



Putting people first in the prevention, treatment and care of HPV-related cancers among people living with HIV

IAS 2023 pre-meeting report

IAS – the International AIDS Society – and Unitaid organized a one-day pre-meeting, titled "Putting people first in the prevention, treatment and care of HPV-related cancers for people living with HIV", in conjunction with IAS 2023, the 12th IAS Conference on HIV Science, on 22 July 2023. The session recordings and related materials are available [on the IAS+ platform](#).

The objective of the meeting was to bring together a diverse group of scientific, clinical, technical and community representatives to discuss current opportunities and challenges for increased prevention and screening for HPV, as well as diagnosis and treatment of intraepithelial neoplasia to prevent cervical cancer and anal cancer in people living with HIV and other populations. It was attended by HIV basic scientists, clinicians, researchers, public health practitioners, implementers, community advocates and others working towards preventing and managing human papillomavirus (HPV)-related cancers.

People living with HIV experience a substantially increased incidence of cancers associated with HPV, including cervical cancer, anal cancer, other anogenital cancers and oropharyngeal cancer.

Globally, cervical cancer is the most common cancer in women living with HIV, and people living with HIV are more likely to develop cervical cancer at a younger age. Scale up of HPV vaccination, screening and treatment are required to meet the ambitious targets of the World Health Organization (WHO) to eliminate cervical cancer as a public health problem by 2030. People living with HIV should be prioritized in this scale up.

Anal cancer is a common cancer in people living with HIV and is among the most common of all cancers in men who have sex with men living with HIV. Like cervical cancer, future anal cancer cases will eventually be prevented by HPV vaccination of children. In addition, screening in people living with HIV, analogous to the cervical model, has been proposed. In 2022, a large, randomized trial reported for the first time that treatment of screen-detected pre-cancer reduced the incidence of anal cancer. Clinical societies will need to adjust to these new results and the reality that screening and treatment to prevent anal cancer is needed in people living with HIV.



Session 1 – The scale of the challenges

A journey of survival and advocacy for integrated services

Salome Agallo (NCD Alliance, Kenya) shared her personal story and called for health systems to adopt an integrated approach to disease prevention and management to address the growing number of people living with HIV and cancer, as well as non-communicable diseases (NCDs). "Governments, with the support of global health organizations, donors, private sector and civil society, must coordinate, fund and drive local context-responsive agendas for HIV and NCD integration to achieve the [UNAIDS] 90% integrated care target [by 2025]," Salome stated. Integrated care services for people living with HIV should be person-centred and apply to the whole care cascade from prevention and diagnosis to treatment, as well as retention.

HPV burden, opportunities for integration and WHO recommendations

Meg Doherty (WHO, Switzerland) presented the current incidence of HPV among people living with HIV, along with new WHO recommendations to achieve WHO targets for 2030. People living with HIV have a higher incidence of HPV, cervical cancer, anal cancer and anogenital warts. Globally, geographical and socioeconomic factors fuel inequalities around cervical cancer, especially among women and girls living on the African continent. WHO's new recommendation on HPV vaccine schedules includes a simplified one-dose schedule. Meg also called for a reduction in the price of HPV DNA diagnostic kits, stating that "the all-in price for HPV DNA tests should be less than 10 USD per test kit". National HPV programmes should be following a vaccination, screening and treatment process with triage testing if necessary. Meg concluded that the end to cervical cancer is within reach if these guidelines are implemented.



Unitaid's contribution to accelerating elimination of cervical cancer in low-resource settings

Azadeh Baghaki (Unitaid, Switzerland) explained how Unitaid is increasing access to effective tools and delivery models for secondary prevention of cervical cancer. The tools include self-collection, HPV tests and thermal ablation. They have been implemented with the support of Unitaid catalytic funding in 14 countries across three continents and reached over 1.1 million women in 2020-2022. From 2023 to 2025, Unitaid is focusing its investments on HPV self-collection outside of healthcare facilities and will generate evidence to inform global guidance and national adoption plans. Different models will be assessed. Among them are models that include community healthcare workers, digital health solutions, grassroots awareness raising and demand generation, and optimized laboratory networks. Barriers to health financing and the affordability of effective tools will also be addressed with the support of partners.



Karen Canfell (The Daffodil Centre, Cancer Council NSW and the University of Sydney, Australia) highlighted the need for additional investment in HPV screening. Cervical cancer is among the top three most frequent cancers for women, with deaths from cervical cancer in 2020 resulting in one million maternal orphans. Interventions in low- and middle-income countries show that with vaccination and screening, cervical cancer can be eliminated and a rapid scale up is possible. The priority should be making HPV testing accessible and affordable for all women and girls living with HIV. Karen shared details of the WHO-IARC Cervical Cancer Elimination Planning Tool, which will enable countries to develop a local impact case using different tailored scale-up scenarios and decisions.

