

2025 Emory Morningside Global Health Case

SHEROSE for a Cervical Cancer-Free Kenya: Eliminating Cervical Cancer as a Public Health Problem in Kenya



EMORY
UNIVERSITY

Emory Global Health Institute

2025 Emory Morningside Global Health Institute Case Writing Team

*Allyson Huh, Rollins School of Public Health
Samridhi Purohit, Rollins School of Public Health
Heidi Sielbach, Rollins School of Public Health*

Sue Binder, MD. | Michael Chung, MD., PhD Case Advisors

Challenge

Propose a five-year program to support the Government of Kenya (GoK) in accelerating progress towards dramatically reducing cervical cancer. Cervical cancer prevention in Kenya is informed by the World Health Organization's (WHO) Global Strategy for cervical cancer elimination, which focuses on three pillars: vaccination against human papilloma virus (HPV) infection, screening women for cervical disease (i.e., cervical cancer precursors), and treating women with positive screening tests. This program will provide critical input for Kenya to develop a robust plan to accelerate screening and treatment, two of the three pillars.

Case Scenario

Government of Kenya Perspective

Cervical cancer is preventable due to the availability of the HPV vaccine and the curability of precancerous lesions when detected early by screening. Yet, cervical cancer remains a leading killer of women worldwide and a stark reminder of global inequities with nearly 94% of deaths in 2022 occurring in low- and middle-income countries.

Kenya has one of the highest incidence rates of cervical cancer in the world, with 40.1 new cases diagnosed per 100,000 women each year. As a result, cervical cancer is the leading cause of cancer deaths among women in Kenya.

The GoK has committed to eliminating cervical cancer as a public health problem, which the WHO defines as “significantly reducing the incidence of cervical cancer to a very low level, specifically below 4 cases per 100,000 women per year.” According to the WHO, the achievement of this goal rests on three key pillars: vaccination, screening, and treatment. WHO recommends setting 90-70-90 targets: 90% of girls vaccinated against HPV by age 15, 70% of women screened by age 35 and again by 45, and 90% of women with cervical disease treated.

Kenya is far from these targets. For example, a recent study suggested that prevalence of cervical cancer screening among reproductive age women in Kenya is around 17%. Therefore, the GOK has decided to develop a new 10-year plan to accelerate progress towards the targets and is seeking evidence-based proposals to inform how it will structure its national program to maximize impact and progress towards elimination targets.

Kenya's health and education ministries have a plan to increase HPV immunization rates. This call for proposals focuses on screening and treatment, the two other strategic pillars.

Non-Governmental Organization (NGO) Perspective

Recently, the CEO of Stop Cancer Now! (SCN!), a large international NGO, published an article about her visit to a women's health clinic in Nairobi, Kenya. Her NGO has extensive experience working with governments and other organizations in sub-Saharan Africa and has partnered with universities and industry to develop and test innovative technologies. This NGO originally focused its resources on HIV prevention, screening, and treatment. In recent years, it has become engaged in broader health systems improvement efforts, particularly related to women's health.

At the clinic in Nairobi, the CEO met Juliana, a 35-year-old mother of two, who sought treatment for multiple issues, including headaches and bleeding between her periods. The nurse gave Juliana some pills for her headaches. Juliana said that a nurse "looked inside and did a test" and cautioned that Juliana might be developing cancer. The nurse advised Juliana to go to the hospital for treatment – that if she didn't get treatment, "it could become cancer." Juliana does not plan to follow up because the *"hospital is too far away, travel and health care cost too much, and her children and chores take up all her time."* She has heard that the *"hospital makes you wait a very long time, and the care is not good."* Besides, she said, "I will be hopeless if I have cancer."

Pauline, one of the clinic nurses, told the SCN! CEO about problems at the clinic. For example, the clinic is understaffed and workers frequently burn out, quit, or get higher-paying jobs overseas or with international organizations. Supplies can often run out, even basic supplies, such as gloves and soap. In addition to HIV, patients frequently present with other health issues, including tuberculosis and opportunistic infections, family planning needs, and chronic diseases. Finally, Nairobi has frequent power outages, and sometimes there is no water in the taps.

The clinic tries to follow cervical screening guidelines, but there are not enough staff or supplies. Pauline estimates that about 30% of young women clients at her clinic are screened for cervical cancer precursors, but it can't provide follow-up for positive cervical disease screening or for many of the other conditions they frequently see, such as tuberculosis and heart disease. Pauline knows that many patients, like Juliana, do not follow up on referrals, which makes screening efforts largely pointless. Pauline says she often feels exhausted and helpless.

