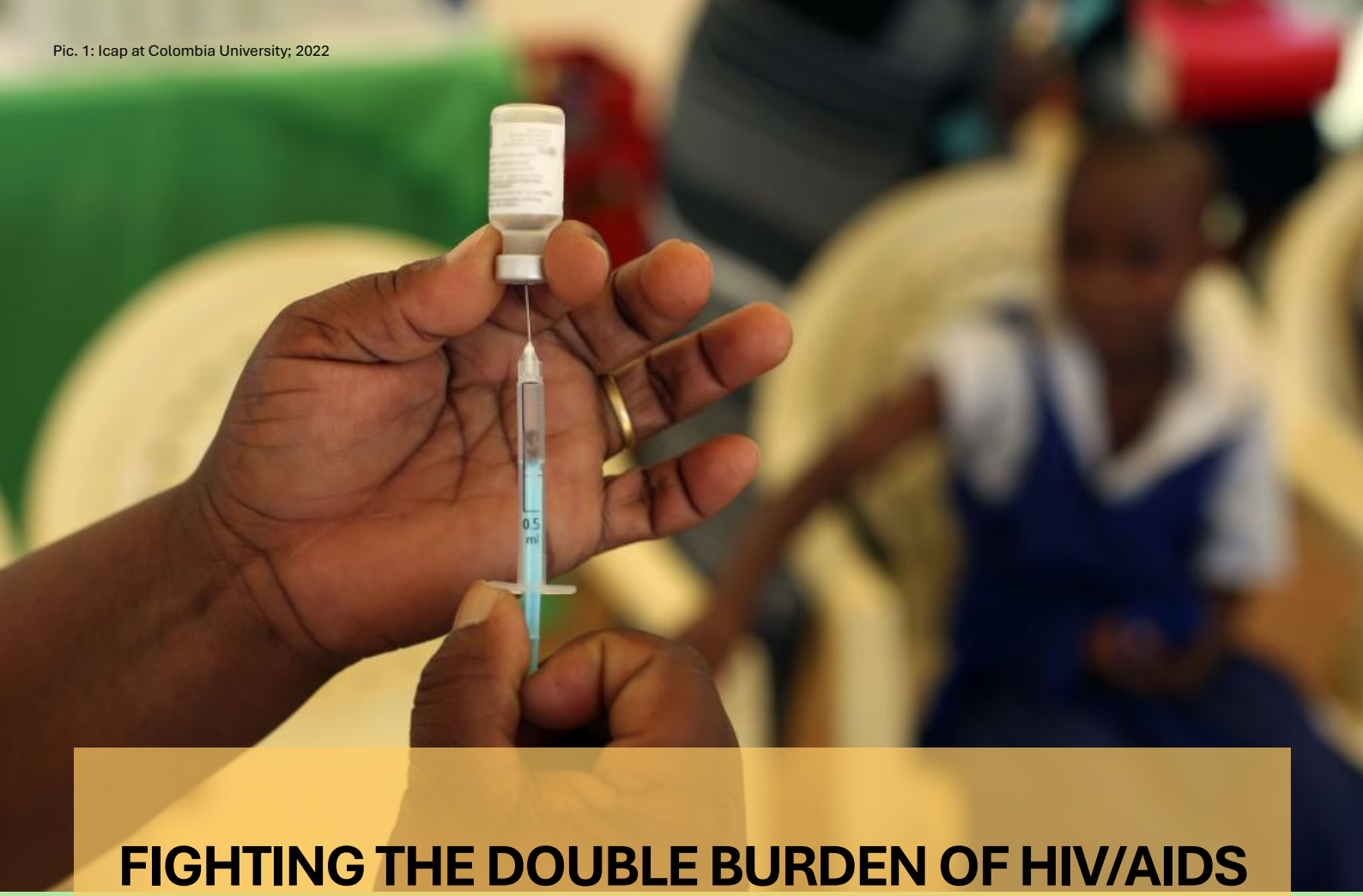


Pic. 1: Icap at Colombia University; 2022

FIGHTING THE DOUBLE BURDEN OF HIV/AIDS AND CERVICAL CANCER IN ESWATINI

Policy recommendations to decrease the rate of new infections and improve health outcomes

Executive Summary

In Eswatini, especially women are facing a severe double burden of disease, with the world's highest rates of both HIV and cervical cancer. Despite achieving notable progress, because of persistent gaps in the healthcare system, access to screening, prevention, and treatment remains limited.

