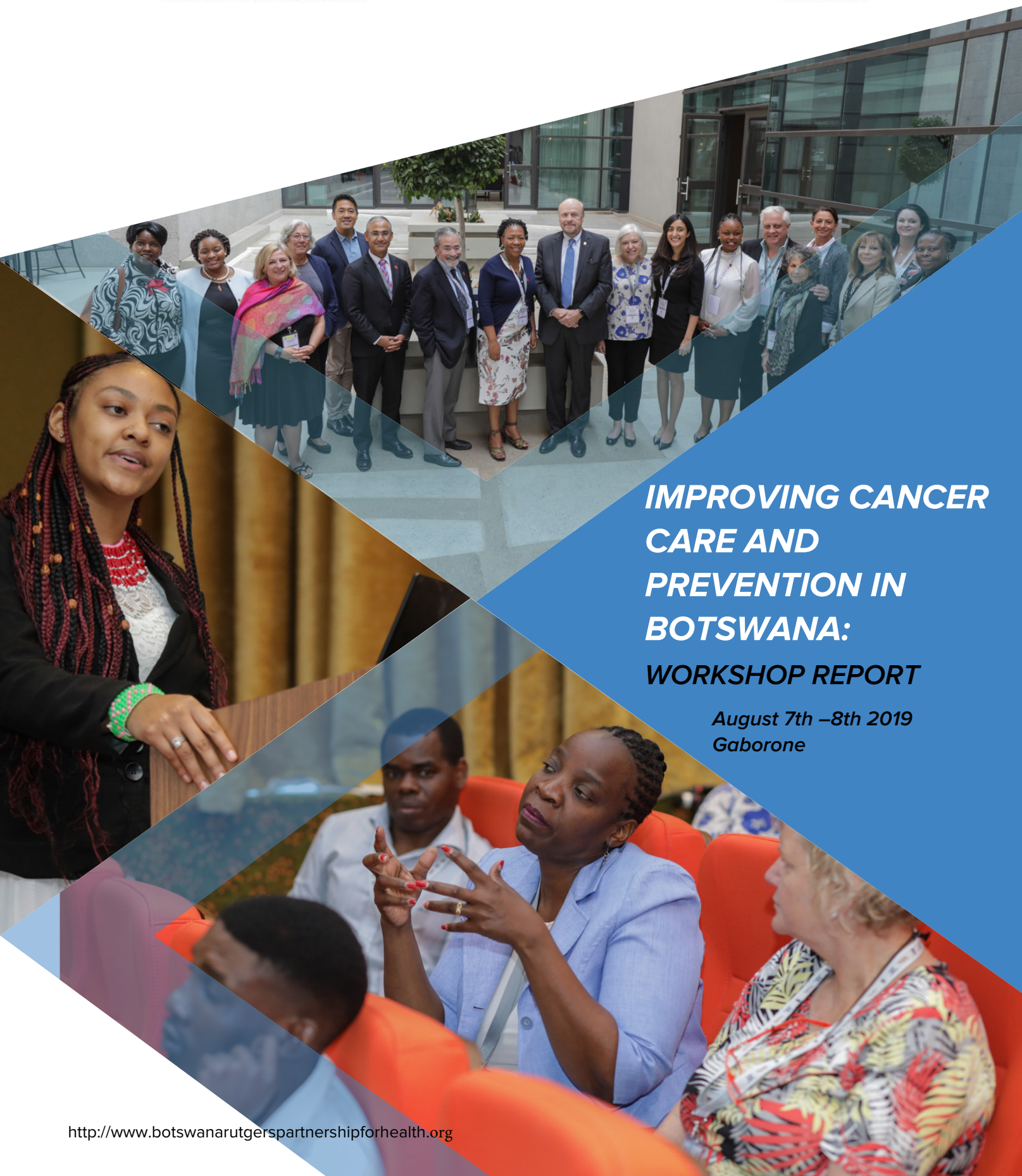




RUTGERS
Global Health Institute



**IMPROVING CANCER
CARE AND
PREVENTION IN
BOTSWANA:
WORKSHOP REPORT**

*August 7th –8th 2019
Gaborone*

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ABBREVIATIONS/ACRONYMS

BHPC	-	Botswana Health Professions Council
BITRI	-	Botswana Institute for Technology Research and Innovation
BPC	-	Botswana Power Corporation
CAB	-	Cancer Association of Botswana
CSO	-	Community Service Organization
CSR	-	Corporate Social Responsibility
GCT	-	Giant Cell Tumor of Bone
GMO	-	Genetically Modified Organism
HCW	-	Health Care Worker
HRDC	-	Human Resource Development Council
IAEA	-	International Atomic Energy Agency
ICT	-	Information and Communications Technology
IHS	-	Institute of Health Sciences
ISP	-	Internet Service Provider
M&E	-	Monitoring and Evaluation
MoBE	-	Ministry of Basic Education
MoF	-	Ministry of Finance
MOHW	-	Ministry of Health and Wellness
MoTE	-	Ministry of Tertiary Education, Research, Science, and Technology
NAHPA	-	National AIDS and Health Promotion Agency
NCD	-	Non-Communicable Disease
NCCPP	-	National Cervical Cancer Prevention Program
PMH	-	Princess Maria Hospital
PPP	-	Public-Private Partnerships
OP	-	Office of the President
RGHI	-	Rutgers Global Health Institute
SDA	-	Seventh Day Adventist
SKMTH	-	Sir Ketumile Masire Teaching Hospital
SOP	-	Standard Operating Procedures
SW	-	Social Worker
UB	-	University of Botswana
UBFHS	-	University of Botswana Faculty of Health Sciences
UBFOM	-	University of Botswana Faculty of Medicine

UBSON	-	University of Botswana School of Nursing
UBFOHS	-	University of Botswana Faculty of Health Sciences
UN	-	United Nations
SWOT	-	Strengths, Weaknesses, Opportunities, Threats
WHO	-	World Health Organization

EXECUTIVE SUMMARY

In 2018, cancer accounted for 7% of all premature deaths due to non-communicable diseases (NCDs) in Botswana (World Health Organization, *Non-communicable diseases country profiles*, 2018). Despite many of the cancers being curable, mortality was almost 75 percent. Patients in Botswana often present with advanced disease as a result of nationwide cancer care challenges, such as minimal prevention efforts, a lack of support services, and long delays in detection and diagnosis.

The “*Improving Cancer Care and Prevention in Botswana*” workshop, held at the University of Botswana Conference Centre in Gaborone on August 7th–8th, 2019, brought together a multi-sectorial stakeholder group interested in advancing Botswana’s cancer care and prevention efforts. The goals of the workshop were (i) to discuss the current challenges facing cancer care in Botswana, and (ii) to generate a list of recommendations for a comprehensive national cancer control programme.

