U.S. COMMERCIAL SERVICE
United States of America
Department of Commerce

U.S. Commercial Service
Sub-Saharan Africa Healthcare Team

Market Intelligence to Help Combat Cancer

Dedication

This report is dedicated to our colleagues,
Mussa Mlindwa and Isaac Kaaria,
who we lost to cancer in the prime of their lives.

Thank you to each team member from the
U.S. Departments of Commerce and State for your contributions to this report.

Mussa Mlindwa
Mussa served with the Commercial Service in Tanzania. He passed away on January 20, 2021 after battling cancer for most of 2020. Mussa joined the CS team in March 2015 as one of the original CS Tanzania team members and was instrumental in increasing commercial activities between the United States and Tanzania. He was a kind, gentle man who left us too early. Mussa is survived by his wife, Sarah Mbise, daughter, Maleekah, and son, Maleek.

Isaac Kaaria
Isaac served with the Commercial Service in Kenya. He passed away on April 17, 2019 after an 11-month battle with cancer. Isaac joined CS Kenya April 20, 2014 – almost reaching his five-year anniversary with Commerce. Always smiling and wanting to help his colleagues and clients, he brought positive energy to the office. Isaac was 29 years old and is survived by his wife, Loise.

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Foreword

On behalf of the U.S. Commercial Service in Sub-Saharan Africa, it is an honor to publish this report. After losing two young and dynamic team members recently to cancer, we launched an initiative focused on combating cancer in the Sub-Saharan Africa region through raising awareness, identifying opportunities, and working with the U.S. exporters and service providers to bring additional expertise and life-saving solutions to countries across the region.

As recently reported in The Growing Cancer Threat in Africa by Thomas J. Bollyky, senior fellow at the Council for Foreign Relations, cancer deaths in Sub-Saharan Africa have increased by 45 percent since 2000 and now account for over one-half million deaths annually in the region. According to the World Health Organization, cancer accounted for almost 10 million deaths globally in 2020, with nearly 70% of them occurring in low- and middle-income countries. Low-income countries, of which most of Sub-Saharan Africa is comprised, are not only hard hit by cancer but are also least likely to have the services and resources to deal with it – only about one third have generally available pathology services and even fewer report availability of treatment services.

African governments recognize that demographic growth and aging are going to exacerbate the increase in cancer cases in their countries. Preparing for that future and addressing current needs is a priority. As Bollyky describes, combating and treating cancer requires extensive infrastructure, clinics, labs, x-ray machines, MRIs and more skilled workers to perform radiotherapy, chemotherapy and surgery. U.S. manufacturers and service providers have the opportunity to supply and support the build out of this infrastructure and simultaneously build their export markets while improving lives in Africa and creating jobs in the United States.

The market briefs in this report indicate opportunities as well as real constraints. Our Commercial and Economic Specialists located in U.S. Embassies across the region welcome the opportunity to discuss the information found in this report and we stand ready to work with you to identify prospects and potential in-country partners to help your company enter or expand into the Sub-Saharan Africa region.

Contact information for our team is found throughout the report, and we also invite you to visit: www.trade.gov for more information on our organization, additional market intelligence resources, as well as upcoming trade events. We look forward to working with you to make a difference in this region.

Pamela Ward
Minister Counselor for Commercial Affairs
Regional Senior Commercial Officer
Sub-Saharan Africa

What Can the International Trade Administration Do for You?

The U.S. Commercial Service (CS) is the export promotion arm of the U.S. Department of Commerce's International Trade Administration (ITA). Our global network of approximately 2,100 trade and investment professionals are based in more than 100 U.S. cities and at U.S. Embassies and Consulates in 70 markets. Whether you are looking to explore new markets, or to grow your company footprint, we offer the expertise you need to assist with your international outreach to potential partners, distributors, and stakeholders.

Industry & Analysis (I&A), an agency within ITA, is an advocate for the development of U.S. healthcare-related solutions in international trade. The Office of Health and Information Technologies promotes and supports the U.S. healthcare sector.

Our Services

The CS Sub-Saharan Africa Region and CS Global Healthcare Team work to help connect you to potential partners (i.e., sales agents, distributors, etc.), government entities, and other stakeholders within the healthcare sector. This market intelligence briefer is just one of the ways we can provide the information you need to set priorities and plan for international outreach. Other ways include different fee-based services, some of which are found below. For more information on how ITA can help your company in the healthcare sector, please contact your local ITA office at trade.gov/contact.

- **Gold Key Matchmaking Service**. Receive tailored meetings with potential partners and relevant stakeholders.
- **Single Company Promotion**. Set up an event featuring your company and meet key players in the healthcare field.
- **International Partner Search**. Find qualified potential partners.
- **Trade Fairs and Catalog Shows**. Identify the right international healthcare trade shows for your company.
- **International Market Research**. Receive market research reports on target markets around the world.
- **Trade Missions**. Attend a trade mission for high level visibility among key market contacts.
- **Website Globalization Reviews**. Improve your online international reach and receive Search Engine Optimization (SEO) recommendations.

Additional Resources

This report is a resource for U.S. companies. Additional resources on the subject include but are not limited to The American Cancer Society's Cancer Atlas and The World Health Organization, among other government and non-governmental publications.

MARKET BRIEFS

ANGOLA

Capital: Luanda
Population: 33,642,646 (July 2021 est.)
GDP: $212.285 billion (2019 est., PPA)
Currency: Angolan Kwanza (AOA)
Language: Portuguese

OVERVIEW

Angola is a middle-income country whose population is 63% concentrated in urban areas. The population is by gender, 47.3% male and 52.7% female. According to the CIA World Factbook, the Angolan population is very young with over 66% under 25 years of age (0-14 years: 47.83%; 15-24 years: 18.64%; 25-54 years: 27.8%; 55-64 years: 3.43%).

Angola's healthcare system is comprised of public and private services. The public health services, from primary care to specialized services, are available at no cost. However, the public system suffers from shortages of doctors, medicines, nurses, primary health care workers, as well as inadequate training and a lack of a computerized information management system to efficiently track historical records of patients. There are insufficient facilities to cover the whole population. As a result, access to public healthcare services for most of the population is very limited. Lower-income families resort to small health centers located in townships. The rural populace travels a considerable distance to get access to health services.

Most middle and upper middle-class Angolans use private healthcare services that generally offer higher quality and fee-based care. Four major private clinics are in Luanda and numerous small private clinics are also available. Upper-class Angolans travel to Namibia, South Africa, Cuba, Spain, and Portugal (as well as India and the DRC) for more complex medical treatments. However, such international health travel has become more difficult due to severe restrictions on foreign exchange and local currency devaluations.

OPPORTUNITIES

The Angolan Institute for Cancer Control (IACC) was created in 2014 to enhance oncology care in the public sector, as well as to oversee policy implementation, programs, and prevention plans. The IACC offers specialized cancer treatments in clinical oncology, general surgical oncology, radiotherapy, and pathological anatomy and is seeking innovative techniques in the diagnosis and treatment of cancer.

The World Health Organization reports 15,000 cases of cancer in Angola each year, and 10,000 result in deaths due to poor diagnosis, treatment (chemotherapy, immunotherapy), intensive care, and drugs. Most adult tumors diagnosed in Angola are in the breast, cervix, prostate, skin, stomach, lungs, head, and neck, and the most common form of cancer diagnosed in children is in the kidneys.

The demand in services surpasses the installed capacity and any approach to expand technical and geographical capacity is welcomed. As explained in the overview section of this document, the Angolan healthcare sector is undersupplied and requires strong reforms, sustainable programs, robust infrastructure, and capacity building.

CONSTRAINTS

The main difficulties in Angola relate to revenue generation. Although Angola is considered a middle to upper income country with revenues flowing from crude oil exportations, the Government of Angola currently has a high level of debt with contracts tied to heavy infrastructural projects which may affect its near-term investment decisions.

Foreign Exchange: The lack of foreign exchange availability in Angola is the leading business challenge facing Angolan businesses. The typical wait for foreign exchange through the commercial bank and Central Bank auction and disbursement process is 4 to 8 months. There is no assurance of timely payment due to these delays. Angolan banks are generally not issuing letters of credit due to this market uncertainty. U.S. companies are encouraged to structure exports on cash-in-advance terms or to secure export credit insurance and provide terms that can give clients space to wait out this shortage of currency.

Budget constraints: Only 4-5% of the country's overall budget is assigned to the healthcare sector, considerably less than the 15% minimum set by the Abuja Declaration.

