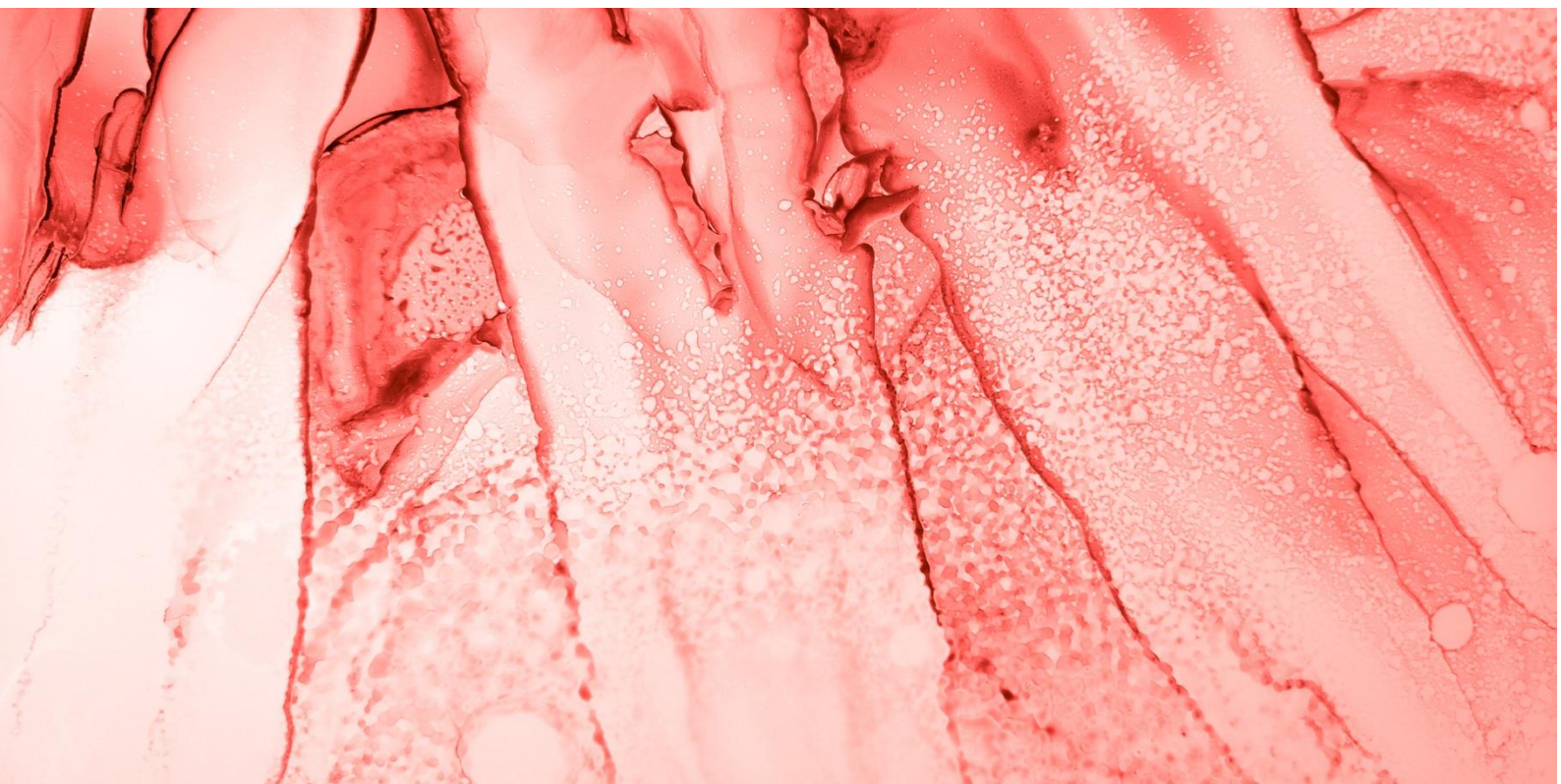




EVALUATION OF UNITAID'S PORTFOLIO OF INVESTMENTS IN ACCELERATING ELIMINATION OF CERVICAL CANCER THROUGH SECONDARY PREVENTION

EVALUATION REPORT VOL I.

August 2026

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ABBREVIATIONS

AFRO	Regional Office for Africa (WHO)
ANC	Antenatal Care
ART	Antiretroviral Treatment
AVE	AI-Assisted Visual Examination
CAMEG	Centrale d'Achat des Médicaments Essentiels et Génériques (Burkina Faso national pharmaceutical warehouse)
CBHI	Community-Based Health Insurance
CBSS	Community-Based Self-Sampling
CBOs	Community-Based Organisations
CHAI	Clinton Health Access Initiative
CHW	Community Health Worker
CLAMS	Centralized Laboratory Model for HPV Screening
CMO	Context–Mechanism–Outcome
COBUCAN	Coalition Burkinabè contre le Cancer
COWLHA	Coalition of Women Living with HIV
CSO	Civil Society Organisation
CxCa	Cervical Cancer
DALY	Disability-Adjusted Life Year
DOH	Department of Health
EF	Expertise France
EMR	Electronic Medical Record
EPI	Expanded Programme on Immunization
EQ	Evaluation Question
FGD	Focus Group Discussion
GAP	Global Access Price
GC7	Global Fund Grant Cycle 7
GF	Global Fund
HMIS	Health Management Information System
HPV	Human Papillomavirus
HQ	Headquarters
HTA	Health Technology Assessment
IEC	Information, Education, and Communication

JHPIEGO	Johns Hopkins Program for International Education in Gynecology and Obstetrics
KHIS2	Kenya Health Information System 2
KII	Key Informant Interview
LEEP	Loop Electrosurgical Excision Procedure
LGU	Local Government Unit
LMIC / LMICs	Low- and Middle-Income Country / Countries
LNOB	Leave No One Behind
LTFU	Loss to Follow-Up
M&E	Monitoring and Evaluation
MNCH	Maternal, Newborn, and Child Health
MoH	Ministry of Health
MSF	Médecins Sans Frontières
NCD	Noncommunicable Disease
NHIS	National Health Insurance Scheme
NHLS	National Health Laboratory Service
ODA	Official Development Assistance
OECD-DAC	Organisation for Economic Co-operation and Development – Development Assistance Committee
PAHO	Pan American Health Organization
PCR	Polymerase Chain Reaction
PEPFAR	President’s Emergency Plan for AIDS Relief
PHC	Primary Health Care
PLHIV	People Living with HIV
PM	Project Manager
PoC	Point of Care
PQ	Prequalification
QA	Quality Assurance
RAMU	Régime d’Assurance Maladie Universelle (Burkina Faso national health insurance)
RH/FP	Reproductive Health / Family Planning
RSSB	Rwanda Social Security Board
SHA	Social Health Authority (Kenya)
SOPs	Standard Operating Procedures
SRHR	Sexual and Reproductive Health and Rights
TA	Thermal Ablation
TL	Team Leader

ToC	Theory of Change
ToR	Terms of Reference
ToT	Training of Trainers
TWG	Technical Working Group
UICC	Union for International Cancer Control
UNEG	United Nations Evaluation Group
UNICEF SD	UNICEF Supply Division
USG	United States Government
VIA	Visual Inspection with Acetic Acid
WHO	World Health Organization
WLHIV	Women Living with Human Immunodeficiency Virus
WOCACA	Women's Coalition Against Cancer
WPRO	Western Pacific Region (WHO)
ZAMMSA	Zambia Medicines and Medical Supplies Agency

EXECUTIVE SUMMARY

1. Introduction

This evaluation assessed Unitaids' portfolio of investments in accelerating the elimination of cervical cancer through secondary prevention during the period 2019–2025. The portfolio invested more than USD 80 million across fourteen countries to improve access to WHO-recommended cervical cancer screening and treatment technologies, generate implementation evidence, shape markets for priority products, strengthen health systems, and support national policy adoption.

