

ONCOAFRICA

INAUGURAL NEWSLETTER
ISSUE NO. 1 - 29.04.2024



ADVANCEMENTS IN CANCER RESEARCH

The Power of Your RNA
Understanding Wilms Tumour in Children

PREVENTION & AWARENESS

Raising Awareness, Debunking myths and setting
the record straight on HPV in men

INVESTMENTS & LEADERSHIP

Women in Healthcare Leadership
Investing in Biotech Startups

AFRICA'S FIRST ONCOLOGY NEWSLETTER

Featuring advances in cancer research, insights, editorials and
commentaries about diverse cancer topics from scientists,
physicians, patients, cancer advocates and policymakers...



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A Publication of
The Integrated Cancer Research Foundation of Kenya

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EDITORS' NOTE

Dear Readers,

Welcome to the inaugural edition of OncoAfrica, a newsletter by The Integrated Cancer Research Foundation (ICRF) of Kenya, a non-profit research company, dedicated to addressing the pressing issue of cancer in Africa. Our mission is collective, aiming to address Kenya's, and by extension Africa's cancer burden through cutting-edge research and evidence-based community outreach programs. We can only achieve our mission with everyone's involvement. Africa's cancer burden is escalating annually. In 2022, the World Health Organization (WHO) reported 1.185 million new cancer cases and 763,843 deaths in Africa. The top five ranked cancers by incidence on the continent originate in the breast, cervix/uteri, prostate, liver, and colon/rectum, which collectively contribute to 48.2% of all cancer cases in Africa. While communicable diseases like malaria, HIV/AIDS, and tuberculosis already strain Africa's healthcare system, the growing cancer burden demands additional strategic and collective investment in public health systems.

Although experiences with cancer vary at both the individual and national level, they are all valid and valuable. OncoAfrica aims to share cancer stories from diverse perspectives including those of African patients, researchers, healthcare professionals, advocacy groups and other stakeholders in the cancer care journey. The vision of OncoAfrica is to become a leading newsletter publication on the continent, by providing a platform that truly represents and understands the complexity of cancer in Africa and emerging advances in scientific research, spanning cancer diagnosis and treatment.

OncoAfrica offers a collection of stories, opinions, editorials, and experiences to empower cancer patients, caregivers, and the public, with knowledge about cancer. Cancer is often silent until it isn't. Through responsible and relevant partnerships, we anticipate OncoAfrica becoming the go-to resource, a catalyst for change and connection, and a source of hope and inspiration for everyone.

Finally, we extend our gratitude to all the readers and contributors of this newsletter. Credit goes to ICRF Kenya members and scientists who have made this first issue possible. Please accept our best wishes for a productive and successful 2024.

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Learn more about the editors at oncofrica.org/editors



FOREWORD

The burden of cancer is increasingly posing significant challenges to patients, families and healthcare systems across Africa. In the face of this ferocious malady, it is crucial that the public has access to knowledge about emerging methods of cancer prevention, diagnosis and treatment. By enlightening individuals about cancer and its effective management strategies, this seemingly unconquerable enemy will eventually lose its war against humanity.

In the spirit of ensuring all people have access to cancer information, ICRF-Kenya is thrilled to introduce OncoAfrica Cancer Newsletter to the public. This is a groundbreaking initiative by ICRF-Kenya scientists as part of our mission to revolutionize cancer education and research in Kenya and across Africa. ICRF-Kenya understands the huge burden that cancer places on our communities. As such, we are dedicated to making a meaningful impact through promoting cutting-edge cancer research and ensuring everyone has access to our research output and knowledge needed to fight effectively against cancer. By disseminating reliable cancer information, we will empower individuals, healthcare providers and policymakers to make informed cancer management decisions, leading to better prevention, early detection and treatment outcomes. We will also create a knowledge store for the scientific community which will empower and stimulate their thinking contributing to increased innovative cancer research across Africa.

OncoAfrica will serve as a dynamic platform where we will communicate in-depth analysis of latest advances in cancer research, insights from leading

scientific and clinical experts as well as policymakers, and commentaries about diverse cancer related topics. From groundbreaking cancer discoveries across the globe, to latest cancer statistics, to effective strategies for cancer prevention and early diagnosis to critical analysis of Africa's preparedness and efforts to tackle cancer, we will provide you with the relevant information about this disease.

Through ICRF-Kenya website, our social media platforms and print materials, we will offer informative commentary fostering a culture of cancer advocacy and awareness. Our goal is to inform individuals regardless of their geographical location, literacy level or profession. Whether you are a cancer patient, caregiver, clinician, nurse, scientist, advocate, policymaker or concerned citizen, OncoAfrica will serve you as an inspiring source of all cancer-related information from an expert perspective.

Our newsletter is part of our undying commitment empowering African communities with accessible and reliable cancer education. We believe OncoAfrica will serve as a catalyst for cancer research and innovation, cancer awareness and stimulating conversations that will improve cancer management in Africa. As we embark on this journey, we invite you to join us and harness that power of innovation, solidarity and transparency to fight and conquer cancer across Africa.

We thank our dedicated scientists and experts for supporting this initiative.

By Hudson Alakonya, Ph.D.

ICRF-Kenya CEO

Addressing misdiagnosis in evidence-based cancer treatment

By Tyrus Swaya, Ph.D.

According to the World Health Organization (WHO), 1 in 5 people will develop cancer in their lifetime. Even though the cancer diagnosis process has improved with time, the burden of misdiagnosis significantly contributes to cancer mortality, especially in the low- and middle-income countries, where health systems are under-resourced. A correct cancer diagnosis is the first step towards the right treatment.

Evidence-based diagnosis involves an assessment of individual risk factors for cancer, including age, family history, race/ethnicity, and symptoms. These factors provide recommendations for risk stratification and screening of all malignancies.

Misdiagnosis or lack of diagnosis has been associated with the high cost of treatment and is a contributing factor to poor treatment outcomes in many scenarios. Clinical comorbidities, reluctance to follow-up appointments, poor health-seeking behavior, under-resourced public health facilities, and socio-cultural decision-making structures are some of the factors associated with cancer misdiagnosis. In the case of infectious diseases, it has led to a surge in antimicrobial resistance.

In Kenya, some, if not the majority, of cancer patients associate cancer diagnoses with subsequent high cost of management. This leads to avoidance of relevant and timely diagnostic procedures or resorting to self- or wrongly-prescribed medications to manage their symptoms. Some patients abandon surgical biopsies instead of sending them for histological investigations due to the costs. There is a need to establish primary healthcare offering testing and diagnosis for patients with a history of certain inherited cancers. These strategies will help in early detection and management, enabling individuals to live in dignity with cancer. Caused by either misinformation about cancer diagnostic approaches or limited funds for confirmatory

diagnosis, many have lost their loved ones following misdiagnosis.

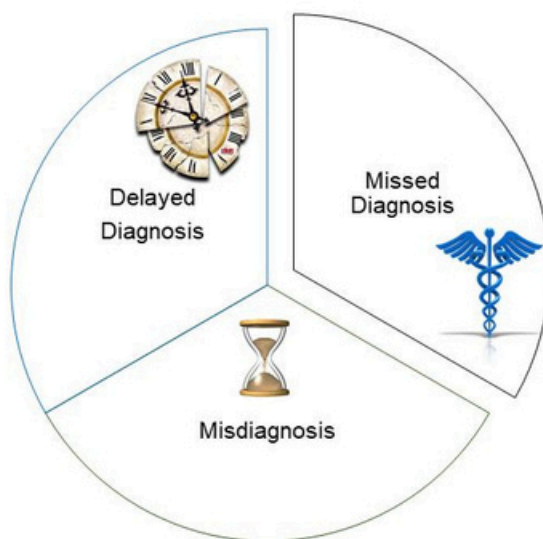
In Kenya, the current regime has designed a funding model based on the principle that confirmatory diagnosis precedes treatments. If implemented well, this is an excellent initiative, as many Kenyans will seek comprehensive medical attention without worrying about the financial burden. Additionally, those with unique demographic characteristics or chronic illnesses will be able to access the Emergency, Chronic, and Critical Illness Fund to facilitate diagnostic services and critical care. This will be a game changer in tracking and managing

chronic diseases such as cancer.

The cancer diagnosis process involves collecting the biopsy, processing, staining, and assessing the tumor's histopathological characteristics. Any errors in any of the above steps may lead to incorrect diagnoses. In the case of inherited cancers, appropriate genetic evaluation and counselling become a crucial pillar in early detection, risk reduction, and management of these cancers. Individuals with a first-degree relative with certain

cancers, such as breast, prostate, and ovarian cancers, are generally twice at risk of developing the disease compared to those without a family history.

Therefore, implementing innovative screening and diagnostic guidelines that empower patients is vital to enhance diagnostic accuracy and reduce the burden of misdiagnosis. Evidence-based research findings will also facilitate informed discussions about the benefits, risks, and uncertainties of cancer diagnosis and treatment options. Finally, we need to encourage collaborative efforts to identify and address the root causes of cancer misdiagnosis, even as healthcare providers and policymakers work towards improving patient outcomes.





Why is cancer so hard to treat?

By Fiona Okonjo, Ph.D.

Cancer is an old disease. The earliest description of cancer dates back to ancient Egypt around 3000 BC, as documented in the Edwin Smith Papyrus. The authors described eight cases where tumours or ulcers were removed by cauterization and indicated that the disease “has no treatment”. This view that cancer cannot be treated persists to date, perpetuating fear of the disease thus leading to late diagnoses and poor patient outcome, because people put off seeing a doctor until it is too late.