The government budget challenges, and foreign exchange limitations pose problems on importing and restocking equipment, pharmaceuticals and medical supplies, hence negatively impacting patients' health, and overall healthcare service delivery. Angolan entities report slowed productivity due to the lack of essential inputs.

Angola lacks a clear and detailed strategy to address the country's need in numerous medical areas, including maternal and infant care. Some facilities are being constructed in certain locations in Angola's provinces, but they are not fully equipped with the minimum required instruments and medical trained staff to provide healthcare services.

The greatest difficulties are faced by lower-income families and the rural population who have limited options for treatment.

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BOTSWANA

Capital:	Gaborone
Population:	2,350,667 (July 2021 est.)
GDP:	$40.928 billion (2019 est., PPA)
Currency:	Pula (BWP)
Language:	English, Setswana, among other local languages

OVERVIEW

Botswana has a population of over two million. Its central location in Southern Africa enables Botswana to serve as a gateway to the region. This, coupled with a stable political environment, sound macroeconomic environment, a well-capitalized banking system, and a crawling peg exchange rate system, makes it an ideal place to do business.

Botswana is facing major challenges in addressing health threats such as HIV/AIDS, malaria, and tuberculosis. The COVID-19 pandemic has compounded Botswana's health challenges, and the government is trying to keep the pandemic under control. To improve service delivery in the health sector, the government has prioritized human resources development, technology, and supply chain capacity. The government also seeks to improve health care infrastructure and to provide and to upgrade medical and surgical equipment. As part of these improvements, the government developed a Health Financing Strategy in 2019. The strategy will enhance efficiency by including the private sector in public healthcare service delivery at full cost recovery to ensure financial sustainability. Currently, Botswana does not have any pharmaceutical production capacity; however, companies are able to import and package bulk drugs. Over the past several years, in part due to financial assistance from the United States under the President's Emergency Plan for AIDS Relief (PEPFAR), Botswana has made strides in its response to HIV/AIDS.

Health sector improvements include constructing and rehabilitating health facilities, introducing data collection and storage technologies, and other innovations such as telemedicine. Botswana's Ministry of Health and Wellness is planning a series of hospital infrastructure improvements, including at several district medical facilities. Due to a limited number of trained public healthcare professionals, the government may seek to outsource several health services. To meet this shortage, the Government of Botswana in partnership with the University of Botswana, built a 450-bed academic teaching hospital, which is currently used to accommodate COVID-19 patients. In addition, a Motswana medical doctor received funding from the Citizen Entrepreneurial Development Agency (CEDA) to open Botswana's first private renal care clinic, a private facility that also provides renal care to public health patients. Leveraging and developing private sector expertise in Botswana also helps the public health system to reduce the number of costly specialist referrals to South Africa.

Information from the Botswana National Cancer Registry (BNCR) reveals that since January 2017, there have been 21,834 registered cancer cases. The most common cancers are Kaposi sarcoma (16.3% of all cancers diagnosed), cervical cancer (15.5%), breast cancer

(9.4%), esophageal cancer (5.4%). To date, of the 6,597 patients known to have died from cancer, 18.2% died of Kaposi sarcoma, 11.7% died of cervical cancer, 9% died of esophageal cancer, 7.1% died of breast cancer, 5.4% died of liver cancer, and the remainder died of a variety of cancers. Most – 79.1% – cancers registered were diagnosed through histopathology.

Three private hospitals – Lenmed Bokamoso Hospital, Gaborone Private Hospital, and Sidilega Hospital – have oncology clinics. However, chemotherapy treatment is primarily provided by the Gaborone Private Hospital (GPH). There are also two hospitals catering to the mining sector in Jwaneng and Orapa and a few government owned hospitals, with the main one (Princess Marina) based in Gaborone and Nyangabwe hospital in Francistown. Both Princess Marina and Nyangabwe hospitals have oncology wards that provide chemotherapy but transfer patients to Bokamoso private hospital for radiotherapy. Patients requiring complex treatment are generally transferred out of Botswana, mainly to South Africa for further medical attention.

OPPORTUNITIES

According to the Cancer Association of Botswana (CAB), both in-patient and out-patient care need to be improved, but the most critical requirement is step-down facilities for in-patient care. Botswana needs extensive capacity building in this sector, including training for cancer screening and early diagnosis; training home-based care; adequate and accurate data capturing; and education and awareness campaigns about cancer-related illnesses.

Another opportunity would be to partner with the Cancer Association of Botswana (CAB), a non-governmental organization working closely with the Botswana government through the BNCR. CAB works with both private and public hospitals by giving support and counselling around the country. CAB has pushed for reforms and improvements in this sector including the recruitment of a Technical Assistant Officer to support expedient data entry, the recruitment of a facility-based cancer clinical coordinator to support standardizing care across cancer treatment facilities, and improved quality of cancer documentation services.

CONSTRAINTS

While there are opportunities for U.S. companies, doing business in Botswana can involve red tape relating to licenses and permits and limited access to finance.

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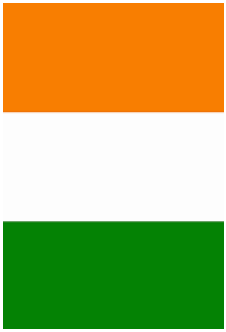

CÔTE D' IVOIRE

Capital: Yamoussoukro (Legislative); Abidjan
Population: 28,088,455 (July 2021 est.)
GDP: $134.048 billion (2019 est., PPA)
Currency: West African Franc (XOF)
Language: French

OVERVIEW

Côte d'Ivoire is considered a gateway to the West African market. With steady economic growth for almost a decade (prior to the onset of COVID-19), the country of over 25 million inhabitants has a growing middle class, resulting in an increasing demand for services, including quality health care services.

The Ministry of Health reports that cancer rates are increasing, with 17,300 new cases in 2020, compared to 14,484 in 2018. In 2019, a Ministry of Health Cancer Prevalence Survey estimated a breast cancer rate of 19.9%; liver cancer rate of 15.4%; cervical cancer rate of 8.4%; and prostate cancer rate of 9.3 percent. Even with a growing middle class, access to treatment remains a challenge for large swaths of the population. Treatments cost on average approximately $2,000 each session, with patients generally requiring at least 17 treatment sessions, making treatment unaffordable for most Ivorians. The government is making efforts to improve access to health services and its Universal Medical Coverage program covers some of the cost of cancer treatment. The government also subsidizes 10% of cancer treatment cost at public hospitals.

There are three cancer treatment centers in the country, all located at University Medical Centers *(Centre Hospitalier Universitaire*, or CHU) in Abidjan. These are CHU Treichville, CHU Yopougon, and CHU Cocody. The Alassane Ouattara National Medical Center for Oncology and Radiation Therapy *(Centre National de Radiotherapy Alassane Ouattara, or CNRAO),* located at CHU Cocody, is considered the best cancer treatment facility in the country as it uses the most advanced equipment in the country. CNRAO is also the only facility that offers radiation treatment in Côte d'Ivoire. In 2019, CNRAO received 1,404 patients and provided 4,479 consultations. Other than these specialized centers, public hospitals and private clinics only deliver palliative cancer care. Some private clinics are planning to develop specialized cancer treatment centers to serve the growing needs of the population.

The government strictly regulates the importation of medical equipment and medicines, and the management of health treatment facilities.

OPPORTUNITIES

- Public-private partnerships to build additional cancer treatment centers
- Medical services and medical equipment suppliers, particularly diagnostic equipment
- Telehealth services
- Post recommends U.S. companies entering the market partner with a local company.

CONSTRAINTS

- Government funding for hospitals is insufficient
- Insufficient amount of skilled medical technicians and medical service providers to operate, maintain, and repair diagnostic and treatment equipment
- Ensuring American products are compatible with the mostly European standard equipment used in country
- Treatment prices are prohibitively expensive for most of the population
- Price sensitivities in the market can be a barrier to some U.S. manufactured equipment

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ETHIOPIA

Capital:	Addis Ababa
Population:	110,871,031 (July 2021 est.)
GDP:	$248.972 billion (2019 est., PPA)
Currency:	Birr (ETB)
Language:	Afar, Amharic, English, Oromo, Somali, and Tigrinya

OVERVIEW

Ethiopia is a vast and diverse country with Africa's second largest population of more than 110 million people. Over 70% of the population is under the age of 30. World Bank Statistics in 2018 shows that the GDP per capita is $790 and growing 7.7% annually on average.