The evaluation examined the portfolio using a mixed-methods, realist approach to understand not only whether interventions achieved their intended results, but also what worked, for whom, under which circumstances, and why. Evidence was drawn from an extensive document review, performance data, procurement information, interviews with global and country stakeholders, and four in-depth country case studies (Burkina Faso, Kenya, Malawi and the Philippines).

Findings are organised around the following evaluation's principal learning themes: 1) Demonstrating effectiveness of innovative technologies; 2) Market shaping to increase access to innovative technologies; 3) Demonstrating effectiveness and efficiency of innovative service delivery models; 4) Improving and measuring the continuum of care; 5) Assessing and addressing health system barriers; 6) Assessing and addressing gender issues; 7) Scaling and sustaining cervical cancer screening services; 8) Learning from 'champion countries'; and 9) Implementation efficiency and Portfolio management.

2. Key achievements

Overall, the Portfolio achieved strong results at output level on tool introduction and adoption, market shaping, and national policy development — with HPV testing now included in national guidelines in 13 of 14 countries, and with HPV self-sampling and thermal ablation (TA) representing the portfolio's clearest technology successes. Progress on longer-term outcomes was more mixed. Treatment coverage improved substantially, but screening coverage remains well below WHO elimination target of 70% in all countries. LTFU across the cervical cancer cascade was substantive and long-term follow-up post-treatment is critically weak. Finally, HPV testing continuity post-project is fragile in most countries due to insufficient domestic financing and the international health financing landscape.

Across the Portfolio, the evaluation documented the following key achievements:

- Demonstration projects across fourteen countries established the feasibility and acceptability of WHO-recommended HPV molecular testing, thermal ablation treatment, and self-sampling tools in routine public-sector settings in LMIC.
- Implementation research demonstrated that AVE nearly doubled the sensitivity of naked-eye VIA for detection of cervical precancer
- Demonstration projects across multiple country contexts established the feasibility and acceptability of both integrated and outreach-based service models (embedding cervical cancer screening within HIV, family planning, and primary health care platforms and community outreach-based models)
- Civil society organisations engaged across both grantee streams supported demand creation and national policy dialogue.

- Technical assistance addressed systemic barriers throughout the continuum of care, including laboratory system strengthening, patient navigation, health worker capacity building, and HMIS integration.
- Negotiations with major HPV diagnostic and TA device manufacturers achieved price reductions of approximately 40% for HPV test kits and 45% for TA devices.
- Portfolio support for policy development contributed to national adoption of WHO cervical cancer elimination targets across almost all target countries, the development of costed national implementation plans in several countries, and revision of technical guidelines to incorporate HPV testing and thermal ablation across the majority of project countries.
- Results and lessons learnt were disseminated at national, regional, and global levels through peer-reviewed publications, WHO normative guidance processes, regional learning forums, and targeted knowledge products.

3. Themes, lessons and findings

3.1 Demonstrating effectiveness of innovative technologies

The Portfolio set out to demonstrate feasibility and introduce innovative technologies, including HPV molecular testing, hereafter referred to as ‘HPV testing’, and AI-assisted visual examination (AI-AVE), in existing cervical cancer screening programmes.

The programme demonstrated that HPV testing represents a major improvement over visual inspection with acetic acid (VIA) as the primary screening method. HPV testing is substantially more sensitive, is well accepted by women and health workers, and enables self-sampling, which addresses several important barriers to screening. Women consistently valued the less invasive nature of HPV testing, while providers reported greater confidence in a more objective diagnostic approach.

At the same time, the evaluation found that the introduction of HPV testing created an important implementation challenge. Competition for shared diagnostic platforms with other diseases makes same-day screen-triage-treatment rarely achievable and requires systems to share test results and navigate tested women. HPV-positive women required an additional visit for triage before treatment, resulting in substantial loss to follow-up, especially occurring between HPV testing, return of results, and triage for treatment eligibility. Although the magnitude varied across countries and improved over time in some programmes, retention throughout the cascade remained one of the principal constraints on programme effectiveness.

The evaluation found that the effectiveness of HPV screening depends not only on the diagnostic performance of the test itself (HPV test or VIA) but also on the ability of health systems to retain women throughout the continuum of care. Patient navigation, community follow-up and strengthened referral systems reduced attrition but did not eliminate it where structural health system constraints persisted. As several stakeholders observed, loss to follow-up becomes as important as diagnostic sensitivity when determining the overall effectiveness and cost-efficiency of different screening approaches.

Although the applied "near" point-of-care HPV tests¹ can theoretically produce results within a short period, they continued to rely on laboratory processing and shared diagnostic platforms, meaning that same-day results were achieved only in a minority of cases. The evaluation therefore identified a "true" point-of-care HPV test capable of delivering one clinical encounter and one actionable result as an important technological innovation with potential to reduce attrition throughout the screening cascade. While no WHO-prequalified technology was available during the evaluation period, evidence from implementation partners and market assessments indicated promising developments on true point of care technologies.

Thermal ablation (TA) devices successfully addressed key market and implementation barriers to precancer treatment. TA is highly acceptable among healthcare workers and enabled task-shifting. The effectiveness of TA depends on the conditions required for reliable same-day treatment delivery, namely a functioning device; a trained and confident provider present; sufficient consumables; reliable electricity and the woman accepting treatment.

The Portfolio also demonstrated promising results for AVE. Implementation research showed that AI-assisted visual examination substantially improved the sensitivity of VIA while preserving the operational advantage of same-day triage and treatment. However, commercialisation and regulatory approval remain outstanding, and a WHO prequalification pathway for AI-based tools does not yet exist, which constitutes an opportunity identified for future Unitaïd focus and programming.

Overall, the evaluation concludes that the Portfolio successfully demonstrated the advantages of HPV testing while highlighting that this technological innovation alone cannot achieve the intended public health impact due to the feasibility aspects of high loss-to-follow up along the cascade. It also concludes that alternative screening technologies and/or strong patient navigation systems have great potential to improve patient retention.

3.2 Market shaping to increase access to technologies

The Portfolio achieved important progress in improving access to secondary prevention of cervical cancer technologies through market-shaping interventions. Market shaping efforts included regulatory acceleration, evidence generation, demand creation, stimulating supplier confidence, WHO prequalification, procurement support and technology introduction.