Now, you may be wondering, “If cancer has been around for so long, how come we have not found a cure yet?” We have eradicated diseases such as smallpox, discovered antibiotics to treat infections, but why is cancer still a problem 5000 years later? The answers to these questions are multifactorial. Let us explore some of the reasons why cancer is so hard to treat, but also why we should remain optimistic.

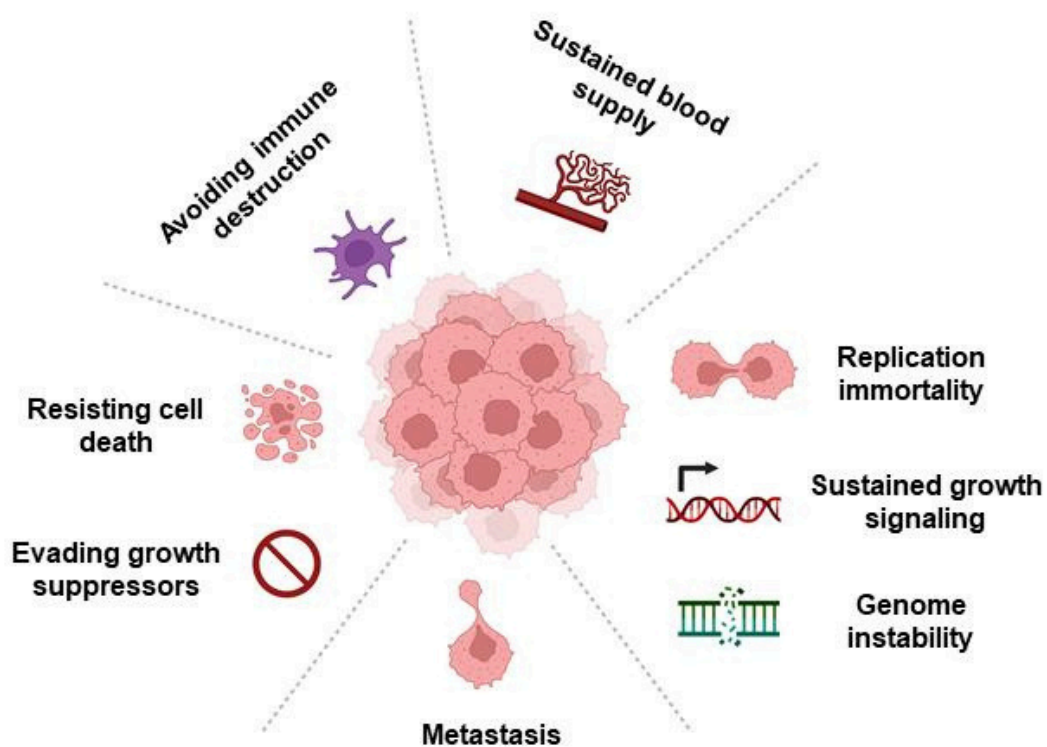
First, cancer is not a single disease. The term cancer describes more than 200 different diseases, classified according to the site in which they originate e.g. breast, cervical, and pancreas. Based on their organ of origin, cancer is subdivided into different subtypes according to the specific tissue-type, genetic, and molecular characteristics. For example, ductal carcinoma originates in the milk ducts of the breast whereas luminal breast ca-

ncer arises from the cells lining the inside of the mammary duct.

Secondly, various mutations in certain genes can lead to the development of cancer. Mutations can cause cells to grow uncontrollably and often continue to accumulate as the cancer progresses. Mutations breed diversity in cancer, in that individuals with the same cancer type such as breast cancer, may each exhibit a unique set of mutations. This means that a drug that may work for one cancer patient may have no effect on another patient.

Thirdly, cells within a growing tumor are not identical. A tumor is a complex environment made up of different cell types including stem cells, immune cells, endothelial cells, connective tissue cells, and epithelial cells. As the tumour grows, further mutations may appear over time. Thus, treatment may kill one cell type in a tumor whilst other cells continue to grow, allowing the tumour to resist treatment and survive.

In addition, a majority of cancers develop resistance to treatment. The mutations acquired over time can cause changes in cell behaviour. This means a tumour that was initially responding to treatment may adapt and evade the effects of that treatment. Alternative treatments may be offered where available; however, resistance to the new



Biological characteristics of tumors that makes them hard to treat

(Source: Biorender)

treatment may eventually develop too.

Fifth, cancer cells acquire new survival mechanisms that give them a competitive growth advantage. Normal cells have mechanisms that repair damaged DNA and prevent cells from growing uncontrollably. These mechanisms are disrupted in cancer cells enabling them to reproduce without limits. Other unique behaviours that cancer cells acquire in order to survive include the capacity to invade other tissues, the ability to escape the immune system, and immortality.

“Although it may seem like we are fighting a losing battle when it comes to finding a cure for cancer, it is not all doom and gloom. Thanks to research, cancer survival rates have improved immensely over the years.”

Although it may seem like we are fighting a losing battle when it comes to finding a cure for cancer, it is not all doom and gloom. Thanks to research, cancer survival rates have improved immensely over the years. For example, the probability of a breast cancer patient living beyond ten years post diagnosis is 85%. For lymphoma, the survival rates were only half what they are today. With further research investigating the multifactorial mechanisms through which cancer cells resist treatment, we can create increasingly effective treatments. For example, the discovery of the BRCA1 gene mutation in breast and ovarian cancers has led to the development of screening guidelines to detect and treat these cancers at an early stage.

So, the big question remains “will we ever find a cure for cancer?” The simple answer is, no. We cannot have a single cure for cancer because it is not a single disease and does not have a single cause. However, as our understanding of cancer increases through research, it will enable the development of new and personalised treatments for the 200+ different cancer types that exist.

“Tuberculosis or lung cancer?”

By Laura Awuor, MD

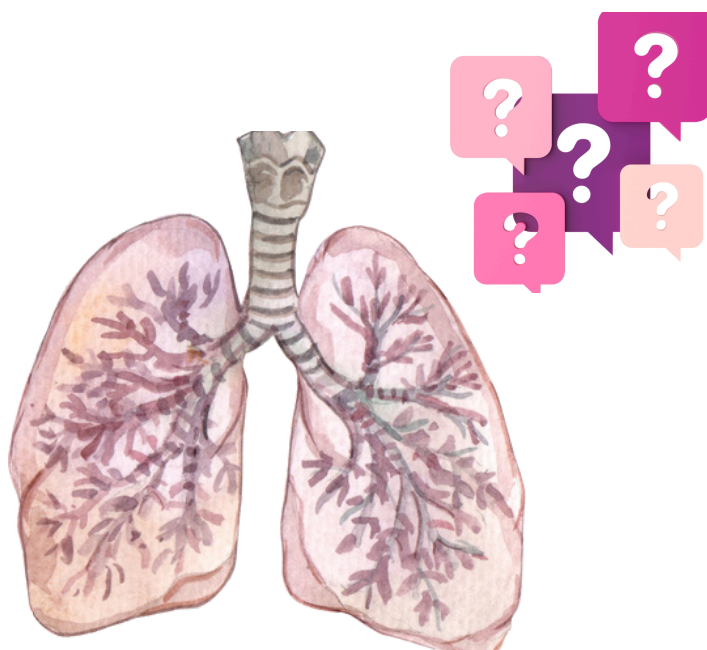
Mary, a 30-year-old woman from Kenya has been diagnosed with esophageal cancer after visiting six different hospitals within a span of 5 years. At her diagnosis, the cancer is at stage IV and end-of-life care is the glaring option. At each of these facilities, she presented with the “red flags of malignancy”, including unintentional weight loss. She has been treated for gastritis and pharyngitis countless times. Are our healthcare workers too busy and not paying attention or are they too far removed from a cancer diagnosis to give it any consideration?

Globally, the burden of cancer is greatest in low and middle-income countries and is projected to rise in the near future. Additionally, the 2022 report by the World Health Organization showed that many cancers have a chance at a cure if detected early. Data released by Kenya’s Health Ministry in 2023 shows that cancer is the third leading cause of mortality in Kenya. This translates to a huge financial burden on both patients and the healthcare economy. A 2023 report by the United Nations Development Program showed that 36% of Kenyans live below the national poverty line. For these individuals, their daily income is fully stretched to cover costs of rent and daily living. Mary consequently cannot afford the daily bus fare to the hospital, good nutrition, nor medication. It therefore comes as no surprise when she succumbs to the disease one year later.

Traditionally, late cancer diagnosis in low and middle-income countries has been attributed to factors such as poor health seeking behavior and lack of cancer awareness. Both public and non-governmental organizations have invested heavily on raising awareness among the population through campaigns. However, with the rising cases of late cancer diagnosis perhaps it is time to start questioning why a male patient presenting with a chronic cough and weight loss is presumptively treated for tuberculosis (TB) and pneumonia in peripheral facilities for several years before a definitive cancer diagnosis. Or, why are patients with abdominal pain and weight loss treated for *H. pylori* gastritis for years without an alternative diagnosis being considered?

Tackling the cancer menace will require concerted efforts from multiple stakeholders, including global agencies, as much of the financial aid expended to low- and middle-

income countries is channeled to healthcare. It is not clear whether the delay in cancer diagnosis is attributed to apathy, inadequate information, or that a cancer diagnosis has to be made in the corridors of “high-level facilities” at which point it is too late to have any meaningful intervention.



One of the ways of handling this challenge is by encouraging robust re-sensitization of healthcare workers on cancer presentation, prevention, and management. The effect of this intervention can be assessed by carrying out a longitudinal study. Oncologists and related stakeholders can also come up with simplified screening manuals, which can be made available to community healthcare promoters who are the first line of contact with the public. Additionally, training more oncology specialists will translate into extra human resources hence alleviating the current burden on the healthcare system. Finally, a detailed and functional chain of referral for hospitals in rural areas would go a long way in aiding this process.

