Review Article on Oncology Nursing

Growth and development of oncology nursing in Africa

Nana Hauwa Lawal[1], Biemba K. Maliti[2], Johanna E. Maree[3], Mampak N. M. Nanre[4], Cyrille Niyomugabo[5], Rose Marigold Agbenyame Odai[6], Naomi Oyoe Ohene Oti[7]^, Roselyne Okumu[8]^, Marie Goretti Uwayezu[9], Martjie de Villiers[10], Margaret I. Fitch[9,11]^

[1]School of Post Basic Nursing, National Hospital Abuja, Abuja, Nigeria; [2]Nursing Department, Cancer Diseases Hospital, Lusaka, Zambia; [3]University of the Witwatersrand, Johannesburg, South Africa; [4]School of Post Basic Nursing, National Hospital Abuja, Abuja, Nigeria; [5]Nursing Department, Rutongo Hospital, Kigali, Rwanda; [6]Nursing and Midwifery Training College, Korle Bu, Accra, Ghana; [7]National Radiotherapy Oncology and Nuclear Medicine Centre, Korle Bu Teaching Hospital, Korle Bu, Accra, Ghana; [8]Cancer Treatment Centre, Kenyatta National Hospital, Nairobi, Kenya; [9]School of Nursing and Midwifery, University of Rwanda, Kigali, Rwanda; [10]Tshwane University of Technology, Pretoria, South Africa; [11]Bloomberg Faculty of Nursing, University of Toronto, Toronto, Canada

Contributions: (I) Conception and design: MI Fitch; (II) Administrative support: MI Fitch; (III) Provision of study materials or patients: None; (IV) Collection and assembly of data: All authors; (V) Data analysis and interpretation: All authors; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Prof. Margaret I. Fitch, RN PhD. Bloomberg Faculty of Nursing, University of Toronto, 207 Chisholm Ave, Toronto, Ontario, M4C 4V9, Canada. Email: marg.i.fitch@gmail.com.

Abstract: There is a growing recognition that oncology nurses are vitally important for an effective cancer control system. Although there is variation among countries, oncology nursing is being recognized as a specialty practice and seen as a priority for development in cancer control plans in many settings. Ministries of Health in many countries are beginning to acknowledge the role nurses play in achieving successful cancer control outcomes. Additionally, the need for access to relevant education for oncology nursing practice is being recognized by nursing and policy leaders. The purpose of this paper is to highlight the growth and development of oncology nursing in Africa. Several vignettes are presented by nurse leaders in cancer care from several African countries. Their descriptions offer brief illustrations regarding the leadership nurses are providing in cancer control education, clinical practice, and research in their respective countries. The illustrations offer insight into the urgent need, and the potential, for future development of oncology nursing as a specialty given the many challenges nurses face across the African continent. The illustrations may also provide encouragement and ideas for nurses in countries where there is little current development of the specialty about how to proceed to mobilize efforts aimed toward its growth.

Keywords: Oncology nursing; Africa; professional growth; specialty practice

Submitted Nov 21, 2022. Accepted for publication Jun 02, 2023. Published online Jul 04, 2023.
doi: 10.21037/apm-22-1323
View this article at: https://dx.doi.org/10.21037/apm-22-1323

Introduction

Background

Oncology nursing is growing in Africa despite many challenges. Worldwide cancer projections show rising trends with new cases doubling between 2012 and 2030 (1). Seventy percent of new cases will occur in middle-/low-income countries where infrastructures have less resilience to deal with the challenge. Approximately 1.1 million new cancer cases occur annually across Africa (2). An estimated 693,487 Africans died from cancer in 2018, a number expected to increase 106% by 2040 (3). Up to 70% of patients present

^ ORCID: Naomi Oyoe Ohene Oti, 0000-0002-1433-0364; Roselyne Okumu, 0000-0002-2459-8532; Margaret I. Fitch, 0000-0002-4564-8623.

with stages 3 and 4 diseases, where cure is less likely.

The infrastructure for cancer care has not developed as quickly in middle/low-income countries as it has in high income settings. Among African countries, healthcare systems, and cancer care systems, vary widely. Most have a mix of publicly and privately funded systems despite having embraced universal health care as a priority (4). Although recent economic growth reduced poverty for 43% of the African population, Africa hosts nine of the ten poorest countries worldwide (5). Most regions face on-going challenges in maternal/child mortality, malnutrition, infectious diseases, and growing burdens of non-communicable and chronic illness. Strategies to achieve universal coverage depend on local circumstances and discussions as no one-size-fits every setting (6).

During the past decade, often through partnerships and private funding, some comprehensive cancer centres have opened across Africa offering state-of-the-art cancer diagnostic and treatment facilities. However, many countries have no cancer specialty facilities or face significant limitations in availability of necessary equipment and specialized human resources for cancer care. For example, approximately half the countries do not have radiation machines within their borders (7). Despite evidence that cervical cancer incidence is increasing (8), all women in Africa do not have access to cervical screening and, even if available, some must pay for the service (9). There is also severe shortage of pain medication, and, if available, Tramadol and Morphine are not accessible to most patients due to cost of these medications and low-income levels of patients (10).