The Health Sector Transformation Plan II published in March 2020 by Ethiopia's Ministry of Health states that Non-communicable Diseases (NCD) including cancer caused 43.5% of deaths. Cardiovascular diseases and cancer contribute to 54% of the total NCD mortality. More than half of the NCD mortality cases occurred before age 40, and 63% of the death occurred before age 50. These statistics indicate that cardiovascular diseases and cancer take a major toll on the age groups that are most economically productive.

The most common types of cancers that public health in Ethiopia face are breast cancer and cervical cancer, which represent 30.2% and 13.4% of all cancers, respectively. Two-thirds of annual cancer deaths occur among women. An estimated 65,000 people are diagnosed with cancer annually in Ethiopia and over 70% those cases do not recover. This figure does not indicate the actual figure of cases as there is a very little screening practice. The reason for having this number of cancer cases is due to lack of early screening, detection and treatment services, the low awareness of cancer signs and symptoms, and lack of adequate diagnostic and treatment facilities and technologies. For example, a 2018 assessment revealed that only 9% of health facilities offered cervical cancer diagnosis services. However, the government is giving more attention to the sector by preparing additional health facilities to offer cervical cancer diagnosis.

As of 2020, three new cancer centers were built and fitted with radiotherapy machines. Fourteen regional labs and three additional cancer centers are also under construction.
The Ethiopia Ministry of Health is focused on increasing the number of women to be screened for cervical cancer particularly in the 30–49-year-old age group. The plan is to increase the percentage of screenings from 5% to 40% by 2024 and to 70% by 2029. Prevention, control, and early treatments are the major focus areas for the ministry.

OPPORTUNITIES

- Providing early screening equipment and supplies
- Providing of radiotherapy equipment
- Providing surgical unit equipment and supplies

- Capacity building

CONSTRAINTS

- Financing
- Lack of available forex for the private sector to import the necessary materials
- Market price sensitivity and lack of awareness towards quality products and services
- Bureaucracy in the government

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GABON

Capital:	Libreville
Population:	2,284,912 (July 2021 est.)
GDP:	$32.48 billion (2019 est., PPA)
Currency:	Central African France (XAF)
Language:	French

OVERVIEW

Gabon is a Central African nation with a general population of about 2 million – 48.7% women and 51.3% men. Libreville is the political capital. The greater Libreville area comprises four municipalities and has about 1.4 million inhabitants, nearly 70% of the national population.

The share of the Gabonese Current Health Expenditure (CHE) relative to the size of its economy was 2.8% in 2018. Cancer in Gabon is a real public health concern and remains a challenge for the Gabonese health system: there were 1,750 new cases of cancer (covering both sexes and all ages) in 2020. The leading cancers in Gabon are breast (19.2 per 100,000 population every year) and cervix (16.3 per 100,000/year); these are much more predominant than prostate (12.0 per 100,000/year) and liver (8.5 per 100,000/year). The probability of developing cancer before the age of 75 is 9.7percent.

Existing Government Initiatives

The Ministry of Health created the National Cancer Control Program (PNLC) in 2012 to organize cancer awareness campaigns and screenings for the country's two leading cancers. There are more than 40 screening units nationwide.

The Gabonese healthcare system is considered above average for Central Africa in both access and effectiveness. The national strategy relies on domestic funds, with limited and occasional external support from private organizations. The government has improved the technical capacities of public hospitals, notably by adding five modern university hospitals (CHU) in Libreville and a regional hospital in each provincial capital. Created in 2014, the Cancer Institute of Libreville (ICL) is the sole facility providing chemotherapy and radiation therapy treatments. It includes a cytopathology anatomy practice, a diagnostic nuclear medicine practice, a medical oncology practice with 40 beds, and a radiotherapy practice with two 15 MeV ELEKTA type accelerators, a scanner simulator, and a high throughput curietron machine. The ICL employs a total of 106 public-service personnel including five medical oncologists, six radiotherapist oncologists, two nuclear physicians, four medical physicists, one biomedical engineer, seven radiotherapy, and nuclear medicine technicians, 25 oncology nurses, one pharmacist, and three psychologists.

The First Lady, Sylvia Bongo Ondimba's Foundation for the Family (FSBO), established a project in 2011 called Act Against Cancer, which sponsored the Gabonese marathon against cancer and the Pink October screening program that checked over 23,600 women by the end of 2015. The FSBO contributed to the training of healthcare workers, the provision of anti-cancer drugs and medical equipment, and the creation of an accommodation center for people undergoing cancer treatment at home.

The national health insurance (CNAMGS) provides free transportation to patients living in the outlying provinces, free lodging at the accommodation center, free treatment to eligible patients, and free medical treatment abroad for severe cases that cannot be handled in-country. Gabon employs a novel and effective system to help finance its expansive healthcare coverage: levies on mobile phone companies and on money transfers outside of the country. Overall, resources for CNAMGS quadrupled between 2008 and 2011, from 12.5 billion CFA to over 47 billion CFA (nearly $8.5 million). Around 17.5 billion CFA came from the levies.

In the private health sector, medical services are delivered by private entities. Private agents have control over resource allocations and finances in private hospitals.

OPPORTUNITIES

- There is no routine HPV vaccination in the country.
- The ICL has opened a training program in medical oncology in Libreville. The training program for paramedics, such as oncology nurses and nuclear medicine technicians, is scheduled to be launched for the 2021-2022 academic year.
- The ICL participates in research studies in cancerology through doctoral theses in medicine and in research work in partnership with other international teams.
- The ministry of health plans on replicating the services available in the capital city in other major cities, which will require training skilled healthcare workers, implementing a surveillance system, building additional accommodation centers, and procuring colposcopes.
- Gabon is seeking to establish lasting cooperation with advanced centers, which will allow the country's young doctors to carry out internships to strengthen their capacity.
- The ICL must expand its nuclear medicine, brachytherapy, pediatric oncology, pharmacy, medical oncology service, and cytopathology and tumor biology anatomy laboratory. The objective of the ICL is to become a center of excellence and a leader in cancer care in Central Africa.
- The availability of drugs and medical equipment is inconsistent and lacking. The health sector also faces a severe shortage of qualified medical personnel and specialists; according to the World Health Organization (WHO), 500 staff in the public sector. There were only six doctors and four midwives per 10,000 population.

CONSTRAINTS

The overall financial resources allocated to the cancer control sector are insufficient. A mechanism will have to be found to ensure continued access to innovative anticancer drugs and immunohistochemistry reagents. U.S. healthcare companies can export their devices and pharmaceuticals to the country; however, some items will require additional administrative processes by entities such as the Gabon Pharmaceutical Products Approval Commission which oversees pharmaceutical imports into Gabon.

ADDITIONAL RESOURCES

- HPV Center - Gabon
- Journal of Global Health Reports - Gabon

- Science Direct – Cancer in Gabon
- WHO - Gabon
- World Life Expectancy – Gabon Breast Cancer
- World Life Expectancy – Gabon Profile

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GHANA

Capital:	Accra
Population:	32,372,889 (July 2021 est.)
GDP:	$164.64 billion (2019 est., PPA)
Currency:	Cedi (GHS)
Language:	English, Asante, Ewe, Fante, Boron (Brong), Dagomba, Dangme, Dagarte (Dagaba), Kokomba, Akyem, and Ga

OVERVIEW

The healthcare sector in Ghana is organized at three levels: national, regional and district, with health interventions packaged for each level and delivered at the respective clinics and hospitals.

All three levels have both public and private hospitals. The quantity and quality of healthcare varies throughout the country, with urban centers being well served with hospitals, clinics, and pharmacies. Rural areas, however, lack modern healthcare facilities and services. Most healthcare is provided by the government and is largely administered by the Ministry of Health (MOH) and Ghana Health Services (GHS).

The Ministry of Health is responsible for the provision of the overall policy direction for all stakeholders in healthcare delivery. It also plays a strong and effective advocacy role in intersectoral action in healthcare delivery. The Ministry mobilizes and allocates resources to all providers in the healthcare sector and provides a regulatory framework for all providers of healthcare services.

There are approximately 1,300 private healthcare facilities in Ghana, which usually provide a better quality of treatment and have more modern equipment than public institutions.
Some noteworthy capital projects recently launched by the government include:

- Construction and equipping of 597-bed University Hospital in Legon-Accra. This is a $42 million project, with the civil works 75% complete. There were challenges with approval of tax exemptions on the project, which has caused a delay in the 24-month development plan.

- Upgrade and rehabilitation of the Accra Regional Hospital, Ridge-Accra with 420 beds. The upgrade and rehabilitation of Ridge Hospital is being funded by HSBC Bank & EXIM Bank and constructed by *Bouygues Batiment International* at a total cost $250 million. Construction activities at the site commenced on 15th April 2014 and works are progressing steadily. Civil work is about 60% complete, however, equipment installation and training are yet to commence. Discussions of starting Phase II of the project are ongoing.