By taking these measures, Kenya can better equip its healthcare workers to help people like Mary get the answers they need before it is too late to treat.



Women in healthcare leadership

By Tracy Irura, MD

As we mark international women's day 2024, I am privileged to sit in a room full of women navigating leadership positions in healthcare in Kenya. This is an event put together by Strathmore Business School and Kenya Healthcare Federation under the theme "Inspiring gender inclusion: empowering leaders, bridging gaps".

It is critical to strengthen women's representation in global health leadership as women dominate the health care consumer market. Therefore, having more women leaders who understand care-seekers' needs, experiences, and perspectives can increase innovation and business opportunities. When women hold health leadership positions, they prioritize the needs of marginalized groups and allocate enough resources to research on women's health issues, family welfare, gender equality issues, education, and nutrition. Data suggests that increased female leadership in Kenya's health sector is critical to addressing pressing public health issues, such as high maternal and child mortality, a high burden of infectious disease, misuse of healthcare resources, neonatal diseases, malaria, HIV, and even cancer.

Though progress has been made in promoting women to health leadership roles in Africa, this has been far too slow. Women in healthcare across Kenya primarily work in nursing and midwifery, with very few in positions of leadership, an indication of a female dominated sector almost entirely controlled by men. Kenya, despite its larger female population and a 2010 Constitution that promotes gender equality, our socio-political and economic leadership is male dominated. For example, women occupy 7 out of the 47 governorship positions, 27% of elective seats in parliament. A recent report by Women in Global Health (WGH) showed that women hold 42% of mid-level and 40% of top-level leadership positions in Kenya's health sector.

Gendered barriers have a significant impact on Kenyan health workers' career trajectories. For instance, women's leadership styles are perceived to be reactive, emotive, and overly domineering, whereas men's approaches are perceived to be calm and sober. These stereotypes reportedly influence appointments into health leadership positions in the country. Kenyan women health leaders interviewed reported that patriarchal attitudes, particularly those of their spouses, and the structure of the health sector inhibited them from advancing in their careers.

Gender-equitable leadership in the health sector is important in low- and middle-income countries (LMICs), like Kenya, where health systems face complex challenges. Women's leadership in health is more than just an issue of equity; it is the missing link that can help countries address public health problems more effectively. Kenya is making progress in addressing issues such as high fertility, low contraceptive prevalence, under five mortality, low vaccination uptake, and limited access to skilled care. Stronger and more sustained women's participation in health leadership in Kenya can expand these gains.

Leveraging the leadership potential, talents, wealth of experience, and skills of this upcoming generation of health professionals is key in tackling our health challenges. We all have a role to play in bridging the gaps by:

1. Assisting organizations in Kenya with establishing a strong, evidence-based and multipronged framework for advancing women's health leadership.
2. Build on existing organizational policies and initiatives: support the ongoing efforts of these organizations.
3. Target the social norms that suffocate female leadership and address them through advocacy, capacity building, awareness creation, and other interventions.
4. Working with influential, Kenya-based organizations to strengthen local capacity to advance women's health leadership



Proactive, Patient, Reactive?

By Stefanie Harsch, Ph.D.

How do we portray people affected by cancer in Kenya and what are the implications for policy, practice, and research? This “idea of cancer” also influences our understanding of what we call a person with cancer and what to expect from them. Surprisingly, when looking at cancer policy in Kenya, the activity of persons at risk of or with cancer seems to change over the course of cancer care. Should they be proactive in preventing the disease? Should they be receptive patients who merely follow instructions? Or should they be actively managing their survivorship?

Why should we care about the words we use? The words we use to describe cancer patients influence how we perceive and interact with them, as well as the interventions we recommend. They also shape the way we talk about people with cancer in society and tell a story about how they should perceive themselves. This external attribution and the associations and tasks that go with it have a massive effect on the healing process. Therefore, reflecting on how we talk about people with cancer is important. Here, we uncover how the public and cancer patients are described in the Kenyan discourse, and the implications for policy, practice, and research. Since policy strongly influences public perception and discourse, we evaluated Kenya’s three most recent National Cancer Control Strategies and analyzed the words used for cancer patients and the activities assigned to them.

Our analysis of these strategy documents show a trend in Kenya from expanding the vocabulary used for cancer patients (exclusively referred to as such) to a patient diagnosed with cancer (a patient who has cancer, among

other things) up to a person with cancer. In 2023, the value of patient-centred care (but not person-centred care) and the role of cancer champions were mentioned for the first time. Moreover, if we look at the activities related to patients at all stages: prevention, early detection, treatment, and palliative care, patients are more reactive rather than proactive in managing their disease.

Interestingly, if we change the perspective and ask cancer survivors to describe their life with the disease, there is a description of the medical care they receive as well as their individual roles in managing the disease. This is not limited to preventive activities such as going for HPV vaccination, screening, or signing up for NHIF. In addition, we observe individuals’ engagement in following up with the diagnosis, raising money, processing the diagnosis mentally (shock, denial, acceptance, etc.), adjusting dietary behaviour and other lifestyles, communicating and comforting family members, connecting with other cancer survivors, coping with side effects, regaining hope, balancing work, adjusting to the new living conditions, and finding help with daily tasks. Surprisingly, the national cancer control strategies do not capture this active role of patients. The patients’ active role does not diminish but complements the healthcare professional’s role.

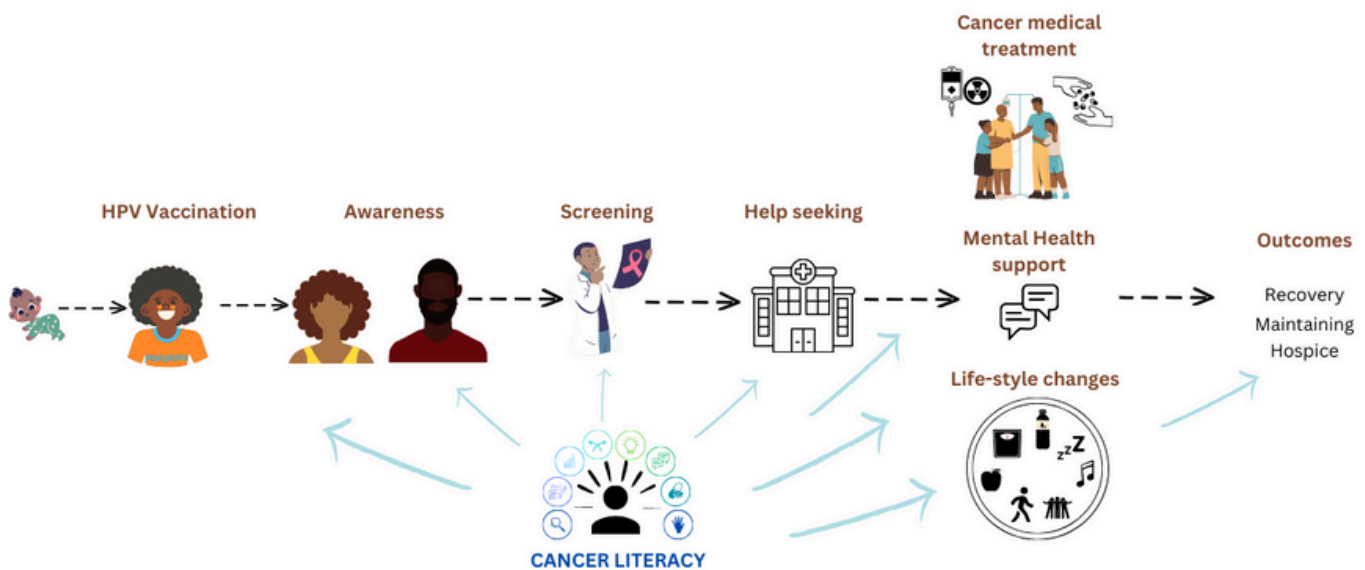
So, how should we perceive a person at risk of or diagnosed with cancer? Does the term ‘patient’ refer to someone waiting to receive treatment and for physical improvement? Does ‘reactive’ to the recommendations about physical management of the disease fit better? Is it a ‘proactive’ person? Or do people diagnosed with cancer combine all these features at the same time? Questions of active or reactive roles also arise in the discussion about

the self-description of people who have completed their cancer treatment. Are they survivors (as the first strategy suggests), or are they champions (as the third strategy includes), or are they warriors because they fought the war and won?

When talking about people with cancer, it is worth considering two aspects: the power of naming yourself and the activities to perform. First, like the long-needed and widely heard voice of the 'nothing for us without us' movement, it is important to acknowledge how people with cancer describe themselves. They refer to themselves as people living with NCDs (or other health problems), and the very term 'living' indicates the active role they play. Let us not reduce people to a physical description of their

bodies, but let us include the identity of the person, and that there are multiple ways the diagnosed person can respond.

Second, it is of undeniable importance to recognise the active and proactive role played by people living with cancer. Discussions about patient activation or even more cancer literacy can be helpful here. If we acknowledge this active role, we will then explore how policy can add this to the disease management provided by health professionals, how practice can harness it, and how research can give a voice to those affected. Kenya has taken the first promising steps. Let us take heart and move faster and further.



A schematic model of how cancer literacy affects the cancer care continuum.



Investing in cancer biotech startups: a solution to Africa's burgeoning cancer morbidity and mortality

By Hudson Alakonya, Ph.D.

