Introduction to BIO Ventures for Global Health (BVGH)
BVGH develops and manages programs at the intersection of the private and non-profit sectors. Current initiatives are designed to improve cancer patient outcomes in Africa, accelerate research and development (R&D) for poverty-related infectious diseases, and build biomedical R&D capacity in low- and middle-income countries.

African Access Initiative (AAI)
BVGH launched AAI in June 2017 as a public-private partnership that targets the growing cancer crisis in Africa. AAI is focused on (1) establishing sustainable access to oncology medicines and technologies, (2) strengthening healthcare infrastructure, (3) building clinical oncology capacity, and (4) addressing the cancer data gap in Africa through clinical trials. BVGH has established AAI partnerships with governments and cancer hospitals in six African countries: Cameroon, Côte d’Ivoire, Kenya, Nigeria, Rwanda, and Senegal.

AAI Approach
Engage governments, hospitals, and key stakeholders
Map health systems landscape
Assess cancer priorities
Strengthen healthcare infrastructure and oncology capacity
Deliver drugs to patients

AAI Countries
Côte d’Ivoire
Three hospitals
Incidence**: 109
Mortality**: 83

Senegal
Two hospitals
Incidence: 104
Mortality: 90

Nigeria
Nineteen hospitals
Incidence: 104
Mortality: 68

Cameroon
Five hospitals
Incidence: 108
Mortality: 75

Kenya
Five hospitals
Incidence: 176
Mortality: 129

Rwanda
Five hospitals
Incidence: 136
Mortality: 105

AAI Hospital Needs Assessment
BVGH designed the customized AAI Hospital Needs Assessment to achieve the goals of AAI. This assessment tool was developed with input and guidance from African healthcare professionals, global oncology experts, and pharmaceutical company scientists. The needs assessment tracks key metrics along the cancer patient pathway — from hospital presentation and diagnosis through preferred treatment regimen. BVGH experts evaluate the following metrics of each AAI hospital:

- Number of cancer patients diagnosed and treated
- Diagnostic capabilities and infrastructure
- Medical equipment status and needs
- Oncology research and clinical trial capacity and interests
- Healthcare professional capacity and gaps
- Oncology drugs used, prioritized, and forecasted demand

**Age-standardized incidence and mortality rates (all cancers) per 100,000 individuals, IARC 2018 Country Fact Sheets**
Defining Cancer Treatment Guidelines

In collaboration with each country’s ministry of health and national oncologists, BVGH helps to align all relevant parties on priority cancers and — using AAI Hospital Needs Assessment data — determine prioritized cancer drugs by indication. BVGH aligns the priority drugs with National Comprehensive Cancer Network regimens, and presents these regimens for consideration and selection for country-wide adoption. These treatment regimens form the foundation of a country’s cancer treatment guidelines.

AAI-Determined and Hospital-Prioritized Cancer Drugs, by US FDA-Approved Indication

**Breast Cancer**
- 5-fluorouracil
- Capecitabine
- Cyclophosphamide
- Doxorubicin
- Epirubicin
- Exemestane
- Gemcitabine
- Letrozole
- Methotrexate
- Paclitaxel
- Pertuzumab
- Tamoxifen
- Trastuzumab

**Prostate Cancer**
- Abiraterone
- Alendronate
- Bicalutamide
- Docetaxel
- Goserelin
- Zoledronic acid

**Hematological Malignancies**
- Bortezomib
- Carboplatin
- Chlorambucil
- Cytarabine
- Etoposide
- Ifosfamide
- Imatinib
- Lenalidomide
- Melphalan
- Rituximab
- Temozolomide
- Thalidomide
- Vincristine

**Colorectal Cancer**
- Bevacizumab
- Capecitabine
- Cetuximab
- Irinotecan
- Leucovorin
- Oxaliplatin

**Cervical Cancer**
- Bevacizumab
- Cisplatin
- Paclitaxel
- Topotecan

**Head & Neck Cancer**
- Nimotuzumab
Driven by Africa – for Africa
As a condition for joining AAI, each participating African country must have a national cancer control plan (NCCP) or strategy in place. With the aim of fostering sustainable access to quality cancer drugs, BVGH works closely with each country’s ministry of health to align its cancer plan with the specific needs and self-defined priorities of each AAI hospital. BVGH supports the selection of international-standard cancer treatment regimens that align with the NCCP and AAI Hospital Needs Assessment results. With nationwide cancer treatment regimens set, BVGH coordinates with the ministry of health to develop and distribute request for proposals (RFP) to selected manufacturers of the prioritized drugs. This African-determined, African-driven approach ensures that African oncologists have sustainable access to the drug regimens they need to treat their cancer patients.