Key achievements included price negotiations and pooled procurement which substantially reduced the cost of HPV test kits by 40% and thermal ablation devices by 45%, supporting broader availability of WHO-recommended technologies in participating countries. The Portfolio also demonstrated Unitaïd's comparative advantage in addressing market failures that extend beyond individual product pricing. Stakeholders consistently highlighted Unitaïd's ability to convene manufacturers, technical agencies and country partners, while reducing risks associated with introducing innovative technologies into low-resource settings.

Despite these achievements, affordability remains a major barrier for many low- and middle-income countries (LMICs). Although manufacturers' prices declined considerably, total landed costs including transport and duties etc. remain above levels that most governments can sustainably finance. The

¹ decentralized, rapid molecular assays designed to be run in local health clinics rather than central laboratories

evaluation found that further price reductions through negotiation alone are difficult because the HPV diagnostics market remains concentrated among a limited number of manufacturers and many testing platforms remain proprietary.

The evaluation therefore concludes that future market shaping will require a broader range of market shaping strategies. Evidence gathered throughout the evaluation indicates significant opportunities to address market failures, e.g. stimulate greater competition through support to emerging manufacturers, regulatory facilitation, technology transfer and accelerated commercialisation of innovative technologies, including true point-of-care HPV tests and AI-assisted visual evaluation.

The evaluation found limited evidence that market-shaping capacity has yet been systematically transferred to regional procurement mechanisms or other institutions capable of sustaining these functions over time. Strengthening regional capacity represents an important opportunity for future investments.

Overall, the evaluation finds that the Portfolio successfully reduced prices and accelerated access to priority technologies, but that affordability constraints, limited market competition and insufficient commercialisation of emerging technologies continue to restrict equitable access at scale. Unitaids' comparative advantage as leader in market shaping provides opportunities.

3.3 Demonstrating effectiveness and efficiency of innovative service delivery models

The evaluation found that integrated service delivery models were among the Portfolio's strongest achievements. Integrating cervical cancer screening within existing HIV, sexual and reproductive health, family planning and primary health care services improved efficiency by using established infrastructure, trained health workers and existing client flows. Integration within HIV services was particularly effective in reaching women living with HIV, who face substantially higher cervical cancer risk.

Nevertheless, integration alone was insufficient to ensure successful uptake or completion of care. Demand-side barriers, including stigma, limited awareness, transport costs, competing household responsibilities and gender norms, continued to influence women's participation. On the supply side, shortages of trained staff, laboratory constraints, referral weaknesses and inadequate patient navigation continued to limit programme performance.

Community outreach models complemented facility-based services by successfully reaching women who had never previously been screened, particularly in rural and underserved populations. However, increased reach only resulted in successful completion of the screening cascade when accompanied by active patient navigation, effective communication of results, and functioning referral systems capable of linking HPV-positive women to timely triage and treatment. Community health workers and civil society organisations played an important role in demand creation, counselling and follow-up, while self-sampling further enabled community-based delivery. The evaluation found, however, that outreach models involve an important trade-off between equity and sustainability. Because HPV positivity rates are generally lower in the broader population than among women attending HIV services, outreach models require higher investment per precancerous lesion detected. While outreach models substantially improve coverage among underserved populations, none of the participating countries demonstrated the capacity to fully absorb these costs through domestic financing during the evaluation period.

The evaluation also identified important opportunities for stronger integration across the broader cervical cancer pathway. Closer alignment between HPV vaccination, screening, precancerous and invasive cancer treatment services could improve programme efficiency while strengthening continuity of care. Equally important, the evaluation found documented cases in which women diagnosed with invasive cervical cancer were unable to access treatment because referral pathways and treatment services remained insufficiently developed. This highlights that expanding screening without ensuring access to appropriate treatment raises both programme effectiveness and ethical considerations.

Overall, the evaluation concludes that integrated service delivery models have demonstrated clear advantages in terms of efficiency, equity and service utilisation. Their long-term effectiveness, however, depends on addressing both demand-side and health-system barriers while embedding screening within broader health and cancer service delivery systems.

3.4 Improving and measuring the continuum of care

The evaluation found that a consistent pattern runs through all service models examined above, integration and outreach based. Each succeeded at its primary access objective, but none resolved loss-to-follow-up on its own. The Portfolio repeatedly discovered that continuum of care and cascade completion requires dedicated patient navigation layered on top of the screening technology or delivery model. A central operational lesson is that this discovery requires monitoring systems at service delivery level and national level, to track retention across the continuum of care. Nevertheless, many countries continued to rely on parallel reporting systems, paper-based registers or fragmented databases that limited the ability to track individual women across different levels of care. Weak longitudinal patient tracking reduced opportunities for timely follow-up and constrained programme monitoring.

The Portfolio was unable to compare retention in the cervical cancer screening cascade across various service models and target populations, due to a lack of common indicator definitions for cervical cancer cascade steps between implementing partners. The evaluation found that this seriously affects the interpretation of demonstration project, and Portfolio outcomes. International efforts to develop a 'cervical cancer cascade' with standard indicators offer an opportunity for the Portfolio in terms of internal monitoring and supporting project countries.

3.5 Assessing and addressing health system barriers

The evaluation found that the effectiveness of new technologies depends fundamentally on health system capacity to adopt these technologies and services and to support women throughout the continuum of care. Unitaids investments extended well beyond technology introduction and procurement, as the need became obvious to address health system constraints that reduced the effectiveness of screening recruitment and retention across the cascade. The Portfolio demonstrated that technology introduction works better in stronger health systems, or when health system barriers are recognized and addressed.

Across the Portfolio, technical assistance supported ministries of health in strengthening laboratory systems, building workforce capacity, integrating services within existing health services, improving information systems and developing national implementation plans.

Laboratory capacity represented one of the most significant system bottlenecks. HPV testing increased

demand for specimen transport, laboratory processing, quality assurance and maintenance of diagnostic platforms. Countries with stronger laboratory networks generally demonstrated better programme performance, while those with weaker infrastructure experienced longer turnaround times and higher loss to follow-up. Although the Portfolio strengthened laboratory capacity in several settings, sustaining these functions will require continued national investment beyond the project period.

Patient navigation emerged as one of the most effective mechanisms for improving continuity of care. Across several countries, community health workers, counsellors and dedicated patient navigators supported women in understanding test results, attending referral appointments and completing treatment. These approaches reduced attrition and were particularly valuable where multiple visits remained necessary. However, patient navigation was often implemented through project resources rather than being fully institutionalised within routine health services, raising questions regarding long-term sustainability.

Health worker training was consistently identified as a major contribution of the Portfolio. Training increased provider confidence in HPV testing, thermal ablation and newer service delivery approaches, while improving adherence to WHO recommendations. Nevertheless, staff turnover, competing clinical priorities and uneven distribution of trained personnel continued to affect service quality and programme continuity. Several countries therefore require ongoing institutional capacity-building rather than one-off training initiatives.