Hosted by a tripartite partnership of the Ministry of Health and Wellness (MOHW), Rutgers Global Health Institute (RGHI), and the University of Botswana (UB), the workshop welcomed 121 participants, from the academic, civil society, corporate, and public sectors.

The high level recommendations were:

1. Enhance workforce capacity in cancer and other NCDs
2. Improve the supply chain management framework
3. Build a standard of practice in oncology
4. Create policies that protect the public
5. Improve prevention education, screenings, and diagnostics in ambulatory settings
6. Establish a robust population-based cancer registry
7. Create inter-professional education (IPE)/team-based training courses and activities in medical and health professions education
8. Enhance the digital health infrastructure by 2023

Key themes emanating from the discussions were:

- Cancer care in Botswana is not systematic,
- It does not use a multi-disciplinary team approach enough,
- There is late detection due to the lack of education by both healthcare workers and communities,
- There is lack of community support, and
- Access to curative and palliative care remains a challenge for patients and their families.

1.0 INTRODUCTION

The complexity of chronic diseases, such as cancer and other non-communicable diseases, requires ‘new thinking’ to strengthen care. To address this, the Botswana Government has committed to finding ways to revise health and public health programmes and further improve infrastructure to appropriately serve communities in the country.

The *“Improving Cancer Care and Prevention in Botswana”* workshop was the first gathering of the tripartite partnership to discuss five critical domains of care and generate actionable resolutions.

The Workshop

At the opening ceremony, the Minister of Health and Wellness, Honorable Dr. Alfred Madigele, and the Deputy Permanent Secretary of the Office of President, Mr. Elias Magosi, reiterated the national vision for health care and set the tone for the workshop’s forthcoming discussions and engagements. They were joined by a clinical oncologist, cancer caregiver, cancer survivor, and a panel of physicians from MOHW, RGHI, Sir Ketumile Masire Teaching Hospital (SKMTH), and UB to impart knowledge and share personal accounts related to cancer care and prevention in Botswana.

After the opening presentations and panel discussions, workshop participants were invited to attend concurrent breakaway sessions focused on five critical domains of care:

- *Paediatric, Adult, and Radiation Oncology*—to facilitate improvements in comprehensive cancer care, including specialized oncology services in Botswana;
- *Cancer Prevention in Primary and Community-based Settings*—to prepare the health care workforce and general public to participate in and benefit from cancer prevention initiatives;
- *Sir Ketumile Masire Teaching Hospital*—to support launching team-based, patient-centred care models in both general medicine and speciality care;
- *Digital Health and Telecommunications*—to improve patient care experiences and outcomes utilizing technology, i.e. tele-mentoring, telemedicine, and telehealth; and
- *Health Professions Education and Inter-Professional Education*—to mobilize and create longitudinal team-based learning and training initiatives for medical and health professions students.

The following four objectives guided the concurrent breakaway session discussions:

1. Exchange best practices and knowledge of clinical and community-based cancer care and prevention models;
2. Improve cancer care and prevention at each level of the health system;
3. Improve health equity through evidence-based strategies and approaches; and
4. Improve cancer survivorship in Botswana

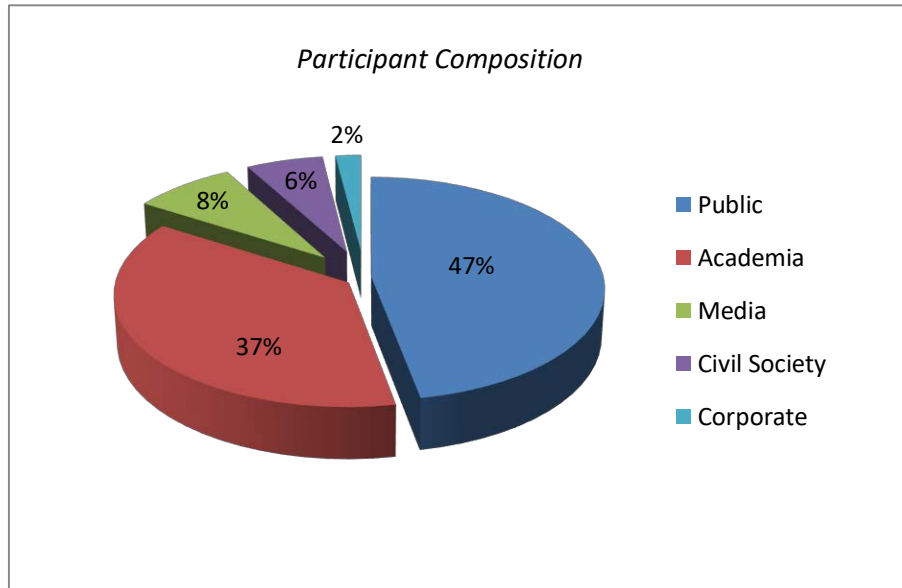
Purpose and Participation

There were 121 workshop participants representing the Botswana and Rutgers University constituents from various sectors, including academia, civil society, corporate, media, and the public. (See Figure 1.) All motivated by the challenges surrounding cancer care and prevention in Botswana, including:

- Minimal prevention and support services;
- Delays in cancer detection and diagnosis;
- Deficiencies in the availability of cancer medications;
- Unreliable data registries;
- Shortages in speciality trained health workforce;
- Limited palliative and hospice care for those with advanced disease; and
- High cancer mortality.

Figure 1: Participant Composition

N=121 being number of participants who registered and were present at the workshop.



- 47% (57) were Public
- 37% (45) were Academia
- 8% (10) were Media
- 6% (7) were Civil Society
- 2% (2) were Corporate

2.0 OPENING CEREMONY

2.1 Opening Remarks: Mr. Elias Magosi, Deputy Permanent Secretary to the President

Mr. Magosi's opening remarks highlighted two key goals that Botswana aspires to achieve: (i) to be a knowledge-based economy and (ii) to be competitive with the rest of the world as a high income country. These aspirations are captured both in the National Vision 2036 and His Excellency Dr. Mokgweetsi Eric Keabetswe Masisi's roadmap¹. Botswana has identified four key areas that are pivotal in driving this strategic agenda:

1. *Entrepreneurship*—changing the economic model from a government-driven one to a private sector-led economy with a priority on enterprise development;
2. *Information and Communications Technology*—improving efficiency and optimizing resources by integrating innovations and service delivery;
3. *Leadership*—investing in leadership development at all levels to mould leaders who understand transformation and are appropriately skilled to execute the country's transformation agenda; and

¹ State of the Nation Address, November 05, 2018

4. *Health*—providing the best, innovative health services to its population, such as the latest service delivery technologies, for which the government has sought strategic partnerships.

Of equal importance, Mr. Magosi shared that investment in infrastructure and related technologies (i.e., the smart cities approach) will be undertaken. Additionally, strategic partnerships, such as the one with Rutgers University and RGHI, will assist with knowledge, experience, and innovations to fast track the realization of the national vision pillars.