Cancer poses a significant health and economic problem in Africa. The burden of the disease has steadily increased over the past few decades, with forecasts estimating both incidence and mortality to double by 2040. Cancer management in Africa remains a challenge due to inadequate resources and infrastructure for prevention, diagnosis, and treatment. However, amidst these challenges, there is a ray of hope in the form of biotech startups that can harness innovative technologies and approaches to provide homegrown cancer care solutions in Africa. Investing in oncology startups could be a game-changer in the fight against cancer and significantly reduce morbidity and mortality rates on the continent.

The major advantage of investing in cancer biotech startups is the development and implementation of innovative cancer solutions tailored to the unique challenges faced by Africans. These startups will leverage cutting-edge technologies such as genomics, artificial intelligence, and precision medicine to develop new diagnostic tools, treatments, and preventive strategies that are specifically designed for the African population. By focusing on the specific genetic, environmental, and lifestyle factors that contribute to cancer in Africa, these startups can develop more effective and targeted interventions that have the potential to significantly improve outcomes for cancer patients. Another benefit of investing in Africa cancer biotech startups is their potential to drive economic growth and development on the continent. The biotech sector is a rapidly growing industry globally, and contributes significantly towards a nation's gross national product. By supporting the growth of these startups in Africa, they will lead to creation of jobs, stimulate innovation, and build a more resilient healthcare system. Additionally, successful cancer biotech startups have the potential to attract further investment and partne-

rships, stimulating economic growth and development that can benefit the entire region.

A quintessential example of a successful cancer biotech startup in Africa is 54gene. 54gene is a Nigerian genomics company focusing on building the world's largest pan-African biobank. By collecting and analyzing genetic data from diverse African populations, it aims to accelerate the development of precision medicine solutions for diseases such as cancer. The startup has already attracted significant investment from both local and international investors. 54gene will undoubtedly make a huge impact on healthcare in Africa and beyond.

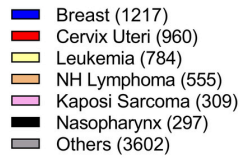
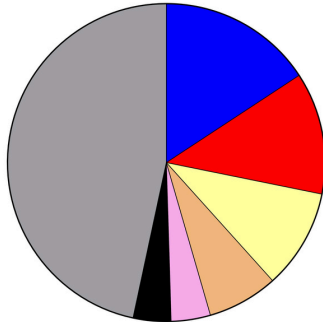
Many African nations face a plethora of challenges in terms of access to healthcare services, particularly in rural and under-served areas. Through cancer startups, Africa can develop innovative and cost-effective solutions and ensure that more people have access to affordable and effective cancer care. This will help to reduce cancer morbidity and mortality rates and improve overall health outcomes in Africa. However, investing in cancer biotech startups in Africa is not going to be a streamlined path. The biotech industry is inherently risky with approximately 10% chances of commercial success. Africa is also riddled with regulatory and infrastructure challenges that continue to make it difficult for startups to germinate and flourish. African governments and investors must take some huge risks and provide the necessary support and resources as the potential rewards are significant, and the effect could be transformative for the continent's healthcare system.

Biotech startups built by Africans on their own soil hold a pivotal potential in reducing cancer morbidity and mortality rates, drive economic growth and development, and improve access to cancer care for millions of Africans.

Landscape of cancer in Kenya

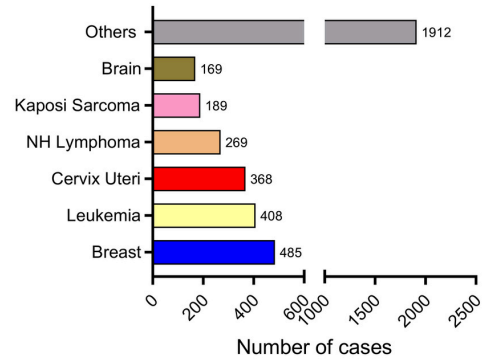
What do the numbers tell us?

Cancer incidence in Kenya (0-39 years)

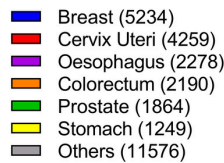
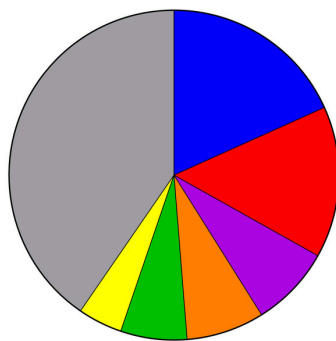


Total = 7724

Cancer mortality in Kenya (0-39 years)

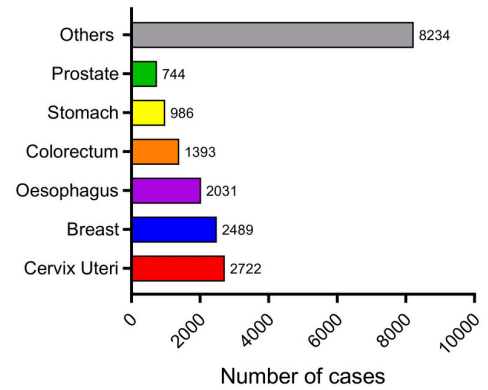


Cancer incidence in Kenya (40-69 years)

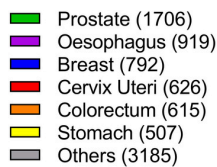
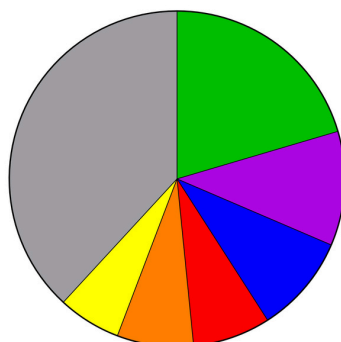


Total = 28650

Cancer mortality in Kenya (40-69 years)

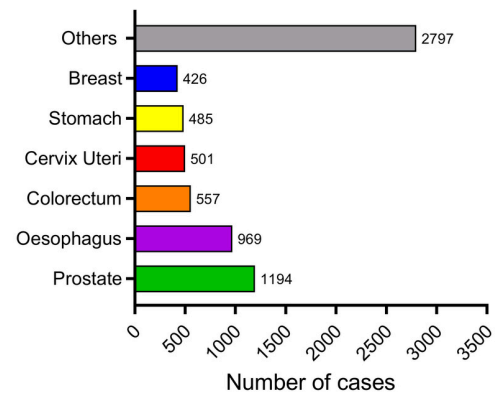


Cancer incidence in Kenya (70-85+ years)



Total = 8350

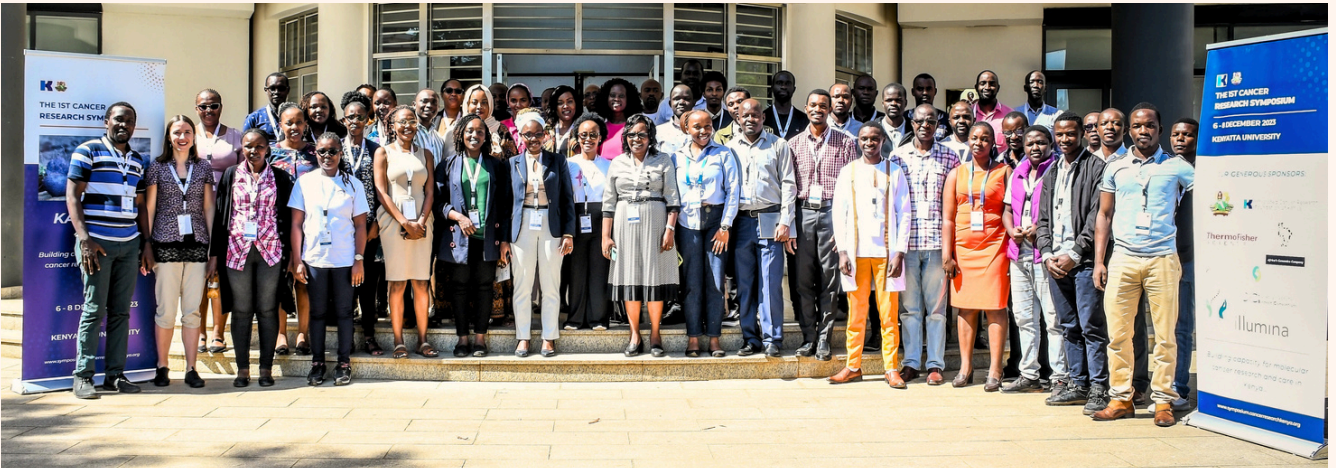
Cancer mortality in Kenya (70-85+ years)



Source

- Cancer Today IARC - <https://gco.iarc.who.int>
- Globocan 2022 (version 1.1) - 08.02.2024

Pictorial



Photos from ICRF's First Cancer Research Symposium held at Kenyatta University from 6th - 8th December 2023

Pictorial



1



2



3



4



5



6



7

1. ICRF staff planning for their first public awareness session in 2019
2. ICRF holds its first awareness session in 2019 for Testicular Cancer
3. ICRF's Director of Research and Director of Outreach at the Kenya Innovation Week 2023
4. ICRF staff visit a cancer support group in Nairobi
5. Members of the public take part in cervical cancer awareness in Nakuru
6. ICRF team on a shoot for Breast Self-Examination
7. Members of the public during a HPV Assessment Study in Mumias Sub-County