The evaluation also found that policy and governance support contributed substantially to national adoption of cervical cancer programmes. Technical assistance enabled countries to revise clinical guidelines, develop national implementation plans and incorporate WHO-recommended technologies into national policies. These policy achievements created important enabling conditions for future scale-up, although implementation remains dependent on sustained financing and health system capacity.

Despite these advances, broader health system constraints continued to influence programme performance. Human resource shortages limited domestic financing, procurement challenges, laboratory maintenance requirements and weaknesses in referral systems affected the ability of countries to expand services beyond demonstration sites. The evaluation therefore concludes that successful introduction of innovative technologies requires systematic health system assessment at the design stage and ensuring that innovations are appropriate to the health system constraints present.

3.6 Assessing and addressing gender issues

The evaluation found that gender considerations were integrated throughout the Portfolio and reflected both the nature of cervical cancer as a disease affecting women and the broader social and cultural factors influencing access to services. Across countries, women identified multiple gender-related barriers that influenced screening uptake. These included limited decision-making power within households, competing domestic responsibilities, concerns regarding privacy, fear of pelvic examinations, stigma associated with cervical cancer and, in some settings, the need for partner approval before seeking health services. Such barriers affected both initial participation in screening and continuation throughout the care pathway.

The evaluation found that the design and implementation of the Portfolio was gender-sensitive in

addressing barriers for women. Women consistently reported that HPV self-sampling offered greater privacy, dignity and convenience than provider-collected samples. The option to avoid speculum examination reduced anxiety and increased acceptability, particularly among women who had never previously been screened. In several settings, self-sampling also contributed to greater acceptance among male partners by removing concerns related to intimate clinical examinations. Engagement of female health workers through task shifting, and female community outreach staff were particularly valuable in reaching underserved populations and supporting women throughout the screening process.

Community engagement and civil society participation further strengthened the gender responsiveness of the Portfolio, as they contributed to awareness raising, demand generation and dialogue around women's health, helping to reduce stigma and improve understanding of cervical cancer prevention. However, community or women's representatives were generally not engaged in Portfolio design or governance.

Although the Portfolio made important progress in addressing gender barriers, broader structural gender inequalities remained beyond the scope of programme design and implementation, e.g., through a pre-project gender assessment or including gender analysis in demonstration research. Wider social determinants continued to influence women's ability to access services and complete treatment.

Overall, the evaluation concludes that gender-responsive service delivery, particularly through self-sampling, community engagement and integrated care models, substantially improved the acceptability and accessibility of cervical cancer screening. Continued attention to gender transformative project design and implementation will remain essential as countries move from demonstration projects towards national scale-up.

3.7 Scaling and sustaining cervical cancer screening services

The evaluation found that the Portfolio made progress in creating the conditions for national adoption and scale-up of cervical cancer screening services. Across participating countries, Unitaids investments generated implementation evidence, supported policy development, strengthened national planning and facilitated the introduction of WHO-recommended technologies into public health systems and national guidelines. Evidence on feasibility of new technologies and service models informed revisions to national guidelines, contributed to the development of costed national strategic plans and strengthened government confidence in adopting these new approaches. The evaluation also found that stronger domestic or local political leadership influences the likelihood of successful scale-up.

However, sustaining financing for continued service delivery of demonstration sites, let alone scale up, was a challenge: no country has been able yet to substantially scale up cervical cancer service delivery, besides Rwanda which is on track with external and domestic financial support. Expansion beyond demonstration sites continues to depend on sustained financing, procurement capacity, health workforce availability and laboratory infrastructure.

The initial assumption behind Unitaids catalytic investment that HPV testing scale up could be financed through donor funding, turned out wrong, due to a significant reduction of US government support through PEPFAR and general ODA. Most countries remain reliant on external financing for commodities and technical assistance, limiting the pace at which programmes can be expanded nationally. Many stakeholders see Unitaids as the single most important investor in cervical cancer

elimination efforts. In this funding environment, sustainable scale-up of HPV test-based screening will require gradual integration of cervical cancer screening services into routine government financing mechanisms. However, domestic financing for cervical cancer prevention remains constrained in most Portfolio countries, as they continue to face competing health priorities and limited fiscal space. Costed national strategies are more likely to be funded if there is a clear investment case.

Overall, the evaluation found that the sustainability assumptions (international donor support and domestic resource mobilization) did not hold, and that carrying the same assumptions forward in the next phase of the Portfolio, in the current financial context, creates a sustainability risk for project countries and a reputational risk for Unitaïd, without risk mitigation strategies such as securing binding financing commitments.

3.8 Learning from 'champion countries'

The evaluation found that learning across countries represented an important feature of the Portfolio. The evaluation found that South-South learning largely happened informally. Stakeholders consistently valued opportunities for South-South learning and identified exchanges between countries through shared implementing partner institutional knowledge, peer exchanges between country teams, conferences and publication-based diffusion.

At the same time, within-country adaptive learning from phase 1 influenced design of service models in phase 2, and worked best when demonstration research was undertaken and disseminated with engagement of national stakeholders, and when it addressed health systems and gender barriers. There is, however, no evidence of that structured learning shortened the innovation-to-scale timeline in later-adopter countries, partly because the Portfolio was implemented in all countries almost simultaneously.

The evaluation identified opportunities to strengthen Portfolio-wide learning further. Now that substantial evidence has been generated, there is scope for a strategy to systematically synthesize lessons across countries and disseminate implementation lessons to support future investments and accelerate adoption by countries entering earlier stages of the elimination pathway.

3.9 Implementation efficiency and Portfolio management

The evaluation found that the Portfolio improved efficiency by reducing commodity prices through pooled procurement, price negotiations and UNICEF Supply Division procurement, while integrating cervical cancer screening into existing HIV and reproductive health services. Using existing infrastructure, laboratory platforms and health workers reduced costs, although competition for laboratory capacity and staff time created trade-offs. Training-of-trainers and task shifting further improved efficiency and supported service expansion.

Implementation remained broadly on time despite temporary disruptions caused by COVID-19 and some country-specific challenges. However, successive short funding phases reduced predictability and limited the ability of governments, implementing partners and manufacturers to plan for long-term scale-up, highlighting the value of a longer investment horizon.

Coordination was most effective where implementing partners maintained clear communication and complementary roles. Efficiency was reduced where partners responsible for programme oversight lacked a country presence, resulting in communication gaps, weaker coordination and reduced visibility of programme decisions at country level.

Implementation-level risks were generally identified and managed effectively through adaptive management. However, strategic risks, including declining external financing, limited domestic resource mobilisation and persistent market concentration, were not systematically monitored or mitigated, highlighting the need for stronger Portfolio-level risk management.

3.1 Conclusions and recommendations

All recommendations below are addressed to the Unitaïd secretariat, and to the Unitaïd Board to inform design and implementation of the next phase of the Portfolio. The high priority recommendations are to be considered with appropriate urgency, so that lessons from the Portfolio inform the next phase.

