

Global Oncology



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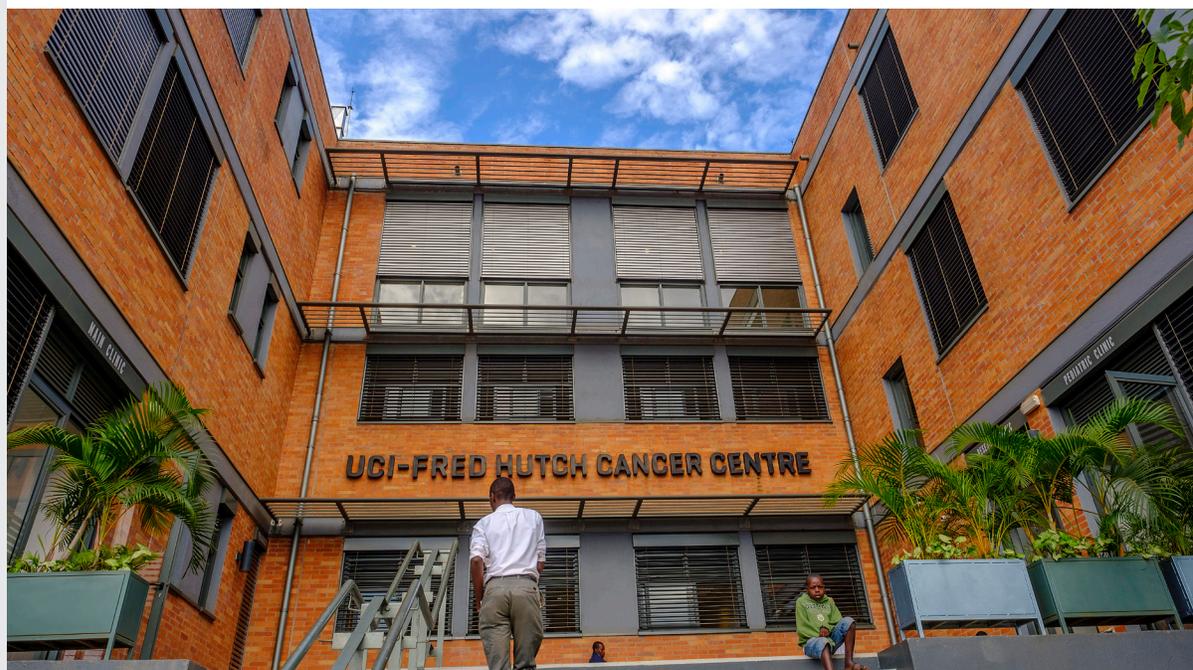


WARREN PHIPPS
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Medical Director,
UCI-Fred Hutch Collaboration

2019 YEAR IN REVIEW

In 2019, Fred Hutch's Global Oncology program made great strides in advancing its mission to conduct cancer research with global impact and support the development of research capacity and clinical care to reduce the cancer burden in low- and middle-income countries. These successes were achieved in collaboration with its partners — especially the Uganda Cancer Institute under the leadership of Dr. Jackson Orem, Executive Director of the UCI — and with the support of its funders, donors, partners and Fred Hutch's leadership and community.

Led by **Drs. Edus H. Warren** and **Thomas Uldrick**, Global Oncology is a rising leader in the global cancer field. Through its pioneering research and training initiatives, Global Oncology aims to contribute to the Sustainable Development Goal target 3.4 — a reduction of death from noncommunicable diseases, including cancer — as part of the United Nations' 2030 Agenda for Sustainable Development.