This policy brief summarized evidence-based recommendations to improve health outcomes and reduce new infections. In the area of HIV prevention, it recommends scaling up self-testing, promoting voluntary medical male circumcision, and strengthening sexual education for young people. For cervical cancer, key measures include building up the healthcare infrastructure, training nurses, supporting self-testing, and involving men in prevention efforts.

Increasing prevention strategies targeting both diseases can increase efficiency and impact and reduce new infections, improve (women's) health outcomes, and strengthen Eswatini's healthcare system.

Valerie Siedler

INTRODUCTION...

...TO ESWATINIS CURRENT SITUATION AND HEALTHCARE SYSTEM

Eswatini, the last monarchy in Sub-Saharan Africa, faces multiple **socio-economic and health challenges** (AHB, 2021). The country has a population of 1,201,671 people (UNDP, 2024), with women **51.4% women** and 26.1% in childbearing age (15-49 years) (MOH, 2019).

The country has a young demographic profile, with a median age of 21.7 years (MOH, 2019), and a **life expectancy of only 61 years**, among the lowest globally (Macrotrends, 2024). Economic challenges persist, with a Gross Domestic Product (GDP) of $3,823 per capita in 2023, an unemployment rate of 33.3% (rising to 59.1% among youth), and over **50% of the population living below the poverty** line (WORLDBANK, 2024).

Country Factsheet:

- Population: around 1.2 mio
  - 51.4% females
- Life Expectancy: 61 years (2024)
- Median Age: 21.7 years
  - 56% of population below 25 years
- GDP: 3,823 $ (2023)
- 6.54 % of GDP spent on health (2018)
- 5% of GDP spent on education (2021)
- Unemployment: 33.3% (2021)
- < 50% live below the poverty line
- Gini Index: 54.6% (2016)
- HIV prevalence < 27%
- Human Development Index: 0.61

(AHB, 2021, MOH, 2019, UNDP, 2024, Macrotrends, 2024, WORLDBANK, 2024)

Eswatini ranks 136th out of 139 countries on the International Labour Organization's Skills Mismatch Index, showing a **gap between education and labor market needs**. Although the government allocates a relatively high share of the GDP to health and education, the **outcomes are poorer** than expected. The country also experiences one of the highest levels of inequality in the world, with a Gini index of 54.6% (WORLDBANK, 2024).

In terms of health, Eswatini bears a high burden of communicable and non-communicable diseases. It has the **highest HIV prevalence globally, with 27.4%** of adults living with the virus, disproportionately affecting women (WORLDBANK, 2024). The country's Human Development Index (HDI) is 0.610, placing it in the medium development category at 142 out of 193 countries. The HDI is a summary measure for assessing average achievement like a long and healthy life, education access, and a good standard of living (UNDP, 2024).

Pic. 2: Eswatini on the African Map. Retrieved from: https://www.responsibletravel.com/holidays/swaziland/travel-guide

Health Care System

Eswatini's healthcare system is regulated by the **National Government and the Ministry of Health and Social Welfare** (MoHSW). It consists of a formal and informal sector, with the informal sector including traditional medicine and unregulated service providers. The formal sector comprises six government hospitals, two mission hospitals, five government health centers, and over 100 private health clinics. **Most government facilities have inadequate supplies and staff shortages**, whereas private clinics offer better care, equipment, and services (AHB, 2021).

