Challenges and opportunities in the creation and implementation of cancer-control plans in Africa

Kalina Duncan¹, Mishka Kohli Cira¹, Prebo Barango² and Edward Lloyd Trimble¹

¹National Cancer Institute Center for Global Health, National Cancer Institute, 9609 Medical Center Drive, Rockville, MD 20850, USA
²Intercountry Support Team East and Southern Africa, World Health Organization Africa Regional Office, 86 Enterprise Road, Highlands, Harare, Zimbabwe

Abstract

Cancer on the African continent is quickly becoming an overt public health crisis due to an aging population and changes in lifestyle. The World Health Organization (WHO) states that a national cancer-control programme should aim to reduce cancer incidence and mortality and improve quality of life of cancer patients, through a national cancer-control plan (NCCP) that is systematic, equitable and evidence-based. Despite this, only 11 countries in Africa have a current NCCP. Participants in a US National Cancer Institute-supported, multi-year, technical assistance programme for cancer-control planning noted three main opportunities to improve how plans are created and implemented: 1) mobilisation of resources and partners for plan implementation; 2) accurate surveillance data to promote better resourcing of NCCPs; and, 3) sustainable and innovative partnership models to strengthen capacity to implement NCCPs. Most countries in the region face similar challenges in the development and implementation of an NCCP, including inadequate human, technical, and financial resources. Collaborative partnerships increase access to evidence-based cancer-control planning tools, mentoring and technical assistance, and have the potential to bridge the capacity gap and catalyse better implementation of NCCPs. Challenges can be overcome by better leveraging these opportunities to address the gaps that inhibit cancer control in Africa.

Keywords: cancer control, Africa, NCCP, implementation

Introduction

Cancer on the African continent is quickly becoming an overt public health crisis due to an aging population and changes in lifestyle, including increased tobacco and alcohol use, rising obesity and physical inactivity. Unchecked, the burden of cancer in low- and middle-income countries will increase by more than 60% by 2030 [1], plaguing already overburdened health systems. In addition, 19 of the 20 countries with the highest incidence of cervical cancer worldwide are in Africa [2].

The World Health Organization (WHO) states that a national cancer-control programme should aim to reduce cancer incidence and mortality and improve quality of life of cancer
Background and methods

Building on the US government’s domestic engagement in comprehensive cancer-control planning [10], the US National Cancer Institute (NCI), Center for Global Health (CGH) launched the International Cancer Control Leadership Forum (ICCLF) Program in 2013. The ICCLF convened multi-stakeholder country teams from multiple regions for technical training and assistance on cancer-control principles and strategies. CGH held a sub-Saharan African ICCLF in 2014 in Lusaka, Zambia, followed by a virtual sub-Saharan African ICCLF in 2017, with attendees from 9 to 10 countries, respectively, plus multiple partner institutions. In 2018, to continue this community of practice, CGH initiated the tele-mentoring Africa Cancer Research and Control Project ECHO® (Extension for Community Healthcare Outcomes) Program.

In order to understand the challenges and priorities in cancer-control planning for curriculum development purposes, CGH administered baseline surveys to participants of the 2017 ICCLF (response rate 73%) and 2018 ECHO (response rate 77%), prior to each programme’s launch, via Google Forms. The most-often identified challenges and priorities can be seen in Figure 1 [11] and were referenced to frame the commentary on the challenges and opportunities presented below.

Challenges and opportunities in cancer-control planning in Africa: mobilising resources, creating and leveraging partnerships and utilizing reliable data for cancer-control plan development and implementation

Mobilisation of resources and partners for plan implementation

Participants identified resource and partner mobilisation for NCCP implementation as two of the leading challenges they face (Figure 1). Despite the 2001 Abuja Declaration, whereby countries in the Africa region committed to spend at least 15% of the government budget on public health, only four countries in the region met that target by 2014 [12]. Cancer-control planners are faced with implementing cancer-control policy with suboptimal budget allocation needed to secure the necessary human, technical, educational and infrastructure resources.

An additional barrier is the organisation of national cancer programmes within ministries of health (MoH). In most African countries, the structure is inconsistent, creating an obstacle to mobilise resources and partners for NCCP implementation. National cancer programmes are, at times, part of the NCD programme under the coordination of a cancer-control officer or an NCD programme officer (the latter often equates to no dedicated cancer-control budget line in the national budget), a standalone cancer-control programme, or one divided across MoH units (with prevention and clinical management of cancer handled by different units/departments within the MoH structure).
Unlike the global HIV/AIDS response, a centralised pool of financial and technical resources does not exist for cancer and other NCDs. Therefore, MoH technical officers must mobilise resources and engage non-governmental implementing partners as a crucial step for successful NCCP implementation. The suboptimal level of coordination of cancer prevention and control within most ministries of health in Africa means that agreement on priorities, which is necessary for partner and stakeholder engagement, is less efficient and thus, impacts funding for the NCCP.