2019 GLOBAL ONCOLOGY PILOT GRANT RECIPIENTS



DR. SOHEIL MESHINCHI
Fred Hutch
Principal Investigator



DR. JOYCE BALAGADDE-KAMBUGU
UCI
co-Principal Investigator



DR. ALICE BERGER
Fred Hutch
Principal Investigator



DR. NIXON NIYONZIMA
UCI
co-Principal Investigator

Conducting research to discover new cancer diagnostics and therapies for LMICs

Over the past two years, Global Oncology and UCI have dedicated capacity building efforts to build the foundation in order to conduct innovative clinical trials at the UCI-Fred Hutch Cancer Centre (UCI-FHCC) in Kampala, Uganda. As a culmination of this work, Global Oncology opened their first cancer clinical trials at the UCI-FHCC. The first trial is focused on determining the feasibility an all-oral cancer regimen for breast cancer patients and is one aim of the ongoing study funded by GSK's Africa NCD Open Lab to define the molecular profile of breast cancer in Uganda and explore clinical implications, co-led by Dr. Manoj Menon (FH) and Dr. Jackson Orem

(UCI). Preliminary data suggest that most women present in advanced stages of breast cancer and have hormone receptor-positive disease.

The second clinical trial, in partnership with Roche and the UCI, will evaluate a novel-targeted treatment, Rituximab, that can be administered under the skin of both adult and pediatric patients with lymphoma. This trial is led by Dr. Thomas Uldrick, GO Deputy Head, and Drs. Henry Ddungu, Joyce Balagadde-Kambugu, and Jackson Orem of the UCI.

Global Oncology continued to advance its state-of-the-art laboratory capabilities, including installing an Illumina MiSeq DNA sequencer that will enable next generation sequencing research, which could transform how cancers are diagnosed or treated.

On a related note, Global Oncology awarded two pilot grants as an initiative seeking proposals on next generation

sequencing applications for prevalent solid and liquid tumors in low- and middle-income countries. One \$75,000 grant was awarded to Dr. Soheil Meshinchi (FH), principal investigator (PI), and Dr. Joyce Balagadde-Kambugu (UCI), co-PI. The research team aims to incorporate advanced diagnostics into routine care of patients diagnosed with acute leukemias at the UCI to define the molecular landscape of acute leukemias in Uganda. An additional \$75,000 grant was awarded to Dr. Alice Berger (FH), PI, and Dr. Nixon Niyonzima (UCI), co-PI; the research team aims to assess the utility of a liquid biopsy in patients with lung cancer at the UCI.

Global Oncology continues to grow its research portfolio in Kaposi sarcoma, focused on KSHV inter- and intra- patient diversity, KS tumor genomics, KS single-cell studies, and KS tumor transcriptome and tumor-infiltrating lymphocyte response.



UCI leadership, Drs. Jackson Orem, Executive Director (front row - 3rd from left), and Victoria Walusansa, Deputy Director (front row - 5th from left), joined by Fred Hutch and Global Oncology leadership and colleagues, including Drs. Gary Gilliland, President and Director (second row - left) and Bruce Clurman, Executive VP and Deputy Director (first row - center) at the UCI-Fred Hutch Cancer Centre in Kampala.

NEW FUNDING FOR GLOBAL ONCOLOGY

Global Oncology was awarded nine new grants in 2019.

4 National Institutes of Health awards

- D43 TW009759-06, Building Independent Research Leaders in HIV-associated Malignancies in Uganda, PI: Phipps
- R01 - Dissecting the KS Tumor Microenvironment at the Single Cell Level, PIs: Phipps, Warren
- R01 - Characterize the Determinants of Primary KSHV Infections among Children and Adolescents in Uganda, PI: Phipps
- AIDS Malignancies Consortium Working Group Subaward, PI: Phipps

2 industry award

- Celgene - Optimizing Nephroblastoma Treatment Outcomes in Ugandan Children, PI: Ulrick
- Celgene Cancer Care Links, East African Adult Hematology-Oncology Fellowship International Exchange Program

3 internal awards

- Immunotherapy Integrated Research Center Tumor Microenvironment, PIs: Warren, Phipps
- Public Health Sciences Pilot, PI: Adams
- Pathogen-Associated Malignancies Integrated Research Center Innovation Grant, PIs: Phipps, Koelle [UW], Warren

Annual Grant funding

FY20 Q2: 19 awards

\$8.2 million

FY19 Q2: 12 awards

\$4.4 million



Specimen is being examined at histopathology lab at UCI-Fred Hutch Cancer Centre by Diana Basemera.