High priority recommendations

Conclusion on introducing innovative technologies: The Portfolio demonstrated that HPV molecular testing is more sensitive than VIA but that same-day screen–triage–treatment is rarely feasible, resulting in high loss to follow-up among HPV-positive women, where patient navigation systems are weak, as in most low resource settings. Despite substantial price reductions, HPV molecular testing remains unaffordable for many LMICs. Alternative technologies, including true point-of-care HPV tests and AVE, have potential to combine improved diagnostic performance with same-day management, if they can be brought to market. (Findings 1-9)

Recommendation: Fund targeted market shaping efforts to accelerate the development, regulatory approval, commercialisation and integration of emerging technologies, including AVE and true point-of-care HPV testing as complementary tools for secondary cervical cancer screening in LMICs. Technology choice should follow context: where patient navigation systems and lab systems are strong, HPV testing remain effective; where navigation and lab systems are weak, same-day options (true PoC, AVE) reduce attrition; in rural/last-mile settings without HPV testing access, AI-enhanced VIA is a pragmatic improvement.

Conclusion on price reductions, affordability and broader market shaping: the Portfolio achieved substantial price reductions for HPV molecular tests and thermal ablation devices, but the highly concentrated, platform-locked market limits the scope for further gains through price negotiation alone, keeping landed costs too high for many LMICs to be procured with domestic resources. Unitaïd's added value and market-shaping expertise provides opportunities to address persistent market failures for HPV testing technologies (including collection and transport media) and thermal ablation devices. (Findings 10-17)

Recommendation: Direct future market-shaping investments towards creating competitive and sustainable markets for HPV testing technologies (including collection and transport media), by supporting new market entrants, supplier diversification, technology transfer and regulatory facilitation, while progressively transferring market-shaping functions to regional bodies.

Conclusion on supporting innovative service models: Integration of cervical cancer screening within HIV and broader sexual and reproductive health services improves equity and cost-efficiency by reaching women at highest risk through existing service platforms. Community outreach expands access to underserved women but is more resource-intensive and presents sustainability challenges. Better integration of screening with HPV vaccination, cervical cancer screening and treatment (including both precancerous and invasive lesion) represents both an efficiency opportunity and an ethical imperative. (Findings 18-25)

Recommendation: Prioritise support for integrated cervical cancer screening within HIV and sexual and reproductive health services while reducing barriers to access and loss to follow-up. Continue to support outreach-based services to reach first-time screeners where cost-effective, recognising the trade-off between reach of positive cases and costs. Strengthen linkages between HPV vaccination, cervical cancer screening, and treatment of cervical cancer (including for invasive lesions), and embed cervical cancer screening and precancerous within broader cancer, health and social service systems.

Conclusion on adoption and sustainability: While policy adoption has been a notable success, the assumption that service scale-up would be financed through domestic resources and external donors has not been realised. Domestic financing remains limited and international funding has declined, creating increasing tension between Unitaids' perception of catalytic investor and stakeholder current expectations about Unitaids as the main funder for secondary prevention of cervical cancer elimination efforts. Without revised financial sustainability assumptions and clearer transition arrangements, this represents a sustainability risk. (Findings 32-37)

Recommendation. Recalibrate Unitaids' role as catalytic investor to reflect the current global financing landscape. Future catalytic investments should be conditional on credible pathways towards domestic or external financing commitments and agreed transition milestones and contain mitigation strategies where sustainable financing is unlikely. Strengthen investment cases for Ministries of Finance to support long-term domestic financing. Demonstration of effectiveness alone should not be considered sufficient evidence of readiness for scale-up.

Medium priority recommendations

Conclusion on Health systems capacity: The assumption that existing health systems could readily absorb new screening technologies proved unlikely. Introduction of new technologies was least successful where health-system constraints limit retention, scale-up and sustainability, and more successful where laboratory systems, the health workforce, patient navigation, and health information systems were stronger. Overall system readiness is a prerequisite for successful implementation and allows for introduction of context-appropriate innovations. (Findings 27-29)

Recommendation: Design future investments around health-system readiness and minimum implementation requirements before introducing technologies. Consider whether achieving sustainable system strengthening requires a longer investment horizon than Unitaids' traditional catalytic investment model.

Conclusion on continuum of care: Retention across the continuum of care remains a major challenge, and where differences in monitoring frameworks and indicator definitions exist, it is harder to consistently measure and compare cascade performance disaggregated for service models or target groups. A harmonised cervical cancer cascade, with standard definitions and indicators, is being developed and would represent an important global public good. (Finding 26)

Recommendation: Require future implementing partners to use a set of harmonised indicators and monitoring frameworks disaggregated by service model and population group, and support WHO and partners in finalising standardised global cervical cancer cascade indicators.

Conclusion on gender: Access to services was most effective where the Portfolio was gender responsive and addressed *practical* gender needs, e.g. through approaches such as self-sampling and

the use of female community health workers. However, the programme was not gender transformative and did not systematically address the *broader structural* gender barriers that continue to affect women's access to screening and treatment. (Findings 30-31)

Recommendation: Extend the Portfolio's gender-responsive approach beyond practical interventions by systematically addressing strategic gender barriers, including women's autonomy in health decision-making and the economic barriers faced by disadvantaged women.

3.2 Implications for the Portfolio Theory of Change

The next phase of the Portfolio, based on the success and lessons from 2019-2025, is under development and intends to move from demonstrating proof of concept to catalytic funding to 1) enable selected champion countries to deliver services at scale and address health system barriers; 2) provide evidence for cervical cancer elimination in LMIC, and share this evidence beyond project countries; and 3) provide market shaping support for newer technologies for cervical cancer screening (true PoC HPV tests and AVE), and 4) support resource mobilisation from domestic and international sources, so that **champion countries achieve the 70-90 elimination targets**, ultimately towards the longer term WHO cervical cancer elimination goals. Underlying assumptions are that 1) countries' health systems are robust enough to be able to scale up screening and treatment into existing health services; 2) champion countries will achieve elimination goals (70% eligible women screened and 90% of eligible women treated) and 3) countries are able to sustain service delivery beyond Unitaid catalytic funding with domestic or international funding.