Even though the system receives international aid, the **healthcare sector remains underfunded**, and primary healthcare, which is relatively free, often fails to meet the population's needs due to poor quality. As a result, over **40% of people chose private healthcare** services, leading to them paying out-of-pocket for essential care (AHB, 2021). While some key health programs, such as antiretroviral therapy (ART), tuberculosis treatment, mental health care, and sexual reproductive health services, should be provided for free, **symbolic fees often create barriers to access** (MOH, 2019).

Eswatini faces a **severe shortage of healthcare professionals,** with a physician density of only 0.16 per 1,000 people (2017) and a combined density of doctors, nurses, and midwives of 1.64 per 1,000 (WHO, 2018). Critical care capacity is also limited, with only 53 intensive care unit (ICU) beds nationwide, resulting in 4.41 ICU beds per 100,000 people (Nsenga et al., 2022).

Main Problems of the Healthcare System:

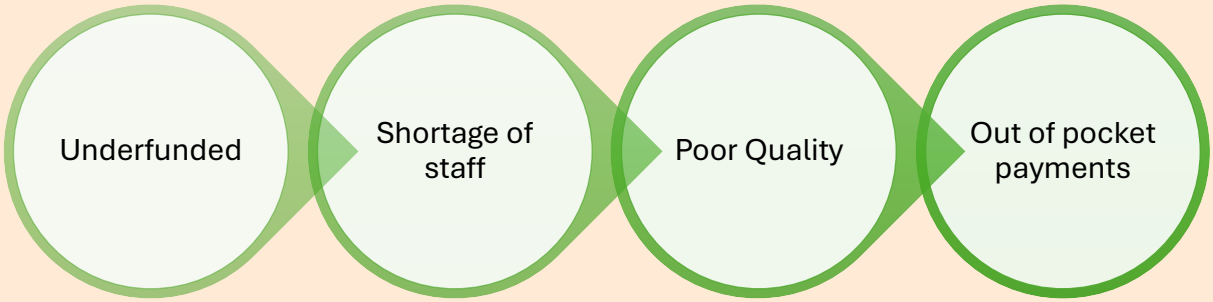
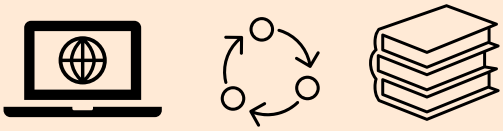


Fig. 1: Main Problems of Eswatini´s Healthcare System. Own illustration.

Methods & Data



Research Approach

This policy brief was written to provide **evidence-based policy recommendations** to reduce the double burden of cervical cancer and HIV/AIDS in Eswatini. Key goals include **lowering new infection rates, improving access to prevention and treatment, promoting gender equality in health, and increasing life expectancy**.

The recommendations are based on data from sources such as the World Health Organization (WHO), the World Bank Group, and UNAIDS. The research focused mainly on **systematic reviews** to ensure a high level of evidence. Additional scientific papers and non-systematic reviews were included when they provided relevant information. Literature was gathered through databases like PubMed and Google Scholar.

Limitations

- As most of the data comes from international studies, **local cultural factors** of Eswatini's health system may not be fully reflected. In addition, the **views and experiences** of affected communities were included only slightly.
- This brief does not talk about the challenges of implementation in detail. Problems like **available funding, trained staff, or political support** could affect how well the recommendations can be carried out. As the **focus is mainly on prevention**, topics such as treatment quality, long-term health system improvements, and sustainable financing are also not elaborated greatly.
- Since this recommendation is based on existing literature, some of the data may be **outdated** or not fully relevant to the current situation in Eswatini.

Key Findings

Eswatini faces a unique public health crisis as the country with the **highest prevalence of both HIV and cervical cancer globally** (AHB, 2021, GCO, 2022b). Women, especially those living with HIV, are disproportionately affected (CDC, 2024). Despite some progress, including surpassing the UNAIDS 95-95-95 targets and achieving moderate HPV vaccination rates among girls, gaps remain (CDC, 2024, Kunene, 2024). Screening uptake for cervical cancer is low, and prevention methods like condoms and self-testing are insufficiently used (WHO, 2021a, UNAIDS, 2016, UNICEF, 2024).

