

Prevention, diagnosis and management of cancer in Mozambique

Mozambique Ministry of Health

Hospital Central de Maputo

Universidade Eduardo Mondlane

MD Anderson Cancer Center

Brazilian Institutions:

- Barretos Cancer Hospital
 - AC Camargo Cancer Center
 - Hospital Israelita Albert Einstein
 - Santa Casa de Misericórdia de Porto Alegre
 - Universidade Federal de Ciências da Saúde de Porto Alegre
 - Instituto Brasileiro de Controle do Cancer
 - Hospital Sirio Libanes
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Rice University, Houston, Texas

Clinton Health Access Initiative

Population Services International

US Agency for International Development

CDC/PEPFAR, HRSA/PEPFAR

International Gynecologic Cancer Society (IGCS)

The National Cancer Institute-Center for Global Health

Anadarko Petroleum Corporation

Prevent Cancer Foundation

Bush Institute

National Breast Cancer Foundation

Mozambique

- Population: 30 million
- 11 provinces and 128 districts
- Portuguese + 40 native languages
- Life expectancy: 58/62 years
- Below poverty line: 55%
- Literacy rate: ~60%
- HIV prevalence: 12% (>20% in urban areas)

One cancer referral center in the country

- 5 medical oncologists/ 2 radionc,
- 50 gynecologists, 15 pathologists
- 3 gynecologic oncologists (new grads)
- 1 pediatric oncologist

Radiation Center opened in 2019



Mozambique & The MD Anderson Sister Institution Network

- Collaboration began in 2014
- By invitation of the former (H.E. Maria da Luz Guebuza) and current First Lady (H.E. Isaura Nyusi)/MISAU
- January 2016: MOU signed between MD Anderson & MISAU
 - Capacity building for cervical cancer prevention
 - Clinical/surgical training in cancer prevention and treatment
 - Research



Health System Strengthening

- **Policy development*** (National Cancer Control Plan)
- **Provider capacity building*** (training and education, IGCS gynecologic oncology training fellowship)
- **Development of research capability***
- **Development of affordable technologies***

*Collaboration and partnerships

Many activities occurring in parallel



National Cancer Control Plan



- International Cancer Control Partnership and support
- Master course in Cancer Control and Prevention
- MD Anderson, Barretos Cancer Hospital (Brazil), US National Cancer Institute and International Atomic Energy Agency were part of a Technical Assistance Team to assist the MISAU in development of a national cancer control plan
- Plan adopted and released February 2019

National Cancer Control Plan



NCCP Launch February 2019

Capacity Building

- Site visits, training trips and monthly virtual tumor boards (Project ECHO) are part of an integrated strategy to improve clinical capacity in the prevention, diagnosis and management of cancer
- Programs developed and implemented in partnership with the Ministry of Health, Maputo Central Hospital, University Eduardo Mondlane and Brazilian colleagues from 5 different hospitals.



Site visit by MD Anderson and Brazilian partners

March 2015

Provider Capacity Building

Hands-on Training:

- Clinical guidance
- Workshops: Colposcopy, LEEP

Trainee Exchanges:

- Brazil and Mozambique

Regular videoconferences:

- Project ECHO



In Country Workshops

Training and workshops at HCM

2016 - January, September

2017 - January, May, November

2018 – April, October

2019 - January, March, July, November

2020 – January/February, July (virtual)

2021- April (virtual)

- Surgery, Inpatient care
- Outpatient clinics
- Lectures
- Discussions



Supported by MD Anderson, PCF, US Govt

Cervical Cancer

Cervical cancer cases/deaths annually: 5,622/3,503

Incidence: 42.8/100,000

Mortality: 35.7/100,000

- Fewer than 5% of women have ever received cervical cancer screening (VIA, some Pap)
- HIV prevalence: 12% nationally, >20% in some urban areas
- National screening: ~150 health centers perform VIA/cryotherapy
- Referral system: Few providers trained to perform LEEP. Only ~10 LEEP machines in the country
- Most women present with advanced disease
- Palliative care services are very limited



Colposcopy and LEEP Training

- Training in management and treatment of women with abnormal cervical cancer screening tests
- Ability to perform colposcopy and LEEP is critical to remove advanced pre-cancerous lesions of the cervix
- Colposcopes and LEEP machines provided to six provincial centers with donor funds and CDC / PEPFAR support
- Training courses supported by philanthropic funds and CDC/PEPFAR



Supported by US Gov't (CDC/PEPFAR) and Prevent Cancer Foundation

Colposcopy and LEEP Training

- Twelve training workshops have been conducted since August 2016
- ~170 different individuals have attended training, many attending more than once
- Since October 2018, gynecologists from all provinces have participated
- Following the workshop, a smaller number of doctors attend clinic with guidance to perform the clinical procedures
- Monthly videoconferences are held to discuss cervical cancer prevention cases/challenges. An average of 23 providers from around the country attend these conferences.