Despite the challenges, there are encouraging developments in cancer care across Africa in addition to the establishment of cancer centres in various locations across the continent. Specialist expertise is growing as educational programs open at undergraduate and graduate levels in African universities. Research relevant to local contexts is increasing and being led and published by African nurses. This growing body of locally contextualized evidence can reduce the dependence on practice standards and guidelines used in the African cancer centres currently which are based primarily on Euro-American approaches. Collaborative networks are growing, and research documenting patient needs is increasing which will offer evidence for cancer care and policy in African contexts (11).

Purpose of paper

Specifically, recognition is growing regarding nursing roles in cancer control and the value of specialized nurse education. Although variation exists among countries, oncology nursing is being acknowledged as a specialty and building its capacity is stated as a priority in some country level cancer control plans (12,13). This paper offers illustrations about the growth of cancer nursing from nurse leaders in several African countries. Their descriptions provide brief illustrations about cancer nursing education, practice, and research in Africa, and offer insight regarding the potential for future development of the specialty.

Brief summaries about cancer nursing from selected African nurse leaders

Perspective from Kenya

Cancer is the second leading cause of non-communicable disease deaths in Kenya, with an incidence of 42,116 cases and 64% mortality in 2020 (14). Cancer control is best achieved through a multidisciplinary approach in which nurses play significant roles.

The first oncology nursing education and training in Kenya started at the University of Nairobi in 2010 with a Master of Science in Oncology Nursing degree (15). Previously a few oncology nurses were trained outside the country, but the majority learned through on-the-job training. In 2016, higher national diploma training, equivalent to post-basic oncology nursing training, commenced. Education in cancer nursing has been expanding with quite a number of institutions offering diplomas in oncology nursing and a few universities offering masters' degrees. Recently, the University of Nairobi initiated a PhD in nursing in partnership with a lecturer from Canada. Training in pediatric oncology nursing will commence soon as the Nursing Council of Kenya (NCK) curriculum is already developed. Nurses also learn through Oncology Nurses Chapter webinar forums, symposiums, and conferences which the Chapter offers in collaboration with local [e.g., Kenya Society of Hematology and Oncology (KESHO), Kenyatta National Hospital webinar platform] and international partners. Practical training is offered periodically by National Cancer Control Program (NCCP) to build competence in chemotherapy handling

(i.e., Chemosafe) and cancer screening.

The need for human resource capacity building in cancer was reinforced by the Kenya National Cancer Control Strategy 2017–2022 (12). Oncology nursing is recognized as a specialty by the Ministry of Health, NCK, and the professional bodies. The scope of oncology nursing practice was established and launched in May 2022 (16), anticipating the recognition would encourage nurses to undertake oncology nursing. The Ministry of Health, through the NCCP, National Cancer Institute (NCI) and NCK, have all involved oncology nurses in developing cancer policy documents, research, training, curriculum and participating in technical working groups about cancer care and control.

The NCCP and NCI have worked towards closing the cancer care gap in Kenya. Several cancer centres now offer care ranging from basic chemotherapy to comprehensive care. Additionally, the private sector is also expanding their cancer care across the spectrum.

Depending on their level of education, oncology nurses engage in research as principal investigators (PIs), co-PIs or research assistants. The research primarily uses descriptive, correlational, and quasi-experimental designs.

The ever-evolving care in oncology requires nurses to have current evidence-based competencies which may require exchange programs with higher income countries. However, such programs may be inhibited by lack of funds. Additionally, some students face challenges in paying their school fees. Despite nurses completing oncology training, they are not guaranteed employment or increased enumeration commensurate to their education. This can lead to apathy and 'brain drain' to the West. There is need to empower nurses economically with resources to conduct research and with the right knowledge and skills.

Perspective from Rwanda

Recent Globocan reports show that Rwanda, a low-income country with a population of 12,952,209, had 8,835 new cancer cases and 6,044 cancer-related deaths in 2020 (17). In all sexes and ages, breast cancer was the most frequent cancer, with 1,237 (14%) new cases, followed by cervix-uterine cancer with 1,229 (13.9%) cases (17). This epidemiological trend shows an important need for trained healthcare providers to participate in cancer control activities, including awareness, screening, early detection, curative treatment, and palliative/end-of-life care.

As oncology care is a highly specialized division requiring a higher level of training and education following basic preparation, Rwanda initiated formal specialty education of oncology nurses at the Master's level in 2015 through a two-year program at the University of Rwanda (18). Nurses from other African countries have started to join this specialty program. Currently, Rwanda has 18 oncology nurse specialists with Master's degree who work in academic institutions, including the University of Rwanda, and in different referral and district hospitals, cancer centres, and non-governmental organizations.

Butaro Cancer Centre for Excellence (19) officially started to deliver cancer-related care in 2012. The general nurses received on-the-job cancer nursing training organized by the Rwanda Ministry of Health in partnership with Dana-Farber Cancer Institute, and Partners in Health/Inshuti mu Buzima, to prepare them to work with other medical team members and deliver cancer-related patient care. Such training is now offered to all newly appointed nurses and some nurses from referral hospitals involved in cancer care. Rwandan oncology nurses are co-teachers of this training program to ensure sustainability (20).