Structural challenges, like low-quality healthcare, shortages of trained staff, and unequal access, **decrease the effectiveness of prevention** programs (AHB, 2021). Social and cultural barriers and lack of awareness reduce participation in screening and protection recommendations (Mkhonta and Shirinde, 2021).

This policy brief highlights that increasing access to self-testing, strengthening sexual education, involving males in prevention, and combining HIV and cervical cancer prevention strategies could be a solution to the double disease burden for women in Eswatini.

HIV/AIDS

What is HIV/AIDS? (WHO, 2024b)

- HIV = **Human Immunodeficiency Virus**
- The Virus targets the white blood cells and weakens the immune system.
- AIDS = Acquired Immunodeficiency Syndrome, occurs at the most **advanced stage of infection**
- HIV can be prevented and treated with antiretroviral therapy (ART), which can **lower the amount of the virus in a person's body until not detectable**.

Eswatini has the **highest HIV prevalence in the world, with 27%** of the population aged 15 to 49 living with the virus (AHB, 2021). **Women are becoming infected seven times more often than men**, with the highest incidence among women aged 15 to 34 (CDC, 2024).

HIV/AIDS Factsheet:
(UNAIDS, 2023)

- Adults (<15) living with HIV: 220,000
- Women (15-49) HIV prevalence rate: 30.3
- HIV incidence per 1,000 population (adults 15-49): 7.69
- Incidence:Mortality ratio: 0.73
- People receiving pre-exposure prophylaxis (PrEP): 27,961
- Condom use at last high-risk sex among adults (15-49): 60.4%

HIV/AIDS Risk Factors (WHO, 2024b):

- sex without a condom
- having another sexually transmitted infection
- sharing contaminated drug equipment
- unsafe medical procedures or contaminated blood transfusion

Progress and Achievements

Eswatini has made significant progress against HIV/AIDS. The **number of new HIV infections has decreased from** approximately 6,000 (2016) to 4,000 (2021). The country has **surpassed the 2025 UNAIDS 95-95-95 target**. As a result, **life expectancy has improved,** rising from 45 years (2009) to 57 years (2021)(CDC, 2024).

Despite ongoing efforts, new infections remain a concern, with an HIV **incidence rate of 7.69 per 1,000 adults** (15-49 years) and an incidence-to-mortality ratio of 0.73, which means that **for every 100 new HIV infections, about 73 people die** from HIV-related causes in the same period. Prevention measures such as pre-exposure prophylaxis (PrEP) have reached 27,961 individuals, but condom use at last high-risk sex among adults is still low at 60.4% (UNAIDS, 2023).

UNAIDS 95-95-95 targets:

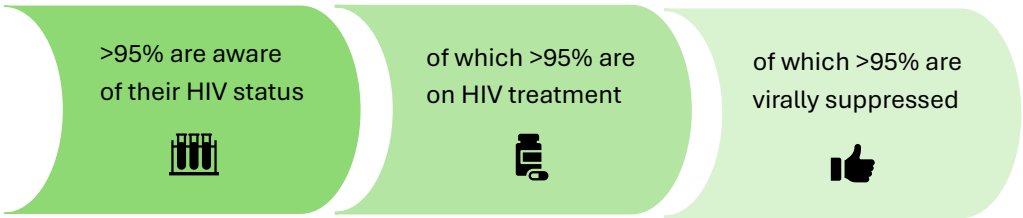


Fig. 2: UNAIDS 95-95-95 targets. Own illustration. Based on: (CDC, 2024)

HPV/ CERVICAL CANCER

What is HPV? (WHO, 2024c)

- HPV = **Human Papillomavirus**
- name of a group of 200 known viruses that are **transmitted through oral, anal, or genital sexual contact and nonpenetrative sex**
- HPV infections may become chronic and cause **genital warts or precancerous lesions**, which can progress to invasive cancer like cancers of the **cervix, vulva, vagina, mouth/throat, penis and anus**

Cervical cancer is the **leading cancer type in the country**, with an age-standardized incidence rate of 95.5 per 100,000 people (GCO, 2022a).