Opportunities to make progress in this critical area are emerging. The increasing number of health economists now working on NCDs can support governments in assessing the cost (both financial and otherwise) and affordability of interventions to prevent and control cancer and other NCDs [13]. The WHO is adapting the OneHealth Tool, a planning resource for measuring both financial sustainability and level of health impact across disease groups and health systems [14], to incorporate key cancer and NCD-related interventions. The Ethiopian Federal MoH was able to utilise the costing principles outlined in the existing OneHealth tool to fully cost the National Cancer Control Plan, 2016–2020 [15], demonstrating that use of existing tools and on-the-ground expertise can overcome perceived barriers.

**Accurate surveillance data to promote better resourcing of NCCPs**

The collection of data to inform NCCP efforts was the top challenge identified by 2017 ICCLF participants (Figure 1). Robust and sustainable population-based cancer registries are crucial for measuring the burden of cancer in a community, assessing the impact of interventions, and conducting critical etiological research [16]. They also provide relevant data to ensure that an NCCP is accurately prioritised, costed, operationalised and evaluated [17]. And yet, in the most recent volume of *Cancer Incidence in Five Continents* (Volume XI), only seven population-based cancer registries from six African countries had sufficient data quality and capture [18] for inclusion.

Governments across Africa have an opportunity to prioritise and resource population-based cancer registries to enable ministries of health to develop, cost, resource, implement and evaluate NCCPs in a way that truly benefits populations. Nigeria is an example of where sustainable and long-standing cancer registries, coordinated under the Federal MoH, have provided national estimates of the increasing cancer burden which allowed decision-makers to subsequently inform policies and most recently, the National Cancer Control Strategy (2018–2022). The ability to prioritise which cancers to address will allow for strategic partner engagement toward effective implementation [19].

**Sustainable and innovative partnership models to strengthen capacity to implement NCCPs**

A primary challenge for cancer-control planning in Africa, and perhaps the most commonly identified in the literature, is the lack of essential health system capacity and infrastructure needed to prevent, detect and treat cancer [20, 21]. Human resource shortages, or so-called “brain drain” of medical practitioners, and a lack of basic medical support staff contribute to generally poor outcomes in cancer control. Better coordination of care and more resources and skilled professionals at primary and secondary health facilities would lessen the burden on tertiary health centres and help ensure more equitable implementation of NCCPs [20].
There is growing momentum among medical schools and universities in Africa to develop specialised oncology-related diploma courses and fellowships [22, 23]. While this is a positive development, the impact of these training programmes will take time to be reflected in the cancer workforce and improved timeliness and outcomes of cancer treatment. In the meantime, and to complement these training programmes, there are encouraging knowledge-transfer solutions through technology and partnership. For example, the Project ECHO® tele-mentoring model was developed by the University of New Mexico and utilises low-cost technology to promote knowledge sharing and network building through a virtual platform. The acceptability and feasibility of such exchanges, in combination with traditional learning platforms, have the potential to help improve knowledge and eventually improve the lives of underserved populations struggling with cancer [24–26].

Cancer-care-focused partnerships such as the Academic Model Providing Access to Healthcare in Eldoret, Kenya, Partners in Health in Butaro, Rwanda, and the Fred Hutchinson Cancer Research Center Partnership with the Uganda Cancer Institute, show how a long-standing commitment to collaboration and partnership [27, 28] can sustainably increase cancer-control capacity. These partnerships have been shown to increase not only clinical research and treatment capabilities, but also to strengthen pathology, cancer registries, awareness, national health systems and health policies [29].

Finally, while this paper is focused on challenges specific to cancer-control in Africa, there are lessons to be learnt globally from similar challenges and solutions in other regions, where building research networks with a focus on implementation science questions to inform effective programming have propelled the effective implementation of national cancer-control plans [30]. Additionally, the aforementioned ICCP fosters opportunities for countries to identify potential partners for NCCP development and implementation, operationalisation of the WHO OneHealth and other costing tools, and development of trans-regional communities of practice, such as those listed above. A recent *Lancet Oncology* analysis of national cancer-control plans, led by the ICCP, WHO, and Union for International Cancer Control, reveals that the number of plans worldwide has increased and the focus is now on successful plan implementation. The authors cite examples from Africa where planning has led to action, both in cervical cancer screening and in population-based cancer registries [31]. These examples demonstrate that the progress made in different regions is generalisable for improved cancer control worldwide.