Nurses working in Rwandan oncology settings collaborate with nurses, other healthcare providers and researchers around the world and conduct cancer-related research. Recently peer-reviewed papers have been published regarding the development of cancer nursing (18), cancer awareness in the general population, early detection (21-27) and psycho-oncology (28,29).

Despite these achievements, there is still a long journey ahead and many outstanding challenges. There is need to continue educating oncology nurses at a specialized level, have general oncology in each provincial hospital as planned (13), and continue to grow this trend. Advocacy effort is required to promote effective use and reimbursement of specialized oncology nurses and recognition of the need for their knowledge and skills in practice settings. We are being to see increased realization of the need to train general nurses and midwives working in primary health care settings (e.g., health centres and health posts) about cancer awareness and timely referral of suspicious cases to hospitals. Finally, nursing research studies focusing on cancer prevention and treatment in the local context are needed to provide specific evidence-based care.

Perspective from Nigeria

Cancer leads to more than 78,899 deaths each year (34,200 men and 46,997 women) (30). This is expected to grow as the number of new cases is rising by 102,000 per year. More

than 70% of the individuals are diagnosed with late stage (e.g., III, IV) disease, making palliative care a priority.

Recognizing cancer as a main cause of morbidity and mortality, the Nigerian Federal Ministry of Health established a National Cancer Control Program and Plan for 2018–2022 (31). There are few cancer centres for the population of over 306 million and often less than five radiotherapy machines functioning at a time. Patients must travel great distances to access a functional machine, but many are unable to make such a journey and remain at home, living with advancing disease. Many turn to their faith to support them during this time and rely on traditional healers (32). One priority strategy stated in the national plan to achieve the strategic goals is to increase healthcare providers' knowledge on standards for effective management of cancer (33).

Nigeria is yet to have an established, accredited, formal stand-alone oncology nursing specialty program in any of its universities. However, one hospital-based school of oncology nursing offers 1-year diploma training (33). The National Hospital Abuja, the apex hospital, was established in 1999 and commenced oncology services. Before 2008, nurses rendering cancer care in north and north-central parts of Nigeria learned through on-the-job training, hospital-based training, and long-term experience caring for cancer patients. In the city of Abuja, internationally trained oncology nurses, who were working together with the oncology manager (Principal Nursing Officer S.T. Shinaba, 2000–2008) organized a 6-month training that was later upgraded to the 1-year diploma program. This program received recognition and accreditation from the Nursing Council in 2020. It graduated 80 Oncology nurses since accreditation, with 60 additional candidates being prepared for November 2022 Examinations. A graduate is known as Registered Oncology Nurse (R:oc: N).

The inadequate structured educational opportunities for oncology sub-specialist training in Nigeria has implications for practice. An educated oncology nursing workforce is paramount to successful implementation of an effective and cancer free society in Nigeria. However, the post-basic 1-year Diploma in Oncology Nursing is the only available oncology nursing education program in the country and is hospital-based (33). The curriculum for higher degrees at university levels is underdeveloped. It is recommended that solidified structures be implemented to strengthen the current curriculum and improve the knowledge and skills of Oncology Nurses. Presently, there is no clearly defined career pathway for Oncology Nursing Education specialization in Nigeria (34).

Lack of research collaborations was also identified as a factor contributing to the dearth of highly trained oncology nursing personnel and researchers in Nigeria (33). Of greater significance is the lack of adequate curriculum for advanced research training and structured career pathways in academia to facilitate development of independent oncology nurse researchers. Currently, minimal research work is done by cancer nurses. Research, which is mainly descriptive and conducted by student groups, is mostly hospital-based, primarily statistical, and remains unpublished. Tutors/lecturers require advanced training in research and manuscript publication to enhance proper utilization of these research statistics.

Oncology nurses face a demanding profession and play significant roles in cancer care because they are always with patients and families. Because of their roles, their physical and emotional well-being can be affected. Oncology nurses can experience varying degrees of stress, which could affect the quality of care they render. Increased workload, caring for critically ill patients, caring for dying patients and role conflicts are major stressors. Oncology nurses often serve as palliative care nurses because patients present with late-stage cancer. Stress also results from the work environment and lack of support from management of healthcare organizations. Oncology nurses need support to enhance their psychological and emotional well-being (35).

The current state of oncology nursing care in Nigeria can best be described as in its early stage and requires support to grow. Demand for oncology nurses is expected to increase in all areas of cancer control. However, the demand is made worst as the few trained oncology nurses are fast exiting to Europe, USA, Asia, UK, Canada, and the Middle East. Manpower development for oncology nurses is being pursued primarily by individual nurses and by some management.