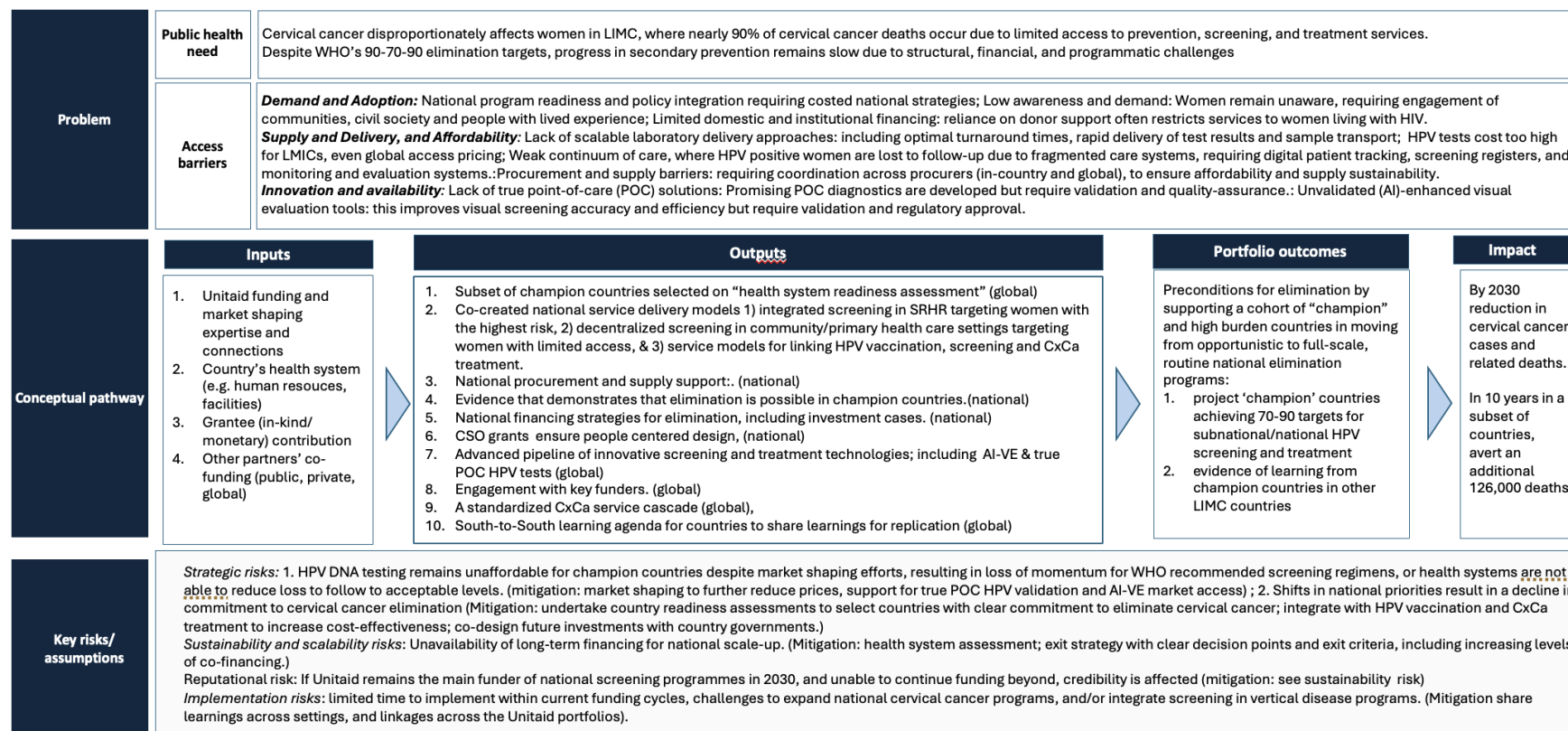
The evaluation concludes that current barriers to scaling up cervical cancer screening and treatment in LMICs are consisting of 1) limited access to appropriate technologies, 2) generic health system weaknesses and gender-based barriers, and 3) limited financing. Given Unitaid's comparative advantage, it's catalytic investment to support these countries is therefore most efficiently targeted to support the development and market access of emerging HPV screening technologies that promise to be more affordable and appropriate to existing health systems, and further price reduction of HPV tests. Because of the catalytic nature of Unitaid's financial support and the identified and real sustainability risk, Unitaid should put risk mitigation activities in place. The external evaluation, based on the above recommends adjusting the ToC for the second phase in the following ways:

1. Because affordability remains a major constraint for LMIC adoption of HPV testing, **strengthen the critical role of Unitaid in market shaping and drive further price reduction**
2. Because HPV testing alone has not consistently enabled same-day screening pathways, prioritise **market shaping support for true PoC HPV technologies, and AI-supported VE methods that may enable simplified, same-day management pathways.**
3. Because technology introduction without system readiness resulted in cascade failures, **require health-system readiness assessments before catalytic investments are initiated, undertake regular follow up health technology assessments, and base continued catalytic funding support on minimum criteria.**
4. Because loss to follow remains the critical bottleneck and monitoring remains fragmented, **support development of a global, cervical cancer cascade indicator framework, aligned to WHO elimination targets.**

5. Because domestic and international follow up funding for secondary prevention of cervical cancer services is unlikely post 2030, **make sustained catalytic funding conditional on increasing levels of counterpart funding.**

See figure below for the suggested updated ToC of Unitaids' cervical cancer secondary prevention portfolio considering evaluation findings.

Figure: Unitaid Cervical cancer secondary prevention portfolio ToC (2025-2030)



1 INTRODUCTION

This report presents the findings of the evaluation of Unitaid’s cervical cancer Portfolio, assessing its contribution to establishing and advancing secondary prevention of cervical cancer programs. It begins by providing the context for secondary prevention of cervical cancer and Unitaid’s role. The chapter then summarises Unitaid’s cervical cancer Portfolio and defines the purpose, objectives, and scope including learning themes, while also depicting the evaluation users and the phases of the evaluation.

Chapter two describes the evaluation approach and methodology, including realist and theory-based strategies, evaluation questions, hypotheses, and outlining data collection and analysis methods, evaluation limitations and mitigation strategies and ethical considerations. Chapter three presents findings and key lessons of the evaluation noting the strength of evidence for each finding. The report concludes with a chapter on key conclusions and recommendations for the future. Annexes provide specific evaluation tools, protocols, detailed analyses, country cases study reports and references (available in Vol. II).

1.1 CONTEXT - THE PROBLEM AND THE ROLE OF UNITAID

Cervical cancer causes approximately 350 000 deaths annually, with nearly 94% occurring in low- and middle-income countries (LMICs), underscoring profound geographic inequities. Women living with HIV are up to six times more likely to develop cervical cancer when infected with HPV.² The WHO Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem (2020) established the 90–70–90 targets for 2030: 90% of girls fully vaccinated with the HPV vaccine by age 15, 70% of women screened using a high-performance test by ages 35 and 45, and 90% of eligible women receiving treatment.³ These three pillars, vaccination, screening, and treatment, frame global elimination efforts.

Progress towards elimination has been uneven. HPV vaccination is now included in over 140 national programmes, with one-dose schedules implemented in approximately 60 countries as of 2025.⁴ However, global vaccination coverage remains low (~30%), and only 24% of national screening programmes use WHO-recommended high-performance HPV tests, indicating major shortfalls in meeting 2030 targets.⁵ International partners (including WHO, Unitaid, Gavi, the Global Fund, and PEPFAR) have played critical roles in financing, diagnostics, scale-up, and implementation support to accelerate progress.⁶

² Cervical Cancer Elimination Initiative [Internet]. [cited 2026 Mar 16]. Available from: <https://www.who.int/initiatives/cervical-cancer-elimination-initiative>

³ World Health Organization. Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem. 1st ed. Geneva: World Health Organization; 2020. 1 p.