The Power of your RNA in cancer

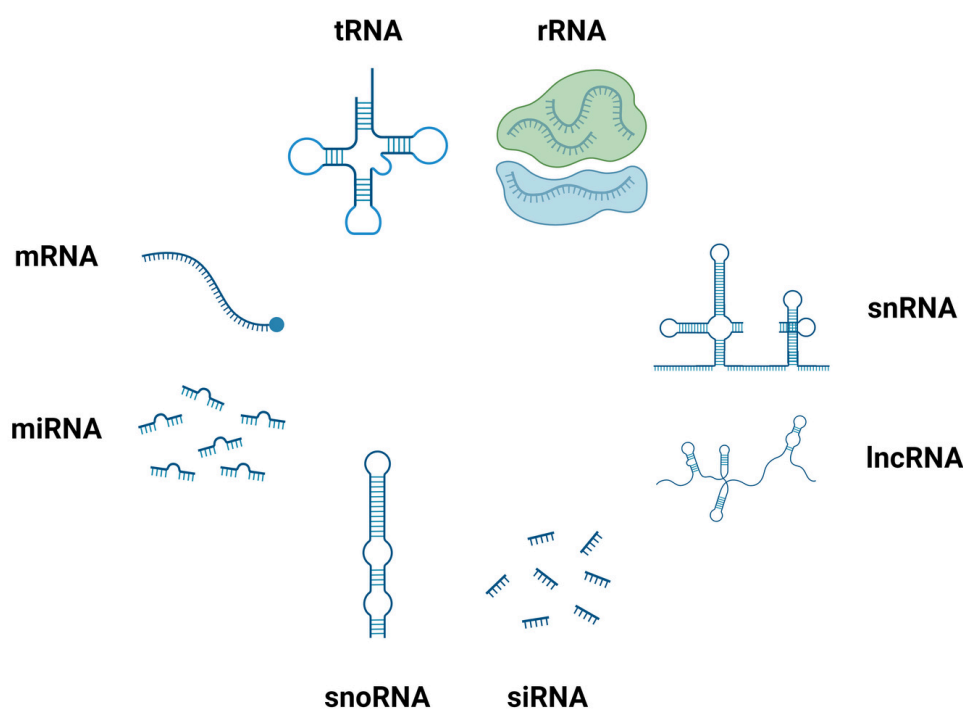
By Faith Mokobi Zablon

RNA plays a pivotal role in cancer biology, providing valuable insights into the molecular mechanisms underlying cancer development, progression, and treatment. By deciphering the complex interplay between RNA molecules and cancer etiology, researchers can identify novel biomarkers, therapeutic targets, and strategies for improving cancer diagnosis, prognosis, and therapy. RNA found in blood can provide crucial information about the presence and progression of diseases, which has paved the way for utilizing RNA as a biomarker across different cancer stages, from early diagnosis to monitoring treatment responses. All these factors contribute to RNA emerging as a powerful tool in the fight against cancer, offering diagnostic insights and serving as a therapeutic target for innovative therapies.

A remarkable characteristic of RNA as a biomarker is its versatility and specificity to reflect molecular alterations in cancer. Gene expression and regulation aberrant expressions of RNA subtypes, including messenger RNA (mRNA), microRNAs (miRNAs), long non-coding RNAs (lncRNAs), and circular RNAs (ciRNA), which can promote or suppress the development of cancer. By evaluating the patterns and levels of specific RNA molecules, researchers, physicians, and clinicians can gain insight into the underlying genetic and molecular

tumorigenesis factors, aiding in personalized treatment strategies and informed therapeutic decisions for patients. How can we exploit mRNA to detect and monitor cancer? mRNA is the primary template used in protein synthesis post gene transcription. mRNA versatility during protein synthesis has revealed distinctive properties for predicting cancer making it an ideal biomarker for different types of cancer. Analyzing the levels of specific mRNA in tumor samples or body fluids (urine and blood) of patients can reveal the characteristics of cancer cells. This is done by comparing the expression of the mRNA between cancerous and non-cancerous tissues or between the stages of cancer, which can provide diagnostic information about cancer.

A variety of mRNA tests have become routinely used for the diagnosis and prognosis of breast cancer. For example, a common hormone receptor (HR+) and human epidermal growth factor receptor positive (HER2+) prognostic test for post-menopausal patients in the early stage of breast cancer is the Prosigna Breast Cancer Assay. It is routinely used in breast cancer diagnosis to assess the activity of 50-gene signatures known as PAM50, based on the four major types of breast cancer. This test has been facilitated by understanding the dynamic nature of mRNA. Other uses of mRNA profiles in cancer diagnosis is in predicting



The different types of RNA involved in normal physiology and cancer

(Source: Biorender)

a patient's response to therapy by continuously monitoring the expression of specific genes related to drug resistance or sensitivity. This will help identify patients who can benefit from available targeted therapies or chemotherapies. For example, mRNA expression patterns in HER2/neu in breast cancer can help predict response to HER2-targeted therapies such as trastuzumab (Herceptin).

Other RNA molecules also provide useful insights in disease progression. A good example is non-coding RNAs (ncRNA), which include miRNAs, lncRNAs, and circRNAs, usually referred to as the dark matter of the genome because their functions are widely unknown. In cancer, ncRNAs have been found to regulate many genes. In some cases, a single ncRNA can regulate several genes while in other cases multiple ncRNAs can regulate a single

gene. This complexity of ncRNAs is due to their heterogeneity and limited understanding of their functions in cancer. Ongoing discoveries show that ncRNAs can have both tumor-promoting and tumor-suppressing roles. Besides these capabilities, they can be used in diagnosis, prognosis, as therapy targets, and in monitoring treatment outcomes in cancer patients.

This indicates that discovery and functional investigation of these ncRNAs present a multifaceted role in defining cancer hallmarks by regulating gene expression, signalling pathways, and cellular mechanisms. Therefore, an understanding of the intricate network of ncRNA-mediated interactions is significant in the development of targeted therapies and in improving cancer diagnostics and treatment outcomes.

HPV in men: common misconceptions and the facts

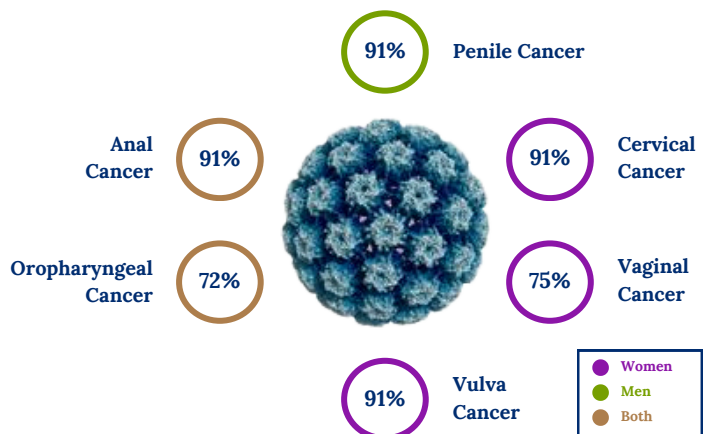
By Lucy Macharia, Ph.D.

The human papillomavirus (HPV) infection is commonly found in the genital tract of both men and women with or without any clinical lesion. However, chronic infection with HPV is what drives over 90% of cervical cancer cases. While HPV infections are publicly synonymous with women, it is important to note that this virus also affects men. However, the persistence of HPV oncogenic infections in men appears to be shorter, with approximately 75% of HPV virulence factors able to clear in a year. HPV has two essential oncoproteins, namely E6 and E7, important for the initial establishment and progression of cervical cancer. Notably, this virus alone cannot transform cervical epithelium into a malignant tumor. However, the two oncoproteins interact with the host's genetic actors to induce cell immortalization and promote malignancy.

While most information about HPV is on women, this virus can also cause health problems in men. There are reported links between HPV and several different anal-genital cancers, including vulva, anal, and penile cancers. About 80–85% of anal cancers and approximately 50% of penile cancers are also associated with HPV infection. Additionally, HPV DNA has also been identified in head and neck cancers, especially those arising in the upper aerodigestive tract (oral cavity, oropharynx, hypopharynx, and larynx) in both sexes. In men, 33-72% of oropharyngeal cancers and 10% of cancers of the larynx are attributed to HPV infection. Besides cancer, genital HPV infection can cause a broad spectrum of lesions, including genital warts. Although having genital warts is not associated with mortality, the lesions are often associated with both clinical symptoms (burning, bleeding, and pain) and psychosocial problems (embarrassment, anxiety, and decreased self-esteem).

Routine testing of men to check for infection with high-risk HPV strains is not a common practice. To accurately assess HPV infection in men, exfoliated cytology or biopsy specimens and molecular techniques like quantitative polymerase chain reaction (qPCR) can be used.

The use of anal pap tests for men, who are at higher risk of anal cancer caused by HPV, has also been reported. The sites where more than 95% of genital HPV infection is detected among asymptomatic heterosexual men include the penile shaft, the coronal sulcus/glans penis (including prepuce in uncircumcised men), and the scrotum. There are two methods of male genital sampling, which are reproducible and provide adequate samples for HPV DNA detection. This includes abrading the genital skin before sampling with a Dacron swab and collection of the exfoliated cells in a standard transport medium and direct sampling of the genital epithelium with a saline pre-wetted Dacron swab followed by collection in a standard transport medium.



Types of cancers caused by HPV in men and women

There is limited data on the natural history and HPV-related diseases in the genital tract in men and on the efficacy of HPV vaccines in the prevention of HPV infection and disease among men, although studies are ongoing with some positive outcomes. For example, in North America, Gardasil, a HPV vaccine, has been approved for use to prevent HPV infection, cervical and anal cancer in both men and women. In Kenya, cervical cancer significantly contributes to the country's disease burden. While vaccinating young girls is one of the preventive mechanisms, we must encourage HPV screening of Kenyan men to combat cervical cancer effectively.



