Recognition of surgical need as part of cancer control in Africa

I commend the work of T Peter Kingham and colleagues,[1] published as part of *The Lancet Oncology*'s Series on cancer control in Africa, for the authors' recognition of the important and multifaceted role that surgeons have in the attainment of cancer care in sub-Saharan Africa. Too often, as Farmer and Kim[2] have suggested, surgical care remains "the neglected stepchild of global health", despite recognition of surgery as an essential element of public health. Kingham and colleagues'[1] assertion that surgery needs to be included in efforts to improve cancer care in sub-Saharan Africa speaks to a growing realisation in public health that efforts to address oncological problems cannot stand alone. Strengthening the underlying infrastructure of health-care systems and their constituent parts—including surgeons—via prioritisation of horizontal rather than vertical initiatives is important. Such efforts do not replace primary prevention or timely diagnosis, but rather contribute to the prioritisation by African governments of the improvement of health systems and wise investment in cancer services.[3] For a region where a surgeon might be the only physician that a patient with cancer sees during diagnosis, treatment, and palliative care,[1] surgery—as a part of the health-care system—must not be ignored.

The difficulty is that to prioritise surgical care in countries where resources are already constrained, the need for such care has to be understood. Estimates suggest that at least 11% of the global burden of disease can be attributed to a need for surgical care (defined as the prevention or treatment of disease by incision, excision, manipulation, or suturing).[4,5] These numbers are compelling, emphasising a largely unmet need to which Kingham and colleagues,[1] and Farmer and Kim,[2] are helping draw attention. The issue is that these numbers are based on rough estimates and extrapolated modelling of poor, often hospital-based, global data that may or may not reflect the needs of sub-Saharan African countries. Concerns about poor access to care further complicate the situation; hospital-based records have no way to record a person with cancer who is never seen, who will, as a result, continue to be excluded from important data about the need for surgical cancer care. Despite this limitation, a few studies have begun to address the operative burden in sub-Saharan Africa at a community level.[4,5] For example, in Sierra Leone, results from a randomised cluster survey[4] in 2012 showed that 25% of the population have a problem that requires surgical consultation.[4] Similarly, in Rwanda, where the same method was used in 2011, more than 40% of the population had had at least one operative disorder in their lifetime.[5]

Increasing recognition of the need for surgeons and surgical care is an important component in the prioritisation of interventions for cancer control in sub-Saharan Africa, yet as Kingham and colleagues[1] and others have suggested, much important data are missing. Further research will be valuable to improve estimates, enhance public health recognition and understanding, and to use as evidence to lobby for funding and support from organisations and governments needed to justify surgical cancer expenditure in the resource-constrained setting of sub-Saharan Africa.

I declare that I have no conflicts of interest.

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Digital cancer pathology in Africa

We congratulate Adekunle Adesina and colleagues for their report,[1] published as part of *The Lancet Oncology*'s Series on cancer control in Africa, for drawing attention to the essential role of pathology in cancer care. We agree with the authors that telepathology consultation between African and western doctors is a short-term and incomplete solution for the improvement of African capacity in cancer pathology. However, we wish to point out the potential additional benefits of digital pathology when used as an integrated component of cancer care in Africa, especially for building expertise in rare cancers.

We are leading a Kenyan initiative together with Daisy's Eye Cancer Fund and the University of Nairobi (Nairobi, Kenya), and funded by Grand Challenges Canada, to study the use of digital pathology in the care of patients with childhood retinoblastoma.[2] A centralised laboratory receives and processes tumour specimens with standard operating procedures designed specifically for retinoblastoma, images are produced by a digital scanner, and pathology results are disseminated and discussed via online digital pathology.