AAI in Action: Driving Access in Nigeria

BVGH Partners with Ministry of Health at Nigeria’s NCCP 2018-2022 Launch
- Nigeria’s Minister of Health emphasized the critical importance of its partnership with BVGH in addressing access to cancer medicines
- BVGH President Jennifer Dent presented AAI at the NCCP launch event in Abuja, Nigeria
- Nigerian media outlets, including This Day News, Arise TV, and The Guardian, featured the government’s involvement in AAI and the critical role of partnerships in improving cancer patient outcomes in Nigeria

Cancer Stakeholder Meeting Defines Nationwide Treatment Guidelines
- Nigeria’s Minister of Health and BVGH convened chief medical directors, international oncologists, and key healthcare professionals from Nigeria’s cancer centers of excellence to define national cancer treatment guidelines
- BVGH and attendees conceptualized a real-time mentorship program to build the treatment capacity of Nigerian oncologists

Companies Drive Access in Nigeria
- National agencies and critical stakeholders in Nigeria’s drug supply system, including the National Agency for Food and Drug Administration and Control and the Nigeria Customs Service, committed to support streamlined processing and cooperation during Nigerian Cancer Stakeholder Meeting
- BVGH determined national forecast for cancer drugs
- Twenty-six innovative and generic cancer drugs prioritized — manufactured by 11 innovative pharmaceutical companies
- First Nigerian nationwide RFP issued to western pharmaceutical companies
- National budget allocated to support cancer patient treatment

Driving Access at the State Level
- AAI cancer drug access taken to the state-level in partnership with seven northern Nigerian states, whose combined population is 34+ million people
- Second RFP issued to include four additional cancers and 15 more cancer drugs
- AAI Drug Access Program Blueprint created for presentation to Nigeria’s Presidency, state governors, national philanthropists, and religious leaders
- Partnering with the Vice President’s office to ensure supply chain integrity — from port to patient
- Capacity building partnership and real-time mentorship programs to launch in parallel with access agreements
African Access Initiative (AAI)
Building Clinical Oncology Capacity

### Current Oncology Healthcare Professional Capacity in AAI Hospitals

<table>
<thead>
<tr>
<th>Professional</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology Nurse</td>
<td>20</td>
</tr>
<tr>
<td>Pediatric Oncologist</td>
<td>10</td>
</tr>
<tr>
<td>Medical Oncologist</td>
<td>30</td>
</tr>
<tr>
<td>Radiation Oncologist</td>
<td>40</td>
</tr>
<tr>
<td>Surgical Oncologist</td>
<td>50</td>
</tr>
<tr>
<td>Pathologist</td>
<td>30</td>
</tr>
<tr>
<td>Imaging Specialist</td>
<td>0%</td>
</tr>
<tr>
<td>Laboratory Technician</td>
<td>0%</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Diagnostic and Treatment Capacity

BVGH analyzes the results of a hospital’s needs assessment to identify its human resources gaps and advanced training needs.

Working with international experts, BVGH organizes workshops and fellowships to meet the hospital’s capacity-building needs, thereby enabling the hospital to correctly diagnose cancer patients and provide the appropriate treatment options at the highest standards of care.