⁴ Bhatla N, Aoki D, Sharma DN, Sankaranarayanan R. Cancer of the cervix uteri: 2025 update. International Journal of Gynecology & Obstetrics. 2025;171(S1):87–108. doi:10.1002/ijgo.70277

⁵ Castle PE. Looking Back, Moving Forward: Challenges and Opportunities for Global Cervical Cancer Prevention and Control. Viruses. 2024 Aug 25;16(9):1357. doi:10.3390/v16091357 PubMed PMID: 39339834; PubMed Central PMCID: PMC11435674.

⁶ Gopalkrishnan K, Karim R. Addressing Global Disparities in Cervical Cancer Burden: A Narrative Review of Emerging Strategies. Curr

While vaccination remains the ultimate long-term solution, secondary prevention, defined as screening and treatment of pre-cancerous lesions, is the most urgent and high impact intervention in the short to medium term, especially in LMICs where vaccination coverage remains low, and screening services are limited.

Unitaid has answered the global call to eliminate cervical cancer by tackling the major obstacles that prevent women and adolescent girls in low-resource settings from accessing timely diagnosis and treatment. Through its initiatives, Unitaid aims to integrate a cost-effective, sustainable test-and-treat model into national health systems, ensuring that the unique needs of women and adolescent girls are met.⁷ Since 2019, Unitaid has been a leading global supporter of cervical cancer secondary prevention programmes across geographic regions and diverse contexts, targeting access barriers in availability, affordability, acceptability and adoption of tools and technologies with a particular focus on LMICs. The fundamental problem these investments seek to address is the persistently low HPV screening coverage, limited access to WHO-recommended diagnostics such as HPV tests and triage tools, and weak referral and treatment pathways that characterise health systems in resource-constrained settings. These challenges are compounded by significant market barriers, including high prices for diagnostic products, fragmented demand across countries, regulatory obstacles that slow product registration and adoption, weak delivery systems that cannot reliably reach women in need, and limited incentives for manufacturers to invest in these markets.

1.2 OVERVIEW OF UNITAID'S CERVICAL CANCER PORTFOLIO AND KEY ACHIEVEMENTS

Unitaid's strategic response has been to deploy investments that de-risk markets for manufacturers, accelerate the introduction and adoption of new products, and strengthen health systems and partnerships to enable equitable and sustainable access to cervical cancer screening and precancerous treatment. Between 2019 and 2025 Unitaid has invested over USD 80 million in secondary prevention of cervical cancer and produced achievements across eight interconnected areas:

- Demonstration projects across fourteen countries established the feasibility and acceptability of WHO-recommended HPV molecular testing, thermal ablation treatment, and self-sampling tools in routine public-sector settings.
- Implementation research further demonstrated that AVE nearly doubled the sensitivity of naked-eye VIA for detection of cervical precancer
- Demonstration projects across multiple country contexts. established the feasibility and acceptability of both integrated and outreach-based service models (embedding cervical cancer screening within HIV, family planning, and primary health care platforms and community outreach-based models)
- Civil society organisations were engaged across both grantee streams to support demand creation and national policy dialogue.
- Technical assistance addressed systemic barriers throughout the continuum of care, including laboratory system strengthening, patient navigation, health worker capacity building, and HMIS integration.

HIV/AIDS Rep. 2025 Dec;22(1):18. doi:10.1007/s11904-025-00727-2

⁷ Unitaid, Unitaid Strategy 2023–2027 (Geneva: Unitaid, 2022), https://unitaid.org/uploads/Unitaid_Strategy_2023-2027.pdf.

- Negotiations with major diagnostic and device manufacturers achieved price reductions of approximately 40% for HPV test kits and 45% for thermal ablation devices.
- Portfolio support for policy development contributed to national adoption of WHO cervical cancer elimination targets, the development of costed national implementation plans, and revision of technical guidelines to incorporate HPV testing and thermal ablation across the majority of project countries.
- Results and lessons learnt were disseminated at national, regional, and global levels through peer-reviewed publications, WHO normative guidance processes, regional learning forums, and targeted knowledge products.

Unitaid engaged three core implementing partners, CHAI, Expertise France (with sub-implementer JHPIEGO and other subgrantees), and WHO/PAHO, as well as several sub-grantees and technical partners. Table 1 below summarises the Portfolio's key investments, partners, and geographic scope.

Table 1: Overall Unitaid investment profile 2019-2025

Implementing partner	Investment period	Approx. investment	Key geographies and activities
CHAI	2019–2025	~USD 46M	India, Kenya, Malawi, Nigeria, Rwanda, Senegal, South Africa, Uganda, Zambia and Zimbabwe Implementation research community-based delivery models Technology introduction and integrated service delivery approach (PHC, HIV, FP sites) Price negotiation for HPV and LEEP/TA R&D on AVE Support for MoH, adoption and financing Lab strengthening
Expertise France /JHPIEGO	2020–2025	~USD 29M	Burkina Faso, Cote d'Ivoire, Guatemala, Philippines Implementation research community-based delivery models Demand generation with IUCC and national NGOs Technology introduction and Integrated service delivery approach (PHC, HIV, FP sites) Lab strengthening Support for MoH, adoption and financing
WHO / PAHO	2020–2025	~USD 4.5M	Global and Latin America. Evidence generation, WHO normative guidelines, technical assistance to ministries of health for country policy adoption, partnerships
Total Portfolio	2019–2025	~USD 80M	14+ countries — full secondary prevention pathway

Sources: Unitaid PowerPoint presentation 18 February 2026. Unitaid's cervical cancer Portfolio. Portfolio evaluation kick off, Grant agreements CHAI, Expertise France.

1.3 PURPOSE, OBJECTIVES AND SCOPE OF THE EVALUATION

Unitaid commissioned an independent evaluation of its secondary cervical cancer prevention Portfolio (see Annex 14 ToR) and Tana-EHG was selected through a competitive process to conduct the evaluation.

The object of the evaluation is **Unitaid's Portfolio of investments in accelerating elimination of cervical cancer through secondary prevention during the period 2019-2025** (excluding extensions into 2026). This includes Portfolio-level activities of Unitaid, including investment design, management and stakeholder coordination, and partner-implemented activities across target countries aimed at advancing secondary prevention through screening and treatment of precancerous lesions.

1.3.1 OBJECTIVES

The two specific objectives of this evaluation are to⁸:

1. **Assess the catalytic impact** of Unitaid-supported programmes to accelerate cervical cancer elimination through secondary prevention in the 2019–2025 period.
2. **Synthesise actionable insights** to shape impactful, scalable, and sustainable investments to accelerate progress towards elimination of cervical cancer.

1.3.2 EVALUATION SCOPE

The scope of the evaluation is presented below and includes:

- First, to understand the extent to which **interventions have achieved intended outcomes** across varying country-specific and contextual factors, a realist and participatory approach was used. Four in-depth studies and desk-based data from other countries enabled comparative analysis of contexts and delivery models to identify transferable lessons and context-specific insights.
- Second, the evaluation covers **learning at Portfolio level and at country level across four country case studies (Burkina Faso, Kenya, Malawi Philippines) and additional countries of the Portfolio (including Nigeria, India, South Africa, Zambia, Rwanda)**. Learning areas related to the six learning themes are elaborated below.