Perspectives from Ghana

With a population of 31.1 million, the rising incidence of non-communicable disease presents added challenges in a country where infectious diseases remain a significant issue. Cancer accounts for 24,000 new diagnoses each year and 15,802 deaths (36). Breast (31.8%) and cervical (19.9%) cancers are the most frequent in women while liver (24.9%) and prostate (21.4%) are most frequent in men. The major cancer centres where comprehensive care is offered are located in the cities of Accra and Kumasi.

Most cancer patient care in Ghana was provided originally by general nurses who had on-the-job training. Initially, cancer nursing training in Ghana was provided through overseas training or through online distance learning programs (15). The shortage of an oncology nursing workforce and restricted access to training was recognized as problematic as this specialty was important to meet the need for quality care of people affected by cancer. In 2015, the Ghana College of Nurses and Midwives (37) established local oncology nurse training. The College is a postgraduate institution mandated through an ACT of Parliament (Specialist Health Training and Plant Medicine Research Act 2011, ACT 833) (38) to provide postgraduate specialist education in Nursing and Midwifery (15,39).

The training entry requirement is a bachelor's nursing degree and a minimum of three years working experience. The program has didactic and practicum sections through competency-based learning approaches. Training is done at both oncology centres and the College (15). The program has two levels: a 3-year residency program followed by a 2-year training program in a sub-speciality and research. After the first level, nurses receive a postgraduate membership certificate and licence to practice as an Oncology Nurse Specialist. To be eligible for level two, an individual must work at least 2 years and apply for a fellowship. After the fellowship, the nurse receives a postgraduate fellowship certificate and licence to practice as a senior Oncology Nurse Specialist (15,40). At this level, the specialist is expected to be an expert with skill in leadership and teaching.

The program is credentialed by the Nursing and Midwifery Council, Ghana (15) and the specialists workforce is part of the salary structure of the Ministry of Health. The line of progression for oncology nurses in Ghana is oncology nurse specialist to Senior Oncology Nurse Specialist, then Consultant Oncology Nurse Specialist. The Oncology Nurse Specialist practices as an Advance Practice Nurse in direct patient care by providing diverse healthcare services including diagnosis and management of acute, chronic, and complex problems; health promotion; disease prevention; health education and counselling to patients, families, groups, and communities; and coordination of care (15). They also administer systemic therapy and manage side effects. Additionally, they are researchers, inter-professional team members, healthcare leaders, and patient advocates.

Oncology nursing in Ghana is still in its infancy and faces challenges. There are 22 locally trained oncology nurses and 44 in training. A paediatric oncology nursing program, supported by World Child Cancer (41), was started in 2020 as a 1-year associate program. Seventeen nurses have been trained and 12 are in training. Looking at Ghana's cancer burden, these numbers are woefully inadequate. We still have general nurses caring for cancer patients. General nurses are qualified at diploma or bachelor's degree level with an introduction to oncology in Medical/Surgical Nursing and cytotoxic drugs in Pharmacology. Coupled with on-the-job training this aids them in providing some level of care to cancer patients.

Integration of oncology nurse specialists into the health care system is challenging in terms of practice and having power and influence to bring desired change in care delivery. There is limited nurse leadership representation in development of cancer policies. Funding of education programs is either by oneself or support by pharma groups (13). Nurses' involvement in oncology research is increasing as principal investigators, co-principal investigators, research assistants, clinical trial coordinators, and research nurses. Maree *et al.* (11), in a 5-year review of nurses' research in cancer, reported Ghana's contribution was ranked fourth with 15 publications. Most studies are descriptive (qualitative and quantitative) with a few clinical trials.

Perspective from Zambia

Zambia, with 18.3 million people, has 13,832 new cancer cases per year and 8,672 deaths (42). The most common cancers in women include cervix (40.2%), breast (12.0%) and Karposi sarcoma (10.3%) while for men the most common are prostate (25.9%) and Karposi sarcoma (23.5%). The country is served by one dedicated oncology hospital, the Cancer Diseases Hospital (43), offering comprehensive cancer services.

When the hospital opened in 2006, there were no oncology nurses available locally as, similar to most low- and middle-income countries (LMICs), there was limited opportunities for specialized education (15). The first specialist nurses trained in South Africa from 2009–2010. Thereafter, the Nursing and Midwifery Council of Zambia (44) created a specialist register for oncology nurses and later for Palliative Care. The Cancer Hospital now has 189 nurses in different capacities (45) with a typical nurse/patient ratio of 1:15 (46).

Oncology nurses progress from a Registered Oncology Nurse (diploma) to Oncology Nurse (bachelor and above).

They move through promotional roles as Ward Manager, Nursing Officer Oncology, Night Superintendent, Senior Nursing Officer Oncology, Senior Night Superintendent, Principal Nursing Officer Oncology and finally Chief Nursing Officer Oncology, the highest position in public service (47). For academic pathways, nurses can join universities and colleges as faculty.