In Ghana, there is a high burden of non-communicable diseases, and among them, cancers are projected to increase. Though there is a national cancer control plan, there is still an increasing incidence of cancers due to lack of cancer control preparedness (Ministry of Health of Ghana,

2011). Ghana lacks credible data on cancers because of insufficient cancer registries. Though organizational records are scanty in terms of national coverage, the extent of disease and statistical limitations, these records indicate that cancers are becoming the primary cause of morbidity and mortality in Ghana (Laryea et al., 2014).

To combat this growing trend, major stakeholders such as GHS with their partners, both local and international, initiated cancer advocacy campaigns in 2007 with a focus on simple lifestyle modifications such as smoke cessation, exercising and having regular medical checks to reduce cancer occurrence. Considering the strategies outlined by the WHO, Ghana needs a comprehensive approach to reducing the growing incidence of cancers among its population.
An analysis of autopsy records over a 10-year period (1991-2000) in the Department of Pathology, Korle Bu Teaching Hospital (KBTH), Accra, showed that the leading cancer deaths in females were cancers of the breast, cervix, hematopoietic organs, liver, stomach and colorectal, while the top cancer deaths in men were cancers of the liver, prostate, hematopoietic organs, stomach, pancreas and bladder. Similarly, in children, the leading causes of cancer deaths are malignancies of the hematopoietic system, followed by brain, kidney, eyes, liver, and bone tumors.

OPPORTUNITIES

There are gaps around cancer prevention and treatment in Ghana in these areas:

- Record keeping is insufficient. This presents the opportunity to establish a national cancer registry.
- There is a lack of cancer research facilities and hospitals/clinics to tackle cancer research, prevention, and treatment, creating opportunities for more clinics and treatment facilities.
- Cancer education and discussion of preventative measures is not widespread.
- There is a lack of cancer medical equipment.

CONSTRAINTS

Cancer treatment in Ghana's health care sector suffers from:

- Limited government funding
- Circulation of fake tenders and documents requesting sourcing of materials or equipment from international companies.
- Lack of current research and information on the status of the disease

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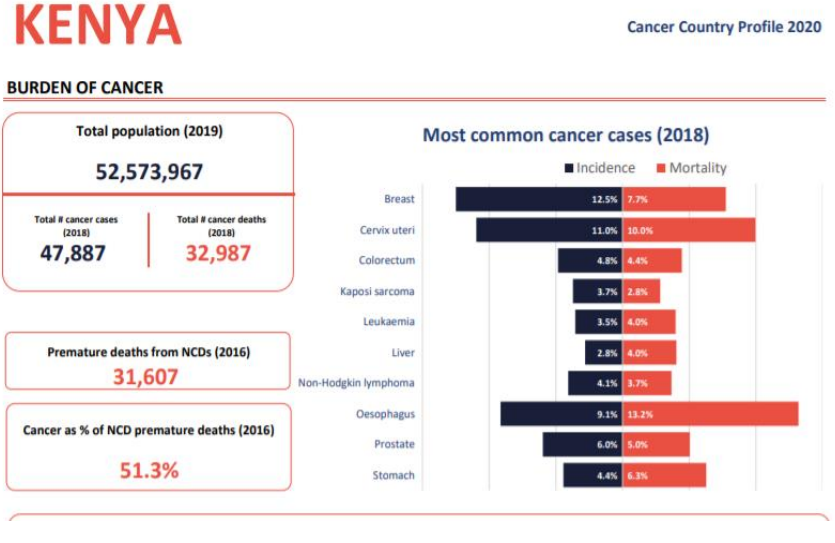
KENYA

Capital: Nairobi
Population: 54,685,051 (July 2021 est.)
GDP: $227.638 billion (2019 est., PPA)
Currency: Kenyan Shilling (KES)
Language: English, Kiswahili

OVERVIEW

According to the Kenya Ministry of Health (MOH), non-communicable diseases (NCDs) account for more than 50% of total hospital admissions and over 55% of hospital deaths. Cancer is the second leading NCD after cardiovascular diseases, accounting for 7% of total national mortality and making it a public health concern. The annual incidence of cancer in Kenya is about 28,000 new cases with an annual mortality of 22,000 cases, that is, 78.5% of the victims do not survive. Most of the cancer patients are women at 57% compared to men at 43%. The most frequent age for female patients was at age 52 compared to men who constituted 43%, with cancer frequency peaking at age 62. Although the age distribution of the occurrence of the breast and cervix cancers is mainly spread between 25 and 74 years, they are the most common among those in the ages between 40 and 55 years, that is, perimenopause. The most frequent type of cancer across the population is breast and cervical, followed by prostate, esophagus, and types of lymphoma. By gender, the most prevalent cancer in women is breast cancer followed by cancer of the cervix, while among men; top on the list is cancer of the esophagus followed by prostate cancer. The figure below shows the prevalence and mortality rates of cancers in Kenya (*Source: The World Bank Cancer Country Profile*)



The cancer burden has left heavy socio-economic strain on individuals, families, and entire communities through the loss of productivity, heavy cost of care and premature deaths. Cancer prevention and control requires a health-systems approach spanning the entire continuum of care that includes prevention, early detection, treatment, palliative care, survivorship, monitoring, evaluation, and research. Cancer control in Kenya is however hampered by inadequate cancer diagnosis and management infrastructure, limited specialized human resource capacity, late diagnosis, as well as low awareness on cancer prevention and control in the population. In July 2020, The Ministry of Health (MOH) launched the Kenya Cancer Policy 2019-2030 to address the growing burden of the disease in the country. The policy provides for a framework to comprehensively address cancer control in Kenya. This policy provides guidelines for prevention, screening, timely diagnosis, treatment, palliative care, financing, as well as monitoring and research. It serves as a guide for all key stakeholders in cancer control through in Kenya.

The National Cancer Institute of Kenya provides overall leadership, coordination, and regulation of cancer control activities in Kenya. Their core mandate is to advise the Cabinet Secretary on cancer matters; define an inter and intra-sectoral collaboration and coordination framework for cancer control; regulate players in the cancer arena to ensure ethical, equitable and efficient utilization of resources in cancer control and management; set ethical standards in cancer control and management; coordinate and collaborate with international and local bodies/institutions in cancer research; manage cancer data and cancer indicators.

OPPORTUNITIES

According to the Kenya Cancer Policy, all cancer commodities have been incorporated into the Kenya Essential Medicines List (KEML). The Kenya Medical Supplies Authority (KEMSA) is the lead government procurement and supply chain management agency for all medical products in the country. KEMSA is charged with undertaking bulk procurement of cancer commodities, leveraging on economies of scale to allow negotiations on better pricing. Amendments to the Public Procurement Act of 2015 allows KEMSA to engage directly with manufacturers. Full utilization of TRIPS flexibilities can also improve availability and affordability of cancer medical products. The government has allocated a development fund for improving cancer infrastructure in Kenya, as well as financing for the operationalization of the National Cancer Institute of Kenya. Other sources of financing for cancer care in Kenya include: National Hospital Insurance Fund (NHIF) oncology package and private insurance, exchequer funding for UHC; out of pocket expenditure and donor funding.

The Government of Kenya's (GOK) Managed Equipment Service (MES) Project that was launched in 2015, seeks to address some of the challenges associated with the high cost of procurement of radiotherapy and other diagnostic equipment. Through this ambitious program level 4 and 5 hospitals have been equipped with various hi-tech diagnostic machines such as X-ray, CT-SCAN, ultrasound, and mammography machines to boost cancer diagnosis.

In July 2020, the government announced the opening of ten county chemotherapy centers as part of deliberate efforts to improve access to cancer services in line with the Universal Health Coverage (UHC) developmental agenda. Besides the ten centers the is in the process of establishing five additional radiotherapy centers at the Moi Teaching and Referral Hospital, Nakuru County Referral Hospital, Mombasa County Referral Hospital, Garissa County and Kisii County The government has also provided the Human Papillomavirus (HPV) vaccine for schoolgirls aged ten to prevent cervical cancer.

The Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) was in July 2020, operationalized by the government giving Kenya a boost in combating the cancer burden. The hospital signed a major contract with U.S. company, General Electric East Africa LTD., for the construction of an Integrated Molecular Imaging Centre (IMIC). The center is set to be a comprehensive cancer center and will be the first publicly owned in the country and the region. The four-story, state-of-the-art center will house 150 in-patient beds and will provide opportunities for procurement.