HPV **infections are preventable through vaccination** and safer sex, and cervical cancer can be prevented with **regular screening** and removal of detected lesions. (WHO, 2024c)

Cervical Cancer Factsheet:
(GCO, 2022a, Macrotrends, 2024)

- Age Standardized Incidence Rate (World) per 100.000 inhabitants in 2022→ 95.9 (highest worldwide)
- Age Standardized Mortality Rate (World) per 100.000 inhabitants in 2022 → 64.3
- 5-years-prevalence: 1,109 (people diagnosed in the past 5 years who are still alive)

ASR:
Age-standardized rates (ASR) are a summary measure of the rate of a disease that a population would have if it had a standard age structure. (WCRF, 2022)

Screening in Eswatini

The MoHSW recommends that HIV-negative women **undergo cervical cancer screening every two years,** while HIV-positive women are advised to have an annual screening (WHO, 2024a). Since 2009, visual inspection with acetic acid (VIA) has been introduced as part of the country's cervical cancer prevention program (Ginindza et al., 2022), largely due to its **low resource requirements** (Khumalo et al., 2023b).

It is integrated into an opportunistic screening program. Women may be **offered or request screening when they visit healthcare providers for other health concerns** (Khumalo et al., 2023b). Additionally, community health workers conduct home visits, delivering cervical cancer screening information to eligible women (Khumalo et al., 2023a).

Nevertheless, **the screening uptake is low**, only 19% have ever been screened (WHO, 2021a). In comparison, developed countries report an estimated uptake rate of 63% (Khumalo et al., 2023a), and regular cervical cancer screening has been shown to **reduce the incidence by up to 60% and the mortality by up to 92%** (Khumalo et al., 2023b).

Vaccination in Eswatini

School vaccination campaigns for girls have started successfully. By March 2024, the coverage of vaccinated girls was **63.6% of the aimed-for 80,000** (Kunene, 2024).

WHO´s 90-70-90 targets: (GCO, 2024)

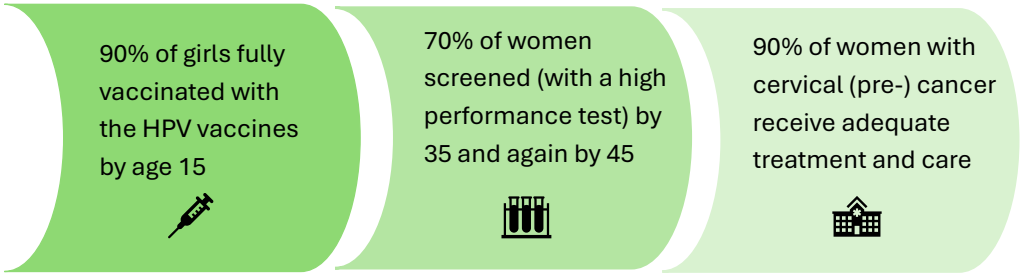


Fig. 3: WHO´s 90-70-90 targets. Own illustration. Based on: (GCO, 2024)

Double Burden of HIV and Cervical Cancer

Eswatini faces a critical public health challenge with a **double burden of the highest rates of both HIV and cervical cancer worldwide**. Women living with HIV are six times more likely to develop cervical cancer compared to those who are HIV-negative. The immune suppression caused by HIV reduces the immune system's ability to fight the HPV infection, which **increases the development of cervical cancer** (Kunene, 2024).

Addressing both HIV and cervical cancer is critical for **improving health outcomes for women in Eswatini.**

POLICY IMPLICATIONS - HIV

1. Enhance Condom Availability and Promotion:

When used consistently and correctly, **condoms can reduce the sexual transmission of HIV by up to 95%.** Despite their low cost and proven effectiveness, **international funding** for condom distribution in sub-Saharan Africa has **declined**. In 2013, only eight male condoms per man and one female condom per woman were made available annually (UNAIDS, 2016).