Exploring environmental carcinogens and their effect on cancer risk

By Phillip Ogola, Ph.D.

Arsenic, a naturally occurring element found in groundwater, and chlorination byproducts have been associated with several types of cancer, including skin, bladder, and kidney cancer. Similarly, several compounds in pesticides, industrial items, and household cleaning agents have been identified as carcinogenic. These toxins can infiltrate our systems by inhalation, ingestion, or skin contact, potentially causing genetic abnormalities and cellular damage that result in cancer development.

Ionizing radiation exposure, whether from medical imaging procedures such as X-rays and CT scans or from natural sources like radon gas, may contribute to the elevated cancer risk. Radon, a naturally occurring radioactive gas found in the soil and rock, may penetrate buildings and accumulate to lethal quantities and has been linked to lung cancer.

In addition to external environmental influences, our lifestyle choices significantly influence cancer risk. Tobacco smoke, for example, comprises thousands of chemicals, most of which are proven carcinogens. It is not surprising then that smoking remains the most prevalent cause of cancer deaths globally, accounting for a large proportion of lung, throat, and oral cancers. Further, dietary habits and consumption of alcohol may contribute to cancer risk. High consumption of processed meats, sugary beverages, and saturated fat-rich foods has been associated with an enhanced likelihood of malignancies, including colorectal and breast cancer. Excessive alcohol intake can escalate the risk of developing liver, esophageal, and other malignancies.

Although the existence of environmental carcinogens may appear daunting, there are strategies individuals can adopt to mitigate their exposure and minimize their risk of cancer. These include advocating for clean air and water regulations, donning personal protective clothing at the workplace, consuming organic foods, and ensuring adequate ventilation and radon screening in homes. Finally, regular medical screening and lifestyle changes, such as maintaining a healthy weight, physical activity, and minimizing tobacco and excessive alcohol intake, can contribute to decreased cancer risk.

Cancer, an intricate and multifaceted illness, arises from the uncontrolled proliferation and spread of aberrant cells within the body. These cells can infiltrate adjacent tissues, develop into tumors, and spread to distant organs, posing significant risks to health. According to the International Agency for Research on Cancer (IACR) and the World Health Organization (WHO), there were 20 million new cancers and 9.7 million deaths in 2022. The analysis predicts that new worldwide cancer diagnoses will reach 35 million by 2050, up 77% from the 20 million cases reported in 2022.

We are regularly exposed to different components, some of which have carcinogenic potential. These environmental carcinogens include pollutants in our air, chemicals in our products, and contaminants in our drinking water. Fine particulate matter, volatile organic compounds, and diesel exhaust are all examples of carcinogens found in polluted air. Prolonged exposure to these contaminants has been linked to different types of cancers, including mesothelioma, lung, bladder, and breast cancers. Therefore, understanding the relationship between environmental variables and cancer development can help to address potential hazards and incorporate proactive actions for prevention.

Beyond the ambient environment, certain professions heighten the risk of carcinogenic exposure. Workers in manufacturing, mining, and agriculture industries may be exposed to hazardous chemicals at work. Asbestos exposure, which is common in construction and shipbuilding, has been proven to increase the likelihood of developing mesothelioma and lung cancer. Similarly, workers exposed to benzene, a chemical used in the production of plastics, rubber, and detergents, are more likely to be diagnosed with leukemia.

Whereas access to safe drinking water is fundamental to health, it is also necessary to be vigilant of potential toxins. Industrial runoff, agricultural pesticides, and residue from water treatment operations can potentially incorporate carcinogens into our water supply.

Can mutational fingerprints unravel the causes of esophageal cancer?

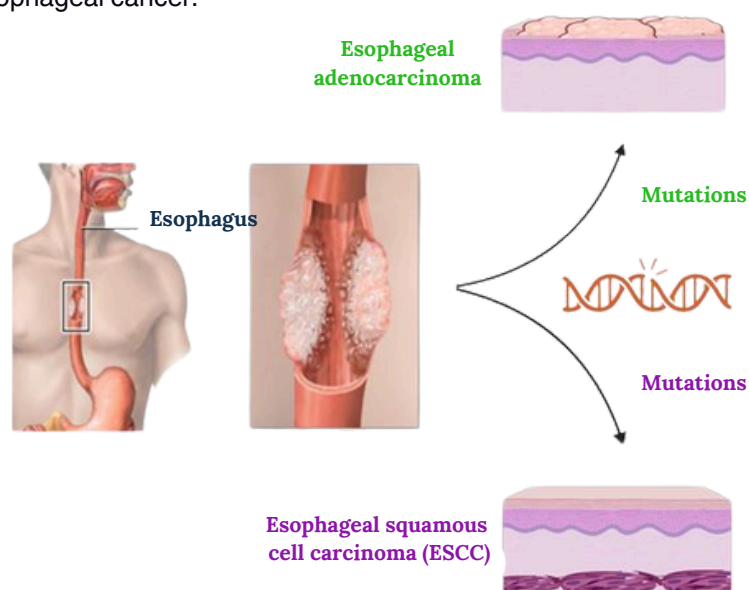
By Wanjiru Muriithi, Ph.D.

Esophageal cancer is the fourth most commonly diagnosed cancer and a major cause of cancer morbidity and mortality in Kenya. It is an aggressive cancer with poor outcomes in part due to late stage diagnosis, with patients presenting with inability to eat, weight loss and pain in the throat. Kenya lies on the African “esophageal corridor”, a region beginning from the north-eastern part of the continent to southern Africa, which have high incidences of the disease. While the geographical zones, ethnic groups and cultural practices in these high risk areas are widely varied, it is speculated that unknown exogenous exposure(s) could be responsible for the higher disease burden in this corridor.

Histologically, the most common subtype of esophageal cancer in Kenya is the esophageal squamous cell carcinoma (ESCC). While we have not determined the genesis of ESCC, a variety of risk factors have been put forth to explain this disease. Among them include tobacco smoking and alcohol consumption, which have been shown to act synergistically to increase the risk of ESCC. The consumption of hot beverages, a common practice in many regions of Kenyan highlands, is an added risk. Furthermore, exposure to polycyclic aromatic hydrocarbons from indoor air pollution and nyama choma, aflatoxin- and mycotoxin-contaminated food and drinks have also been associated with increased risk of esophageal cancer.

As we age, our genome is under assault from a number of DNA damaging agents that can result in changes in the DNA sequence, collectively known as mutations. These mutations, if not repaired, accumulate over time and remain imprinted into the genome of the affected cells. Subsequently, new daughter cells generated from these affected cells retain a historical archive of these mutagenic exposures. These mutagenic processes and agents have been shown to produce characteristic patterns of DNA lesions for a given mutagen (or mutational process) referred to as a mutational signature or pattern. Exposure to different carcinogens including UV light, aflatoxins, mycotoxins, arsenic, and smoking produce very specific mutation fingerprints in our genome.

The goal of mapping these mutation fingerprints is to not only understand the carcinogenic process, but also pinpoint etiological agents, especially when epidemiological studies fail to show specific risk factors. For example, in some esophageal cancer studies there are reports of mutation fingerprints related to alcohol consumption. Therefore, is it possible to identify other unique mutation patterns from other esophageal carcinogens? Can these signatures tell us the life history of esophageal cancer patients through the genomic fingerprints of past exposures? Can we use these unique mutational fingerprints to identify causative agents in esophageal cancer hotspots like Bomet, Meru and Marsa-



Different mutation fingerprints lead to different types of esophageal cancer
(Source: Biorender)

bit? While there are on-going and past studies addressing these questions, relatively low sample numbers (68 in one concluded study) and good quality samples hindered robust results.

The advent of next generation sequencing has ramped up cancer research, and many cancer whole genomes sequenced. However, genomes from patients of African descent remain understudied and under sequenced. Despite Africa having 15-20% of the world's population, and a reported widest genetic variation of any continent, only 2% of the genetic sequencing and information have been completed on African cancers. With evidence showing significant inter-ancestral differences in cancer cell phenotypes and molecular alterations that drive cancers, a move to enhance whole genome sequencing of all cancers would not only benefit etiological studies,

but also studies to advance knowledge on clinical applications in different populations.

The potential use of mutational fingerprints in identification of cancer causing agents is an exciting area of research. Scientists 'playing detectives' by uncovering the evidence left behind by carcinogens would have a great impact in the understanding of mechanisms of carcinogenesis and will be instrumental in identifying the causes of geographical variation in incidence rates of cancers like ESCC. While studies have shown that known carcinogens like arsenic and acetaldehyde are present in water and brews in high incident areas like Marsabit and Bomet, being able to directly link these chemicals to formation of tumors will have a stronger influence in government policy on preventative measures and in educating the public about potential ways to reduce the risk of getting this cancer.

The role of nutrition in cancer care and management

By Caroline Wakuthie, Ph.D.

Cancer is a complex and devastating disease that affects millions of people worldwide. In Kenya, there is a growing recognition of the importance of research that explores the relationship between nutrition and cancer. Kenyan scientists and researchers are actively studying the role of nutrition in cancer prevention and management, focusing on various components found in local foods. These studies aim to understand how these components can potentially reduce the risk of cancer or improve outcomes for those already diagnosed with the disease. By investigating the dietary patterns and habits of Kenyan populations, researchers are identifying potential links between certain foods or nutrients and the incidence or progression of cancer.

Some studies have shown that traditional Kenyan foods, particularly those rich in antioxidants and phytochemicals, may have a protective effect against certain types of cancer. For example, research has suggested that the consumption of indigenous fruits and vegetables, such as mangoes, papayas, and leafy greens like kale and sukuma wiki, may help reduce the risk of colorectal and breast cancer. Furthermore, the nutritional transition that Kenya has been experiencing in recent decades has raised concerns about increased cancer risks. This transition, characterized by a shift towards a more westernized diet, has led to the adoption of processed and fast foods rich in unhealthy fats, sugars, and additives.