**Conclusion**

Reduction in mortality and morbidity from cancer are keys to the attainment of the WHO voluntary global target of 25% reduction in premature mortality from NCDs by 2025 as well as the Sustainable Development Goal target of a one-third reduction in premature mortality from NCDs by 2030. In order to achieve cancer-related global targets, a well-organised and resourced NCCP, guided by accurate data on the burden of cancer and related risk factors, is necessary. Most countries in the region face similar challenges in the development and implementation of an NCCP, including inadequate human, technical and financial resources. Collaborative partnerships increase access to evidence-based cancer-control planning tools, mentoring and technical assistance, and have the potential to bridge the capacity gap and catalyse better implementation of NCCPs. There is tremendous opportunity in the continued support of these kinds of partnerships for cancer-control programmes in Africa.

**Conflicts of interest**

The authors have no conflicts of interest to disclose.

**Funding**

This project has been funded in whole or in part with US federal funds from the US National Cancer Institute, National Institutes of Health, and under Contract No. HHSN261200800001E. The content of this publication does not necessarily reflect the views or policies of the US Department of Health and Human Services or National Institutes of Health, nor does mention of trade names, commercial products, or organisations imply endorsement by the US government.
Contributors

KD wrote or co-wrote the introduction, background and methods, challenges, and opportunities sections, edited and revised the paper. MKC co-wrote the background and methods, challenges, opportunities, edited and revised the paper. PB wrote or co-wrote the conclusion and background, edited, and revised the paper. ELT edited and revised the paper.

References

1. Bray F (2014) Transitions in human development and the global cancer burden World Cancer Rep 2014 54–68
2. International Agency for Research on Cancer (2018) GLOBOCAN 2018: estimated age-standardized incidence rates in 2018, cervix uteri, females ages 0-74, [http://gco.iarc.fr/today/data/factsheets/cancers/23-Cervix-uteri-fact-sheet.pdf] Data accessed: 17/12/2018
3. World Health Organization (2002) National Cancer Control Programmes: Policies and Managerial Guidelines (Geneva: World Health Organization)
4. World Health Organization (2006) Cancer Control: Knowledge into Action. WHO guide for effective programmes (Geneva: World Health Organization)
5. World Health Organization (2016) Global Health Observatory Data Repository (Geneva: World Health Organization) [http://apps.who.int/gho/data/node.main.A907?lang=en]
6. World Health Organization (2008) Regional Office for Africa. Cancer prevention and control: a strategy for the WHO African Region: report of the Regional Director [http://www.who.int/iris/handle/10665/5602]
7. Adewole IF, Denny L, Odedina F, Rebbeck TR, Morhason-Bello IO (eds) (2013) Cancer Plan for the African Continent, 2013-2017 (New York: African Organisation for Research and Training in Cancer (AORTIC)) [http://www.aortic-africa.org/docs_pdf/AORTIC_CANCER_PLAN.pdf]
8. World Health Assembly 58 (2005) WHA 58.22 Cancer prevention and control (Geneva: World Health Organization) [http://www.who.int/ipcs/publications/wha/cancer_resolution.pdf]
9. National Plans (2018) In International Cancer Control Partnership [http://www.iccp-portal.org/map]
10. Ory MG, Sanner B, and Vollmer Dahlke D, et al (2015) Promoting public health through state cancer control plans: a review of capacity and sustainability Front Public Health 3 40 [https://doi.org/10.3389/fpubh.2015.00040] PMID: 25853114 PMCID: 4364080
11. Ndumele A, Cira MK, and Hohman K, et al (in press) Evaluation of a tele-mentoring platform for strengthening cancer control planning and implementation efforts in sub-Saharan Africa (unpublished manuscript)
12. World Bank, World Health Organization, and JICA, et al (2016) UHC in Africa: A Framework for Action (Washington: World Bank)
13. Subramanian S, Gakunga R, and Kibachio J, et al (2018) Cost and affordability of non-communicable disease screening, diagnosis and treatment in Kenya: patient payments in the private and public sectors PLoS One 13(1) e0190113 [https://doi.org/10.1371/journal.pone.0190113] PMID: 29304049 PMCID: 5755777
14. Stenberg K, Chisholm D (2012) Resource needs for addressing noncommunicable disease in low- and middle-income countries: current and future developments Global Heart 7(1) 53–60 [https://doi.org/10.1016/j.ghheart.2012.02.001] PMID: 25691168
15. Ethiopia Federal Ministry of Health (2016) Ethiopia National Cancer Control Plan 2016-2020 [http://www.iccp-portal.org/system/files/plans/NCCP%20Ethiopia%20Final%20.pdf]
16. Glaser SL, Clarke CA, and Gomez SL, et al (2005) Cancer surveillance research: a vital subdiscipline of cancer epidemiology Cancer Causes Control 6(9) 1009–1019 [https://doi.org/10.1007/s10552-005-4501-2]
17. Pineros M, Znaor A, and Mery L, et al (2017) A global cancer surveillance framework within noncommunicable disease surveillance: making the case for population-based cancer registries Epidemiol Rev 39(1) 161–169 [https://doi.org/10.1093/epirev/mxx003] PMID: 28472440
18. Bray F, Colombet M, and Mery L, et al (2017) Cancer Incidence in Five Continents vol. 11 (electronic version) (Lyon: International Agency for Research on Cancer) [http://ci5.iarc.fr]