Given their essential role in HIV prevention, the government of **Eswatini should prioritize the provision and distribution of condoms.** Including stable funding, improving the supply chain, and ensuring that condoms are freely or affordably accessible, especially to vulnerable populations.

At the same time, **efforts to promote condom use must be strengthened**, particularly among young people. Studies show that **early adoption of condoms** during initial sexual experiences **increases the likelihood of consistent use later in life** (UNAIDS, 2016). A meta-analysis of international intervention studies found that **making condoms more available and accessible effectively increases usage** (Charania et al., 2011). Therefore, Eswatini's government should scale up distribution through healthcare centers, schools, and community initiatives, while adding public education about the correct usage of condoms to further reduce HIV transmission.

Pic. 3: Condom Promotion. Created with: https://chatgpt.com/?model=gpt-4o

2. Strengthen Comprehensive Sexual Education Programs:

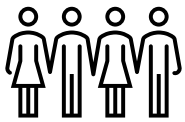
While promoting condoms is important, it is not enough to address the high rates of HIV. To achieve a sustainable impact, the Ministry of Health and the Ministry of Education should **work together to integrate sexual education** into early school curricula. A systematic review has shown that well-designed school-based HIV prevention programs are **effective** in reducing risky sexual behaviors, including delaying sexual debut, limiting the number of sexual partners, and increasing condom use (Wilkins et al., 2022).

In addition to that, gender equality, power dynamics, and HIV-related stigma should also be addressed. A review highlights that an approach with teachers, healthcare providers, and policymakers **empowers young people to make informed, healthy decisions** about their sexual and reproductive health (Obeagu and Obeagu, 2024).

Experiences from countries like Zimbabwe, Uganda, and Thailand underline the importance of **behavior change strategies** in reducing HIV prevalence. Zimbabwe, for example, saw a 50% decline in HIV rates, where partner reduction played a key role (Halperin et al., 2011). The **ABC approach** (Abstinence, Be faithful, and Condom use) successfully applied in Uganda and Thailand (Shelton et al., 2004) can be seen as a framework that Eswatini could adapt to via investing in an **age-appropriate and culturally fitting sexual education**.

Pic. 4: Introduction of the ABC Approach. Created with: https://gemini.google.com

3. Expand Access to Voluntary Medical Male Circumcision (VMMC) and Dapivirine Vaginal Rings:



The WHO recommends VMMC as an HIV prevention strategy because it has been shown to **reduce HIV transmission by 60%** (WHO, 2023) (Sharma et al., 2018) (Pintye and Baeten, 2019). The WHO and United Nations even propose to reach a **circumcision rate of 80% in HIV-endemic countries** (Tobian et al., 2014). Following this, the American Academy of Pediatrics recommends that the **health insurance should cover VMMC** (Tobian et al., 2014), therefore Eswatini should ensure the coverage of VMMC to motivate more men and **decrease monetary barriers**.

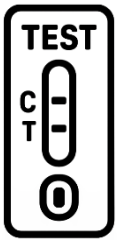
Even though women benefit from VMMC as their possibility of receiving HIV decreases, it is very important to **enable women to protect themselves** without joint decisions like using a condom during sexual intercourse.

A tool that can make this possible is the **Dapivirine Vaginal Ring**, which is recommended by the WHO since 2021 (WHO, 2021b). Therefore the introduction of the Dapivirine Vaginal Ring as a **female-initiated HIV prevention method** should be additionally prioritized (WHO, 2021b). This monthly prevention option has been shown to be effective in **reducing HIV risk by up to 50%,** by releasing antiretroviral medication directly into the vaginal tissue (Velloza et al., 2019). Expanding

access to this method, along with continued education and counseling, will **provide women with more choices for HIV prevention.**

Pic. 5: Dapivirine Ring. Baeten et. al (2016)

4. Promote HIV Self-Testing and Community-Based HIV Testing Services:



According to the latest Multiple Indicator Cluster Survey from UNICEF, only **66%** of respondents in Eswatini **have been tested for HIV** in the last 12 months and know the result, and only **30% had ever used a self-test kit** (UNICEF, 2024).