CONSTRAINTS

As mentioned, the Kenya Medical Supplies Authority (KEMSA) is the lead government agency for all medical products in the country. The agency, however, has come under heavy government scrutiny over corruption allegations for various projects including most recently procurement of Covid-19 related supplies. There are various challenges from a clinical perspective in the management of cancer. These include lack of awareness and poor knowledge of cancer; late health seeking behavior; inadequate health insurance coverage and gaps in the benefit package which limit access to critical diagnostic tests, treatments and drugs; and socio-cultural barriers, including stigma, fear and myths that impede patients from seeking care early. The high cost of treatment continues to be a major factor in the access to care. The lack of adequate government funding especially at the county level continues to be a challenge for companies seeking business at the county level.

The availability and affordability of cancer commodities continue to impede access for patients in Kenya. The cost of cancer medical devices and drugs, especially those under Intellectual Property Rights (IPR) are high and there is inadequate regulation of importation, quality, and pricing. Moreover, drug authority market approval and procurement processes are long and complex leading to frequent stock-outs. The importation of novel therapies and drugs for clinical trials is also a challenge. Corruption, lack of transparency and adherence to contract sanctity for government procurements continues to be a challenge for U.S. companies.

ADDITIONAL RESOURCES

- Kenyatta University Hospital Integrated Molecular Imaging Center
- Aga Khan University Hospital (AKUH) Cancer Center
- Kenya Cancer Policy 2019-2030
- Kenya National Cancer Screening Guidelines
- Kenya National Treatment Protocols
- The Cancer in Sub-Saharan Africa Volume III African Cancer Registry Network (ACRN)
- Ministry of Health Community Systems Report
- Kenya Harmonized Health Facility Assessment 2018/2019

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LIBERIA

Capital:	Monrovia
Population:	5,214,030 (July 2021 est.)
GDP:	$7.049 billion (2019 est., PPA)
Currency:	Liberian Dollar (LRD)
Language:	English

OVERVIEW

Liberia is in West Africa, bordering Sierra Leone to the west, Guinea to the north, Ivory Coast to the east and the Atlantic Ocean to the south. The country has a population of approximately 5 million people. Liberia is a low-income country with a per capita GDP of $622 in 2019, an amount which has declined by nearly 14% during the last six years due to poor economic management, the Ebola Virus disease (EVD) crisis in 2014-2015, and falling prices of the country's major export commodities. In 2019, the World Health Organization (WHO) reported the average life expectancy (at birth) at around 64 years (63 male/65 female), the maternal mortality rate at 725 per 100,000 live births, and infant (under five) mortality rate at 72.3 deaths per 1,000 live births. The healthcare system depends heavily on international donor support as there is minimal private sector involvement in this sector. Many healthcare facilities are run by the government, donors, or non-governmental organizations (NGOs) including faith-based organizations.

In 2020, WHO statistics indicate the number of cancer cases in Liberia stands at 3,552 with nearly 60% of cases occurring in females. The most common types of cancers in Liberia are cervical cancer, breast cancer, liver cancer, prostate cancer, and non-Hodgkin's lymphoma. Statistics also indicate the risk of developing cancer by individuals before attaining the age of 75 years is 12.4% for the general population. Liberia does not have a population-based cancer registry nor a systematic mechanism to assess the burden of cancers. There is no standardized cancer treatment program or an integrated evidence-based care program for cancers patients.

These health infrastructure limitations present critical gaps for various public and private institutions making it difficult for individuals to access adequate cancer care. Importation of pharmaceutical products, medical supplies, and medical devices including diagnostic and testing equipment is regulated principally by Liberia's Ministry of Health. Other state-run medical regulatory bodies include the Liberia Medicines and Health Products Regulatory Authority (LMHRA), Liberia Pharmacy Board, and Liberian Board for Nursing and Midwifery. The Liberia Cancer Society is the only civil society cancer-specific organization committed to creating public awareness and education about cancers in the country.

OPPORTUNITIES

Opportunities exist for medical schools that provide targeted and specialized training to the growing number of young graduates in the fields of pathology, surgery, chemotherapy, and radiotherapy or clinical oncology. There are also opportunities in the delivery of training programs and skills development for support staff such as onco-pharmacists, pharmacy technicians, oncology nurses, palliative care specialists, and radiation therapy technicians, to be assigned to community-based health centers.

Opportunities also exist in the provision of healthcare facilities specialized in treatment of cancer patients and equipped with modern equipment for cancer therapy, diagnosis, prescriptions, and treatment. There are investment prospects in the provision of medical equipment, laboratory logistics, pharmaceutical products, reliable medical supplies, and advanced life support equipment that are essential for cancer treatment. Providing advanced medical care for the small but relatively wealthy expatriate community could also present opportunities for U.S. businesses seeking to enter the market.

Market entry recommendations: U.S. companies interested in doing business in Liberia should first read Post's Investment Climate Statement and Country Commercial Guide to get an overview of Liberia's investment environment. Interested parties should also consider hiring an agent, attorney, or distributor to develop and foster local partnerships. Potential investors interested in entering Liberia's health sector, particularly in the cancer treatment sphere, should also consider undertaking a field visit or market research tour to the country to connect with advocacy groups such as the Liberia Cancer Society and other stakeholders to gauge the feasibility and viability of their potential investment.

CONSTRAINTS

Liberia's healthcare system is not private sector-driven and depends heavily on government and international donor support. Many healthcare facilities are government-owned or run by donors, non-governmental organizations (NGOs), or faith-based organizations. The few privately-owned clinics offer limited diagnostic and treatment services given the small pool of customers having the wherewithal to afford those services. The Ministry of Health is heavily resource-constrained and does not have the funds to partner with foreign investors looking to provide specialized treatment services in the country. In the national budgets for the fiscal years 2019-20 and 2020-21, the government appropriated 15% and 11%, respectively, to the health sector, monies largely dedicated to paying the salaries of healthcare workers and providing basic medical services.

Further, the sector is constrained by weak supply chain management in terms of distribution and storage of pharmaceutical products as well as limited human resources, particularly in terms of doctors, specialists, pharmacists, and laboratory technicians. There is limited availability of essential medications, equipment, and diagnostic equipment. Bureaucratic red tape and instances of corruption could make it difficult for U.S. companies seeking to generate profit from their investment in the healthcare sector, especially for a specialized area like cancer treatment. Many patients in Liberia cannot afford to pay for specialized cancer treatments because of the general low-income level of the population. Medical tourism in Liberia is under-developed and the cost of medical evacuation from Liberia can be prohibitive. Anecdotal evidence indicates that the main destinations for wealthy patients seeking treatment unavailable in Liberia include Ghana, Morocco, India, Lebanon, and the United States.

ADDITIONAL RESOURCES

- WHO – Liberia Annual Report
- WHO – Liberia Country Cooperation Strategy
- IARC – Liberia Fact Sheet

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MOZAMBIQUE

Capital:	Maputo
Population:	30,888,034 (July 2021 est.)
GDP:	$38.91 billion (2019 est., PPA)
Currency:	Metical (MZN)
Language:	Portuguese

OVERVIEW

Over 30 million people reside in Mozambique. However, almost half of the population live in absolute poverty with limited access to the public health system. Through the Ministry of Health, the Government of Mozambique provides healthcare services to most of the population. It manages public hospitals and health care centers. The remaining rely on traditional approaches for medical assistance involving community health agents, elementary agents, and birth attendants. Further, there is a small niche that can afford healthcare services from private clinics and are often medical tourists to South Africa, Brazil, India, and Portugal.

According to the WHO 2020 Cancer Country Profile report, Mozambique witnessed over 25,000 cancer cases of which almost 70% caused deaths. Cervix uterus leads the number of diagnosis showcasing one of the highest rates in the world. Additionally, it flags as the most frequently detected tumor amongst women aged between 15-44 years of age. Studies defend that women who are HIV-positive are up to five times more likely to develop invasive cervical cancer. Kaposi Sarcoma ranks as the second most detected as a common malignancy. It is also associated with HIV/AIDS patients and stands as one of the lead causes of morbidity and mortality. Furthermore, prostate, breast and lung cancers showcase alarming growing numbers.