19. Nigerian Federal Ministry of Health (2018) Nigerian National System of Cancer Registries (NSCR) [https://nigeriancancerregistries.net/]

20. Morhason-Bello IO, Odedina F, and Rebbeck TR, et al (2013) Challenges and opportunities in cancer control in Africa: a perspective from the African Organisation for Research and Training in Cancer Lancet Oncol 14(4) e142–e151 https://doi.org/10.1016/S1470-2045(12)70482-5 PMID: 23561745

21. Mueller DH, Lungu D, and Acharya A, et al (2011) Constraints to implementing the Essential Health Package in Malawi PLoS One 6(6) e20741 https://doi.org/10.1371/journal.pone.0020741 PMID: 21695115 PMCID: 3114780

22. Stulac S, Binagwaho A, and Tapela NM, et al (2015) Capacity building for oncology programmes in sub-Saharan Africa: the Rwanda experience Lancet Oncol 16(8) e405–e413 https://doi.org/10.1016/S1470-2045(15)00161-8 PMID: 26248848

23. Rosen B, Itsura P, and Tonui P, et al (2017) Development of a comprehensive and sustainable gynecologic oncology training program in western Kenya, a low resource setting Gynecol Oncol Rep 21 122–127 https://doi.org/10.1016/j.gore.2017.06.014 PMID: 28861459 PMCID: 5558466

24. Arora S, Thornton K, and Murata G, et al (2011) Outcomes of treatment for hepatitis C virus infection by primary care providers N Engl J Med 364(23) 2199–2207 https://doi.org/10.1056/NEJMoa1009370 PMID: 21631316 PMCID: 3820419

25. Arora S, Kalishman S, and Dion D, et al (2011) Partnering urban academic medical centers and rural primary care clinicians to provide complex chronic disease care Health Affairs (Project Hope) 30(6) 1176–1184 PMID: 21596757 PMCID: 3856208

26. Arora S, Kalishman S, and Thornton K, et al (2010) Expanding access to hepatitis C virus treatment—Extension for Community Healthcare Outcomes (ECHO) project: disruptive innovation in specialty care Hepatology (Baltimore, Md) 52(3) 1124–1133 https://doi.org/10.1002/hep.23802

27. Strother RM, Asirwa FC, and Busakhala NB, et al (2013) The evolution of comprehensive cancer care in Western Kenya J Cancer Policy 1(1–2) e25–e30 https://doi.org/10.1016/j.jcpo.2013.04.001

28. Farmer P, Frenk J, and Knaul FM, et al (2010) Expansion of cancer care and control in countries of low and middle income: a call to action Lancet 376(9747) 1186–1193 PMID: 20709386

29. Loehrer PJ, Rosen B, and Orang'o EO, et al (2018) Capacity building in sub-Saharan Africa: models of care Lancet Global Health 6 S17–S18 https://doi.org/10.1016/S2214-109X(18)30090-1

30. Frech S, Muha CA, Stevens LM, et al (2018) Perspectives on strengthening cancer research and control in Latin America through partnerships and diplomacy: experience of the National Cancer Institute’s Center for Global Health J Global Oncol 4 1–11

31. Romero Y, Trapani D, and Johnson S, et al (2018) National cancer control plans: a global analysis Lancet Oncol 19(10) e546–e555 ISSN 1470-2045 https://doi.org/10.1016/S1470-2045(18)30681-8 PMID: 30268693