Session 2 – State-of-the-art guidance for vaccination, screen and treat

HPV vaccination

Sinead Delany-Moretlwe (University of Witwatersrand, South Africa) presented new evidence on the impact of HPV vaccines. In the HPV vaccine, the virus-like particles (VLPs) are formed by the main capsid protein, L1, which is found on the casing of the virus. HPV L1 VLP vaccines have been shown to have high efficacy in preventing anal cancer, cervical cancer and anogenital warts. Coverage of the vaccine remains too low in most countries. Only 55% of countries globally have introduced the vaccine and only 5% of countries have met the vaccination goal of 90% of girls fully vaccinated with the HPV vaccine by 15 years of age. WHO now recommends:

- A one- or two-dose schedule for girls aged 9-14 years
- A one- or two-dose schedule for girls and women aged 15-20 years
- Two doses with a six-month interval for women older than 21 years

The primary target group for vaccination is girls aged 9-14 years prior to the start of sexual activity. The vaccination of secondary target groups, such as boys and older females, is recommended where feasible and affordable. The position paper underscores the importance of vaccinating, as a priority, immunocompromised people or those living with HIV. Immunocompromised individuals should receive a minimum of two doses and, where possible, three doses.

Cervical cancer screen, triage and treat

Maribel Almonte (WHO, Switzerland) introduced WHO's strategic actions for women living with HIV to reach the 2030 targets of 70% of women screened with a high-performance test and 90% of women with identified cervical disease treated. WHO recommends screen, triage and treat for women living with HIV. HPV self-sampling should be offered as an additional approach to sampling for women aged 30-60 years. Recommendations will be updated regularly with the creation of a Guidelines Development Group for the Living Systematic Review and Recommendations to make evidence available faster as technology evolves. Maribel called for a shift from research and new interventions to adopting implementation and action programmes at scale.

Anal cancer screen and treatment

Joel Palefsky (University of California San Francisco, United States) shared updates on the progression from anal high-grade squamous intraepithelial lesions (HSIL) to cancer and on anal cancer prevention. Centers for Disease Control and Prevention guidelines are being developed on screening and treating anal HSIL. Treating anal HSIL is a secondary prevention strategy to reduce the incidence of anal cancer. Joel also called for gender-neutral vaccination as the way forward to reduce all HPV-related cancers.

Session 3 – Good-practice models for HPV cancer elimination

Latest evidence from the KEN-SHE study

Nelly Mugo (Kenya Medical Research Institute, Kenya) presented findings from a study of single-dose HPV vaccines among young women in Kenya. After 18 months, the follow up found 89-98% vaccine efficacy, which improved to 96-98% after 36 months. The 36-month vaccine efficacy rate demonstrates the ability of a single dose to significantly prevent persistent HPV infection. This evidence of high efficacy (>95%) supports the WHO policy change recommending the single-dose HPV vaccination.

Scaling up access to cervical screening in Malaysia: The ROSE Foundation approach

Marion Saville (Australian Centre for the Prevention of Cervical Cancer, Australia) showcased the ROSE Foundation's approach to removing barriers to cervical screening by adapting to local needs in Malaysia. Socio-cultural factors were preventing women from accessing established free testing services. The ROSE Foundation worked with community leaders to reach underserved and under-screened communities by adapting their method of communication from SMS to WhatsApp through the platform, "canSCREEN". An increase of 82% in follow ups and 91% in attendance demonstrates the impact of involving the community through partnerships and adapting to needs through a person-centred approach.

Eliminating cervical cancer in the western Pacific (ECCWP)

Andrew Vallely (Kirby Institute, UNSW, Australia) shared the ECCWP approach to eliminating cervical cancer in Papua New Guinea and Vanuatu. HPV vaccination programmes are offered to girls aged 9-14 years, and HPV-based cervical screen-and-treat programmes are offered to women aged 34-50 years. The programmes focus on the "hub-and-spoke model", involving provincial fixed "hubs" and rural "spokes", linking rural facilities and mobile outreach.

Scale up cervical cancer elimination with secondary prevention strategy (SUCCESS)



Eric Fleutelot (Expertise France, France) manages the SUCCESS programme supported by Unitaid. It integrates HPV testing and treatment with thermal ablation within existing health systems in Côte d'Ivoire, Burkina Faso, Guatemala and the Philippines by training community health workers who are already present, instead of building new services. SUCCESS addresses cervical cancer through six elements of the healthcare system: leadership & governance, health information systems, financing, access to medical commodities, human resources and service provision. Eric recommended a [toolkit developed by L'Initiative to support programmatic experts](#) to update national strategic plans (HIV or cancer), write funding requests to the Global Fund and conduct studies (for example, to produce analytical data or solutions for the integration of care). Eric notes: "Integration is the key to the SUCCESS project. This is a shared responsibility."