The Zambia Oncology Nurses Society (48), registered in 2016, worked with several local and international stakeholders to develop curricula for a 2-year Bachelor of Science in Oncology Nursing (started 2018 at the University of Zambia (49), and a 1-year Advanced Diploma in Oncology Nursing (started 2020 at Levy Mwanawasa Medical University (50). Short in-house orientations for new oncology nursing staff cover basic oncology, treatment modalities, symptom management, safe handling of hazardous drugs, palliative care, and nursing care of patients with cancer and are offered at least annually. Whenever resources permit, nurses attend conferences and short-term trainings in palliative care, medical oncology, and aspects of radiation therapy. Clinical protocols for oncology and palliative care nursing have been developed in addition to assessment and monitoring tools used in nursing care (51).

Oncology nurses are primarily concerned with cancer patient care in clinics (e.g., chemotherapy, radiotherapy, diagnostics, operating theatre, palliative care, nuclear medicine) and in-patent wards. They benefit care to patients and families by playing an important role on the multidisciplinary team and meeting complex needs of cancer patients across the care continuum. Their role includes prevention awareness, and screening and early detection outreach campaigns. The nursing units work closely with pharmacy units to ensure appropriate drugs and medical-surgical supplies are made available in a timely manner. Working closely with environmental health departments, nurses ensure standards are maintained in infection prevention and general hospital cleanliness, an activity more pronounced during the coronavirus disease 2019 (COVID-19) pandemic of 2020–2021.

Nurses pursuing academic studies undertake cancer research and hospital staff have co-authored various publications. A few have served as research project nurses. However, this field remains underdeveloped and requires capacity building to produce nurse investigators who can generate relevant evidence for resolving local oncology nursing practice problems.

Challenges remain for oncology and palliative care nurses in Zambia, especially regarding appropriate positions and remuneration. There has been an inevitable loss of expertise in our public hospital settings as highly specialized and experienced nurses move to the private sector and foreign countries.

Perspectives from South Africa

In this country of 59.3 million people, cancer accounts for 108,168 new diagnoses and 56,802 deaths (52). The incidence is expected to increase to 138,000 and 175,000 by 2030 and 2040 respectively. In a country with a relatively young population (28.6% younger than 15 years and only 8.5% 60 years and older) the disease is responsible for one-quarter of the premature noncommunicable disease deaths. Overall, the likelihood of facing a cancer diagnosis exists for 20.7% of the population. Breast, prostate, cervical, lung and colorectal cancer are most prevalent with Lung accounting for the highest proportion of the mortality.

Oncology nursing became a recognized nursing specialty in the early 1980s after being introduced at the first National Oncology Nursing Symposium in 1979. Nurse education recently became part of higher education and registered nurses are educated in oncology and palliative nursing at post-graduate diploma level in accredited higher education institutions. Upon completion, candidates register at the South African Nursing Council (53) and are licensed to practice as oncology nurses at clinical nurse specialist level. Preparation for research through Masters and PhD studies is also available.

Cancer nursing is under tremendous pressure as South Africa does not have enough specialized nurses to care for people across the cancer continuum. According to the South African Nursing Council (SANC) (54), only 707 oncology nurses were registered in 2021 and it is uncertain how many of these nurses are still practicing. Yet the need is great. An estimated 110,000 people were newly diagnosed with cancer in the same year (55) joining those previously diagnosed and those at risk for developing cancer. Unfortunately, this situation results in the majority of cancer patients and their families being care for by registered general nurses with limited education in cancer care and nurses enrolled at the SANC as sub-professionals, with or without basic knowledge of cancer. Cancer prevention and detection are also hampered as evident by the fact that cervical cancer, a preventable disease, is the most common cancer in Black South African women (56) and many people delay seeking health care and present with advanced cancer (57,58).

Oncology nurses face various challenges that do not

allow them to render the high quality of nursing care they believe patients deserve. A recent study (59) found lack of specialist education among colleagues increases the workload and emotional burden of those who are specialist nurses. For instance, one oncology nurse said: "*It is so bad when they (general nurses) didn't go for training…they don't know how to handle cancer patients…I feel so bad…*" (Personal communication. Oncology Nurse A; Public Hospital, Johannesburg, South Africa). In contrast, nurses with specialist education can work independently with greater confidence. Another oncology nurse said: "*When you have [the] specialty, it is so good because you work independently, and you don't consult all day. You consult only if there is something tangible*." (Personal communication. Oncology Nurse B; Public Hospital, Johannesburg, South Africa). Continuous professional education opportunities for oncology nurses remain scarce and prevents the delivery of evidence-based patient care.

Nurses also experience lack of support from supervisors overseeing nursing practice, staff shortages leading to unmanageable workloads, and lack of debriefing opportunities. It is not uncommon for general nurses to be expected to fulfill the roles of specialist nurses. For example, general nurses are frequently expected to administer systemic therapy, without introductory theoretical and practical education and training. Nurses also find it is challenging to care for patients at end-of-life in acute care settings as these patient needs add to the workload and emotional burden.

Cancer nursing research also remains challenging. It is primarily conducted as part of postgraduate studies and there are no designated nursing or multi-professional units driving this agenda. Despite this limitation, South Africa contributed to the body of cancer nursing knowledge by publishing 35 papers between 2005 to 2014 (60) and 18 between 2015 to 2019 (11) with themes ranging from cancer prevention to palliative care. Unfortunately, a limited number of authors contributed to these publications which threatens the future development of cancer nursing.