The SCN! CEO ended her article describing her respect for Pauline noting her continued efforts to help her patients, despite the many barriers. The CEO expressed frustration and sadness that Juliana could die needlessly from cervical cancer. She concluded her article by saying that her NGO and the Kenyan healthcare system had failed both Pauline and Juliana.

Case Prompt

SCN! has received a total of \$40 million from two large U.S.- and German-based foundations to support programs that will significantly boost Kenya's efforts to eliminate cervical cancer, with a focus on screening for and treatment of cervical disease. Proposals are being solicited from NGOs with experience working with Kenya's health-care system. You believe that your NGO has the knowledge, experience, skills, and connections for a successful funding application.

The SCN! funding is not for HPV immunization-related work. The ministries of health and education are addressing the need to increase immunization. For example, HPV vaccine is being offered free to girls ages 10-14 years. Although HPV vaccine uptake is low, the GoK and partners have received separate funding to assess community knowledge, attitudes, and beliefs about the HPV vaccine and improve vaccine demand and delivery.

You have been asked to propose a 5-year \$40 million program that will provide a basis for GoK to accelerate its progress on the cervical cancer screening and treatment aspects of the 90-70-90 targets (screening 70% of women by age 35 and again by 45 and treating 90% of women with cervical disease). Because women living with HIV (WLWH) have a six-fold increased risk of developing cervical cancer, you are asked to include recommendations targeted to this group.

Your program should focus on two of the following three geographic areas that have been identified by the GoK as examples of the varied issues faced in different parts of the country, for example, related to disease burden, health infrastructure, and cultural issues:

- Nairobi City County, encompassing the most populous city in Kenya
- Siaya County, an area with an extremely high rate of HIV
- Narok County, a rural area with a large population of Maasai that has low quality and quantity of health services

Program Requirements

Your program should:

- Describe the major data gaps related to achieving GoK screening and treatment goals
- Identify major barriers to screening and treatment
- Develop and evaluate activities designed to increase cervical cancer screening and ensure follow-up of women who have positive screening tests. These could include research, demonstration projects, evaluation of existing efforts, technological development, or other approaches.

- Indicate clearly how your experiences in two counties can be used to inform a nationwide strategy that increases overall screening and treatment for women in Kenya, and specifically for the target population of WLWH.
- Include a plan for engaging stakeholders as you develop your program. This stakeholder engagement will help ensure your program is practical and meets stakeholder needs, as well as providing support for the GoK if it proceeds with your recommendations.

In designing your proposal, make sure you consider or address directly:

- How the program will contribute to achieving the goal of elimination of cervical cancer as a public health problem, with a particular focus on screening and treatment.
- How you will ensure the approach and results will be acceptable to government, healthcare providers, patients, and the community.
- How the program integrates or takes advantage of existing infrastructure.
- How the program integrates, links to or leverages the work of key partners, e.g., those addressing HIV.
- How integrated health information systems can enhance your proposed solutions.
- How to address systemic inefficiencies in planning and budgeting to ensure sustainable domestic financing.
- Issues that arise from the federal/county structure of healthcare and related issues in Kenya.
- Issues of extrapolation from the target populations within your proposal to other populations in Kenya.

Your proposal should include comprehensive timelines for all components of the program.

Budget

Budgets should be within the \$40 million envelope and include a detailed breakdown by year, with itemization of costs for personnel, supplies, facilities, research and innovation, communication, and evaluation over the five years of the award. The SCN! funding should be allocated over 5 years. It is expected that the funding requirements will differ in different years, but the total is fixed. The final year of the program should include a plan for dissemination to the government of Kenya and other stakeholders and strategies to maximize the use of the evidence collected and recommendations. This could include meetings in Kenya and with potential donors, working with the media, publications, or other approaches.

Case Competition Process

Case competition judges will play the role of the panel selected by the GoK and SCN! to select the exceptional program to be funded. While clarity in how the program will impact achieving the targets is essential, the GoK is open to funding experimental activities that could be paradigm-shifting, if the rationale and potential short- and long-term impact are clear. Experimental activities should include explicit discussion of the potential risks and benefits of investing in this work.