Scaling up HPV testing and portable thermal ablation devices in Kenya

Lance Osiro (CHAI, Kenya) shared the results of the 3.5-year CHAI-Unitaid collaboration to increase access to HPV testing, self-sampling and thermal ablation by expanding existing care processes to integrate cervical cancer care in HIV treatment centres in Kenya. Community partners were instrumental in creating awareness and providing decentralized screen-and-treat locations, including the use of ARV treatment centres. Screen-and-treat interventions increased screening coverage overall from 19% to 46%, including among women living with HIV. Training and mentorship were needed to support the use of thermal ablation treatment devices. Despite this strong evidence, a massive scale up is needed for screening of women globally in low- and middle-income countries; current programmes are projected to reach only 27 million women by 2030, leaving an unmet screening need of 202 million.



Anal cancer programme for gay men and other men who have sex with men in Nigeria

Rebecca Nowak (University of Maryland Baltimore, United States) shared findings of a feasibility study for the implementation of anal cancer screening for gay men and men who have sex with men within two community-based clinics providing highly effective HIV and sexually transmitted infection (STI) treatment and prevention services for this stigmatized and criminalized population in Nigeria. It found that 70% of clients living with HIV were also living with high-risk HPV strains and most clients living with HIV noted anxiety about anal cancer. Healthcare providers faced challenges in detecting HSIL using high-resolution anoscopy. To overcome this and ensure consistency in detection of HSIL, an implementation guidance approach is now being used to support the learning curve for the detection of HSIL and to scale up anal anoscopy for these clients.

Towards an anal cancer screening algorithm

Mary Poynten (Kirby Institute UNSW, Australia) emphasized testing for high-risk HPV strains as a potential screening method for anal cancer in people living with HIV. This finding is based on a national programme for screening and treatment to prevent anal cancer in people living with HIV, funded by Glendonbrook Foundation. High-risk strain anal HPV testing is highly sensitive at 92%, compared with the most widely used cytology test, but has a low specificity at 42%. This means that additional triage steps are needed to avoid unnecessary treatment.

General discussion

The discussion revealed the many commonalities identifiable between these innovative approaches, despite their diverse settings. Successful programmes included: engaging and involving stakeholders; managing commodities; training healthcare workers; integrating into existing service offerings and aligning programmes with most vulnerable populations; focusing interventions on where vulnerable people live and work, rather than at medical centres; and creating information systems to guide decision making and ongoing support.

Session 4 – Current and future research gaps related to HPV cancer elimination

The panel discussion articulated future research needs to improve existing programmes and to address specific challenges. Panellists offered a wide range of observations and recommendations.



"Many women around the world will be lucky to get one HPV test [in their lifetime] and they deserve the best quality test we can deliver them and the best opportunity to avoid cancer".

Marion Saville, Australian Centre for the Prevention of Cervical Cancer, Australia

Basic and clinical science research gaps

- Better understand the factors which affect the accuracy of different triage approaches for cervical cancer, especially in women living with HIV, and the practicality of those approaches. Partial genotyping is likely to play a role here.
- Improve techniques to classify which HSIL lesions do not require intervention to reduce overtreatment rates.
- Confirm whether there are different HPV-16 variants with different risk profiles.
- Explore the potential for methylation markers to identify people most vulnerable to developing cancer.
- Define and refine anal screening algorithms and post-treatment follow up times.
- Explore ways to reduce the side effects of pelvic radiotherapy.
- Optimize immune-based therapies to reduce mortality rates.
- Determine the long-term efficacy of single-dose HPV vaccination regimens among people who acquire HIV after their HPV vaccination, especially if this is to be scaled up in high HIV prevalence settings.
- Define the use cases for potential therapeutic vaccines which may be able to clear HPV infection or clear lesions.
- Validate the role of AI technologies to enhance automated visual evaluation of cervical images.
- Evaluate efficacy and use cases of alternatives to HPV DNA tests for primary screening, such as extended genotyping and mRNA.
- Establish the role of urine tests for surveillance.

"Whilst new technologies may play a role, that should not come at the expense of safety, or distract us from scaling up NOW the extraordinarily effective secondary prevention technologies that already exist".