Training the next generation of global oncology leaders

The East African Adult Hematology Oncology Fellowship finished its first year strong. Launched in 2018 with support from the African Development Bank, the program trains Ugandan specialists so they can, in turn, train their East African colleagues in high-quality clinical care and research and guide and mentor new oncologists, hematologists and lower-level health workers. Year 1 cohort of fellows began the second year in September. Ten faculty from Fred Hutch and SCCA visit the UCI, giving 34 lectures and

over ten days of inpatient wards and outpatient clinic training. Ugandan faculty gave six lectures and provide ongoing supervision of the fellows. The AHO Fellowship is co-directed by Drs. Abrahams Omoding and John Harlan [UW].

“We are raising up the future oncologists, hematologist, researchers, faculty and advocates of cancer care... the robustness of visiting faculty and the enthusiasm and encouragement we have gotten is beyond words.”

— Dr. Abrahams Omoding
Co-Director, AHO Fellowship and Medical Oncologist, UCI

Global Oncology coordinated with the Seattle Cancer Care Alliance’s nursing team to promote advanced clinical and research training for

nurses at the Uganda Cancer Institute, as part of training on clinical trials as well as broader areas. This past year, training topics included lymphoma, chemotherapy complications, sepsis, hazardous drug handling in which the majority [80%] of UCI nursing staff participated.

Through training grants, including a NIH D43 and U54, Global Oncology continued to keep training initiatives as one of its core activities, including supporting five PhD candidates, peer-mentoring career development program, and various clinical care conferences and tumor boards.

Engaging new partners and expanding a community in global cancer

In 2019, Global Oncology

EXTERNAL ADVISORY BOARD MEMBERS

DR. RICHARD AMBINDER

M.D., Ph.D.

Director, Division of Hematologic Malignancies and Professor, Oncology, Johns Hopkins Medicine

DR. ETHEL CESARMAN

M.D., Ph.D.

Professor of Pathology and Laboratory Medicine, Weill Cornell Medical College

DR. GROESBECK PARHAM

M.D.

Professor, OB/GYN & Director of the CIDRZ Cervical Cancer Prevention Program University of North Carolina at Chapel Hill



AHO fellows with Dr. Marc Stewart, SCCA Medical Director (back row, 2nd left), Dr. Warren Phipps (back row, center), and Dr. Abrahams Omoding, AHO co-director (back row, 2nd right) in Kampala, Uganda.

launched a new External Advisory Board that will offer high-level scientific guidance to the program. The board will hold an inaugural meeting in 2020. The distinguished board members include:

Rick Ambinder, M.D., Ph.D. (Director, Division of Hematologic Malignancies and Professor, Oncology, Johns Hopkins Medicine); Ethel Cesarman, M.D., Ph.D (Professor of Pathology and Laboratory Medicine, Weill Cornell Medical College); and Groesbeck Parham, M.D. (Professor, OB/GYN & Director of the CIDRZ Cervical Cancer Prevention Program University of North Carolina at Chapel Hill).

In June 2019, Dr. Sue Desmond-Hellmann visited Kampala, together with Dr. Gary Gilliland, and toured the UCI-FHCC — a place where the link

between infectious diseases and cancer is witnessed daily. Desmond-Hellmann, CEO of the Bill & Melinda Gates Foundation, lived in Kampala in the late 1980s studying HIV/AIDS and cancer at the UCI.

Global Oncology held the first annual UCI-Fred Hutch Collaboration Faculty Retreat in Kampala, Uganda in September 2019 which resulted in discussion of collaborative achievements, new opportunities, and areas for growth. The events included an opening dinner with Uganda's Honorable Minister of Health Dr. Jane Ruth Acheng, and a two-day retreat with the participation of over 20 Fred Hutch and UCI colleagues.

Further, Global Oncology hosted seven Global Oncology Lectures in 2019 with dynamic

and engaging global cancer experts. Join us at upcoming lectures throughout 2020.

In collaboration with the University of Washington and other Seattle-based institutions and partners, the team has launched a new Global Cancer Community in Seattle to bring together global health and global cancer experts to generate shared knowledge, learning, and new partnerships. Look out for details about an official launch event in early 2020.