Conclusions

The global cancer burden is increasing and is anticipated to rise most quickly in Africa in comparison to the other regions of the world. The resulting challenges cannot be managed well without involvement of highly competent nurses. Nurses are pivotal in achieving cancer control goals (61-63) on a global scale. Slowly, this perspective is being acknowledged across Africa. As evidenced in descriptions in this article, some countries are making significant strides in developing the specialty despite the many challenges. Although the article cannot include every country, it serves to illustrate what is currently unfolding in some settings and is offered to provide ideas for others who may wish to develop oncology nursing.

Establishing education and training programs is clearly an important initial developmental step. Without requisite cancer care knowledge and skills, nurses cannot achieve improvements in care for patients and families. Once nurses have specialist knowledge, they can be incorporated into practice settings, and improvements in care delivery can be realized. Their added education facilitates their capacity to identify patient and practice issues as well as find solution that will improve the quality of care and its delivery. Their observations could also help with advocacy for cancer control and policy change. However, incorporating specialist roles into clinical settings and engaging in policy change will require leaders who have vision and can influence policy in both professional and political arenas.

Significant efforts are still required across Africa to establish and grow oncology nursing. Many existing challenges are similar to challenges oncology nurses have faced, or are facing, in other countries: limited access to specialist education, growing patient loads and treatment complexity, escalating stress, and colleagues leaving the workforce or migrating to other settings (64-66). Fostering collaborative networks and sustainable partnerships would likely be beneficial in helping to resolve these issues and setting the stage for bi-directional learning and designing solutions with relevance in local settings. Working through organizations such as the International Society of Nurses in Cancer Care (ISNCC) (67) or the African Organization of Research and Training in Cancer (AORTIC) (68) can provide ready access for sharing experiences and gaining insight into strategies to influence necessary changes.

Finally, research by African nurses about care of patients with cancer and their families is crucial for developing the specialty across the continent. Evidence relevant to the local context is vitally important to guide practice and improve patient outcomes. This will require concerted effort to build the capacity of nursing faculty in research, educate oncology nurse specialists in methodology, and garner funding for rigorous research projects.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Annals of Palliative Medicine*, for the series "Oncology Nursing". The article has undergone external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://apm.amegroups.com/article/view/10.21037/apm-22-1323/coif). The series "Oncology Nursing" was commissioned by the editorial office without any funding or sponsorship. MIF served as the unpaid Guest Editor of the series. The authors have no other conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Miller KD, Nogueira L, Mariotto AB, et al. Cancer treatment and survivorship statistics, 2019. CA Cancer J Clin 2019;69:363-85.
2. International Agency for Research in Cancer. Cancer statistics. August 2022. Available online: https://gco.iarc.fr/today/data/factsheets/populations/903-africa-fact-sheets.pdf
3. Ngwa W, Addai BW, Adewole I, et al. Cancer in sub-Saharan Africa: a Lancet Oncology Commission. Lancet Oncol 2022;23:e251-312.
4. Universal Health Coverage (UHC) in Africa: a framework for action: Main report (English). Washington, DC: World Bank Group, 2016. August 2021. Available online: https://documents.worldbank.org/curated/en/735071472096342073/Main-report
5. World Population Review. 2022. Poorest countries in the world 2022. Available online: https://worldpopulationreview.com/country-rankings/poorest-countries-in-the-world [Accessed 26 July 2022 2022].
6. Bukhman G, Mocumbi AO, Atun R, et al. The Lancet NCDI Poverty Commission: bridging a gap in universal health coverage for the poorest billion. Lancet 2020;396:991-1044.
7. Ndlovu N. Radiotherapy treatment in cancer control and its important role in Africa. Ecancermedicalscience 2019;13:942.
8. Jedy-Agba E, Joko WY, Liu B, et al. Trends in cervical cancer incidence in sub-Saharan Africa. Br J Cancer 2020;123:148-54.
9. Dereje N, Gebremariam A, Addissie A, et al. Factors associated with advanced stage at diagnosis of cervical cancer in Addis Ababa, Ethiopia: a population-based study. BMJ Open 2020;10:e040645.
10. van der Plas WY, Benjamens S, Kruijff S. The increased need for palliative cancer care in Sub-Saharan Africa. Eur J Surg Oncol 2020;46:1373-6.
11. Maree JE, Khutjwe JV, Swart NC, Maree JE. Cancer nursing research output in Africa 2015 to 2019. A scoping review. Int J Afr Nurs Sci 2021;15:100381.
12. Ministry of Health Kenya. National Cancer Control Strategy KENYA 2017-20. Available online: https://repository.kippra.or.ke/handle/123456789/2802
13. Rwanda Ministry of Health and Agriculture. One Health Strategic Plan II 2017-2023. Available online: https://rwanda.un.org/en/3061-rwanda-gets-new-one-health-strategic-plan
14. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin 2021;71:209-49.
15. Oti NOO, de Villiers M, Adejumo P, et al. Strengthening of oncology nursing education and training in Africa in the year of the nurse and midwife: addressing the challenges to improve cancer control in Africa. Ecancermedicalscience 2021;15:1209.
16. Council of Nurses of Kenya. Scope of practice for oncology nurses in Kenya. Author: Nairobi, May 2022.
17. International Agency for Research on Cancer. Rwanda Fact Sheets. 2020; 237, 1–2. Available online: https://gco.iarc.fr/today/data/factsheets/populations/646-rwar