### AAI Brings Targeted Capacity-Building Programs to Oncology Healthcare Professionals

#### HDR Brachytherapy Training in Nigeria and Côte d'Ivoire

- BVGH initiated an HDR brachytherapy virtual training program with Rayos Contra Cancer for medical physicists at Lagos University Teaching Hospital in Nigeria
- The 12-week virtual training course will be followed up with a two-week hands-on training at the hospital in 2020

#### Training for Oncologists in Cameroon and Côte d'Ivoire

- BVGH identified hematology and breast cancer surgery training opportunities at the request of AAI partner hospitals
- Oncologists gained skills in advanced techniques, improving patient care
- Upon receiving training, one Cameroonian oncologist was selected to participate in a competitive, one-year hematology fellowship in France

#### Pathology Workshop in Nigeria

- BVGH coordinated a three-day pathology workshop in Lagos, Nigeria
- US experts from the American Society for Clinical Pathology conducted basic and advanced cancer diagnosis training
- Pathologists, surgeons, and laboratory directors participated from teaching hospitals across southern Nigeria
Francophone Pathology Workshop in Côte d’Ivoire
• BVGH partnered with the Ivorian Society of Pathology to determine pathology training needs in Côte d’Ivoire and engaged the American Society for Clinical Pathology to identify and fund experts from Montreal to teach an advanced breast cancer pathology workshop
• French-speaking pathology experts trained 95 clinicians from Benin, Burkina Faso, Burundi, Cameroon, Côte d’Ivoire, Guinea, Mauritania, Republic of the Congo, Senegal, and Togo
• An estimated 13,000 breast cancer patients will be impacted annually through improved diagnosis as a result of the workshop

Cancer Patient Referral System Planning in Rwanda
• BVGH placed three experts from Australia, China, and the Netherlands in Rwanda for three months to streamline the national cancer patient referral system
• Experts supported the finalization of Rwanda’s National Cancer Control Plan and the digitization of the National Cancer Registry

Francophone Prostate Cancer Workshop in Côte d’Ivoire
• BVGH partnered with the American Society of Clinical Oncology (ASCO) along with Côte d’Ivoire’s Ministry of Health and Public Hygiene and the National Cancer Control Program to deliver a three-day training program on multidisciplinary prostate cancer patient management.
• The training addressed the interests and needs of participating oncologists, pathologists, pharmacists, primary care physicians, radiologists, radiation oncologists, surgeons, and nurses.
• Trainers led the program in both French and English for 95 participants from eight African countries: Benin, Burkina Faso, Cameroon, Côte d’Ivoire, Guinea, Mali, Niger, and Senegal.

“As Nigeria’s Minister of Health and an oncologist, I have personally witnessed the devastation that cancer has caused our citizens, and I will marshal all the resources of my office to prevent further needless suffering and death. Collaborating with BVGH and leading academic and industry partners through AAI is critical for saving Nigerian cancer patients’ lives.”

– Professor Isaac Adewole, Minister of Health, Nigeria

1Cancer Stakeholder Meeting, Abuja Nigeria. October 2018.
AAI Strengthens Cancer Diagnostic Capacity

Building Cancer Clinical Trial Capacity
- BVGH debuted the African Consortium for Cancer Clinical Trials (AC³T) online platform, which profiles African hospitals’ and research centers’ existing cancer clinical trial capabilities
- Created a comprehensive checklist to evaluate and promote Africa’s clinical trial-ready cancer hospitals
- In Kenya, over 30 clinicians were trained on cancer clinical trial processes, study design, and scientific/grant writing

Placing Prioritized Pathology Equipment in Nigeria
- BVGH placed high-value laboratory instruments from private industry at the Federal Medical Center, Ondo State, Nigeria
- The laboratory instruments aligned with the hospital’s self-identified needs and will improve cancer patient diagnosis in Ondo State

Building Pathology Capacity with Pharmaceutical Company Experts
- BVGH placed three private industry experts to spend three months in Rwanda to improve diagnostic pathology laboratory workflow and standardize laboratory operating procedures
- Knowledge transfer supported hospital’s international accreditation preparation, resulting in a perfect score on a pre-accreditation assessment
- Training also covered grant-writing and other essential skills
Refining the Cancer Specimen Referral System in Kenya
• BVGH placed three experts from the U.S. and Hungary to work with Kenya’s National Cancer Control Program to develop a strategy to implement a national cancer specimen referral network.
• The experts worked with the National Cancer Control Program and hospital staff to develop and improve cancer specimen handling standard operating procedures and quality assurance frameworks for two Kenyan laboratories.
• The experts presented their recommendations for disseminating and implementing the national guidelines on specimen handling and transport. These activities will improve the accurate and timely diagnosis of Kenyan cancer patients.