Karen Canfell, The Daffodil Centre, Cancer Council NSW and the University of Sydney, Australia

Implementation science research gaps

- Translate the revolutionary ANCHOR study results conducted in the United States to different health system settings.
- Push for effective scale up of training for [high resolution anoscopy](#) using data-driven monitoring to ensure high-quality procedures.
- Understand the role of cross-sectional surveillance programmes to detect these people who may not be benefitting from sufficient protection from a single-dose vaccination in the future.
- Simplify the multi-step processes needed for screen, triage and treat; further decentralize and de-medicalize these steps; and reduce the reliance on laboratory testing.
- Evaluate how we can reach more women living with HIV via HIV treatment programmes and transition faster to HPV testing from visual inspection with acetic acid.
- Explore how we can scale up HPV sample self-collection including logistics, supply chain, documentation and the role of the community.

Advocacy and demand creation priorities



- Embrace a full-body approach to managing the impact of human papillomavirus especially for those people unable to clear the virus and for reaching underserved populations.
- Consider a return to campaign-style thinking to reach whole age cohorts for cervical cancer screening since we get such a good return on investment from single lifetime screening.
- Meaningfully engage the community, especially women living with HIV, in demand creation to ensure that women accessing care get involved and get screened.

- Leverage global networks to enrol clients in immune-based therapy trials.
- Involve representative communities in all these research questions from the very start to find out what they need and what they want, and ensure results are fed back to them.

- Share personal experiences to raise awareness, dispel myths and reduce stigma and discrimination; we need to build trust first.
- Understand how to effectively engage with the challenges posed by HPV vaccination misinformation which is leading to vaccine hesitancy.
- Leverage the existing procurement systems for HIV and tuberculosis (TB) drugs built predominantly by the Global Fund and PEPFAR to get the prices down for HPV tests.
- Engage early with adolescents so they are ready to engage with screening from the age of 25.
- Increase awareness especially among men of the linkages between HPV, HSIL and anal cancer and the measures that can be taken to reduce the likelihood of cancer developing.

"The science informing the care of the cervix is 30 to 40 years ahead of the science related to the anal canal. Anal cancer researchers and practitioners have an awful lot to learn from their cervical cancer colleagues so as to not repeat going down the same blind alleys".

Richard Hillman, St Vincent's Hospital, Australia

Session 5 – Call to action

Keynote: Global Fund perspectives on the financing and integration of HPV-related cancer prevention and treatment within HIV service delivery

Roslyn Morauta (Global Fund, Papua New Guinea) made it clear that an integrated approach is needed to prevent HPV-related cancers. The Global Fund is encouraging countries that are seeking funding investments to look for greater HIV and HPV service integration to develop sustainable systems for healthcare. Roslyn pointed out opportunities for optimization, including the incorporation of HIV, hepatitis, STIs, TB and chronic disease management in basic health packages, leveraging the strong foundation for people-centred services already provided by primary healthcare and utilizing existing technologies and laboratory systems for HPV testing. Strong leadership and partnerships are needed to develop national programmes to support inclusive investments of health financing. Integrated services should leverage existing platforms that are designed by, with and for key populations and communities.

Call to action from panellists: Commitments needed to end all HPV-related cancers by 2030 among people living with and affected by HIV.as

- Increase the levels of health literacy within communities regarding vaccination, screening and treatment as prevention for the development of HPV-related cancers.
- Allocate investment and resources to train clinicians to perform anal screening and high-resolution anoscopy to allow for routine anal cancer screening and early treatment to be the standard of care for people living with HIV.

- Increase awareness especially of anal cancer among people living with HIV and clinicians, and normalize routine digital anal rectal examinations (DAREs) for all people living with HIV as part of regular sexual health checks.
- Improve HPV vaccination coverage among people living with HIV up to 45 years of age by reducing financial and policy barriers.
- Put people living with HIV at the centre to foster inclusivity, long-term solutions and faster, more effective change. Allow the passion and commitment from communities and healthcare workers to raise the ambitions towards elimination.
- Optimize existing infrastructure and health systems to scale up point-of-care HPV testing.
- Reduce prices of HPV tests. Work with ministries of health, all levels of government, funders, private sector, manufacturers and suppliers to deliver testing services at an inclusive and equitable cost.
- Extend the World Health Assembly Resolution to the “elimination of HPV-related cancers”, rather than just the “elimination of cervical cancer”.
- Convey to governments that investing now in HPV, HBV and HCV programmes results in a reduced number of cancers in the future, which reduces associated treatment costs and loss of productivity while enhancing quality of life for many people.
- Simplify screening, triage and treatment options to ensure the same level of outcomes without needing the same level of intervention.

Acknowledgements

Meeting organizers

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