Deliverables

Teams will be required to produce the following:

- A. Executive Summary: Summarizes in a 1-page report the proposed solutions, which includes specific recommendations, action plans, goals, overall budget, and timelines
- B. Detailed Budget: Outlines how resources will be allocated.
 - Provide justifications for budgetary decisions, highlighting feasibility and cost-effectiveness
- C. Presentation Slides: Includes the below information in support of the oral presentation.
 - Title of the proposal
 - Project narrative, including:
 - Description of the problem being addressed
 - Program and/or intervention(s) proposed and how they will contribute to the long-term goal of eliminating cervical cancer as a public health problem in Kenya
 - Potential challenges in completing the proposed work and how these will be countered
 - Supporting evidence, including citations
 - Detailed program timeline
 - Budget
 - Sustainability strategy
 - Monitoring and Evaluation (M&E) strategy
- D. Oral Presentation:
 - A 12-minute presentation to a panel of judges, followed by 8 minutes of Q&A.

Timeline

From **Wednesday, March 19 at 9:00 AM ET** until **Wednesday, March 26 at 9:00 PM ET**, teams are welcome to contact the Case Writing Chair to ask questions or seek

clarifications about the content of the case. A contact email for questions will be provided when the case is released.

Through **Tuesday, March 25**, the Case Writing Chair will respond within 12 hours of receipt of a question. Starting Wednesday, March 26 at 6:00 AM ET, responses to team questions will be sent within 3 hours from the time they are submitted. Questions will **not** be accepted after **9:00 PM ET on Wednesday, March 26**.

To ensure that teams have similar knowledge about the case, all questions and answers will be posted on the competition site via a Google document link.

Additional Background

Cervical cancer and its precursors

Cervical Cancer Screening

In Kenya, rates of screening for cervical cancer and precursor conditions remain low. Rates are variable across the country, with higher rates in large cities such as Nairobi and lower rates in rural counties such as Narok County. In 2019, only 17% of women in Kenya had ever been screened, although this number has increased in recent years. Screening rates are higher in HIV clinics than in the general population, with well over half of women in HIV clinics receiving screening.

Although not fully aligned with WHO recommendations (see below), GoK considers both HPV testing and screening with vaginal inspection with acetic acid (VIA) to be appropriate screening tests. In Kenya, nearly all screening for cervical cancer and precursors uses VIA as the primary method, which is a low-cost intervention, requiring minimal equipment and providing immediate results. VIA sensitivity is variable, but well below 100%. Specificity is also less than desirable. Low sensitivity results in an under-diagnosis of women with pre-cancerous changes. In one study of 100,102 women who were screened with VIA across 25 counties in Kenya in 2021, only 3% were positive, well below the expected prevalence of at least 6%. Reasons for poor performance of VIA screening in Kenya include the subjective nature of VIA interpretation and insufficient training and oversight of workers.

HPV is the cause of nearly all cervical cancers. It is the most common sexually transmitted infection in the world. Persistent infection with high-risk types of HPV can cause abnormal cells to develop, leading to cervical cancer. People who become sexually active at a young age or have multiple sexual partners are more likely to become infected with high-risk HPV.

Since 2021, WHO has recommended HPV testing (DNA testing for oncogenic strains) as the first-choice method for cervical cancer prevention. For the general population of women, HPV screening should start at the age of 30 years, with regular testing every 5–10 years. Because HPV rates are very high among WLWH, the WHO recommends that they be screened for HPV starting at the age of 25 years, with regular screening every 3–5 years.

For women in the general population with positive HPV tests, WHO calls for either a screen-and-treat or a screen-triage-treat approach (i.e., conducting follow-up assessment before deciding whether to treat). Because rates of HPV are very high among WLWH, the WHO recommends that WLWH with positive HPV tests get triaged using VIA before a decision is made about whether to treat. (Well over one-third of WLWH were HPV positive in a 2023 study in western Kenya.)

HPV specimen collection can be self-administered and does not require a pelvic exam, clinic setting, or trained clinician. However, HPV testing has not had wide uptake in low- and middle-income countries due to factors such as cost and the delay between when the specimen is collected and the availability of results.

Referral and Treatment for Women with Cervical Cancer Precursors

Among women who test positive with VIA or HPV screening, follow-up is poor. In a recent report by the Kenya National Cancer Control Program and the Clinton Health Access Initiative, which examined self-collected HPV testing as a primary screening method, only 14% of HPV-positive women received additional recommended VIA triage and <1% received cervical cancer treatment. Although follow-up rates have varied among studies, they remain persistently low.