18. Uwayezu MG, Sego R, Nikuze B, et al. Oncology nursing education and practice: looking back, looking forward and Rwanda's perspective. Ecancermedicalscience 2020;14:1079.
19. Rwanda Clinical Care – Butaro Cancer Centre of Excellence. Available online: https://www.dana-farber.org/center-for-global-cancer-medicine/rwanda-clinical-care/
20. Muhayimana C, Kennell-Heiling S, Svoboda L, et al. Oncology nursing workforce capacity building in rural Rwanda: Strengthening specialized cancer care through nursing education and skill development. Ann Glob Health 2016;82:484.
21. Bahumura J, Murekezi J, Sego R, et al. Breast cancer awareness: survey of participants at annual walk in Kigali. Rwanda Journal of Medicine and Health Sciences 2018;1:7-14.
22. Benemariya E, Chironda G, Nkurunziza A, et al. Perceived factors for delayed consultation of cervical cancer among women at a selected hospital in Rwanda: An exploratory qualitative study. Int J Afr Nurs Sci 2018;9:129-35.
23. Benurugo G, Munyambaraga E, Chironda G, Bisanukuri E. Awareness on prostate cancer and screening practices among men attending outpatient at a referral hospital in Kigali, Rwanda: A quantitative study. Int J Afr Nurs Sci 2020;13:100241.
24. Igiraneza PC, Omondi LA, Nikuze B, et al. Factors influencing breast cancer screening practices among women of reproductive age in South Kayonza District, Rwanda. Can Oncol Nurs J 2021;31:251-7.
25. Niyonsenga G, Gishoma D, Sego R, et al. Knowledge, utilization and barriers of cervical cancer screening among women attending selected district hospitals in Kigali - Rwanda. Can Oncol Nurs J 2021;31:266-74.
26. Pace LE, Dusengimana JMV, Shulman LN, et al. Cluster Randomized Trial to Facilitate Breast Cancer Early Diagnosis in a Rural District of Rwanda. J Glob Oncol 2019;5:1-13.
27. Pace LE, Dusengimana JV, Keating NL, et al. Impact of Breast Cancer Early Detection Training on Rwandan Health Workers' Knowledge and Skills. J Glob Oncol 2018;4:1-10.
28. Uwayezu MG, Gishoma D, Sego R, et al. Anxiety and depression among cancer patients: prevalence and associated factors at a Rwandan referral hospital. Rwanda Journal of Medicine and Health Sciences 2019;2:118.
29. Uwayezu MG, Nikuze B, Maree JE, et al. Competencies for Nurses Regarding Psychosocial Care of Patients With Cancer in Africa: An Imperative for Action. JCO Glob Oncol 2022;8:e2100240.
30. International Agency for Research in Cancer. Available online: https://gco.iarc.fr/today/data/factsheets/populations/566-nigeria-fact-sheets.pdf
31. Nigeria Cancer Control Programme Plan 2018-2022. Available online: https://www.iccp-portal.org/plans/nigeria-national-cancer-control-plan
32. Foerster M, Anderson BO, McKEnzie F, etal. Inequities in breast cancer treatment in sub-saharn Africa: findings from a prospective multi-country observational study. Breast Cancer Research 2019;21:93.
33. Adejumo PO, Akinyemi KF, Anarado AN, et al. State of oncology nursing training and practice in a southwestern Nigerian teaching hospital. Journal of Nursing Education and Practice 2021;11:68.
34. Nwozichi CU, Ojewole F, Oluwatosin AO. Understanding the Challenges of Providing Holistic Oncology Nursing Care in Nigeria. Asia Pac J Oncol Nurs 2017;4:18-22.
35. Nwozichi CU, Guino-O TA, Madu AM, et al. The Troubled Nurse: A Qualitative Study of Psychoemotional Effects of Cancer Care on Nurses in A Nigerian Cancer Care Setting. Asia Pac J Oncol Nurs 2020;7:328-35.
36. International Agency for Research in Cancer. Available online: https://gco.iarc.fr/today/data/factsheets/populations/288-ghana-fact-sheets.pdf
37. Ghana College of Nurses and Midwifery. About us. Available online: http://www.gcnm.edu.gh
38. Parliament of Ghana. Specialist Health Training and Plant Medicine Research. 2011. Act 833 (Part III). Available online: https://gcps.edu.gh/wp-content/uploads/2021/02/Specialist-Health-Training-and-PlantMedicine-Act-833.pdf
39. Ghana College of Nurses and Midwifery. What we do. 2022b. Available online: https://www.gcnm.edu.gh/about_us/what_we_do.php
40. Ghana College of Nurses and Midwifery. Members and Fellows. 2022a. Available online: https://www.gcnm.edu.gh/members_and_fellows/members_and_fellows.php
41. World Child Cancer, London. Available online: http://worldchildcancer.org
42. International Agency for Research in Cancer. Accessed January 2023. Available online: https://gco.iarc.fr/today/data/factsheets/populations/894-zambia-fact-sheets.pdf
43. Cancer Disease Hospital, Lusaka. Available online: http://cancerdiseasehospital.moh.gov.zm
44. General Nursing Council of Zambia. The Registered Oncology Nurse Curriculum. 2018. Available online: http://www.gnc.org.zm/