Colposcopy and LEEP Training during COVID-19 Pandemic

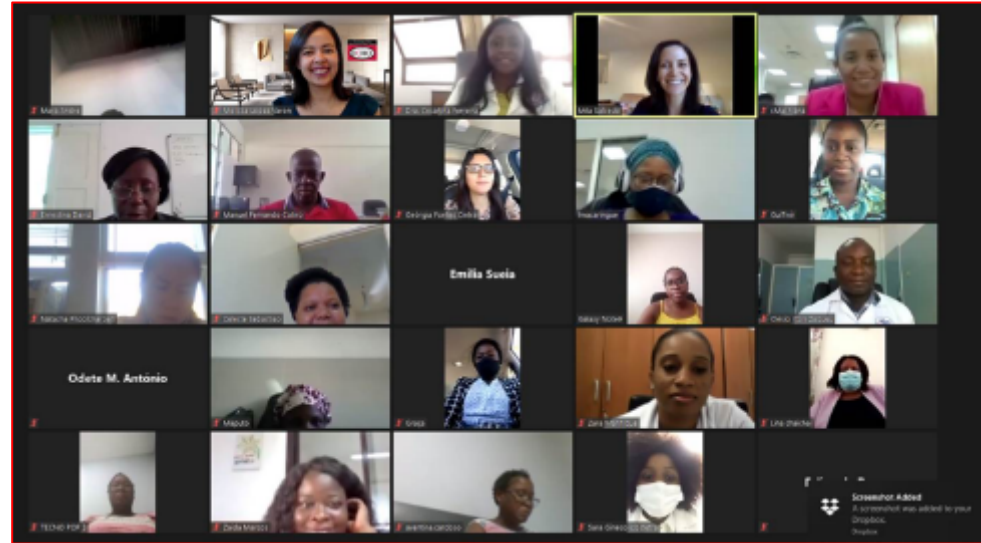
- Courses in July and August 2020 blend of in-person/virtual
- More than 150 health care providers from five countries (Mozambique, Angola, Zambia, Brazil and Portugal)
- Following the workshop, 18 clinicians received skills training in-person
- International faculty attended virtually, providing some lectures, and virtual guidance and support



Virtual Tumor Boards - Project ECHO

ECHO - Mozambique

First conference: 2015
Monthly meetings



- 45 min case discussion + 15 min didactic
- Conferences in cervical cancer prevention and gynecologic oncology

IGCS Fellowship

- A two-year Gyn Oncology training and education program
- Web-based curriculum
- Partnership between HCM, MISAU, faculty mentors from Brazil (5 institutions) & MD Anderson
- Faculty travel to Maputo 4-5x/yr
- Fellows spend 3 months in Brazil
- **First three fellows graduated October 2020**

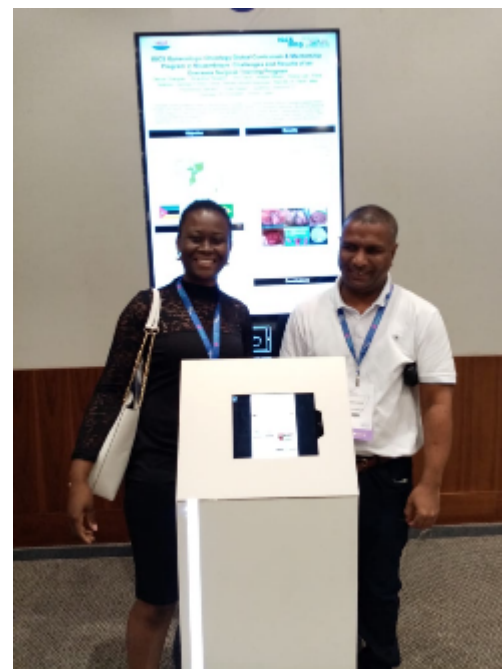
Supported by IGCS and Brazilian specialists from 5 institutions



IGCS Fellowship Program

- Comprehensive two-year education and training program in gynecologic oncology, started in 2017
- Three gynecologists paired with specialists from Brazil
- Defined and established curriculum
- Regular visits for clinical training
- Monthly virtual tumor boards
- International support from specialists
- Regular assessments and final exam
- **Fellows graduated in October, 2020**





The Capulana Study

Original research

The Capulana study: a prospective evaluation of cervical cancer screening using human papillomavirus testing in Mozambique

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HIGHLIGHTS

- Cervical cancer screening with human papillomavirus (HPV) testing was found to be feasible in the cohort studied in Mozambique
- Among the women screened, 23.7% were found to be HPV positive
- More than 90% of women returned for diagnostic work-up and treatment

ABSTRACT

Background Cervical cancer is the leading cause of cancer and related deaths among women in Mozambique. There is limited access to screening and few trained personnel to manage women with abnormal results. Our objective was to implement cervical cancer screening with human papillomavirus (HPV) testing, with navigation of women with abnormal results to appropriate diagnostic and treatment services.