In 2008, Mozambique launched the National Strategic Plan for the Prevention and Control of Non-Communicable Diseases (NCDs). The plan aims to create a positive environment to minimize or eliminate the exposure to risk factors and guarantee access to care for all. Cervical, prostate and breast cancer are flagged as national priority NCDs to receive support for health care improvement. In partnership with the First Lady of Mozambique, the Ministry of Health launched the National Cancer Control Plan for the years 2019-2029. A blueprint of strategies that will guide the health care system in the following areas: prevention, diagnosis, treatment, palliative care, cancer registration and systems of information. Furthermore, Go Further, a public-private partnership between PEPFAR, the George W. Bush Institute and the United Nations Program on HIV/AIDS, fund the advancement of treatment services including cervical screening within the existing platforms for HIV treatment.

OPPORTUNITIES

The Government of Mozambique opts to prioritize cancer prevention and screening initiatives as cost effective strategy rather than handling treatment of advanced disease. The healthcare system lacks early detection equipment as well as consumer-led cancer screening technologies and very often cervical cancer is detected at a later stage when treatment might not be as effective.

While the country witnesses an increase in cancer cases, there is growing demand for traditional cancer treatment technologies such as chemotherapy, radiation, as well as newer innovative solutions.

CONSTRAINTS

Although public medical care is provided at cost for immediate payment, Mozambique's health system is highly dependent on donor aid. It is estimated donor's assistance amounts to 70% of Mozambique's health budget by offering direct financial support to the Ministry of Health as well specific country disease areas, including cancer. Most patients pay for their hospital visits and medical assistance. However out-of-pocket expenditure corresponds to 6.4% of the of government budget. On the other hand, there is a growing number of insurance companies that provide coverage to a small portion of the population.

According to the African Development Bank, Mozambique's health sector is crippled by limited government resources and worsening income distribution among various social groups.

There are large discrepancies between people with coverage in rural and urban areas. Healthcare facilities in the rural areas of the country lack even the most basic resources, including electricity and running water. Most advanced equipment is placed in central hospitals. Although, private hospitals offer state of art healthcare, many of the general population cannot afford the services.

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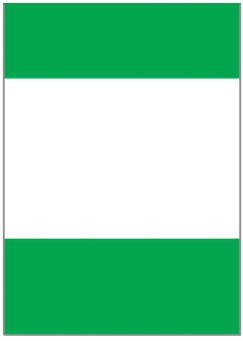

NIGERIA

Capital:	Abuja
Population:	219,463,862 (July 2021 est.)
GDP:	1.03 Trillion USD (2019 est., PPA)
Currency:	Naira (NGN)
Language:	English (official), Hausa, Yoruba, Igbo (Ibo), Fulani, over 500 additional indigenous languages

OVERVIEW

Nigeria is Africa's most populous country with a population of over 200 million people. The latest cancer statistics released by the Global Cancer Observatory (GLOBOCAN) on Nigeria indicates that in 2020, there were a total of 124,815 cases and 78,899 deaths. Breast cancer accounted for 22.7% of new cases, prostate cancer, 12.9% and cervical cancer, 9.7%.

As the lifespan of Nigerians increases and the country industrializes, it is expected that nearly 40% of Africa's cancer burden will occur in Nigeria. In 2018, the government launched the National Cancer Control Plan (NCCP, 2018-2022), a five-year program which outlines key goals and objectives for Nigeria's cancer control efforts and details the strategies that will allow the country to achieve its aims, while recognizing important challenges.

To implement this proposal, the Ministry of Health has budgeted nearly $308 million, out of which the federal and state governments will provide 75% of the funding required. Nigeria's donors and development partners will provide the funding to bridge the 25% gap. There are several local and international, profit and non-profit cancer organizations in Nigeria. These organizations are involved in initiatives and programs that promote education, awareness, research, screening/diagnosis, treatment and provide counseling services.

In October 2019, the Clinton Health Access Initiative, Inc. (CHAI), the American Cancer Society (ACS), Pfizer, Inc. and the Worldwide Healthcare entered a partnership known as Chemotherapy Access Partnership with the Ministry of Health. Chemotherapy Access Partnership delivers lifesaving chemotherapies to eight teaching hospitals in the country. As a result of this program, Nigerians are expected to save up to 50% of their treatment costs. This savings will enable thousands of additional patients to gain access to care. The government remains the biggest buyer of cancer treatment equipment and technologies. Of the eight public hospitals that offer comprehensive cancer therapy, only four are currently functional. There are three privately owned centers in Nigeria that largely serves high-income patients who can afford the expensive treatment costs. Only one of these facilities is a specialist hospital providing care for all kinds of cancer.

OPPORTUNITIES

Opportunities exist across the board for cancer care including, screening/diagnosis and treatment. On February 4, 2021 at the World Cancer Day celebration, Nigeria's Minister of Health announced that the government will add 12 more public hospitals for chemotherapy under the Chemotherapy Access Partnership program. Additionally, this program will provide

for the replacement of outdated equipment in the existing eight centers.

A growing number of Nigerian healthcare professionals in the diaspora and foreign private investors have expressed interest in establishing new cancer treatment centers in Nigeria to serve medical tourists seeking cancer treatment overseas. These upcoming projects are expected to make oncology products and medical devices for imaging, chemotherapy, endoscopy, clinical laboratory, pathology, and surgery more widely available. Due to the prevalence of breast and cervical cancer, the growing awareness for early screening generated by intensive campaigns by government and non-governmental organizations, has created a significant demand for diagnostic products and vaccines.

Oncologists and other cancer specialists are in very short supply, indicating a dire need for training and support services for caregivers. Buyers, including government and private entities are extremely price sensitive and are sometimes willing to trade quality for low cost. To gain market acceptance and remain competitive, products sold into Nigeria must be adaptable to the local market. The best way for U.S. companies to access opportunities is to utilize the matchmaking programs of the U.S. Commercial Service to find qualified local distributors, agents, and partners.

CONSTRAINTS

Due to budget constraints, the government leans heavily on the Public Private Partnerships (PPP) model to carry out healthcare projects. Foreign suppliers that can include capital in their proposal are often more competitive. There are no restrictions on the importation of cancer treatment products, but the registration process with the National Food and Drug Administration and Control (NAFDAC) and the Standards Organization of Nigeria (SON) can be long and expensive. Infrastructure deficiencies of the country's seaports, official corruption, government bureaucracy and inconsistent policies, pose significant challenges. Many cancer patients have low purchasing power and are unable to afford care. Payment for services remains largely out of pocket costs. Currently, cancer diagnosis and treatment are not covered in the National Health Insurance Scheme which has only enrolled about 5% of the population.

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RWANDA

Capital: Kigali
Population: 12,943,132 (July 2021 est.)
GDP: $28.118 billion (2019 est., PPA)
Currency: Rwandan Franc (RWF)
Language: English,French, Kinyarwanda, Swahili

OVERVIEW

By 2020, Rwanda had a resident total population of 12.9 million. In 2018 (most recent data available), The International Agency for Research on Cancer (IARC) estimated the incidence of cancer to be 10,704 new diagnoses (4,520 among men and 6,184 among women) and the annual mortality rates stood at 7,662. In addition to the Rwandan residents, citizens of Eastern DRC (towns of Goma and Bukavu) and Burundi seek specialized medical services in Rwanda, including cancer.

All cancer treatment in Rwanda is carried out by Government owned institutions. In March 2019, the Government of Rwanda created the Rwanda Cancer Centre (RCC), in the Kanombe Military Hospital. Constructed by UNTEC, a French company, and funded by the Global Fund, the U.S Centers for Disease Control (CDC) and the Government of Rwanda, the center has two linear accelerators which use Volumetric Modulated Arc Therapy (VMAT) and one CT scan for treatment planning. In addition to radiotherapy, the center has a 20-bed capacity to treat cancer using drugs (chemotherapy). By February 2020, RCC daily activity averaged 50 patients, with both VMAT machines having a combined capacity of serving between 150-200 patients per day.

With support from the International Atomic Energy Agency (IAEA), Rwanda is training physicists and technicians to increase RCC capacity. More than 50% of cancer patients in Rwanda need radiation therapy at some point of their treatment, either for curative intentions or as part of palliative care.