45. Lombe DC, Mwaba CK, Msadabwe SC, et al. Zambia's National Cancer Centre response to the COVID-19 pandemic—an opportunity for improved care. Ecancermedicalscience 2020;14:1051.
46. Maliti BK. Management of Retinoblastoma in Zambia. Asia Pac J Oncol Nurs 2017;4:184-6.
47. Cancer Disease Hospital. Cancer Disease Hospital Action Plan and Budget 2022-2024. Author: Lusaka, 2022.
48. Zambia Oncology Nursing Society. Society information and member directory. Available online: https://www.icpcn. org/members-directory/9233/zambia-oncology-nursessociety/
49. University of Zambia. Available online: https://www.facebook.com/zons2016/
50. Levy Mwanawasa Medical University. Available online: http://lmmu.ac.zm/
51. Ministry of Health Zambia. Nursing and Midwifery Protocols. 2017. Available online: https://www.zambialaws.com/principal-legislation/nurses-and-midwives-act
52. International Agency for Research on Cancer, World Health Organization: Cancer Today/Population Fact Sheets: South Africa, Globocan 2020. Available online: https://gco.iarc.fr/today/data/factsheets/populations/710-south-africa-fact-sheets.pdf. Accessed August 20, 2021.
53. South African Nursing Council. Available online: http://sanc.co.za
54. South Africa Nursing Council. Sought African Nursing Council Annual Statistics. 2022. Available online: https://www.sanc.co.za/sanc-statistics/
55. Cairncross L, Parks J, Craig H, et al. Cancer on the Global Stage: Incidence and Cancer-Related Mortality in South Africa. 2021. Available online: https://ascopost.com/issues/september-10-2021/cancer-on-the-global-stage-incidence-and-cancer-related-mortality-in-south-africa/
56. National Institute for Communicable Diseases. 2022. National Cancer Registry, 2019. Available online: https://www.nicd.ac.za/wp-content/uploads/2021/12/NCR_Path_2019_Full_Report_8dec2021.pdf [Accessed 1 July 2022].
57. Rayne S, Schnippel K, Kruger D, et al. Delay to diagnosis and breast cancer stage in an urban South African breast clinic. S Afr Med J 2019;109:159-63.
58. Stewart TS, Moodley J, Walter FM. Population risk factors for late-stage presentation of cervical cancer in sub-Saharan Africa. Cancer Epidemiol 2018;53:81-92.
59. Hadebe S. Caring for cancer patients: Experiences of professional nurses in an academic hospital in Gauteng. Author: Thesis collection - University of the Witwatersrand, South Africa, 2020.
60. Maree JE, Herbert V, Huiskamp AA. Cancer Nursing Research Output in Africa 2005 to 2014: An Integrative Review. Cancer Nurs 2017;40:E36-44.
61. Galassi A, Challinor J; Key Stakeholder Group on Oncology Nursing in Low- and Middle-Income Countries. Strengthening the oncology nurse workforce in low-income and middle-income countries. Lancet Oncol 2015;16:887-8.
62. Shamian J. The Role of Nursing in Healthcare. Rev Bras Enferm 2014;67:867-8.
63. WHO. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. World Health Organization 2013; 102. Available online: https://www.who.int/publications/i/item/9789241506236
64. Yates P, Charalamous A, Fennimore L, et al. Position statement on cancer nursing's potential to reduce the growing burden of cancer across the world. Support Care Cancer 2021;29:3435-7.
65. Challinor JM, Galassi AL, Al-Ruzzieh MA, et al. Nursing's Potential to Address the Growing Cancer Burden in Low- and Middle-Income Countries. J Glob Oncol 2016;2:154-63.
66. So WKW, Cumming GG, Ayala de Calvo LE, et al. Enhancement of oncology nursing education in low- and middle-income countries: challenges and strategies. J Cancer Policy 2016;8:10-6.
67. International Society of Nurses in Cancer Care (ISNCC). Available online: https://www.isncc.org/
68. African Organization of Treatment and Research in Cancer (AORTIC). Available online: https://aortic-africa.org/

Cite this article as: Lawal NH, Maliti BK, Maree JE, Nanre MNM, Niyomugabo C, Odai RMA, Ohene Oti NO, Okumu R, Uwayezu MG, de Villiers M, Fitch MI. Growth and development of oncology nursing in Africa. Ann Palliat Med 2023;12(5):1026-1035. doi: 10.21037/apm-22-1323