While advancements in cancer treatment have improved outcomes for many patients, there is increasing recognition of the value of good nutrition in the management and prevention of cancer. Research studies have shown that certain dietary components can play a role in reducing the risk of developing cancer or improving treatment outcomes for those already diagnosed.

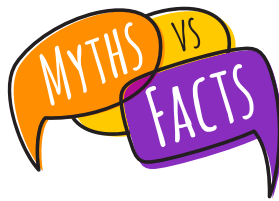
One important area of focus in cancer research is the role of antioxidants and phytochemicals, which are bioactive compounds found in various foods.

Research has shown that the beneficial effects of fruits and vegetables in reducing cancer risk can be attributed to the complex mixture of phytochemicals. These compounds have been shown to have chemotherapeutic properties and potential clinical applications. However, it is now believed that simply taking dietary supplements containing isolated antioxidants may not have the same health benefits as consuming a diet rich in fruits and vegetables.

The complexity of cancer and the multitude of factors that contribute to its development and progression make it challenging to determine the exact mechanisms by which nutrition influences cancer risk. Nevertheless, there is consensus that a diet featuring regular consumption of fruits, vegetables, and whole grains is strongly associated with a reduced risk of developing chronic diseases. It is also worth noting that while epidemiological studies have indicated a relationship between a high intake of antioxidant-rich foods and a reduced risk of cancer, intervention trials to determine the direct impact of antioxidants on cancer risk have yielded mixed results despite the known benefits of these antioxidants.

Cancer nutrition research has recommended that individuals focus on incorporating a wide variety of fruits and vegetables into their daily diet to obtain a diverse range of bioactive compounds. This approach can help provide the necessary nutrients and phytochemicals for optimal health and potentially reduce the risk of chronic diseases, including cancer. Cancer research is increasingly focusing on the role of nutrition and dietary components in both the management and prevention of cancer.





Debunking the myths about prostate cancer

By Ruth Mbugua, Ph.D.

Prostate? What does a prostate do? Where is it located? Prostate cancer is the most common cancer amongst men yet it affects an organ that a majority have no clue of its location, function or even its existence. The prostate is located just below the bladder in front of the rectum. It is about the size of a walnut and surrounds the urethra (the tube that empties urine from the bladder). It produces fluid that makes up a part of semen.

Starting a conversation about prostate cancer with a group of men in any forum poses a big challenge. It usually ends up in a swift change of topic to the current trending news. Men's health issues have long been surrounded by societal stigma and silence, which is influenced by existing male dominance factors. Prostate cancer despite being a top killer among men in Kenya remains a conversation that goes on in hushed tones and those living with the disease suffering a silent torture.

Prevention begins with understanding prostate cancer. Prostate cancer is cloaked with myths and misconceptions that deter screening and treatment of affected men. Here are some common myths, misconceptions, and the facts.

"Prostate cancer is an old man's disease." The old man's disease is benign prostate enlargement. However, prostate cancer can affect men of all ages. The latest report on cancer incidence and mortality in Kenya shows that 13% of all new prostate cancer cases were in men under 60 years. The risk factors of prostate cancer include genetic mutations, a family history of prostate cancer, ethnicity, age, lifestyle choices, and environmental factors.

"Prostate cancer screening does not work." Screening is vital to detect cancer early, when treatment can be more effective. The commonly used tests are the Prostate-Specific Antigen (PSA) blood test and the digital rectal exam (DRE). Men with prostate cancer usually have elevated PSA levels. However, other conditions such as prostatitis (inflammation of the prostate) and benign prostatic hyperplasia (enlarged prostate) can also raise PSA levels. DRE involves inserting a gloved lubricated

PSA levels. DRE involves inserting a gloved lubricated finger into the rectum to detect any hard areas or lumps in the prostate. While this examination can be uncomfortable for men, it takes approximately one minute. Generally, men over 50 years should undergo ROUTINE screening while those at a higher risk (such as a family history of cancer) should undergo early screening from 40 years.

"Prostate cancer presents with urinary symptoms." Early stages of prostate cancer may not present with any urinary symptoms. Other conditions like the non-cancerous benign prostate hypertrophy and inflammatory conditions present with urinary symptoms, which may not occur in prostate cancer. The screening for the PSA level is vital to assess the presence of prostate cancer even when there are no symptoms present in the early stage.

"Prostate cancer has been linked with denial of conjugal rights and impotency." This belief has deterred men from taking up screening and those diagnosed suffer silently due to the stigma associated with this negative belief. Another misconception is that prostate cancer treatment has been associated with sexual dysfunction, which has deterred the uptake of treatment. Most men will experience a normal sexual life during treatment. However, some treatments may cause side effects in some patients. Patients are advised to discuss available treatment options with their doctors.

"Death is the expected outcome of prostate cancer regardless of medical intervention." Prostate cancer is surrounded by fatalistic beliefs, which deter men from seeking screening services and treatment. The truth is, when prostate cancer is diagnosed early and treatment is initiated on time, it can save a man's life, prolong their survival and improve their quality of life.

We need to debunk these myths and beliefs because doing so will encourage men to seek screening and treatment services for prostate cancer. By shedding light on men's health, we can break down the barriers to access of care that may save a brother, a father, a colleague!

Kidney cancer in children: understanding Wilms Tumor through research

By Stella Irungu, Ph.D.

Wilms tumour (WT), also known as nephroblastoma, is the most common kidney cancer in children, usually diagnosed between ages 3 to 5 years. It remains the most common solid paediatric tumour in Africa, exceeding 10% of total paediatric cancers in many countries (Kenya 16%, Rwanda 21.3%, Senegal 22%, Ivory Coast 14.5%, Mali 17.6%, and Congo 15.5%). Children with black ancestry have a higher likelihood of developing WT, and this persists despite geographic locations and generations of genetic distance from sub-Saharan origin.

WT is often curable for children in high-income nations in contrast to children in Sub-Saharan Africa's resource-constrained regions who experience poor outcomes. In Kenya, the 2-year survival rate without disease-related complications is about 34%, compared to over 90% in high-income countries. While WT is often not inherited, there are some genetic reasons for tumour development. Some children may have mutated (changed), damaged, or missing genes crucial for normal kidney development. These genes are also responsible for causing several congenital disabilities, including Denys-Drash Syndrome, which is characterised by abnormal development of male genital organs. Children with Denys-Drash Syndrome have a 90% chance of developing WT.

WT mainly occurs in one kidney. However, approximately 5-7% of all WT patients will have tumours on both kidneys. Patients with these bilateral WT are diagnosed at a younger age (less than one year) and often have precursor lesions called nephrogenic rests (clusters of undifferentiated embryonic kidney cells). The typical presentation of this tumour is an enlarged swelling usually observed on one side of the abdomen. This may be accompanied by pain, blood in urine, high blood pressure, anaemia, and fever. Blood and urine tests and imaging follow this to confirm the presence of the tumour and determine whether it has spread to other organs.

WT management involves surgical removal of the affected kidney or tumor. The entire organ is removed when the tumor occurs in just one kidney. This surgical procedure is known as total nephrectomy. However, with bilateral WT, removing both kidneys would eliminate renal function. Instead, patients first need chemotherapy to shrink the tumors as much as possible, followed by organ-sparing surgery, also known as partial nephrectomy, to remove the

tumors without removing the whole kidney. A pathologist will then review the resected tissues to determine the stage of the disease, thus informing treatment. Other tests are also recommended to determine the presence of specific chromosomal changes, which may indicate how well a child will respond to chemotherapy.

In high-income countries, over 80% of childhood cancers are cured due to the availability of comprehensive services. However, the cure rate in lower- and middle-income countries is less than 30%.

Early diagnosis is very crucial for effective treatment and prognosis of any disease. In high-income countries, over 80% of childhood cancers are cured due to the availability of comprehensive services. However, the cure rate in lower- and middle-income countries is less than 30%. Death often results from factors such as lack of diagnosis, delayed diagnosis, treatment abandonment, adverse effects of drug toxicity, and disease relapse.

Addressing these challenges is crucial for improving outcomes in resource-constrained regions. Most research on WT has been conducted in Europe and America. It is unclear whether these findings can be applied to African patients due to differences in genetic makeup. Therefore, there is a crucial need to study WT in Sub-Saharan Africa to gain a deeper insight into the unique biology of this cancer in these regions. This is especially important given the presentation of aggressive tumours that respond poorly to treatment.

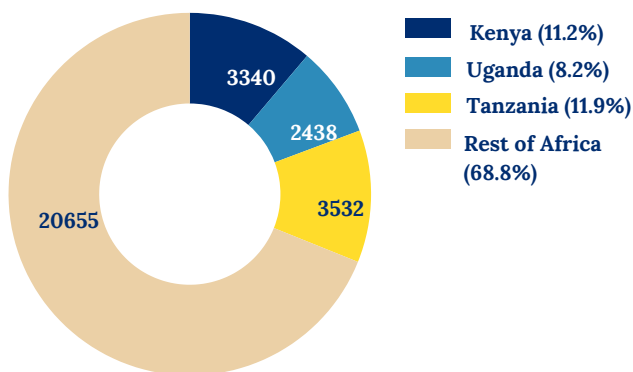
Further research into therapeutic management would also enhance treatment outcomes for children with early-stage WT, minimising the risk of disease recurrence. Simultaneously, for children diagnosed with unfavourable high-risk forms of WT, the objective is to develop better treatment approaches that significantly improve the likelihood of a favourable outcome. It is thanks to research that we know all this about kidney cancer in children. By further investing in research, we can address the causes and thereby increase the odds of finding and providing a cure for these children.