From Research to Publications

Global Oncology faculty published 26 articles in peer-reviewed, scientific journals in 2019. A few noteworthy publications resulting from the UCI-Fred Hutch Collaboration include:

*Indicates a Ugandan trainee or colleague

FRED HUTCH

has a history of driving forward innovative cancer and infectious disease research. The breakthroughs from this work should be available no matter where someone lives. Leveraging the momentum from 2019, Fred Hutch Global Oncology invites new collaborators and contributors to join the important movement to reduce the cancer burden in Uganda and worldwide over the coming years. Global Oncology looks forward to sharing our progress with you in the next year.

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GLOBAL ONCOLOGY

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Ddungu H*, Krantz EM, Kajja I, Naluzze S, Nabbanja H, Nalubwama F, Phipps W, Orem J*, Kiwanuka N, Wald A. How low can you go: what is the safe threshold for platelet transfusions in patients with hematologic malignancy in sub-Saharan Africa. PLoS One. Feb 2019 6;14[2].

“The optimal platelet count threshold for prophylactic transfusion is unknown in sub-Saharan Africa. A prospective study at the Uganda Cancer Institute found that lowering the threshold for platelet transfusion led to fewer transfusions and did not change the incidence of clinically significant bleeding or mortality, suggesting that a threshold of $10 \times 10^9/L$ platelets, used in resource-rich countries, may be implemented as a safe level for transfusions in sub-Saharan Africa.”

Mutyaba I*, Wabinga HR, Orem J*, Casper C, Phipps W. Presentation and outcomes of childhood cancer patients at the Uganda Cancer Institute. Glob Pediatr Health Publication. 2019 May 18;6.

“Through a retrospective study, authors aimed to describe the presentation, treatment outcomes, and factors associated with survival among children with cancers at the Uganda Cancer Institute from 2007-2009. Based on clinical results, survival among children with cancer in Uganda is poor, likely attributed to advanced stage disease and loss to follow-up. Anemia and thrombocytopenia may augment traditional staging methods to provide better prognostic factors in Uganda and warrant further evaluation.”

Lubwama M*, Phipps W, Najjuka CF, Kajumbula H, Ddungu H*, Kambugu JB* & Bwanga F. Bacteremia in febrile cancer patients in Uganda. BMC Research Notes. 2019 Jul;12[1]:464.

The prospective study aimed to determine the predominant bacterial species causing bacteremia among febrile cancer patients, and their antibacterial resistance profiles at the Uganda Cancer Institute. Results indicate that multidrug resistant Gram-negative bacteria are the main cause of bacteremia in febrile cancer patients at the UCI. Findings warrant ongoing microbial surveillance, infection prevention and control, and antibiotic stewardship programs.

McGoldrick SM, Mutyaba I*, Adams SV, Larsen A, Krantz EM, Namirembe C, Mooka P, Nabakooza S, Ndagire M, Mubiru K, Nabwana M, Nankinga R, Gerdtts S, Gordon-Maclean C, Geriga F*, Omoding A*, Sessle E, Kambugu J*, Uldrick TS, Orem J, Casper C. Survival of children with endemic Burkitt lymphoma in a prospective clinical care project in Uganda. Pediatric Blood Cancer. 2019 Sept;66[9].

“With the aim of improve Burkitt lymphoma outcomes in Uganda, the authors implemented a comprehensive project that provided diagnostic support, access to standard chemotherapy, nutritional evaluations, and case management and subsequently evaluated survival of children with BL. Results found that the project reduced effects of lacking supportive care and oncology resources, and allowed patients from Uganda to receive curative intent therapy with minimal loss to follow-up. However, overall survival remains unacceptably low, and authors urge for improved therapeutic approaches to endemic Burkitt lymphoma in Africa.”



Desire Asimwe, an acute myeloid leukemia patient, shows a sigh of relieve after hearing the good prognosis from Dr. Henry Ddungu at UCI-Fred Hutch Cancer Centre.

*Indicates a Ugandan trainee or colleague