2.2 Keynote Address: Honorable Minister of Health and Wellness Dr. Alfred Madigele and Member of Parliament for Mmathethe-Molapowabojang

Honorable Madigele’s keynote address reiterated that Botswana is invested in building a knowledge-based economy. He noted that this can be achieved through leveraging partnerships such as the one between the Government of Botswana and Rutgers University, to strengthen the health care system and build healthy communities. He highlighted how the growing scourge of cancer and other NCDs present a challenge for Botswana, and stressed the need to strengthen the prevention and health care infrastructures to not only reduce morbidity and mortality rates, but as well as the social and economic impact of these conditions. Honorable Madigele expressed his desire for health care facilities in Botswana to reinforce patient-centred outcomes through enhancing access to care and care coordination efforts in the community. He added that in order to strengthen the health care delivery system, a concerted effort was needed to revise and implement policies to align with the current health care needs of the country. This includes improving infrastructure to appropriately service Botswana’s growing health care needs and challenges. Honorable Madigele closed by underlining the importance of conducting research to generate solutions for local challenges, and using evidence-based approaches to build equitable health care in Botswana.

2.3 Introduction of the Rutgers University Delegation – Chancellor Brian Strom

Chancellor Strom was the leader of the Rutgers University delegation and he introduced himself and members of the delegation. He expressed delight to be in Botswana and that his delegation was deeply invested in learning about the country and its health care system. He said their visit reciprocates one by the Botswana leadership delegation to New Jersey, in the United States. He highlighted how the trips demonstrated a commitment to the collaboration that will move Botswana forward.

2.4 Remarks from Chancellor Christopher Molloy, Rutgers, The State University of New Jersey

Remarks from Chancellor Molloy noted the University’s experience as a public research institute and expressed inclination towards exploring ways to work with Botswana partners, both in the public and private sectors. The partnerships provide an avenue for generating solutions that will be beneficial to both the government and the people of Botswana.

3.0 WORKSHOP SESSIONS

To frame the current state of Botswana's cancer care programmes and to set the tone for the workshop discussions, workshop participants heard personal accountings from:

- Dr. Tlotlo Ralefala, Head of Oncology at Princess Marina Hospital (PMH);
- Mr. Kabo Monare, a caregiver; and
- Ms. Charlene Motshegwe, a cancer survivor.

Following these personal accounts, a panel discussion consisting of representatives from the MOHW, SKMTH, RGHI, and UB shared their knowledge, experiences, and recommendations to improve cancer care and prevention in Botswana.

3.1 Dr. Tlotlo Ralefala, Medical Oncologist

Dr Ralefala is a Radiation Oncologist (Clinical oncologist) by profession who had the opportunity to train in one of the best Radiation Oncology departments in South Africa. Upon completion of her training in mid-2017, she came back to Botswana to work in a medical oncology unit in Princess Marina Hospital (PMH).

Even though there are different facets to discuss in cancer care, Dr Ralefala's main focus was on the need for Multidisciplinary Team Clinic approach on the management of cancer patients.

Dr Ralefala highlighted that oncology is not a "one- man- show" and that each patient that comes in will require a unique management plan depending on their disease profile, and as such each case would be best managed in a multi-disciplinary team set up. Whilst this was the norm in her institution of training, where patient management plan would be discussed in a single setting by various specialists cognizant with Oncology care, e.g, pathologists, radiologists, haem-oncologists, surgical oncologists, speech therapists, paediatricians etc, this is not yet feasible in the Botswana setting due to limited human resource capacity.

Although PMH is aware of the country's long-term goals of training more oncology specialist and sub-specialized personnel, they at present have been able to form multi-disciplinary team clinics with the non-oncology trained colleagues to improve cancer patient care in the country.

3.2 Mr. Kabo Monare, Caregiver

Mr. Monare lost his son, Nnete Monare, to neuroblastoma at the age of three. Nnete presented with diarrhoea and vomiting and received medical attention at one of the local private hospitals. The investigation led to a preliminary cancer diagnosis. Nnete and family were referred to Princess Marina Hospital for further testing because at the time Princess Marina Hospital was the only health facility with paediatric oncology services in the country. Due to the complexity of the disease the family facilitated for the referral of Nnete to Donald Gordan Hospital in South Africa, where the neuroblastoma diagnosis was confirmed. Nnete's treatment plan included six months of chemotherapy but since it did not produce the desired results a surgery was conducted. The surgery was not successful given that the tumor was in very

delicate area rendering it inoperable. Nnete was then recommended for palliative care which he took for a few months but passed on in June 2015.

In hindsight, Mr. Monare realized a missed opportunity of early detection and diagnosis because the child showed a gradual weight loss during the monthly child welfare clinics visits. No further investigation was carried out by the local medical team.

Mr. Monare shared the following key observations:

- Cancer care is not systematic in Botswana;
- Health care professionals do not use team-based approaches;
- Lack of awareness leading to late-stage presentation and diagnosis;
- Lack of community support; and
- Unavailable services, both curative or palliative, at close proximity to patients.

3.3 Ms. Charlene Motshegwe, Cancer Survivor

At age 22, Ms. Charlene Motshegwe beat cancer not once but twice. Delivering a speech aptly titled, *“I Had Cancer but Cancer Did Not Have Me,”* she told workshop participants that she was first diagnosed with stage two Giant Cell Tumor of Bone (GCT) cancer at age 16.

After a desk fell on her leg, she showed symptoms which included a lump in her leg which eventually led to decreased mobility and weight loss. For a long time, she was on a treatment regimen for what was thought to be a muscle problem. When Charlene’s condition did not improve, and since her parents had medical insurance, she sought medical care from a private hospital. There, an X-ray revealed a black mass under her knee—it was misdiagnosed as Hematoma (dry blood). After her symptoms did not improve and further investigations, Charlene was finally diagnosed with GCT and a 5kg tumor was surgically removed from her leg. Three months’ post-surgery, four more tumors were discovered that required surgical removal.

At the age of 17, Charlene was diagnosed with cancer for the second time. Unfortunately, her medical insurance account was depleted. With no funds for surgery and no solution in sight, Charlene slipped into depression. It was then that her father discovered the Health Share Program, a Botswana government initiative that allows patients with complex conditions to be referred abroad for treatment due to a lack of in-country specialists. Through this initiative Charlene underwent surgery to remove the tumors and has been cancer-free ever since. Charlene emphasized the delay in cancer diagnosis was due to the lack of cancer education and awareness by both her parents and health care workers.

Charlene shared the following key observations:

- Lack of knowledge and awareness by both the public and health care workforce on matters relating to cancer leads to late diagnosis and detection;
- Lack of knowledge and services for pediatric cancers; and
- Unavailability of appropriate cancer care.