April is Esophageal Cancer Awareness Month

Did you know?

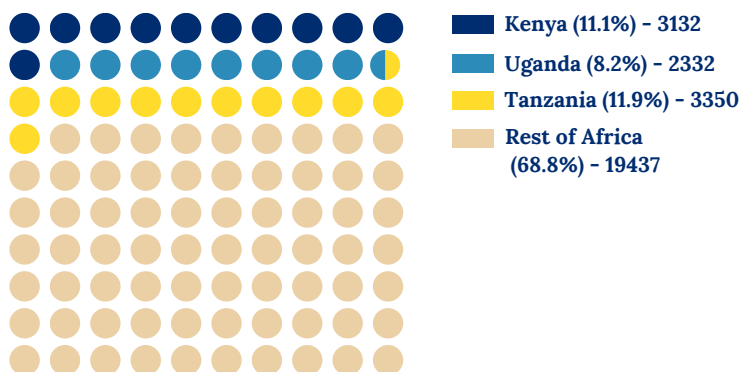
East Africa is part of the esophageal cancer corridor. Kenya, Uganda, and Tanzania are among the leading countries in Africa in esophageal cancer incidences and mortality.

Esophageal Cancer - Incidence



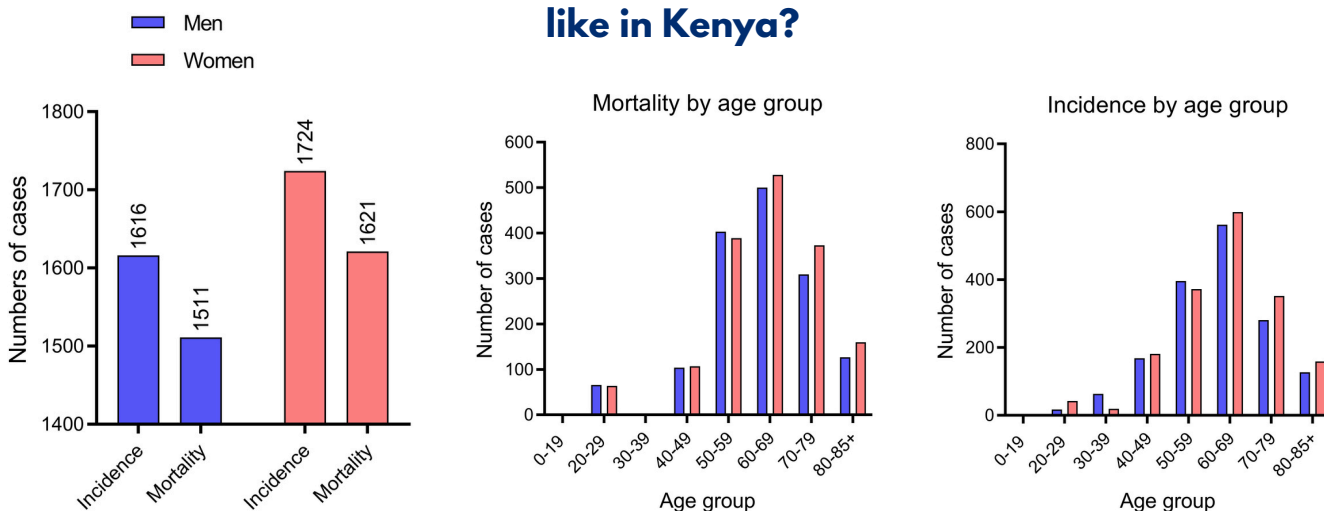
Total Incidence = 29965

Esophageal Cancer - Mortality



Total Mortality = 28251

How do esophageal cancer numbers look like in Kenya?



Risk factors for esophageal cancer



Obesity



Alcohol



Smoking



Aging



Gastroesophageal reflux disease (GERD)

Other Risk Factors

- Barrett's esophagus
- Physical inactivity
- HPV infection
- Gender
- Low intake of fruits & vegetables
- Poor oral health

Source

- Cancer Today IARC - <https://gco.iarc.who.int>
- GloboCan 2022 (version 1.1) - 08.02.2024



COMPANY PROFILE

ABOUT ICRF

Integrated Cancer Research Foundation (ICRF) is a non-profit research organization (Registration No. CLG-72F8E2) based in Kenya. Founded in 2018, its primary goal is to address the burden of cancer in Kenya through evidence-based research. ICRF aims to address the specific needs of the Kenyan people affected by cancer, in line with the National Cancer Control Strategy of Kenya. ICRF has three main divisions: RESEARCH, OUTREACH, and CLINICAL, which work collaboratively towards achieving the organization’s vision and mission.

OUR VISION

To manage the burden of cancer in Africa and be a leading cancer research organization in the world

OUR MISSION

We strive to address Kenya’s challenges to combat cancer through cutting-edge molecular research, evidence-based community outreach, and the creation of sustainable foundations for preventing, diagnosing, and treating cancer.

OUR FOCUS

RESEARCH

Our oncology research programs are aimed at unearthing new insights regarding the prevention of cancer, new avenues for early diagnosis, and safe, effective and affordable cancer treatments.


OUTREACH


We promote cancer awareness and education by through community programs to inform the public about cancer prevention, diagnosis, and management.

CLINICAL

Our aim is to coordinate clinical outreach in underserved areas, including cancer screening and detection programs, and empower local healthcare workers with vital information, tools and resources to combat cancer.

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ONCOAFRICA

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SOCIAL MEDIA



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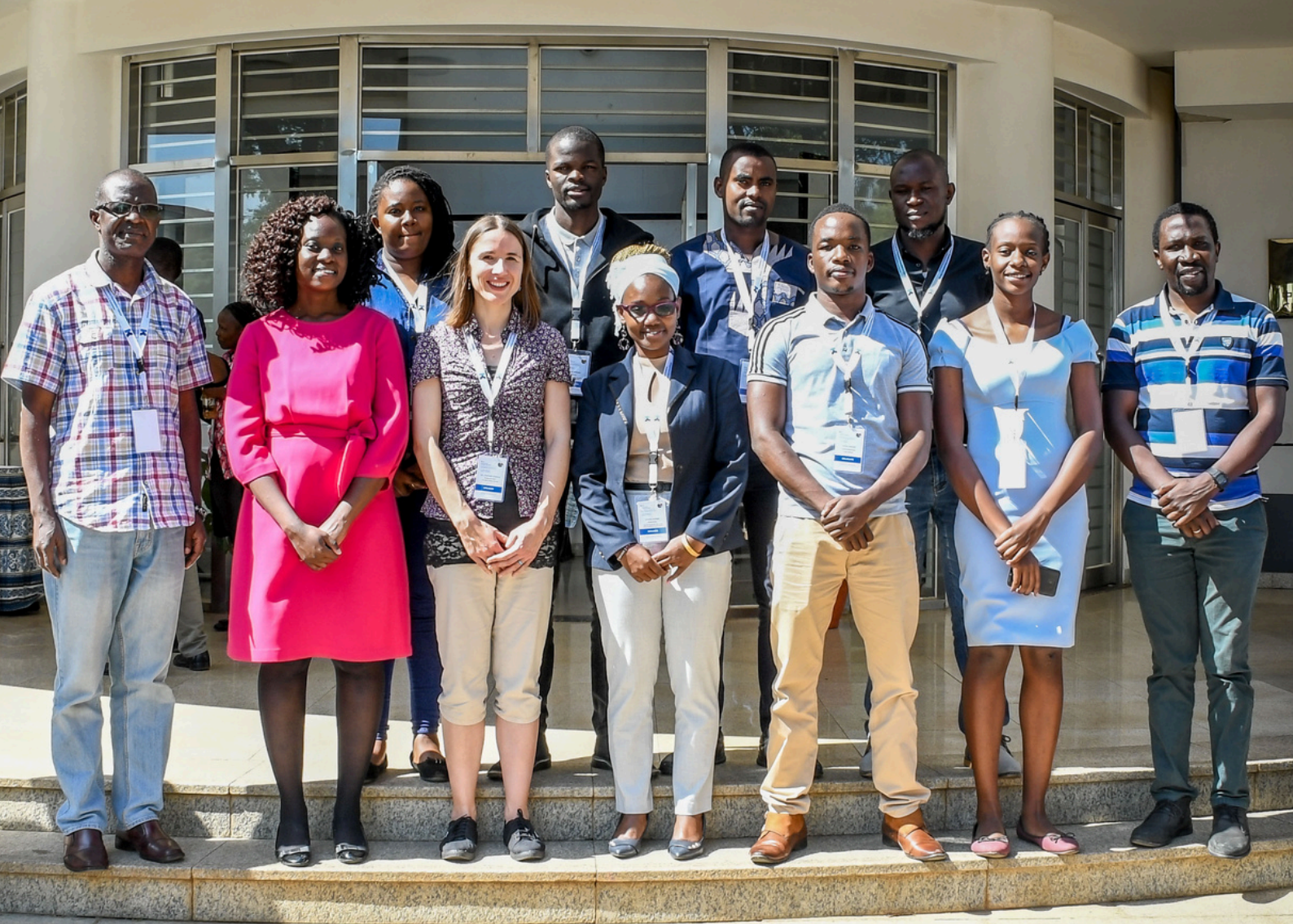


Photo: Part of ICRF's Kenya Team at the First Cancer Research Symposium held at Kenyatta University from 6th - 8th December 2023

ONCOAFRICA

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