One barrier to treatment is the need for women screening positive with VIA or HPV to be referred elsewhere for treatment. Most clinics that conduct screening for cervical cancer are unable to provide treatment. For example, in a survey of 3,150 hospitals public hospitals throughout Kenya, 47.6% (1,499) offered cervical cancer screening only, while 5.3% (166) offered both screening and treatment for precancer lesions. VIA was used in 96.0% (1,599/1,665) of the hospitals as primary screening modality and HPV testing was available in 31 (1.0%) hospitals. Among factors contributing to low follow-up rates are lack of time for clinic staff to provide counseling and healthcare navigation support and lack of a structured referral and tracking system.

Treatment of precancerous cervical lesions in Kenya is largely by cryotherapy, thermal ablation, or large loop excision of the transformation zone, which have very high success rates in preventing development of cancer (well over 80%).

HIV in Kenya

HIV positivity is a major risk factor for cervical cancer; WLWH have a six-fold increased risk of developing cervical cancer according to WHO, with rates of cervical cancer and precursors between 2-4 times higher than among women with AIDS. Approximately 5.5% of women in Kenya are thought to be HIV-positive. Rates of HIV infection vary across the country, with rates in Siaya County among the highest.

Around 834,000 women are believed to be on anti-retroviral therapy in Kenya, the majority of which is funded by international donors. This may have changed recently due to changing political situations. Donor-funded programs often operate as “vertical programs,” which are not always well-integrated into the public health and governmental healthcare systems. They often have their systems for patient data, which may not link to other health systems’ data. Numerous anecdotal reports document women with well-controlled HIV, whose cervical cancer or precancerous lesions are undiagnosed or untreated.

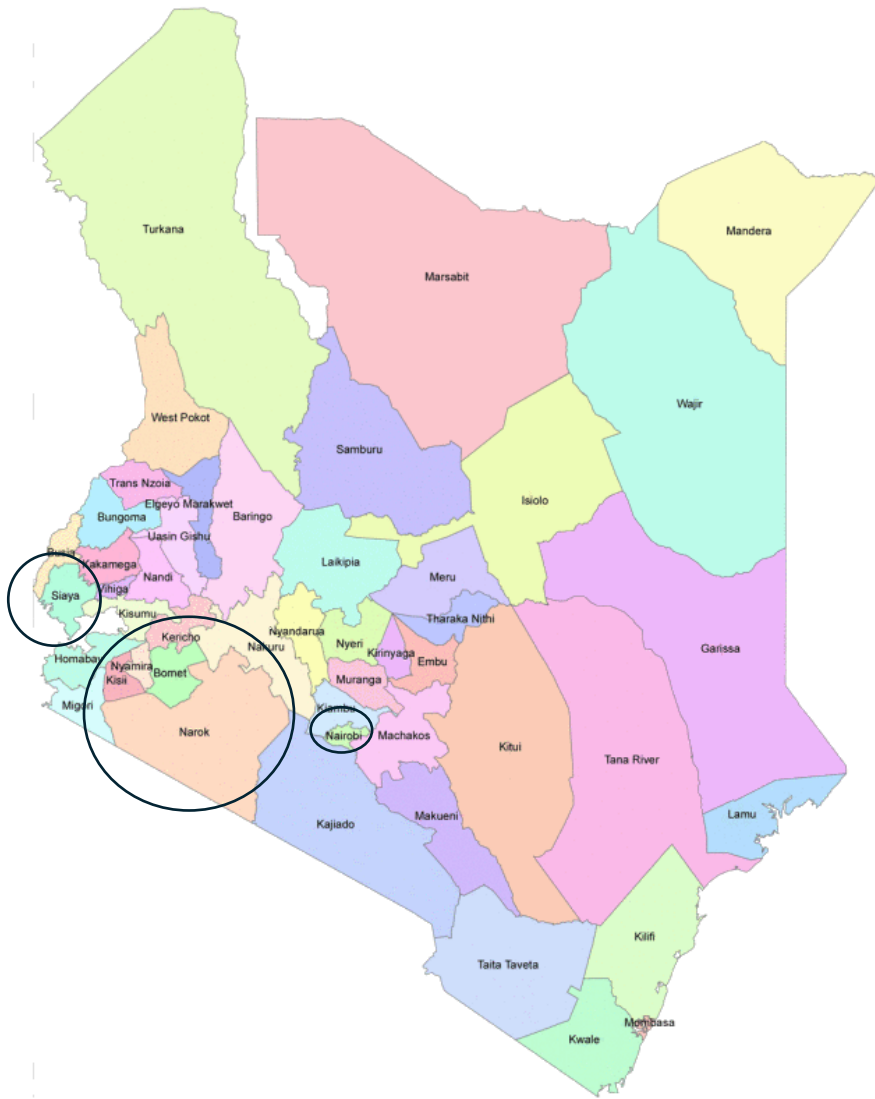
Kenya

Kenya is an East African country that is classified as a lower middle income by the World Bank, although large disparities exist in poverty and socioeconomic status. Most Kenyans live in the highlands, where Nairobi, the capital, is located.

