



Global Oncology

Cancer is one of the greatest global health threats.

By 2040, there will be an estimated 27 million new cancer cases globally — with an estimated 70% of all new cases and over 12.4 million cancer deaths in Africa, Latin America and the Caribbean and Asia.¹ In sub-Saharan Africa, breast, cervical and prostate cancers are the most common.² Further, many cancers in low- and middle-income countries (LMICs) are associated with infections.³ In Uganda, an estimated 36% of cancers are attributable to infections. Many cancers are diagnosed at a late stage due to limited access to screening, diagnostics and treatment options in sub-Saharan Africa. There is an urgency to conduct cancer research and training from a global lens — and to translate findings into clinical care and action.

Fred Hutch Cancer Center unites innovative research and compassionate care to prevent and eliminate cancer and infectious disease. We're driven by the urgency of our patients, the hope of our community and our passion for discovery to pursue scientific breakthroughs and healthier lives for every person in every community. Global Oncology (GO), a cross-divisional program within Fred Hutch's Research Administration department, is one of Fred Hutch's key programs focused on global cancer research.

Global Impact

Led by Dr. Edus H. Warren, GO's mission is to generate cancer and related infectious disease research with global impact and support the development of research and clinical capacity in low-resource settings. GO provides unrivaled opportunities to leverage Fred Hutch's cross-disciplinary expertise and global footprint to:

- Develop cancer diagnostics and evaluate therapies suited for low-resource settings, including immunotherapies or other novel therapeutics
- Better understand the pathogenesis of globally important cancers, the heterogeneity in the genetics and biology of common cancers and the genomics of different populations
- Train the next generation of physician-scientists to fight the global cancer burden
- Translate findings bidirectionally ("global ↔ local"), as applicable, particularly findings that apply to less-resourced settings – whether in LMICs, the United States, or elsewhere

1 Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: <https://gco.iarc.fr/today>, accessed [24 June 2022].

2 The American Cancer Society (2022). The Cancer Atlas – Sub-Saharan Africa. Available from: <https://canceratlas.cancer.org/the-burden/sub-saharan-africa/>, accessed [11 August 2022].

3 Jemal A, Torre L, Soerjomataram I, Bray F (Eds). The Cancer Atlas. Third Ed. Atlanta, GA: American Cancer Society, 2019. Available from: <https://canceratlas.cancer.org/risk-factors/infection/>, accessed [12 September 2022].

Hutchinson Centre Research Institute of Uganda staff at an all-staff meeting in April 2022 in Kampala, Uganda.

Global Oncology Strategic Objectives

GO refined and launched a new strategic plan in 2022. The strategic objectives are to:

1. Develop cancer diagnostics and evaluate therapies suited for low-resource settings and elucidate the pathogenesis of globally important cancers
2. Expand research portfolio to characterize the burden and management of infectious diseases in cancer
3. Collaborate with the Uganda Cancer Institute to build research, clinical care, and research administration capacity through training and infrastructure development
4. Expand research portfolio by engaging new faculty and exploring collaborations with institutions or research networks
5. Implement the principles of diversity, equity, and inclusion in all aspects of research and operations



Collaboration Built on Research and Training

The cornerstone of GO is its established collaboration with the Uganda Cancer Institute, a regional center of excellence in East Africa and home to landmark cancer discoveries. Directed by Dr. Jackson Orem, the UCI was Uganda's first comprehensive cancer facility to provide clinical care, research and training. It was among the first institutions to use combination chemotherapy to treat cancer. Because of the high incidence of infection-associated cancers in Uganda, Fred Hutch faculty began working with UCI colleagues in 2004 to understand better the biology and treatment of these cancers, particularly HIV-associated malignancies (HIVAM). The UCI and Fred Hutch launched a formal collaboration (the UCI-Fred Hutch Collaboration) in 2008 to advance innovative research and training and to support clinical care improvements. The Collaboration conducts research on cancers such as breast cancer, Kaposi sarcoma, and lymphoma and research on viruses and infections associated with various cancers. The Collaboration operates the 25,000 sq. ft. facility, known as the UCI-Fred Hutch Cancer Centre, which features outpatient clinics, laboratories and training spaces.

Highlights of our current research, training and other activities include:

- Implementing an early phase clinical trial of subcutaneous rituximab that aims to improve cure rates for adults and children with two aggressive forms of lymphoma and KSHV-associated multicentric Castleman disease, which is funded in part by Roche. It is led by Fred Hutch's Dr. Manoj Menon and Drs. Henry Ddungu, Joyce Balagadde Kambugu and Jackson Orem of the UCI.
- Through an U.S. National Institutes of Health D43 International Research Training Grant, GO is training PhD-level physician-scientists in HIVAM research, which is led by Dr. Warren Phipps, UCI-Fred Hutch Collaboration Medical Director.
- Co-directing the UCI-Fred Hutch Adult Hematology-Oncology Fellowship as part of the regional East African Centre of Excellence in Biomedical Sciences at the UCI (UCI received funding in 2016 from the African Development Bank), in partnership with the University of Washington, Makerere University and Mulago National Referral Hospital.
- Hosting regular tumor boards and case conferences between U.S. and Ugandan oncologists
- Collaboration co-directors, Dr. Edus H. Warren, Fred Hutch, and Dr. Jackson Orem, UCI, will soon be launching a new training program (funded by an NIH D43 grant) that will train Ugandan oncologists and researchers in the generation and analysis of cancer genomic data

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. The GO team is determined to advance its mission through challenging times because the call to action is urgent. The program aims to expand its research portfolio by exploring new collaborations. We invite new collaborators and contributors to join the important movement to reduce the cancer burden in Uganda and worldwide.



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Key Achievements

Over time, GO has accomplished several scientific, training, and operational achievements and the program continues to advance its mission.

- Conducting pioneering research on cancers including breast cancer, Burkitt lymphoma, cervical cancer, diffuse large B-cell lymphoma, Kaposi sarcoma, leukemia, lung and nephroblastoma; and related infections or viruses – bacteremia, blood infections, Human Herpes virus 8 (HHV-8), Human Immunodeficiency Virus (HIV), KSHV-multicentric Castleman disease, and neutropenic fever
- Extensively characterizing the contribution of HIV infection to cancer development and survival in sub-Saharan Africa
- Opening the UCI-Fred Hutch Cancer Centre in 2015 - \$10 million USD facility for research, training and clinical care in Kampala, Uganda that houses the UCI's pediatric and adult outpatient clinics
- Completing construction in late 2020 of the ground floor space of the UCI-Fred Hutch Cancer Centre, which now houses the biorepository with more than 150,000 biospecimens and administrative offices
- Operating state-of-the-art laboratories including specimen processing, molecular diagnostics with DNA sequencing capability, histopathology, planned immunology and genomics labs and biosafety level 2 facilities
- Conducting a clinical trial that has an all-Ugandan clinical research team
- Trained 14 long-term Ugandan fellows in HIVAM research
- In response to the COVID-19 pandemic, launching the SARS-CoV-2 testing program at the UCI-Fred Hutch Cancer Centre in participation with Uganda's National Testing Program. The seven-person lab team has performed nearly 4,000 tests since the program started in late 2020.