3.4 Panel Discussion: What should be done to improve the quality of cancer care in Botswana?

Moderator

Dr. Malaki Tshipayagae, Director of Health Services, Health Services Management, Ministry of Health and Wellness

Panellists

Dr. Morrison Sinvula, Deputy Permanent Secretary- Health Services Management, Ministry of Health and Wellness;

Dr. Thato Moumakwa, Commissioning Manager, Sir Ketumile Masire Teaching Hospital;

Dr. Doreen Ramogola-Masire, Acting Dean, Faculty of Medicine, University of Botswana; and

Dr. Richard Marlink, Director, Rutgers Global Health Institute, Rutgers University

The Discussion

Dr. Sinvula acknowledged a service gap in early detection. Majority of new cancer cases are detected at a late-stage. The MOHW recognized the need for urgent public education to raise awareness on cancer signs and symptoms and to improve screenings for early detection. Proximity/access to care has also been improved by upgrading some peripheral hospitals to offer oncology services. District hospitals in Maun, Serowe, Mahalapye, and Molepolole are upgraded to support the two referral hospitals, Princess Marina Hospital and Nyangabgwe Referral Hospital. These facilities will coordinate complex cancer care with Sir Ketumile Masire Teaching Hospital, once operational, at a quaternary care level.

Dr. Ramogola-Masire discussed speciality workforce shortages and the need to build in-country capacity, citing the insufficient awareness of Nnete's clinical team to recognize the clinical symptoms related to paediatric cancer, which resulted in a preventable late-stage diagnosis. For these reasons, the University of Botswana, Faculty of Medicine (UBFOM) will train sub-specialty personnel by leveraging partnerships such as the one with Rutgers to jointly create innovative and interprofessional education opportunities that will build collaborative practice teams in the workplace.

Dr. Thato Moumakwa prefaced his discussion by noting the unique challenge that Botswana faces of a low population density in a vast country. He emphasized the importance of smart deployment of resources. He also pointed out that while the teaching hospital is not yet operational it will provide quaternary care, with a strong emphasis on prevention guided by social determinants of health. The hospital will also offer curative and palliative care and provide both comprehensive adult and paediatric oncology services, including radiation therapy and medical oncology. These will be done by leveraging partnerships already established in country. An example is enhancing paediatric cancer care through the partnership between the MOHW and Baylor College of Medicine, where care is provided for childhood cancers, including blood disorders. The teaching hospital embraces team-based approaches to patient- and family-centred care.

Dr. Marlink shared some of the lessons derived from his extensive experience working in HIV and AIDS care. He outlined how Botswana's comprehensive approach and response to HIV and AIDS can be

replicated in cancer care and prevention. Some of the key lessons are bringing care closer to families and communities, noting the significance of prevention in the cancer care continuum, and needing leadership at all levels, including team-based service delivery approaches.

Question and Answer Session Highlights

Contributions from the audience reiterated the importance of leveraging community and civil society infrastructures to support palliative care, and the need to facilitate education and awareness for early detection and treatment. Another key point was the need to provide housing support to cancer patients and families traveling from afar to access centralized oncology facilities. This can be done by engaging corporate sector social investment programmes for partnership and financial resources.

Key Themes from Discussion:

- Cancer care in Botswana is not systematic,
- It does not use a multi-disciplinary team approach enough,
- There is late detection due to the lack of awareness by both healthcare workers and communities
- There is lack of community support
- Access to curative and palliative care remains a challenge for patients and their families.

3.5 Concurrent Breakaway Sessions

The breakaway portion of the workshop hosted small discussion groups focusing on five critical domains:

1. Paediatric, Adult, and Radiation Oncology
2. Cancer Prevention in Primary and Community-based Settings
3. Sir Ketumile Masire Teaching Hospital
4. Digital Health and Telecommunications
5. Health Professions Education and Inter-Professional Education

Each group conducted a SWOT analysis of its respective thematic area, synthesized the results into actionable objectives that guided a list of recommendations for cancer care and prevention activities in Botswana.

The following results emanate from that engagement.

3.5.1 Paediatric, Adult, and Radiation Oncology Group

Facilitators: Dr. Dipho Setlhako and Dr. Yehoda Martei

<p>Strengths</p> <ul style="list-style-type: none"> • Government funds care for all citizens • There is political will • There is broad access to treatment • Oncology services for adults have been decentralized by integrating primary and peripheral health centers • Strategic partnerships exist for oncology service provision • Country has a small population with relatively higher resources compared to most neighboring countries • Country has plans to open a teaching hospital which will offer quaternary care • Well set up referral system from primary hospitals to tertiary centers • Country has well developed infrastructure, particularly communication and transportation • Infrastructure for patient referrals to different disciplines 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Shortage of skilled human capital, including high turnover of specialist providers in oncology • Shortage of supplies, including supportive drugs and chemotherapeutic agents • No national cancer guidelines • No cancer care policy or relevant committee oversight • Lack of preventative services, including screening • Poor documentation/electronic records for easy patient tracing • Low index of suspicion for cancer as a diagnosis amongst health professionals, especially for pediatric cancer • Limited cancer awareness within communities • Shortage of pathologists and radiologists • Loss of skilled personnel to competitors • Loss of faith by patients in the system due to diagnostic challenges
<p>Opportunities</p> <ul style="list-style-type: none"> • Management and careful prioritization of available resources • Optimal use of the SKMTH and its facilities • Sub-specialty training of health professionals • Establishment of national screening protocols • Enhanced stakeholder participation through PPP and CSR models in joint care • Modelling from HIV care • Leveraging technology • Effective multi-disciplinary clinics • Peer education/twinning (Twinning is an instrument for building institutional capacity) • Research and documentation of local experience/outcomes 	<p>Threats</p> <ul style="list-style-type: none"> • Higher incidences of HIV-associated cancers owing to increased survival in HIV+ population • Shortage of equipment (e.g. dependence on one linear accelerator to provide radiotherapy for the entire population) • Lifestyle factors (alcohol, tobacco, and sedentary lifestyle as well as poor dietary choices) contributing to onset of certain cancers • Environmental exposures • Misconceptions of cancer • Geographic spatiality of the cancer population in relation to care centers • Reduction of funding for education/specialty training

	<ul style="list-style-type: none"> • Loss of human capital to competitors
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Against this situational backdrop, the team identified three interventional objectives:

Objective 1: Strengthen Health Systems

Sub-Objective 1A: Establish National Cancer Control Policy Program housed at the Office of the President