The Kenya population is estimated at 53.3 million. The population is divided into three language groups, and many people have strong tribal identities. Around 40% of Kenyans live in poverty, with poverty more prevalent in rural areas.

In Kenya, the national government has broad powers over national issues like defense, foreign policy, and taxation, while the county governments handle local matters such as healthcare. Each county has its own elected leaders and legislative bodies, making them distinct but interdependent entities under the Kenyan Constitution. The counties have significant authority and power to address the needs of their populations.

Nairobi, Narok, and Siaya Counties



Nairobi

Nairobi is the capital and largest city in Kenya. It is located in the south-central part of the country, in highlands (elevation 5500 feet).

Nairobi's population is around 4,906,000. It is ethnically diverse, with people from all major ethnic groups. Although nearly 60% of Nairobi's population lives in informal, high-density settlements. Nairobi is considered one of the richer counties in Kenya, with a poverty rate of 16.5% in 2022.

Narok County

Narok County has a population of around 1,355,000 and is located along the southern part of the Great Rift Valley bordering Tanzania. It produces most of Kenya's barley and wheat, and many other agricultural products, and is working to adapt to climate change.

The population is largely Masai, as well as being home to Kalenjin and other ethnic groups, with ethnic groups such as the Ogiek and Oromo considered by some to be marginalized. The main city is Narok, and the county has only one other major urban center. Lack of access to basic services, such as electricity and water, contribute to poverty in some areas.

Siaya County

Siaya County is in western Kenya, bordering on Lake Victoria. Its population is 1,097,000, mostly from the Luo tribe. It has among the highest HIV rates in Kenya. Its main economic activities are agriculture and fishing.

Selected References

WHO Documents

WHO. (2020). *Global strategy to accelerate the elimination of cervical cancer as a public health problem*. World Health Organization.

<https://www.who.int/publications/i/item/9789240014107>

WHO. (2021). *New recommendations for screening and treatment to prevent cervical cancer*. <https://www.who.int/news/item/06-07-2021-new-recommendations-for-screening-and-treatment-to-prevent-cervical-cancer>

WHO. (2022). *Cervical Cancer Elimination Initiative*.

<https://www.who.int/initiatives/cervical-cancer-elimination-initiative>

WHO. (2023, December 12). *New evidence on cervical cancer screening and treatment for*

women living with HIV. <https://www.who.int/news/item/12-12-2023-new-evidence-on-cervical-cancer-screening-and-treatment-for-women-with-hiv>

Published Articles About Cervical Cancer Prevention and Treatment

Akinyi, I., Awandu, S. S., Broeck, D. V., Pereira, A. R., Redzic, N., & Bogers, J. (2024). Prevalence and genotype distribution of potential high-risk and high-risk human

papillomavirus among women attending selected reproductive health clinics in lake victoria basin-kenya: a cross-sectional study. *BMC Women's Health*, 24(1). <https://doi.org/10.1186/s12905-024-03303-9>

Defo, V. F., & Domgue, J. F. (2020). Why Consider Self-Sampling for Cervical Cancer Screening in Low- and Middle-Income Countries? *AMA Journal of Ethics*, 22(2), E116-125. <https://doi.org/10.1001/amajethics.2020.116>

Fleider, L. A., de los Ángeles Tinnirello, M., Gómez Cherey, F., García, M. G., Cardinal, L. H., García Kamermann, F., & Tatti, S. A. (2023). High sensitivity and specificity rates of cobas® HPV test as a primary screening test for cervical intraepithelial lesions in a real-world setting. *PLOS ONE*, 18(2), e0279728. <https://doi.org/10.1371/journal.pone.0279728>

Gebreegiabher, Z. A., Semagn, B. E., Kifelew, Y., Abebaw, W. A., & Tilahun, W. M. (2024). Cervical cancer screening and its associated factors among women of reproductive age in Kenya: further analysis of Kenyan demographic and health survey 2022. *BMC Public Health*, 24(1). <https://doi.org/10.1186/s12889-024-18148-y>