The development of a local centre of excellence (with its own highly trained pathologists and technicians) that is readily available to the pathologists in remote areas lessens reliance on western experts

For a **video about the project** see https://vimeo.com/35892098

For **Daisy's Eye Cancer Fund** see http://www.daisyfund.org

For **Grand Challenges Canada** see http://www.grandchallenges.ca/

via telepathology. Instead, the aim of the digital pathology component is to create a bidirectional educational network of local pathologists and other clinicians who provide care for patients, to support and enable the multidisciplinary care unit essential for cancer management. As Adesina and colleagues[1] astutely point out, pathology has been ignored as part of cancer care largely because of the erroneous assumption that it is not clinically important. An online digital pathology network, therefore, can connect and facilitate a multidisciplinary educational network between clinicians, which further emphasises the clinical importance of pathology at various levels of care.

For rare cancers such as retinoblastoma, the connection of all national stakeholders in this way enables tumour boards to meet and learn from each other's cases. Digital pathology offers the opportunity for frequent connection, consultation, and development of expertise, which is especially important for pathologists and clinicians who work in isolation in remote areas with little peer support.[1] Coupled with electronic medical records, the digitised pathology image becomes important data in the patient's record, and is useful for further research.

Physicians who care for patients with cancer should embrace technology for the improvement of patient care. Digital pathology can extend far beyond the traditional view of health-care professionals in high-income countries training those in low-income countries, and will advance cancer care when harnessed by African doctors for African patients.

See Online for appendix

We declare that we have no conflicts of interest.

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Cancer in Botswana: resources and opportunities

Botswana is a middle-income country of 2 million people in sub-Saharan Africa that has had success in addressing the HIV/AIDS epidemic.[1,2] A decentralised network of clinics and hospitals makes government-funded health care accessible to 90% of the population. The country's ministry of health formulates national standards for the delivery of health care.

As the HIV-infected population has aged, cancer has become increasingly common. Most common are cervical cancer, breast cancer, and Kaposi's sarcoma in women, and Kaposi's sarcoma, head and neck cancer, and prostate cancer in men.[3] Many patients present with advanced disease, and cancer mortality is almost 75%.[4]

Beginning in March, 2011, we did an assessment of oncology infrastructure in Botswana on the basis of the WHO national cancer control programmes core capacity self-assessment tool (appendix).[5] We describe Botswana's cancer control capacity and present a model of collaborative capacity building, with the overall goal of promoting access to screening, diagnostic, and cancer treatment services and the development of cancer research and surveillance programmes.

Cancer screening is uncommon in the public sector; however, efforts to improve access to cervical screening are underway. A visual inspection programme has been implemented in a few locations for HIV-infected women. HPV vaccination for girls aged 9–13 years is being piloted in Molepolole and development of cytology-based screening is in progress. Diagnostic radiology and pathology services exist, but their availability is limited by a shortage of trained staff and equipment. Most cancers are staged with radiography and ultrasound. CT, MRI, and mammography are used infrequently in the public sector. Pathology laboratories in Gaborone and Francistown can do morphology, haematoxylin and eosin staining, and some immunohistochemistry.

Surgery and chemotherapy are principally done at Princess Marina Hospital (the main public hospital in Gaborone) and Nyangabgwe Referral Hospital in Francistown. Both facilities have an outpatient clinic, and Princess Marina Hospital also has an inpatient ward. Radiotherapy is available at Gaborone Private Hospital. This private facility has one linear accelerator that treats 45–65 patients daily, many of whom are referred from the public sector. In 2012, the addition of brachytherapy enabled treatment of patients with advanced cervical cancer. As with diagnostics, shortages of trained staff limit the delivery of cancer care.

Every facility has one to two physicians with oncology training, with the remaining physicians and nurses having general medical training. Palliative care and home hospice services developed for patients with end-stage AIDS are being extended to those with terminal cancer. A public palliative care clinic in Francistown has improved access to end-of-life care for oncology patients in northeast Botswana; however, pain management remains a challenge.

Cancer research and surveillance are integral components of cancer core capacity. HIV/AIDS research in Botswana has led to shifts in international treatment approaches;[6–8]