tamil Nadu
- 75-bed community health centre with 18 sub-centres
- facilities to treat the common medical and paediatric illnesses, perform uncomplicated general surgical procedures, manage obstetric patients and perform Caesarean sections
- team including a doctor (once-a-month), public health nurse, rural community officers, health aides and family care volunteers provides care in the community at the subcenters
- strong emphasis on community education

Study sites: Padhar

- 200 bedded multispecialty rural Christian Mission Hospital
- located at the southern border of Madhya Pradesh
- provides diagnostic, curative, preventive, palliative, research, developmental and rehabilitative services, both in the hospital as well as in the community. Among the doctors on staff there are two OBGYN and two dentists

Mungeli & Tilda

- owned and operated by the Church of North India's Eastern Regional Board of Health Services

- Mungeli is a rural area in the state of Chattisgarh. It is a 120 bedded hospital which oversees 30,000 out-patients per year, conducts about 600 deliveries, and perform about 2,500 surgeries annually.

- the Dental Department manages about 1,500 patients annually. CHM has a well-equipped Dental Department which offers high-quality dental treatment

- treatment for oral cancer and pre-malignant lesions, endodontics, periodontics, oral surgery, has started a new radio therapy unit

Aims of study

- To build on a successful cervical screening project at RUHSA, Tamil Nadu
  - add oral cancer screening
  - trial a mHealth intervention to underpin screening processes

- To evaluate our programme based on
  - numbers screened, followed up, pathology detected
  - qualitative and process information on the use of our mHealth prototype

Training workshops

RUHSA ORAL

Screened	Positives	Confirmation Visit for Diagnosis	Pre-invasive Lesion (confirmed by Dentist)	Biopsy +ve	Treatment modality for Biopsy positive invasive cancer cases
9783	343	91	12	4	4 (RT + chemo/surg)

Padhar_Oral

Screened	Positives	Confirmation Visit for Diagnosis	Pre-invasive Lesion (confirmed by Dentist)	Biopsy +ve	Treatment
2422	290	29	5	1	1

Mungeli_Oral

Screened	Positives	Visited clinic for confirmation	Confirmed by (2nd Screen)	Biopsy +ve	Treatment
1668	384	-	-	-	-

mHealth Prototype: how was it used?

MEDIC MOBILE™

- Mobile forms for oral screenings (by HWs) and cervical screenings (by nurses), biopsy/ second test (by nurses), and treatment confirmation (by PAs)

- Users submit mobile reports and also maintain a written record of patient names and IDs

- Field teams switch between mobile and paper reporting based on feedback from RUHSA

mHealth Prototype: Advantages and Perceived Social Benefits

MEDIC MOBILE™

- Simple and easy-to-use prototype
- Basic phones easy to maintain/replace, hold charge for longer
- Greater efficiency (saves time, reduces errors, enables quicker case management)
- Increased self-confidence
- Increased social impact in the communities they serve and also within their families

Qualitative interviews and focus groups with CHWs

- Barriers identified: financial, occupational, disempowerment of rural women, stigma, cultural beliefs, no understanding of concept of prevention
- Initiating cancer screening in poor rural Indian communities without first undertaking preparation/community education can lead to low uptake, mis-match between uptake and risk group
- Oral cancer screening with poor follow-up: do benefits (raising awareness, primary prevention/risk factor advice) outweigh the harms? (anxiety, stigma)
- Should oral screening studies in rural India include a budget to cover all costs to the patient (loss of employment, treatment costs)?

Getting time away from work was a major barrier to screening follow-up

Summary and conclusions

- Poor, rural communities will respond to invitations for cancer screening – but in the absence of health/information infrastructure screening is largely opportunistic, and the wrong groups may get screened
- mHealth strategies have the potential to underpin & improve cancer screening – but they need ongoing resource and education
- We achieved very low rates of follow-up of positive tests in our 2 remote locations (Mungeli and Padhar) where there has been little or no community education to prime the community
- At RUHSA, which has a long history of educational outreach programmes (in relation to cervical screening and other areas of preventive health) our follow-up rates were significantly better

Acknowledgements

Oral a cervical cancer in rural India: Using mHealth and primary care to improve prevention, screening and early diagnosis

- Staff at RUHSA, Mungeli, Tilda and Padhar hospitals
- Members of project team: David Weller, Madelon Finkel, Rita Isaac, Liz Grant, Shreya Batt, Jay Evans, Paul Biswajit
- Our funders: Global Innovation Initiative – British Council + NIH

Making screening and early diagnosis in LMICs sustainable – overcoming sociocultural, financial and political barriers

Discussion points:

1. Screening in LMICs often occurs within the context of individual programmes with external funding – and a fragmented health care environment, programmes (such as HIV, screening) in 'silos', lack of commitment in policy, cancer plans. How do we tackle these hurdles?
2. The RUHSA programme works within a mission hospital network – yet such networks are often at odds with government initiatives. How do we join up government policy with existing successful screening models?
3. mHealth appears to only be effective in the presence of clearly defined diagnostic and treatment pathways, and populations which have been 'sensitised' to preventive concepts. How can we take advantage of the enormous potential of mHealth?
4. We face tremendous barriers in introducing screening in poor, rural, low-health-literacy settings. They include cultural, social and educational barriers, stigma, financial issues and misconceptions around cancer and prevention. Does the RUHSA model provide a way of tackling these barriers? What other strategies work?