Cancer type	Number of cases	Percentage
Adult (N=661)		
Breast cancer	190	28.7%
Cervical cancer	141	21.3%
Non-Kaposi's skin cancer	46	7.0%
Head and neck cancer	38	5.7%
Colorectal cancer	26	3.9%
Gynaecological malignancies other than cervical	26	3.9%
Chronic myeloid leukemia	22	3.3%
Gastric cancer	21	3.2%
Other cancer types	151	22.8%

Paediatric (N = 102)		
Nephroblastoma	28	27.5%
Acute lymphoblastic leukemia	25	24.5%
Hodgkin's lymphoma	10	9.8%
Rhabdomyosarcoma	7	6.9%
Burkitt's lymphoma	5	4.9%
Osteosarcoma	5	4.9%
Other cancer types	2	2%

In 2012, Boston-based Partners in Health (PIH) and the Government of Rwanda started the 68-bed Butaro Centre of Excellence in Cancer Treatment in the Northern province of Rwanda, which is also affiliated with the University of Global Health Equity, located in the same area. Between 2012-2018, nearly 4,900 cancer patients received care at the center. Butaro specializes in diagnostic oncology and treatment services, including chemotherapy, surgery, a pathology laboratory, counseling, and palliative care. Others treating cancer using surgery and chemotherapy to a lesser extent include the Kigali University Teaching Hospital (CHUK), Butare University Teaching Hospital (CHUB), and King Faycal Hospital.

OPPORTUNITIES

Rwanda is seeking to become a medical tourism destination for its neighboring countries across Africa by expanding the existing hospitals (in medical equipment and international medical personnel capacity). Citizens of Burundi and Eastern DRC are among the foreign medical patients getting their treatment in Rwanda. Given the low capacity of the Rwandan Cancer Centre (which is at its beginning stage), many patients still travel to India and Europe to seek treatment. Rwanda is working to develop an Atomic Centre capable of producing radiation electrons to be used for cancer treatment. There are opportunities supplying related technology, establishing more cancer treatment centers with advanced machinery and specialized medicine to help cut travel and accompaniment costs to India and Europe. Many of the drugs used in cancer chemotherapy are considered expensive on the local market leading to additional opportunities.

The five most common cancers in Rwanda are (1) gynecological (cervix uteri, corpus uteri and ovary), (2) urological (bladder, kidney, prostate and testis), (3) liver, (4) hematological malignancies (Hodgkin lymphoma, non-Hodgkin lymphoma, multiple myeloma and leukemia) and (5) breast cancer.

CONSTRAINTS

Rwanda per capita income averages $700 per annum but the country's middle-income population segment is rising. Around 57% of patients who visited the Rwanda Cancer Centre for radiotherapy service covered their costs using the Rwandan low-cost Community Health Insurance (locally known as Mutuelle de Sante which covers more than 90% of the population). Commercial health insurance companies (that cover around 5% of the population that includes civil servants) can cover costs at RCC as well. Citizens of Eastern DRC and Burundi have generally lesser income than Rwanda but those who travel for treatment in Rwanda are considered wealthier and are expected to accept a lower bill out-of- pocket in Rwanda compared to traveling to India and Europe.

ADDITIONAL RESOURCES

- State of Cancer Control in Rwanda: Past, Present, and Future Opportunities
- Cancer in My Community: Obstacles to Caring for People with Cancer in Rwanda
- Rwanda Cancer Centre
- Butaro Cancer Centre of Excellence

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SOUTH AFRICA

Capital:	Pretoria
Population:	56,978,635 (July 2021 est.)
GDP:	$730.913 billion (2019 est., PPA)
Currency:	South Africa Rand (ZAR)
Language:	English, Afrikaans, Xhosa, Ndebele, Zulu, Tswana, Swati, Sotho, Southern Sotho, Venda, and Tsonga

OVERVIEW

Diseases Profile: Triple disease burden, notably communicable diseases like HIV/AIDS, MDR-TB/TB, but NCD's such as diabetes, CVD and cancer are rising rapidly. Trauma and injury form the third leg of the burden. As a disease group, NCD's now account for more deaths in South Africa than communicable disease. Cancer represents just over 23% of NCD premature deaths.

Cancer Profile (2017):

	Lifetime Risk	Prevalent Cancer
Women	1 in 7	Breast, Cervical, Colorectal, Uterus, Lung
Men	1 in 6	Prostate, Colorectal, Lung, Non-Hodgkin's Lymphoma, Bladder

The South African National Cancer Registry is responsible for collecting pathology-based cancer statistics. A total of 107,407 cases and 57,373 deaths were reported for 2018. Breast and cervical cancer is a national priority.

Pathology laboratories (ISO 13845 certified) are well established, with 13.9 medical/pathology scientists in the public sector and approximately 1.2 public cancer centers per 10 000 cancer patients. Pain management and palliative care is generally available. More on the health system's capacity and formulated response can be found on WHO's Cancer Country Profile.

There are cancer initiatives by the National Department of Health, notably the HPV school vaccine program to eliminate cervical cancer, and awareness programs for childhood cancer. The Cancer Association of South Africa (CANSA) offers a variety of integrated services and support for the care and management of the disease, as well as campaigns focusing on promoting awareness and early screening, as well as donation drives. There are numerous support and advocacy groups.

South Africa's healthcare sector is divided into the public, which is funded by the Government and services 86% of the population; and the private, which is dominated by four well-resourced hospital groups and a few independent hospitals, catering for the remaining 14% able to afford health insurance. The value of the healthcare market is projected to reach USD37 billion by 2022. Public procurements go through an open tender process by the National Department of Health, or by each of the nine provincial health departments who are allocated an annual budget and manage their hospitals and clinics. Procurement on the private side runs along commercial lines and is made by the hospital groups.

A number of U.S. companies are in the market.

OPPORTUNITIES

The private hospital groups generally have dedicated oncology centers and wards offering state-of-the-art treatment: Netcare, Mediclinic (about to complete a new oncology unit in Cape Town), and Life Healthcare. Robotic surgery, such as Netcare's procurement of the Da Vinci System for prostrate cases, is also used.

While a number of public hospitals offer excellent oncology services and treatment, such as Steve Biko Academic Hospital and Groote Schuur, several other provinces are struggling to cope with the demand for cancer care, with significant backlogs that are likely to result in low survival rates. There is a need for effective treatment and technology to address the uneven distribution of services and to prevent bottlenecks in provinces with more resources due to patient referrals from embattled provinces.

Radiation oncologists are in short supply –146 in total, with 107 in the private and 39 in the public sector. This lends itself to telemedicine and AI assisted technology to alleviate the pressure and to treat more patients.

For U.S. companies looking to enter the market, it is important to find a reputable distributor with a strong sales team and after-care service. All local distributors must be licensed by SAHPRA as well as have BEE certification to do business in the public sector.

CONSTRAINTS

Funding remains a major issue in the purchase of cancer treatment and technologies, particularly in the public sector. This situation has been exacerbated by the COVID pandemic, which has shifted priorities and further strained budgets. Access to expensive and newer oncology drugs and treatment remains out of reach for most cancer patients in South Africa, either because they are far above medical insurance reimbursement thresholds, or because much of the national public health budget and development aid currently remains focused on programs for communicable diseases (HIV/AIDS. MDR-TB and TB), improving maternal-infant health, and nutrition.

Pricing policies may make it unviable for smaller players as their profit margins are squeezed, as well as expensive oncology drugs being priced out of the market.

A further challenge may be the length of time it can take for a drug, particularly one that has a higher schedule classification, to go through the registration and evaluation process and become available on the market. The South African Health Products Regulatory Authority (SAHPRA) is responsible for the regulation of all drugs, IVD and medical devices.

Slow uptake, lack of digital skills and skepticism of AI technologies and digitization by healthcare workers can be problematic, as well as a lack of regulatory framework for these technologies in terms of liability.

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TANZANIA

Capital: Dar es Salaam
Population: 62,092,761 (July 2021 est.)
GDP: $149.785 billion (2019 est., PPA)
Currency: Tanzanian Shilling (TZS)
Language: Swahili

OVERVIEW

Tanzania is a country with many patients presenting HPV related cancers. Annually there are more than 4,000 patients with HPV related cancers, including cervical, anal, head and neck cancers. The leading cause of women's deaths by cancer in Tanzania is cervical cancer. The incidence of cervical cancer is 54 per 100,000 women in Tanzania whereas globally it is 14 per 100,000 women. A major contributing factor to the high burden of the disease is low awareness of the disease, lack of prevention knowledge and unavailability of organized screening programs. The standard screening test is visual inspection with acetic acid as this can be performed by mid-level healthcare workers and allows for immediate treatment. A negative aspect of visual inspection by acetic acid is the subjective nature of the diagnosis interpretation and hence has variable results, also due to lack of resources only a small number of women get screened. HPV is more prevalent in HIV positive women. For a country like Tanzania that has a high HIV prevalence, HIV positive women are at a high risk of contracting HPV.

