BRINGING CYTOGENETICS TO AFRICA:
(Ethiopia, Aortic 2017, and Ghana Experience)

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Background
An African Initiative was launched within GAP in 2012 with the purpose of exploring opportunities for collaborations in Africa for advancing our understanding of cancer and improving cancer care in the region. As a result, a multi-disciplinary Africa Committee of faculty champions provide guidance and plans activities focused on training and education of African healthcare professionals.

MD Anderson has joined hands with Pink Ribbon Red Ribbon, a partnership focused on women’s cancers in low and middle income countries, with the initial focus on cervical and breast cancers in Zambia, Tanzania, Ethiopia, and Mozambique.

In September 2016, Black Lion Hospital in Addis Ababa, Ethiopia contacted faculty at MD Anderson School of Health Sciences to explore the possibility of cytogenetics collaboration. They had already selected several MSc and PhD students whom they wanted to get training in Fluorescence In situ Hybridization (FISH), routine Cytogenetics and flow cytometry. A visit to Black Lion was then planned for November 2017.

Then again, MD Anderson initiated contact with faculty and health care providers at Komfo Anokye Teaching Hospital (KATH), the second largest University teaching hospital in Ghana, West Africa to explore possible areas of cancer care collaborations.

The first explorative visit to Ghana was in September 2017. The group visited KATH, Kwame Nkrumah University of Science and Technology (KNUST), University Hospital in Kumasi, Korle Bu Teaching Hospital (KBTH) in Accra, and The University of Ghana Medical Center, Accra.

The Ethiopia Experience
A 2-day workshop visit to Ethiopia in 2017. This comprised of an 8hr lecture and practice on cytogenetic technology and how to identify chromosomes, using about 200 waxed metaphase spreads for cutting and placement practice. We utilized the “Karyotutor” software to grant the 12 participants access to more than 1000 waxed metaphase spreads for cutting and placement practice. We utilized the software to allow participants to practice on cytogenetic technology and how to identify chromosomes, using about 200 waxed metaphase spreads for cutting and placement practice.

The Ghana Experience
We visited Ghana in September 2017 and again in November 2017 after the Aortic. The September visit was to explore areas of collaboration in cancer care at the University of Ghana Medical Centre and the Rector and faculty of the College of Physicians and Surgeons. The team also attended tumor meeting at KATH, visited the oncology ward and pathology labs, and gave a lecture on cytogenetics to students and medical staff at the School of Medical Sciences in Kumasi.

Aortic 2017-Kigali Experience
An oral presentation on the topic “Bringing Cytogenetics to Africa” was presented at the 2017 Aortic Conference in Kigali, Rwanda. The workshop was attended by more than 50 people. We covered the basics of cytogenetics, its relevance in the diagnosis, treatment and prognosis of cancer. The instrumentation, equipment, reagents and training that was needed to perform cytogenetic test as well as costs were discussed. We showed examples of actual oncological cytogenetic cases and answered audience questions.

Summary & Conclusions:
The healthcare challenges in Africa, especially in cancer prevention and treatment is overwhelming. Technologies such as cytogenetics can help increase the capacity of pathological labs around Africa to assist in proper diagnosis and treatment of cancer. However, there are some challenges that need to be addressed. These include but not limited to:

- financial resources
- reliable internet access
- good working microscopes
- storage of reagents, especially -20oC refrigerators
- reliable electricity, adequate source of reagents
- equipment and supplies

Collaboration between the limited healthcare facilities would help reduce redundancies and provide specific testing sites for patients. Equipment service contracts are also necessary to ensure proper maintenance of expensive equipment.

Participants at the Ethiopia Workshop

Metaphase chromosome spread & FISH probes