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Measure/s
Establish guidelines for screening of common cancers	Representatives within the MOHW -Medical oncologist -Pediatric oncologist -Radiation oncologist -Nurses -Community representative -Survivors	6–12 months	National platform: Office of the President and/or Ministry of Health Stakeholders: private partnerships, Pharmaceutical companies	Establishment of guidelines and regular updates to guidelines
Establish standardized guidelines and national policies for awareness, diagnoses, and treatment				Number of routine cancer screenings conducted in ambulatory case settings
Create policies for healthcare personnel training and retention				Number of new cases Number of referrals to referral hospitals

Sub-Objective 1B: Improve Diagnostic Capacity

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/ Impact	Measure/s
Increase access to screening modalities	National Health Lab	6–12 months	Private labs	Turnaround Time	Measuring turn-around time (6 – 12 months) for diagnostic and surgical pathology (goal: maximum 2 weeks)
Improving diagnostic and reporting turnaround time	Biomedical engineering in the hospital		Academic partnerships- External and Internal Including UB	Quantitative measure of functional equipment	
Maintenance plans for equipment					Quantitative measure of functional equipment (goal: 100%)

Integrating telemedicine- Specifically in reference to tele-pathology			Private partnerships Biomedical engineering		
Decentralize diagnostic capacity			Procurement agencies Training institutions	Percentage of patients receiving results	Percentage of patients receiving results (goal: 100%)

Sub-Objective 1C: Establish Skilled Cancer Workforce

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Providing certified training programs for healthcare personnel	Engaging at all levels: physicians, interns, nurses, dieticians, social workers, pharmacists, psychiatrists, pathologists, radiologists	6–12 months	Ministry of Health and Wellness Training institutions: To provide medical oncology fellowship, oncology pharmacy training, nursing in palliative care	Patient to provider ratio Staff retention rate	1 full time medical oncologist per public hospital site delivering cancer care (goal 5, in 1-2 years). (Long term goal: 1 oncologist per 175 new adult cancer cases per year) Measuring retention (# of staff that is retained over a period of 2 years) Increase in proportion of diagnostic tests performed in primary care by generalists (vs specialists) Goal to meet patient to provider ratio above
Funding for specialized long-term training in oncology care (e.g. nurses master's program)				Skill level of general providers to perform diagnostic tests	
Retention of health-care workers; e.g. incentivizing professional development				Number of trained/graduate health-care workers	
Task shifting-training generalists to provide adult oncology care and to recognize and refer pediatric oncology cases early					

Objective 2: Increase Cancer Awareness

Sub-Objective 2A: Engage Communities

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Leveraging existing community networks	Locals and religious/		NGOs, e.g. Cancer	Self- referrals	Numbers and proportions of age groups reached

to promote cancer awareness	traditional leaders in the community Village extension teams and village health committees	Short-term (3–4 months): Designing a national strategy/ plan	Association of Botswana, Journey of Hope	Provider referrals from community clinics and groups	Increase in cancer detection rates People diagnosed at earlier stages (stage shifting with goal of 2/3 of cases diagnosed at earlier stage)
Development of plan for training focal leaders in communities			Civic organizations	Number of people reached	
Implementation of the plan on a national level		Medium-term (6–12 months): Roll-out of community awareness program	Village Health Committees		
Funding: Private sponsors, Ministry of Health					

Sub-Objective 2B: Engage Service Providers

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
In-person training for providers at individual hospitals in Botswana	Engaging at all levels: physicians, interns, students, nurses, dieticians, social workers, pharmacists, psychiatrists, radiology technicians	Short-term (6 – 12 months): Engaging the current workforce	Hospital leaderships	Number of persons trained	Increase in knowledge scores
Certified online training programs		Medium-term (1 – 2 years): - Engaging students before they graduate	Academic partnerships with private / external institutions eg. Global Hope	Pre- and post-knowledge assessment surveys	Certified health professionals Measure down staging
Interactive real-time case teaching					
Funding mechanism: Grants, MOHW					

Objective 3: Promote Evidence Based Research and Policy Formulation

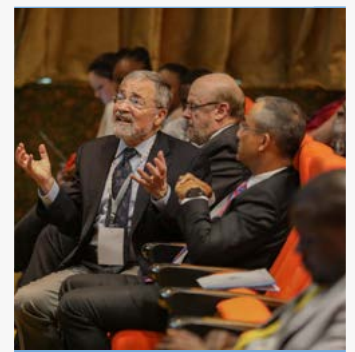
Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Baseline assessment of cancer epidemiology and outcomes through research	Establish a Monitoring and Evaluation committee to oversee outlined strategies	Short-term (6 months): Capturing baseline measures of current cancer trends	Botswana National Cancer Registry	Baseline assessment of incidence/ prevalence and outcomes through research	Measuring capture rate of cancer cases nationally
Using cancer registry data to inform policy and clinical decision-making (e.g. budgeting, medicine procurement)		Medium-term	Public and Private hospitals Training institutions	Translation of evidence-based into policymaking	

		(Ongoing): Translating evidence into practice	Academic partnerships		Increasing research output (through publication and dissemination of findings)
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3.5.2 Cancer Prevention in Primary and Community Based Settings Group

Facilitators: Dr. Tiny Masupe and Dr. Virginia Letsatsi

Strengths <ul style="list-style-type: none"> • There is a highly subsidized and relatively well financed health system that is accessible to everyone • Committed leaders • Good community structures • Training institutions for healthcare personnel • Strong health related civil society • Private Health insurance with fairly wide coverage • Local cuisine is largely organic thus healthy • Available Sports facilities that encourage exercise and fitness • Cancer registry for disease surveillance. 	Weaknesses <ul style="list-style-type: none"> • Inadequate staff development • Working in silos • Weak coordination of health services for cancer • Poor logistical planning leading to an inefficient patient navigation system • Health facilities are ill equipped for cancer care • Congested health facilities • Poor supply chain management • Low levels of cancer awareness • Poor cancer knowledge levels • Inefficient programs to facilitate early detection (Programs are available but limited such as NCCPP, See and Treat, Itse Mabele A Gago) • Despite a strong public health civil society infrastructure cancer coverage is limited • High consumption of GMO and processed foods • High engagement in NCD risk factors (alcohol, smoking and physical inactivity) • Prohibitive cultural practices
Opportunities	Threats



<ul style="list-style-type: none"> • Leveraging on HIV and AIDS response best practices • Crafting a national cancer strategy • Integrating services • Investing in research and innovation • Leveraging on existing and potential partnerships • Decentralizing services • Optimizing the use of social media as an awareness raising tool • Using social marketing to enhance education for prevention and early detection 	<ul style="list-style-type: none"> • High prevalence of HIV and hepatitis which make patients prone to some types of cancer • Poor eating habits (Rise in NCD modifiable risk factors) • Rise in NCD modifiable risk factors • Rampant economic corruption which takes resources away from their intended use • Myths and misconceptions • Proliferation of gadgets such as cellular phones and microwaves which transmit radio waves
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The above information was re-created into five objectives:

Objective 1: Provide Education

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Develop and implement Communication strategy	Community Health Care Workers Patients Civil Society Organizations Traditional healers	1 year (September 2020)	NAHPA, MOHW, Development partners (WHO, UN), Academia, NCD NGO's, Implementing Partners, Media, Patients, Private sector, SKMTH, CSOs	Increased awareness <ul style="list-style-type: none"> - Early detection - Reduction in modifiable risk factors - -Increased screening uptake - Reduced mortality - Increased coverage of available vaccines (HPV, Hepatitis) 	Reduction of cancer prevalence Reduction in cancer mortality
Integrate cancer education in the school curriculum	Business community National and local leaders Media	2 years	MOHW, MoBE, WHO, Health training institutions, NGOs	<ul style="list-style-type: none"> - Reduced cancer incidence - Decreased time from first presentation to diagnosis and treatment 	

Objective 2: Improve Coordination

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Situational analysis	HCW	1 month	NAHPA, MOHW, Development partners (WHO, UN), Academia,	Decreased time from first presentation to diagnosis and treatment	Reduced time to treatment
Develop and implement a comprehensive	Stakeholders	1 year (September 2020)			

Cancer Control Plan			NCD NGOs, Implementing Partners, Media, Patients, Private sector, SKMTH, UB-FOM	Maximal use of available resources	Improved quality of care
Finalize and integrate Cancer treatment guidelines	Patients, HCW	1 year (September 2020)	UB-FOHS, CSOs, Medical Insurance companies	<p>Improved patient satisfaction levels</p> <p>Cancer control plan implemented and impact evaluated</p> <p>Cancer treatment guidelines implemented and impact evaluated</p> <p>Strengthened coordinating mechanisms/structure/platform</p> <p>Reduced mortality</p>	<p>Reduced mortality rate</p> <p>Incidence rate</p>

Objective 3: Decentralize Services

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Implement the Harmonization Strategy for Community Health Workers	CHW DHMT MOHW	1 year	Same as at objective 2 above	Same as at objective 2 above	Same as at objective 2 above
Strengthen and support the CSOs and existing community structures e.g. VHCs	CSOs, support groups, community structures	1 year	MOHW Academia NGOs Development partners	Increased cancer advocacy Active CSO and community structures	Levels of cancer Advocacy/Reach CSO activity reports

Objective 4: Use of Research and Innovation

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Revise and implement the National Research Strategy (NCD component)	Academia, Research community, HCW, NGOs, Students, Development partners, Patients and caregivers	1 month	Academia, Research community, HCW, NGOs, Students, Development partners	Comprehensive cancer research agenda - Improved evidenced based interventions - Improved knowledge on cancer - Evidence based policies - Increased involvement of HCW in research activities	Level of cancer knowledge and awareness -number of policy changes in response to research findings - Number of publications - Percentage of Policies implemented - Research findings dissemination

				- policies implemented	
Increase research funding	Government, Academia, Business community, Donors, Development partners		Government, Academia, Business community, Donors, Development partners	More funding available for research	Funding levels- Grants awarded for cancer research

Objective 5: Improve Regulation

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Analyze, implement and influence existing legislation (tobacco, alcohol, food, waste management, radiation)	Legislature (parliament), public, business community	3-5 years	Attorney General's Chambers, Law society, MOHW, other ministries (finance, trade etc), BOMRA, OP, politicians/parliamentarians, NAHPA, Lobby groups	Reviewed and implemented legislation - Reduced NCD risk factors	NCD risk factors Number of bills passed

3.5.3 Sir Ketumile Masire Teaching Hospital Group

Facilitator: Kutlwano Moswela

Strengths <ul style="list-style-type: none"> • Access to healthcare because of reasonable proximity of health facilities to communities • A good operating link between primary and secondary healthcare • An active referral system from primary to secondary healthcare • Good facilities and necessary equipment in the healthcare sector • Ongoing research on cancer • Availability of a talented and dedicated workforce • Community involvement and participation 	Weaknesses <ul style="list-style-type: none"> • Lack of public awareness of cancer and/or its risk factors • Few medical tests done because of limited resources • Delays within the healthcare system • Patient care is not yet multi-disciplinary • Poor culture of equipment maintenance • Inefficient referral chain • Unavailability of technical manpower • ICT systems are not integrated
Opportunities <ul style="list-style-type: none"> • Development of a Standard Operating Procedures/National Cancer Framework • Development of an ICT program that will include electronic patient records 	Threats <ul style="list-style-type: none"> • Competition from established South Africa-based competitors • Shortage of appropriately skilled human resources • Retention of cutting-edge technology

<ul style="list-style-type: none"> • Capacitation of frontline staff (i.e. through short courses and workshops) • Human capital development (i.e. for palliative care, specialists) • Development of a national training program • Development of cancer prevention strategies in addition to HPV vaccinations • Involvement of medical insurance companies in cancer prevention • Extensive research on cancer • Step up cancer education and awareness campaigns and NCD risk factor interventions • Building a strategic purchasing capability • Investment in the health care system to curtail the outflow of funds to foreign facilities • Involvement of IAEA in the cancer effort 	<ul style="list-style-type: none"> • Minimal time for workforce training • Poor strategic planning • Lack of funds to consistently finance the ever-increasing health care costs.
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With this situational analysis, the group came up with two objectives:

Objective 1: Strengthen Cancer Care Workforce

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
SME directed workforce plan.	Clinicians	Nov 2019	MOHW, HRDC, Academic Institutions, IAEA, NGOs, SKMTH, MoTE	Workforce plan	Completed Workforce Plan.
Develop core competencies for key disciplines.	Cancer Care workforce	Jan 2020	Cancer Care workforce, Academic Partners, BHPC	Core Competency document.	Completed Core Competency document
Establish/ Strengthen Cancer Care and Prevention	MOHW	Jan 2020	MoF	Established Office Approved budget	Approved budget

Coordinating Office within MOHW.				Functional Cancer Advisory Board and Working Group	
Build the Faculty	Academic Partners, Clinicians	Ongoing	MOHW, HRDC, Academic Institutions, IAEA, NGOs, SKMTH, MoTE	Ability for in country training In country training program	Trained Faculty In country.
Training the Clinicians	Academic Partners, Clinicians	Ongoing	MOHW, HRDC, Academic Institutions, IAEA, NGOs, SKMTH, MoTE	Trained Clinicians In country.	# of Trained Clinicians In country.
Faculty career development and retention					

Objective 2: Prevent Cancer

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Public Awareness Campaign (Including baseline survey)	Residents of Botswana	6 Months-Ongoing	MOHW Patient Advocate	Improved Knowledge Earlier detection Reduced mortalities	Follow-up survey Reduced case fatality rate Incidence rate Shift to early stage detection