Number of Cancer & Non-Cancer Cases in Tanzania (source: Ocean Road Cancer Institute)

Type	YEARS 2007 -2018												
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Cervical cancer	1006	1288	1374	1510	1881	1896	1795	1867	1892	2,081	2,161	2,390	33
Kaposi sarcoma	404	418	447	681	814	789	654	680	674	741	752	711	12
Breast cancer	245	275	322	386	526	667	705	733	742	816	901	985	12
Esophageal cancer	256	282	307	380	511	573	601	625	643	707	745	753	10
Head and neck	206	244	272	289	361	386	411	427	439	483	526	531	7
Lymphoma	199	226	245	186	269	295	295	307	314	345	412	405	6
Leukemia	78	87	103	142	261	252	259	269	253	278	342	358	4
Urinary bladder	88	87	98	109	153	168	168	175	182	200	237	212	3
Skin cancer	108	111	123	129	141	147	147	153	161	177	198	201	3
Eye cancers	76	80	95	84	119	131	134	139	143	157	168	152	2
Prostate Cancer	69	75	85	96	93	101	116	121	129	142	251	297	2
Others	403	307	305	203	115	124	179	186	192	211	326	654	5
Sub Total	**3,138**	**3,480**	**3,776**	**4,195**	**5,244**	**5,529**	**5,464**	**5,682**	**5,764**	**6,338**	**7,019**	**7,649**	**100**
NUMBER OF FOLLOW -UP CANCER CASES													
Sub Total				15,567	16,365	17,143	17,914	19,353	21,164	21,569	33,934	38,685	76
HEALTH INSURANCE CLINIC- PATIENTS ATTENDED													
Sub Total				**0**	**0**	**0**	**0**	10,332	13,957	15,353	19,911	18,413	23
TOTAL	3,138	3,480	3,776	19,762	21,609	22,672	23,378	35,367	40,885	43,260	60,864	64,747	

OPPORTUNITIES

Improving prevention of cervical cancer by the government of Tanzania will reduce the burden of cancer treatment in the country. Once diagnosis has been established, early treatment would increase survival rate significantly.

Export opportunities leading to positive health outcomes:

- Widespread testing, currently the government is administering HPV vaccines without testing as they have limited resources. The standard protocol is to conduct an HPV screening before administering a vaccine.
- The government, through the WHO, administers HPV 16 & 18 vaccine while in Tanzania there is mostly HPV 16 and 33. Therefore, Tanzania would benefit more from vaccines that covers other HPV strains as well.
- HPV related cancers are usually squamous cell carcinoma, and these are treated by radiotherapy. There are 4 machines available at the Ocean Road Cancer Institute (ORCI), 1 in Besta and 1 in Bugando hospital. The ORCI machines operate 24/7 to cut the waiting time to treatment. More radiology machines will ensure that more people are treated.
- Establishment of affordable specialized cancer hospitals. There is currently a limited number of private providers for cancer screening and treatment.

CONSTRAINTS

Lack of financial and personnel resources is the main challenge in this market. Therefore, companies should be mindful of financing options when considering entering the Tanzanian market.

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UGANDA

Capital: Kampala
Population: 44,712,143 (July 2021 est.)
GDP: $96.838 billion (2019 est., PPA)
Currency: Ugandan Shilling (UGX)
Language: English, Swahili

OVERVIEW

Uganda, a country roughly the size of Oregon, is a nation with a population approaching 45 million people, which faces a host of demographic and healthcare issues as it strives to create a more sustainable future for its citizens. Challenges include high population growth and a resultant youth bulge (48% aged under 15 and almost 70% aged under 30), with a population projection of 100 million by 2050. Even with years of donor investments, the country's health system remains weak.

Much of Uganda's healthcare focus is on communicable diseases (HIV/AIDS, malaria, tuberculosis, vaccine-preventable childhood diseases) and epidemic diseases (Ebola). However, non-communicable diseases, including cancer, are an increasing concern. Uganda has a long history in working to combat cancer, with one of the earliest and still functional cancer registries in Africa, the Kampala Cancer Registry, founded in 1951. Uganda has an average of 33,000 new cancer cases per year, with the main types including cancer of the cervix, breast, prostate, and stomach. Of these cases, an estimated 10% of all new cancer cases are pediatric cancers. Lifestyle changes and worsening environmental conditions add to the rise in case numbers.

The Uganda Cancer Institute (UCI) is the sole center for public cancer treatment in Uganda. Established in 1967 as a collaboration between the Government of Uganda's (GOU) Ministry of Health, Makerere University Medical School, and the U.S. National Cancer Institute, its original mission was to study what, at the time, was a newly described pediatric cancer, Burkitt Lymphoma. The UCI receives referrals from other countries in the region, including Tanzania, Burundi, Rwanda, Kenya, South Sudan, and the Democratic Republic of the Congo. Its offerings include chemotherapy, radiotherapy, surgery, and palliation. The UCI manages many types of cancer and all types of patients with dedicated pediatric oncology and women's cancer units. UCI receives over 7,000 new cancer patients per year.

Fred Hutchinson, a cancer research center headquartered in Seattle, launched a partnership with UCI in 2008. Their research in Uganda originally focused on infection-related cancers — including lymphoma associated with Epstein-Barr virus, sarcomas associated with HIV, and cervical cancer due to persistent Human Papillomavirus infection — and has evolved to include other cancers, including breast cancer.

In FY2021, the U.S. government, through the President's Emergency Plan for AIDS Relief (PEPFAR), contributed $5 million to reinvigorate cervical cancer screening and treatment for women living with HIV in Uganda. This investment provides critical preventative cervical cancer services to 260,000 women living with HIV in 604 health facilities across the country.

OPPORTUNITIES

There are many opportunities to invest in Uganda's cancer treatment system and infrastructure. UCI plans to set up four regional cancer centers in Mbarara, Gulu, Arua, and Mbale. The Mbarara Cancer Center is already operational, and the regional centers will increase access to cancer care services from the current 20% of new cancer patients reaching the UCI to a projected 80% of all new cancer patients. This expanded access will require an increase in funding for, and procurement of, medicines. In addition, UCI will expand its headquarters, building new inpatient wards and a new outpatient clinic facility.

Private cancer centers also play an increasing role in the cancer care infrastructure in Uganda. Nsambya hospital currently has plans to build a private not-for-profit cancer facility in Kampala. Additionally, private hospitals are beginning to offer small-scale cancer care, though not in dedicated facilities and only with few beds at present. The Uganda Peoples' Defence Force is building a military hospital in Mbuya (in Kampala) which will include a cancer center.

Partnerships and collaborations have enabled expansion of cancer care. Funding from the African Development Bank allowed the UCI to set up a new care facility and also to purchase an MRI and a True Beam linear accelerator from Varian Medical Systems (a U.S. company) with help from the U.S. Embassy Commercial Section in Kampala and a training grant from the United States Trade and Development Agency. Also, the UCI has petitioned the Ministry of Finance, Planning, and Economic Development to increase its budget allocation for cancer beyond the current $2.5 million per year.

CONSTRAINTS

While there are many opportunities to contribute to the development of further advances in the treatment of cancer in Uganda, there are also several constraints. Efforts toward cancer care treatment, research, and training are vastly underfunded, and development banks and grants do not adequately address this shortfall. There is also a significant lack of human capital in the form of properly trained doctors, nurses, generalists, and specialists. There is also inadequate access to cancer care services, with the UCI having only 120 beds and private hospitals offering minimal capacity, which, combined with inadequate budgets, means there is minimal demand for U.S.-made cancer treatment equipment.

The GOU purchases the majority of cancer drugs in Uganda through UCI and has an annual budget of $2.5 million. This is only about 20% of the actual, current UCI medicine and supplies requirements and only about 5% of the national requirement. The drugs at UCI are provided free of cost to patients. The GOU mainly buys drugs for conventional chemotherapy treatments. The budget to procure targeted therapy drugs and therapies that significantly improve cancer survival rates is insufficient. The GOU spends an average of $150 million per year for its citizens on medical tourism, mostly for cancer treatment abroad. In addition, it is common to find people fundraising for private international cancer treatments, with individual costs ranging from $50,000 to $100,000 per patient.

Cancer care is also very expensive in Uganda, and with an undeveloped health insurance market, the demand for private care is insufficient to warrant large-scale investment in Uganda's cancer care infrastructure, limiting economic opportunities. Costs for cancer medicines and drugs are also high, and with its limited budget, the GOU can only afford basic drugs and conventional treatment, which lowers survival rates. Furthermore, since the prevalence of cancer cases is still relatively low - and given both inadequate budgets and a dearth of people with the financial means to pay - Uganda does not receive

volume discounts on new treatment modalities and more targeted immunotherapies.

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