Improving Diagnostic Capacity in Côte d'Ivoire
• BVGH coordinated the placement of an ASCP fellow at the University Hospital Center Cocody to improve the hospital’s pathology capacity.
• BVGH placed an essential pathology laboratory instrument from private industry at the University Hospital Center Treichville.
• The University Hospital Center Treichville is responsible for diagnosing the majority of Côte d’Ivoire’s cancer patients and has trained all West African pathologists since 1991.

Optimizing Laboratory Operations in Rwanda
• BVGH identified a technician to repair and install essential instruments in a Rwandan hospital laboratory – after sitting unused for years.
• BVGH placed partners to train laboratory staff on the use of the instruments, resulting in the hospital laboratory improving its WHO/SLIPTA score from 1 to 3 (out of 5).
• In partnership with the Ministry of Health, BVGH held a laboratory pre-accreditation competition to recognize the hospital’s pathology accreditation achievements, motivate continued use of best practices, and identify further areas of improvement.
• Training and process optimization improved hospital’s sample turnaround time from 4 weeks to 10 days.

Training Pathologists in Rwanda
• BVGH placed two American pathology residents for four weeks in Rwandan hospital laboratories to provide training on the use of newly-installed pathology equipment.
• Following the training, the laboratories incorporated the new equipment into their regular work flows, making them the first labs to utilize this equipment in Rwanda.

Building Laboratory Capacity in Kenya
• BVGH coordinated the placement of a histology technician at Machakos Cancer Care and Research Centre.
• The work is focused on assessing the hospital’s competency and improving histology techniques and laboratory workflows to elevate quality practices as the histopathology laboratory prepares for accreditation.

Strengthening Histopathology Best Practices in Kenya
• BVGH coordinated a histopathology train-the-trainer workshop focused on best practices for cancer specimen collection and transport.
• As part of the laboratory demonstration portion, histology technicians observed the correct way to prepare buffers and fixatives for cancer specimen processing.
• Twenty-five surgeons, operating theater nurses, and histology technicians from four counties received training and presentation materials to disseminate these lessons to their respective hospitals.

Training Pathologists in Rwanda
Advocating for Cancer Patients
BVGH and its ministry of health partners are declaring a call to action to the international community to address Africa’s cancer crisis. Equally important are efforts at the local level to educate Africans about the signs of cancer and to promote prevention and early diagnosis. BVGH utilizes its large network of companies, non-profit organizations, research institutes, and governments to raise awareness of Africa’s cancer crisis and catalyze change.

Cancer Education, Screen, and Treat (EST) Program in Rwanda
• BVGH partnered with the Ministry of Health to design and implement a breast and cervical cancer EST program in Rwanda
• Up to 5,000 women will be screened at each of three district hospitals during EST events
• GardaWorld to co-promote, and provide participant transportation, security, and support
• Co-organized a training for healthcare professionals in cancer screening techniques
• Equipment with be placed at district hospitals to sustain screening and treatment services
• The EST Program is made possible through the generous support of Faber Daeufer & Itrato PC

African Consortium for Cancer Clinical Trials (AC³T)
• BVGH launched AC³T under AAI to encourage African PI-led observational studies of FDA-approved drugs
• Generates needed data on treatment of cancer in African ethnicities
• Builds treatment skills while improving the standard of care
• Increases African cancer patients’ access to state-of-the-art treatment

Televised Interview Broadens Cancer Awareness Across Nigeria
• BVGH President and CEO Jennifer Dent sat down with Nigeria’s “Arise News” for a live, televised interview to discuss the African cancer crisis and how AAI is improving cancer patient outcomes in Africa
• She communicated that cancer is gaining a lot of attention at the government level and AAI is helping to catalyze solutions, especially around providing access to quality, affordable cancer drugs