Methods We prospectively enrolled women aged 30–49 years living in Maputo, Mozambique, from April 2018 to September 2019. All participants underwent a pelvic examination by a nurse, and a cervical sample was collected and tested for HPV using the careHPV test (Qiagen, Gaithersburg, Maryland, USA). HPV positive women were referred for cryotherapy or, if ineligible for cryotherapy, a loop electrosurgical excision procedure. Women with findings concerning for cancer were referred

development of invasive cervical cancer than human immunodeficiency virus negative women.

INTRODUCTION

Mozambique is a Portuguese speaking country located in sub-Saharan Africa. It has a population of 29 million with approximately 4 million women aged 25–54 years.^{1,2} Mozambique has one of the highest burdens of cervical cancer in the world, with an incidence rate of 42.8 and mortality rate of 35.7 per 100 000 women.^{3–5} Recent cancer registry data for the capital city of Maputo from 2015 to 2017 showed that cervical cancer accounted for 30% of cancer cases among women, with an age standardized rate of 38.6% per 100 000.⁶ These high rates of cervical cancer are likely due to a lack of population based



Capulana Study team - Mozambique

Cervical Cancer Screening Project at Mavalane

The Capulana Study

- 898 women enrolled in the study with a HPV+ rate of 23.7%.
- The HIV+ rate of 20.2% with a HPV+ rate among HIV+ women of 39.2%
- More than 90% of HPV positive women completed all steps of their diagnostic work-up and treatment
- Treatment included cryotherapy, loop electrosurgical excision procedure, or referral to a gynecologist or gynecologic oncologist
- Of 8 invasive cervical cancers, 5 were diagnosed in women living with human immunodeficiency virus and 3 in human immunodeficiency virus-negative women
- All cancer patients were referred for oncologic care at HCM.

Evaluating innovative technologies and approaches to addressing cervical cancer in the Republic of Mozambique

Funded March, 2019

- HPV screening of 14,600 women in Maputo and Gaza using GeneXpert Platform and self-collected or provider collected samples.
- Implementing partner is Population Services International (PSI).
 - All HPV+ women will be treated with thermal coagulation, if eligible for ablation, or referred for excision (LEEP) or referred to HCM for evaluation and treatment if there is suspicion of cancer
- Development of new technologies.
- 678 women will be evaluated to test an optical imaging system for diagnosis of dysplasia (vs standard pathology).
- Two low cost point of care HPV tests will be evaluated (compared to GeneXpert HPV testing).

Current status

Screening and treatment of pre-invasive disease

- Cervical Cancer Screening capability in ~450 health facilities (VIA, Cryo), with plans to expand to more health units
- LEEP machines in 18 health facilities

Pediatric Cancers - New activities approved by Ministry - focused on early dx (education and training of providers)

Registries - Registries in Maputo, Beira and Nampula

Diagnosis

- **Pathology Labs** - (3 Central, 1 General), IHQ available at HCM
- **Imaging** -5 CT Scanners, 1 MRI, 6 - Mammography units
- **Clinical labs**

Current status

Treatment

Surgical treatment –General surgeons and 3 gynecologists who have completed gynecologic oncology fellowship

Radiotherapy -at Maputo Central Hospital

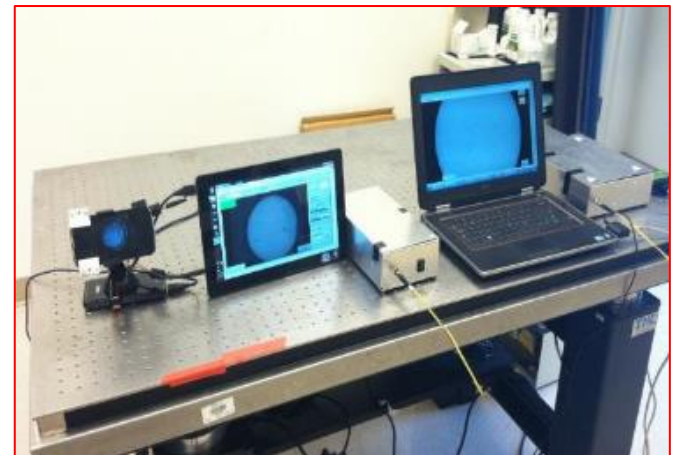
Capacity to treat 75 patients/ month (150 treated as of November 2020)

Palliative care - 1 unit at HCM and 7 pain treatment centers

February meeting at the MOH –Discussed implementation of the NCCP action plan and budget. Meeting included MOH, other government officials, NGOs, and partners

Multiple Integrated Strategies and Partnerships

- Policy (NCCP) and action/implementation plan
- Provider capacity building (training trips, conferences, observerships/ IGCS gynecologic oncology training fellowship)
- Development of research capability
- Development of affordable technologies for cancer prevention, diagnosis and treatment
- Collaboration and partnerships



Obrigada