Genberg, B., Wachira, J., Kafu, C., Wilson, I., Koech, B., Kamene, R., Akinyi, J., Knight, J., Braitstein, P., & Ware, N. (2019). Health System Factors Constrain HIV Care Providers in Delivering High-Quality Care: Perceptions from a Qualitative Study of Providers in Western Kenya. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 18, 232595821882328. <https://doi.org/10.1177/2325958218823285>

Goel, B., Desouza, A., Sehgal, A., & Dubey, S. (2022). Looking Beyond VIA to Improve Cervical Cancer Screening in Low Resource Settings. *Journal of Obstetrics and Gynaecology of India*, 72(6), 503–508. <https://doi.org/10.1007/s13224-022-01674-3>

Gonzalez, M., Boonya-Ananta, T., Madhivanan, P., & Ramella-Roman, J. C. (2022). Cervical Imaging in the Low Resource Setting: A Review. *Biosensors*, 12(10), 786. <https://doi.org/10.3390/bios12100786>

Gossa, W., & Fetters, M. D. (2020). How Should Cervical Cancer Prevention Be Improved in

LMICs? *AMA Journal of Ethics*, 22(2), E126-134.
<https://doi.org/10.1001/amajethics.2020.126>

Kuhn, L., & Denny, L. (2017). The time is now to implement HPV testing for primary screening in low resource settings. *Preventive Medicine*, 98, 42–44.
<https://doi.org/10.1016/j.ypmed.2016.12.030>

Mengesha, M. B., Chekole, T. T., & Hidru, H. D. (2023). Uptake and barriers to cervical cancer screening among human immunodeficiency virus-positive women in Sub Saharan Africa: a systematic review and meta-analysis. *BMC Women's Health*, 23(1), 338. <https://doi.org/10.1186/s12905-023-02479-w>

Mwenda, V., Mburu, W., Bor, J.-P., Nyangasi, M., Arbyn, M., Weyers, S., Tummers, P., & Temmerman, M. (2022). Cervical cancer programme, Kenya, 2011–2020: lessons to guide elimination as a public health problem. *Ecancermedicalscience*, 16.
<https://doi.org/10.3332/ecancer.2022.1442>

Mwenda, V., Murage, D., Kilonzo, C., Bor, J.-P., Njiri, P., Osiro, L., Nyangasi, M., Arbyn, M., Philippe Tummers, & Temmerman, M. (2024). Baseline assessment of cervical cancer screening and treatment capacity in 25 counties in Kenya, 2022. *Frontiers in Oncology*, 14, 1371529. <https://doi.org/10.3389/fonc.2024.1371529>

Orang'o, E. O., Were, E., Rode, O., Muthoka, K., Byczkowski, M., Sartor, H., Davy Vanden Broeck, Schmidt, D., Reuschenbach, M., Knebel, von, & Bussmann, H. (2020). Novel concepts in cervical cancer screening: a comparison of VIA, HPV DNA test and p16INK4a/Ki-67 dual stain cytology in Western Kenya. *Infectious Agents and Cancer*, 15(57), 57. <https://doi.org/10.1186/s13027-020-00323-6>

Shaffi, A. F., Odongo, E. B., Itsura, P. M., Tonui, P. K., Mburu, A. W., Rashid, A., Rosen, B. P., & Covens, A. L. (2024). Cervical cancer management in a low resource setting: A 10-year review in a tertiary care hospital in Kenya. *Gynecologic Oncology Reports*, 51, 101331–101331. <https://doi.org/10.1016/j.gore.2024.101331>

Wesley, R., Sankaranarayanan, R., Mathew, B., Chandralekha, B., Aysha Beegum, A., Amma, N., & Nair, M. (1997). Evaluation of visual inspection as a screening test for cervical

cancer. *British Journal of Cancer*, 75(3), 436–440. <https://doi.org/10.1038/bjc.1997.72>

Zibako, P., Hlongwa, M., Tsikai, N., Manyame, S., & Ginindza, T. G. (2022). Mapping Evidence on Management of Cervical Cancer in Sub-Saharan Africa: Scoping Review. *International Journal of Environmental Research and Public Health*, 19(15), 9207. <https://doi.org/10.3390/ijerph19159207>

Data Sources for Overall Country and County Information

Stats Kenya. (2025). Population of Kenya 2025 - Population by County. Kenya Data & Statistics.

<https://statskenya.co.ke/at-stats-kenya/about/population-of-kenya-2025-population-by-county/110/>