BVGH Presents AAI and AC³T at AORTIC 2019 in Mozambique
• BVGH convened African oncologists, pathologists, healthcare leaders, international companies, governments, and NGOs for working sessions on expanding access to medicines and clinical trials
• Participants proposed calling on government leaders to prioritize national research efforts, including fostering cancer clinical trials led by African researchers with African cancer patients
• Patient advocates called for increased funding for cancer therapies, and the creation of secure, equitable patient funding mechanisms

BVGH Presents AAI Model at Biden Cancer Summit
• BVGH President Jennifer Dent publicized Africa’s cancer crisis at the Biden Cancer Summit — AAI was the only non-American health initiative showcased
• BVGH announced its commitment to quadruple the rate of progress against cancer on the continent
• BVGH featured as Biden Cancer Initiative partner in Africa
• Nigerian community breast and cervical cancer summit live-streamed from Ondo State

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"For Many in Nigeria, Cancer Care Remains Out of Reach"

"In the meantime, alternative models are emerging in Nigeria ... Jennifer Dent, president of BIO Ventures for Global Health, which is working on a cancer drug partnership program in some areas of the country, said finding a way to cover the cost of treatment was a ‘priority.’"

"Seattle Nonprofit to Battle Cancer in Africa with Help from Biotech Industry"

"The global health community has made important headway in tackling infectious diseases such as malaria in Africa, yet we are seeing an alarming rise in cancer and other non-communicable diseases."

"FG, BVGH Conduct Needs Assessment on Cancer in 15 Hospitals"

"[AAI Partner Companies] are committed to ensuring that drugs and equipment provided are affordable and safe."

"Things Have Turned Serious in Africa"

"By engaging leading biotechnology and pharmaceutical companies, AAI is working to make cancer drugs and technologies available, accessible, and affordable to patients in Africa."

"Biden Cancer Initiative - Biden Cancer Summit"

"We are at an inflection point in the understanding and treatment of cancer and are starting to break down barriers and change the culture in ways that are needed to deliver what patients deserve – a cancer research and care system that puts saving lives above all else. The commitments we have received, including AAI, bring us closer to developing the right systems, the right culture to get us there." - Vice President Joe Biden

"Patients of African Descent are Being Denied the Benefits of Cancer Breakthroughs. We’re Changing That."

"ACT seeks not only to eliminate existing disparities in our current understanding of cancer but also close the growing cancer mortality gap."

"Cancer in the Community"

BVGH participated in a discussion on how researchers and practitioners in Seattle can collaborate with the larger science and tech communities to provide innovative cancer care.
African Access Initiative (AAI)
People Are Talking About AAI

Healthnews.ng - “Nigeria is Buying Radiotherapy Machines but Most Patients Cannot Afford Cancer Drugs”
“The result of [BVGH’s] Needs Assessments represent the first comprehensive data set on cancer medication usage by Nigerian oncologists.”

Bidens Cancer Initiative: Pulse on Progress - “Shifting Africa’s Cancer Narrative from Despair to Hope”
“Through collaborative, multi-sector efforts such as AAI, we can reverse cancer mortality patterns on the African continent and bring hope to patients.”

eCancer - “African Access Initiative: Improving Patient Outcomes in Africa”
“Ultimately [BVGH’s] measure of success in this program is seeing patients cured, seeing those success stories of patients being cured, and really changing the complete paradigm of cancer in Africa as it is today.”

Devex - “How the African Access Initiative Plans to Mitigate Africa’s Cancer Burden”
“. . . AAI [is] a cancer-focused program that brings together oncology companies with African governments and hospitals to enhance healthcare capacity, foster cancer research, and increase the availability of life-saving cancer medicines.”

BIOtech Now - “A Sustainable Movement to Curb Cancer in Africa”
“BVGH understands that prompt, coordinated responses by governments, private industry, and experts are critical to stemming the tide of the cancer epidemic and scaling the benefit of life-saving cancer medicines across the globe.”

Université de Montréal - “Successful Humanitarian Breast Cancer Education Project”
“Promoting better healthcare begins with knowledge sharing and, as resource-rich countries, we have a responsibility to participate in these kinds of initiatives.”

Thank you to our AAI Partners

For more information, visit www.bvgh.org or contact Katy Graef kgraef@bvgh.org