The WHO strongly recommends the **implementation of HIV self-testing** to increase access and reduce stigma (WHO, 2023). A systematic Review has shown that self-testing allows individuals to test at their convenience, makes earlier diagnosis possible, and helps to increase the reach of HIV prevention and treatment services.

Additionally, **mobile testing units** have proven effective in bringing HIV testing services into communities, particularly in areas with limited access to health facilities (Velloza et al., 2019).

To increase HIV testing rates and combination with prevention and treatment services, Eswatini should **scale up free HIV self-testing and community-based testing.** This includes consistently supplying test kits and training community health workers in test distribution and counseling. Also, these initiatives should be expanded to ensure that all individuals, including those in rural areas, can **access HIV testing with proper linkage to prophylaxis and therapy** (WHO, 2023, Velloza et al., 2019).

Pic. 6: HIV SELF TEST. Retrieved from: https://clicks.co.za/first-health_one-step-hiv-self-test/p/384939

POLICY IMPLICATIONS - CERVICAL CANCER

1. Investment in healthcare infrastructure:

There are several **barriers to cervical cancer screening** in Eswatini. Studies show that there is a **shortage of trained nurses** and also **equipment** which leads to **limited accessibility** of the service (Khumalo et al., 2023a), It has been reported that women have to face **increased waiting times** or that the screening is **offered just once a week**, which, combined with a **long distance** to the clinic, increases the burden of the women to uptake the screening. In addition, due to **lack of knowledge**, women fear **high expenses** and the procedure to be **painful** because of its invasive nature (Mkhonta and Shirinde, 2021, Malambo and Erikson, 2018). Cultural beliefs that private parts should remain private add **additional pressure** on women (Mkhonta and Shirinde, 2021).

To overcome these barriers, it is important to ensure that money meant for healthcare is used where it is needed most. **Training more nurses and hiring more staff** should be a key priority. The government should also support community health workers who can help **educate women and raise awareness.** Finally, it should be clearly communicated that cervical cancer screening is **free of hidden costs and not painful** (Khumalo et al., 2023b).

Pic. 7: Women waiting for an HPV-Screening. Created with: https://gemini.google.com

2. Inclusion of Boys and Men in HPV Vaccination and Cervical Cancer Prevention

Men are an **important component of** the cycle of the **transmission** of HPV, and studies have shown that HPV16 eradication is possible if **75% coverage of both boys and** girls is achieved (Zou et al., 2022). The HPV vaccine not only protects men against oropharyngeal, anal, and penile cancer and intimate warts (Joura and Joura, 2021) but **also strongly benefits women** by reducing the risk of cervical cancer (Zou et al., 2022). Since 2018, HPV vaccination for boys has already been recommended in Germany (RKI, 2018), and as vaccination school **campaigns for girls have already been successful** in Eswatini, the health ministry should also finance and perform vaccines **equally for boys** 9 years and older (Kunene, 2024). Consequently, it is necessary to

increase knowledge regarding HPV-related diseases in the general population so that more are willing to get vaccinated (Zou et al., 2022).

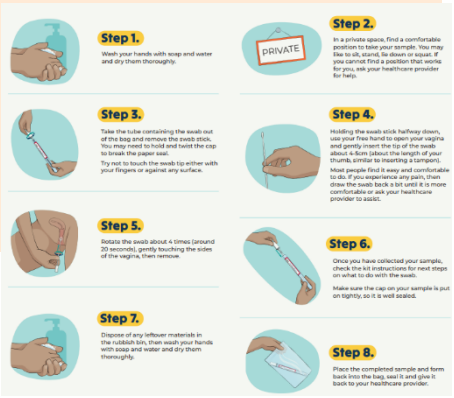
Beyond vaccination, **male engagement in cervical cancer prevention** remains **low** due to a lack of knowledge, stigma, and cultural barriers. A review has shown that men's knowledge about HPV, cervical cancer, and screening programs influences their willingness to support their partners and participate in prevention. Therefore, **educational campaigns that speak to men** are important, and the health government needs to increase funding for community-based education and awareness programs that will **help men become informed supporters within their families and communities** (Maseko et al., 2024).

