MASSACHUSETTS GENERAL HOSPITAL
PATHOLOGY

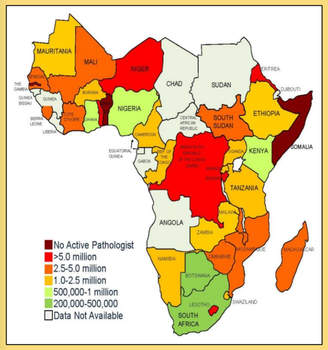
MGH Pathology and Global Health:
Advancing Diagnosis and Discovery in the Developing World

Advancing Diagnosis and Discovery

The **MGH Department of Pathology Program in Global Health** serves to build capacity and move the field of pathology forward worldwide through its activities in **professional education, clinical care** and **research collaborations.** Here's a sampling of some of our past projects and successes!

Professional Education

The Challenge



Pathologists and pathology services are scarce in developing countries. In sub-Saharan Africa, most countries have staffing levels <10% of those of the US and many hospitals have no anatomic pathology services at all. The shortage is severe: it has been estimated that it would take a millennium to train enough pathologists in sub-Saharan Africa to reach levels needed. Left: Pathologist-to-patient ratio by country in sub-Saharan Africa (ca. 2015).

Our Approach

The MGH Department of Pathology Program in Global Health has developed several strategies to address these challenges and to enhance professional development opportunities for our global pathology colleagues through CME courses in Anatomic Pathology and Transfusion Medicine (see below), development of asynchronous training materials, and lectures given by MGH Pathology faculty at local and regional meetings in Botswana, Ethiopia, Kenya, Tanzania, Uganda and South Africa.

Left: Following the success of the first ever HMS-sponsored CME course taught in Africa in 2011, Dr. Drucilla Roberts organized and directed a follow-up CME course in Nairobi, Kenya in 2014, in collaboration with the College of Pathologists of East, Central and Southern Africa. This helped to lay the foundation for subsequent pathology CME efforts and offerings in the region.

Right: Transfusion Medicine Symposium, Kampala, Uganda, November 2014, organized by Dr. Sunny Dzik and colleagues. This multi-disciplinary conference covered all clinical aspects of Transfusion Medicine with lectures given by Ugandan faculty and small group discussions focused on collaborative approaches to transfusion needs.

Clinical Care

Enhancing Pathology Services at MUST

The MGH Department of Pathology has developed a Global Pathology elective rotation for its interested pathology residents at Mbarara University of Science and Technology (MUST), Mbarara, Uganda. The inaugural rotation in December 2014 was a great success, allowing for exposure to a variety of interesting cases in a setting with limited resources. In conjunction with the MGH Center of Global Health, the department has also supported a visiting on-site pathologist at MUST for the past several years. Plans are in place for continued support of visiting trainees and faculty to help with clinical workload and patient care at MUST.

Above left: Dr. Frederick Meier, visiting pathologist, reviewing cases at multiheaded teaching microscope with MUST pathology trainees. Above right: Dr. Omo Aisagbonhi (right), MGH pathology resident, examining a specimen at MUST pathology lab with Dr. Atwine Raymond (left), MUST pathology resident.

The Cytology Solution

Cytology is a simple, cost-effective strategy for evaluation of mass lesions, usually by fine needle aspiration. For example, a Pap test to screen for cervical cancer can be made manually by collection of cervical cells in fixative, centrifugation (A), smearing a portion of the pellet as a thin layer on the slide with a transfer pipette (B), allowing for staining and evaluation of well-fixed cervical cells (C).

Research Collaborations

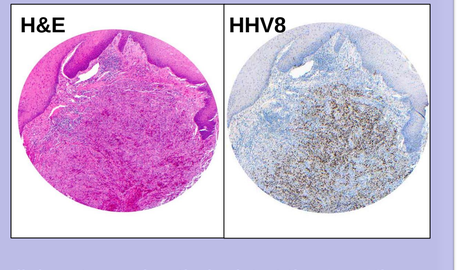
Validating the Minimally Invasive Autopsy

MGH pathologists are among an international team that helped to design and organize a large study examining the performance and accuracy of minimally invasive autopsy, a technique that does not require extensive pathology infrastructure so is adaptable throughout sub-Saharan Africa.

Two team members (above left) and Dr. Drucilla Roberts (above right) preparing to do a minimally invasive tissue sampling (MITS) autopsy at Kenyatta National Referral Hospital, Nairobi, Kenya.

Targeting Kaposi Sarcoma

MGH pathologists collaborated with their Kenyan counterparts to study tissue samples from nearly 300 Kaposi sarcoma patients. By using microarray technology and immunohistochemistry, we elucidated new insights into tumor biology that may lead to novel treatment approaches. Our findings confirm upregulation of signaling pathways amenable to targeted therapy. Results were presented at two international pathology meetings and published in a peer-reviewed pathology journal.



Above left: Dr. Satya Vara Prasad, collaborator and pathologist at the Aga Khan Hospital, Kisumu, Kenya who reviewed and provided primary diagnoses for all Kaposi sarcoma tissue samples. Above right: Representative histology sections of Kaposi sarcoma in skin, stained with H&E and human herpes virus-8 (HHV8).