3.5.4 Digital Health and Telecommunications Group

Facilitators: Cecilia Onyadile-Mamelodi and Tony Chebani

Strengths <ul style="list-style-type: none"> • Leadership buy-in • Robust mobile telecoms infrastructure with vast coverage • Wide fiber network coverage • IPMS in a networked environment • State of the art equipment in place e.g. digital scanners • Good legislative environment with data protection law and cloud services policy for big data 	Weaknesses <ul style="list-style-type: none"> • Lack of stringent legislation to support full digital health implementation • Lack of a Digital Health Strategy from MOHW • Lack of capacity and expertise in digital health • Tendency to generate research that does not translate into tangible results • There is no culture of data use • There is duplication of efforts as a result of silo mentality • Failure to engage young entrepreneurs/innovators for addressing key health issues • Lack of legal capacity in contract management to protect interests of providers/purchasers of digital health technologies • Limited access to IPMS results for patient care and action thus affects outcomes • Frequent downtimes of systems/equipment
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	<ul style="list-style-type: none"> • Non-compatible legacy systems in place
Opportunities <ul style="list-style-type: none"> • Leverage country's strategic outlook towards a knowledge-based economy • Collaborate with local science and innovation institutions such as BITRI to build capacity • Use available research results to inform decision making • Make use of talented young innovators to provide solutions • Develop synergies for data management with key stakeholders 	Threats <ul style="list-style-type: none"> • Cybercrime due to the sensitive nature of health information requires systems to be compliant to local/international standards • Proprietary systems could result in loss data to external entities – also applies to non-regulations of private providers • Unsustainable and costly eHealth solutions • Poor update of costly imposed digital systems • Socio-cultural/economic issues hindering digital health adoption



This information was synthesized into two objectives:

Objective 1: To avail integrated digital health infrastructure across all DHMTs by March 2023.

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact
Audit existing systems by December 2020.	Patients, healthcare providers, leadership	Audit: end 2020	MOHW, relevant stakeholders. Local training institutes, UB, Botho etc.	Cost-benefit analysis
All health facilities networked by 2021.		Training: first intake by 2020		Improved data culture and optimize utilization of systems.
Avail software and hardware resources.				
Enable interoperability.		Networking: end of 2021.	MTC, ISP, telecoms service providers BPC, BITRI and independent energy suppliers.	Enhanced patient experience.
All health facilities electrified by 2021.				
Training of HI personnel and re-skilling of current healthcare workers by 2023.		Electrification by end of 2021.	To enable connectivity.	

Objective 2: To develop legal framework for digital health solutions by March 2020.

Strategies/Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Develop a: - M&E framework - SOPs - eHealth strategy	All stakeholders including patients.	March 2020	Parastatals, NGOs, private sector, external partners.	Strengthen governance of digital health	Availability of M&E framework, SOPs and eHealth strategy.

3.5.5 Health Professions Education and Inter-Professional Education Group

Strengths	Weaknesses
<ul style="list-style-type: none"> • Lots of health professions education going on in Botswana and most of the schools are in Gaborone. • Students from the various schools generally use the same institutions for clinical placement. • Availability of courses that with potential to bring together students from various professions, like the one offered by the department of Environmental Health called “Principles of Health Promotions and Education”. • Courses in the pipeline will add new critically needed cadres to the existing variety of providers e.g. health physics can usher in radiologists. • Availability of expertise at learning institutions. • At UB for instance, there are signs of faculty members being willing to teach in school and departments outside their own. • UB advocates for faculties and departments to work together and share resources. The University collaborates with other institutions to train students e.g. Institutes of Health Sciences. • Availability of virtual rooms, with advanced tele-communications in some institutions. • Strong Political Commitment - Bursaries and sponsorships available for Botswana for health professions education. • The Human Resource Development Council (HRDC) of Botswana advocates for training of personnel in the health sector. • There is sufficient literature on inter-professional education to help us get started on oncology. 	<ul style="list-style-type: none"> • Lack of a culture of teamwork. Even clinical rounds at Princess Marina Hospital are separate. • No intentional culture of inter-professional collaboration in training healthcare workers • Health professions students from various health institutions do not work together. Students from UB, Boitekanelo College, DDT College of Medicine, IHS, SDA College of Nursing (Kanye) can be at one health facility, but not doing anything together. • Differing pedagogical approaches make the schedule a bit difficult • There are generally no collaborations in course development leading to fragmented curricula across professions. • Poor work culture in relation to inter-professional collaboration that becomes the ‘hidden curriculum’ socializing health professions student and new graduates towards a fragmented healthcare delivery. This ultimately affects their skills and service provision over time. • Despite the UB advocating for faculties and departments to work together and share resources, some are still working in silos. Some departments or faculties do not know what others are doing, with little efforts to learn or appreciate. • Lack of understanding or knowledge of roles and responsibilities of other professionals. Professionals have not taken time to know each other’s capabilities e.g. a Medical Officer not knowing what a Dental Officer is capable of doing. • Bad attitudes towards work by some professionals. So, they lose focus.

	<ul style="list-style-type: none"> • The Ministry of Health and Wellness' way of classifying healthcare professionals reinforces 'professional pyramid' structure- some classified as clinical and other technical • Patients see doctors when it's already late. As such, doctors are often left with no choice but to recommend palliative care. •
Opportunities <ul style="list-style-type: none"> • There is a lot of training on Occupational Health and Safety, Nutrition and Environmental Exposures and Lifestyles, which are core to Cancer Prevention. • There are new programs coming on board – oncology nursing, pharmacy tracks focused oncology • Botswana's somewhat collaborative fight against HIV/AIDS, where everyone was involved. The same approach can be adopted on Cancer Prevention. • Ministry of Health and Wellness is currently working on the transformation strategy, which seeks to highlight the need to do things together. • Non-Communicable Diseases Health Promotion aspect has been moved to Office of the President which makes it a great opportunity. 	Threats <ul style="list-style-type: none"> • Professional resistance to inter-professional practice • The "Professional Pyramid" phenomenon. There is still a belief that some professions are better or higher than others. So, some graduates leave school with that mindset. • Increasing social isolation makes working together something people do not intuitively think about • Facility design – facilities such as Marina having not been designed with interdisciplinary health professions education in mind can make it difficult it work together around a patient

Given this situational backdrop, the group suggested intervention as detailed in the objective below:

Objective 1: Establish and IPE coordinating committee by August 2019.

Strategies/ Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Identify chair and committee	Health care professionals involved in cancer management	31/08/2019	MoHW	IPE coordinating committee established to guide the and drive IPE in Botswana	IPE activities ongoing
Determine terms of reference			Rutgers UB, FHS, FoM, SW, Psychology		
Conduct needs assessment (which health professions are involved, mechanism)	Health care professionals		MOTE MOBE SKMTH IHS		
	Academics		Boitekanelo College		
	Insurance providers				
Benchmark to establish desired outcomes (learning outcomes, WHO)	Patients/ consumers		DDT College of Medicine CAB		
	Patients' families		BHPCA BHPC/NMCB		
	NGOs				

Objective 2: To train 50 individual from health care professional, faculties and pre-service health care to become Inter Professional Educator champion by end of August 2020.