Pic. 8: Young boy getting an HPV vaccination. Created with: https://gemini.google.com

3. Implement Self-Screening Strategies for Cervical Cancer

To **improve access to cervical cancer screening** in Eswatini, **self-sampling methods** should be prioritized more. A review of programs in Mali and Senegal has shown that VIA, when combined with self-sampling for HPV DNA testing, is one of the **most feasible, culturally acceptable, and affordable approaches**. Both methods are suitable for self-collection, allowing women **greater privacy and autonomy,** which are two important factors in increasing participation (Haque et al., 2020).

Studies have demonstrated that self-sampling is just as accurate as samples collected in clinics and is **highly accepted among women** (Untiet et al., 2014, Arbyn et al., 2014). By investing in self-sampling initiatives and training healthcare workers to support their implementation, Eswatini can **overcome barriers such as stigma, fear of pain, and lack of** access to clinics and **expand screening coverage**.



Pic. 9: Example description of one kind of HPV self-screening. Retrieved from: https://cdn.accentuate.io/8017392828644/11408390422661/Cervical-screening---How-to-do-the-self-test-A3-PORTRAIT-poster-ENGLISH---HE1167-WEB-180823pm-v1692592053262.pdf

Strengthen Integrated Prevention Strategies Addressing Both HIV and Cervical Cancer

As both diseases **closely linked together** through sexual transmission (Kunene, 2024), an effective way to reduce the burden would be to try to **address both diseases simultaneously.**

Evidence shows that consistent **condom** use not only reduces the risk of HIV infection but also **lowers the likelihood of HPV transmission** (Zou et al., 2022). Similarly, male circumcision has been proven to decrease the prevalence of HPV in men, thereby **reducing** both their own health risks and the **likelihood of infecting their female partners** (Zou et al., 2022). This highlights the importance of prevention strategies that address both viruses. Therefore, the Ministry of Health should increase efforts to promote condom use and male circumcision as **dual-protection methods** against HIV and HPV.

Furthermore, in Zambia, it has been shown **that integrating cervical cancer screening into existing HIV and reproductive health services** can increase uptake and improve efficiency (Mwanahamuntu et al., 2009).

By combining prevention strategies for HIV and cervical cancer, Eswatini has the opportunity to **strengthen its public health system, reach more people with fewer resources,** and **reduce the health and economic burden of both diseases.**

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Figures

Photos

- Pic. 6: HIV SELF TEST. Retrieved from: https://clicks.co.za/first-health_one-step-hiv-self-test/p/384939 ; 31. March 2025
- Pic. 7: Women waiting for an HPV-Screening. Created with: https://gemini.google.com ; 31. March 2025
- Pic. 8: Young boy getting an HPV vaccination. Created with: https://gemini.google.com ; 31. March 2025
- Pic. 9: Example description of one kind of HPV self-screening. Retrieved from: https://cdn.accentuate.io/8017392828644/11408390422661/Cervical-screening---How-to-do-the-self-test-A3-PORTRAIT-poster-ENGLISH---HE1167-WEB-180823pm-v1692592053262.pdf ; 31. March 2025

Icons

- Condom Icon. Retrieved from: https://www.flaticon.com/free-icon/condom_2180401?term=condom&page=1&position=1&origin=tag&related_id=2180401 ; 31. March 2025
- Test Icon. Created with: https://chatgpt.com/?model=gpt-4o ; 31. March 2025
- The remaining Icons were inserted via the Icons button in Microsoft Word