Strategies/ Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Identify cadres and or professionals to be trained as IPE providers	Health care professionals involved in cancer management	31/08/2019	MoHW Rutgers UB, FHS, FoM, SW, Psychology MOTE MOBE SKMTH IHS Boitekanelo College DDT CAB BHPCA BHPC/NMCB	50 people trained IPE implementation	Participants perception pre and post IPE training
		31/01/2020			
Identification of trainers	Health care professionals	31/01/2020		Integration of IPE learning activities within various programmes	<ul style="list-style-type: none"> Perception on other professions Perception on IPE
Develop training material		31/05/2020			
Pilot training material	Academics	31/08/2020		Integrate IPE learning activities as in-service & CPD at various facilities	Patients satisfaction
Review & revise training material	Insurance providers	30/09/2020			
Provide training	Patients/ consumers	01/10/2020		Pilot an Inter- professional clinical care model in oncology	Adherence to therapy
	Patients' families				Adherence to guidelines by health care providers (long term)
	NGOs				Clinical outcomes (long term)

Objective 3: Launch an inter-professional education service-learning module for medical, nursing, pharmacy, public health, social work, and allied health students.

Strategies/ Planned Activities	Target Population	Timeline	Key Partners	Outcomes/Impact	Measure/s
Identify faculty members or IPE champions from each school or program within UB to engage in the design the service-learning module	UB Faculty members and IPE champions teaching health professions students	End of February 2020	UBFoM (Dept of Medical Education) Allied Health Professions Nursing Public Health	Faculty team confirmed and instituted	IPE activities ongoing Include validated tools to measure students' readiness and attitudes towards IPE
Identify faculty members or IPE champions from other health professions training institutions to engage in the design the service-learning module	Faculty members and IPE champions teaching first year health professions students	End of February 2020	Pharmacy Social Work IHSs Boitekanelo College DDT Other health professions training institutions	Conversation started with the rest of the health professions training institutions Faculty team confirmed and included within the broader team	(e.g. pre- and post - tests – Attitudes Towards Health Care Teams Scale (ATHCTS))
Develop the service-learning module	Students and faculty members	May 2020		Common dates, times, and locations identified Areas of possible collaboration identified (e.g. health talks, audits) Outcomes outlined and curriculum developed	Readiness of health care students for inter-

				including evaluation process	professional Learning Scale (RIPLS)
Pilot the service-learning module		2020/21 academic year		Pilot implemented	
Review and revise the service-learning module		End of Semester 2 2020/21		Revisions made	
Implement the service-learning module		2021/22 academic year		Module implemented	
Evaluate implementation of the service-learning module		End of Semester 2 2021/22		Module evaluated and feedback integrated into revisions	

4.0 CONCLUSION AND RECOMMENDATIONS

After two days of knowledge exchange, workshop participants identified the following emergent themes and actionable recommendations to develop a robust cancer prevention and care program:

1. Enhance workforce capacity in cancer and other NCDs

- a. Create post-graduate residencies and fellowship programs for medical and health professionals in oncology, pathology, palliative care, radiation oncology, surgical oncology, and related specialties
- b. Offer in-person and online certificate programs to enhance specialty knowledge and skill set of clinical and allied health providers
- c. Develop an employee retention program for specialized workforces in the public sector
- d. Recruit village extension teams, traditional leaders, and healers to be part of the cancer prevention and care teams

2. Improve the supply chain management framework

- a. Re-allocate funds to avoid drug and supply shortages and stock-outs
- b. Create policies and maintenance strategies to avoid shortages, stock-outs, and equipment failure
- c. Develop a national cancer control plan by creating a taskforce with representatives from the public and private sectors, NGOs, cancer survivors, and caregivers to create a strategic framework for national cancer prevention and care

3. Build a standard of practice in oncology

- a. Finalize the draft oncology practice guidelines with in-country subject matter experts
- b. Present the guidelines to MOHW for review and feedback
- c. Disseminate the approved guidelines to district hospitals and ambulatory care settings, accompanied by education and hands-on instructions

4. Create policies that protect the public, for example:

- a. Smoke free policies
- b. HPV vaccinations

5. Improve prevention education, screenings, and diagnostics in ambulatory settings

- a. Establish screening guidelines for common cancers (e.g., HPV vaccination program, breast cancer screening)
- b. Improve screening and diagnostic access in care settings
- c. Leverage various communication strategies to promote education and awareness of cancers and their risk factors in community-based settings
- d. Improve care coordination between primary care, district hospitals, and tertiary referral centers

6. Strengthen the population-based cancer registry

- a. Develop outreach strategies to improve data collection
- b. Encourage healthcare providers to submit cancer-related data to the registry on an ongoing basis
- c. Disseminate cancer-related reports on an ongoing basis

7. Create inter-professional education (IPE)/team-based training courses and activities in medical and health professions education

- a. Train faculty to become IPE facilitators
- b. Implement a pilot IPE activity for medical and health professions students

8. Enhance the digital health infrastructure by 2023

- a. Audit the current resources
- b. Create a legal framework for digital health solutions

5.0 OFFICIAL CLOSING REMARKS

Final thoughts, next steps and closing remarks were given by Dr. Marlink, who thanked the team that planned the workshop, acknowledging the high magnitude of thought and effort that went into organizing it. He also noted that he was looking forward to a synthesized list of recommendations to share with the MOHW for urgent implementation.

Dr. Tshipayagae expressed MOHW's commitment to improving cancer care and control and other NCDs. He noted that Botswana is in an epidemiological transition from a country burdened by communicable diseases like TB and HIV, to one that has the double burden of both communicable and non-communicable diseases (NCD) like cancer. An effective response to this double burden requires strong prevention programs which require the country to fast-track training. Dr. Tshipayagae acknowledged that the MOHW has not made adequate investments in training to prepare for the coming NCD pandemic. Training should be a priority area in the MOHW strategy, as failure to train will lead to failure to implement. Dr. Tshipayagae closed by referencing opportunities to operationalize the ideas shared at the workshop, as the MOHW is currently reviewing its strategies to make them patient centric.

Next Steps

The *"Improving Cancer Care and Prevention in Botswana"* workshop helped assess critical areas to advance cancer care and prevention in Botswana. The transformation of cancer care and prevention extends beyond the walls of a medical facility, and requires a paradigm shift with new thinking, strategic partnerships, and collaborative teams to empower change.

The insights gathered during this workshop will be presented to the MOHW to further the strategic planning efforts of cancer care and prevention in Botswana.