Learning themes: The following six learning themes were systematically embedded as thematic lines of enquiry throughout the evaluation and were linked to the evaluation questions. Key learning themes include:

1. *Service delivery models and commodity supply.* This theme examined various service delivery models to increase access and coverage. It assessed the effectiveness of these supply chains and the utilisation of commodities, especially thermal ablation (TA) devices, within the context of cervical cancer elimination programmes.
2. *Continuum of care.* This theme focused on understanding how effectively women who screened positive for HPV, as well as for precancerous or invasive cervical lesions were linked

⁸ See annex 14, TOR

to appropriate treatment, including the effectiveness of the follow-up mechanisms that support these women through the continuum of care.

3. *Leave No One Behind (LNOB), equity & gender barriers.* This theme focused on lessons regarding gender, equity and social inclusion, and how services increase access for vulnerable women, including women living with HIV, rural women and those living in poverty.
4. *Programming at scale.* This theme interrogated factors that facilitate the national scale-up of successful interventions different steps/phases of country journey to achieve scale and how demonstration projects can be effectively transitioned to national-level implementation.
5. *Sustainable financing.* This theme examined the primary cost drivers associated with screening and treatment and explores which financing approaches have the greatest potential to enable the sustainable scale-up of cervical cancer elimination efforts.
6. *South-South learning.* This theme considered mechanisms for effective collaboration and knowledge sharing between countries, with a particular emphasis on South-South learning. The evaluation considered the role of knowledge products and other means of enhancing learning and collaboration across different contexts.

Out of scope: The evaluation assessed Unitaids' cervical cancer Portfolio from 2019 to 2025 but excluded ongoing project-extensions into 2026. The evaluation was not meant to audit country-level use of project inputs to implementing partners including MoH. While a true cost-effectiveness analysis was out of scope, an overall light touch value for money assessment was undertaken. This evaluation mainly assessed inputs, outputs and outcome level results, and not at impact level as this will be done separately.

1.3.3 EVALUATION USERS

The **main users** of the evaluation are Unitaids management and technical departments. Unitaids implementing partners, and the wider community engaged in the national and/or global cervical cancer elimination efforts are considered secondary users and may also be interested in the evaluation. Annex 8 provides a **stakeholder mapping** demonstrating the broad range of organisations and key stakeholders.

1.3.4 PHASES OF THE EVALUATION

The evaluation was conducted in four phases. *The inception phase* comprised kick-off and introductory meetings with Unitaids and the implementing partners, an initial document and financial data review, and development of the full methodology. This included a Theory of Change reconstruction, development of the evaluation matrix, data collection tools, stakeholder mapping, and in-country planning, culminating in a finalised inception report agreed with Unitaids. The *data collection phase* involved a structured document review, remote key informant interviews with learning country stakeholders, Unitaids staff, and global and regional partners, complemented by in-country data collection across the four case study countries (Burkina Faso, Kenya, Malawi Philippines). The *analysis and reporting phase* encompassed country case study write-up, synthesis and analysis of all data sets, internal team validation, and sharing of preliminary findings and draft recommendations with Unitaids. A *dissemination phase* will follow submission of the final report, with presentation of findings and recommendations to key stakeholders.

2 METHODS AND APPROACH

2.1 MIXED METHODS DESIGN AND UTILIZATION FOCUSED APPROACH

The evaluation employed a **mixed methods evaluation design**, combining quantitative and qualitative data collected from both primary and secondary data sources to ensure that findings are supported by a range of data sources through triangulation.

Ensuring that evaluation findings are actively used to inform decisions was central to the design of this evaluation. The evaluation applied a **participatory utilisation-focused approach** throughout, engaging intended users in the design, and validation of findings.

In alignment with the section above on evaluation users, key users of the evaluation included Unitaids management and technical departments, the implementing partners, and the wider community engaged in the national and/or global cervical cancer elimination efforts. These stakeholders were engaged in the evaluation to the maximum extent possible considering budgetary and time constraints (Table 2). Key touch points included the reconstruction of a Portfolio ToC during the inception phase (Figure 1), interpreting preliminary findings as they emerge, and validating conclusions and recommendations to ensure they are grounded in realities. This participatory approach enhanced both the credibility of findings and their utility for decision-making. The evaluation team worked closely with Unitaids's Monitoring and Evaluation Manager to ensure that products are appropriately tailored to user needs.

Table 2: Evaluation touchpoints and evaluation audience and purpose

Utilisation touchpoint	Audience and purpose
ToC workshop (17 March)	Unitaid secretariat, key partners – to discuss and validate a reconstructed ToC for the evaluation
Emerging findings presentation (22 May)	Unitaid secretariat— to inform decisions making on the ongoing call for proposals for the next round of strategic investments
Preliminary findings presentation and draft recommendations (9 June)	Unitaid secretariat and management — presentation of key findings, conclusions and draft recommendations
Draft evaluation report (22 June)	Unitaid M&E Manager and key staff from the secretariat — review for strategic alignment, fact-checking, and quality assurance
Presentation (15 July) and final report (10 August)	Unitaid OMM, technical and strategy team, review for strategic alignment, fact-checking
Dissemination event (August, TBC)	Broader stakeholder community — implementing partners, WHO — dissemination of findings and recommendations

2.2 EVALUATION QUESTIONS

Evaluation questions in the ToR were refined and regrouped during the inception phase for clarity and structure (Table 3). The evaluation questions align with the overall Unitaids evaluation framework and conforms with international good evaluation practice and UNEG guidance for evaluations.

The evaluation used an evaluation matrix (Annex 5) which links each evaluation question with indicators, assumptions and various data collection methods.

Table 3: Evaluation questions

Key evaluation questions	Specific evaluation questions
1. Is the cervical cancer prevention Portfolio responsive to needs and contexts?	EQ1.1. Did the cervical cancer programmes respond to country needs and contextual realities? Were there mismatches (if any) between the design assumptions and country-level realities?
	EQ1.2. How did Unitaids' cervical cancer interventions interact with those of other partners and broader systems? ⁹
	EQ1.3. How did gender norms, roles and relations influence access to, uptake of, and continuity in cervical cancer screening and treatment services — including the roles of women and men as healthcare workers, decision-makers, caregivers and partners — and how were gender considerations addressed in programme design (and implementation)?
2. Did the Portfolio achieve intended outcomes?	EQ 2.1 To what extent and through what mechanisms did Unitaids' interventions achieve their intended results?
	EQ 2.2 To what extent were women screened positive for precancerous and invasive cervical lesions successfully linked to timely and appropriate treatment services, and how effective were follow-up mechanisms in ensuring continuity of care?
	EQ 2.3 To what extent are women and healthcare workers satisfied with the tools and services introduced (including HPV, self-collection & provider, AI-AVE and TA) and what barriers have they faced in accessing or using them?
	EQ2.4 To what extent have market-shaping efforts improved access, affordability, and availability of cervical cancer screening and treatment technologies across countries? Specifically, how efficiently have new technologies (e.g., thermal ablation) been deployed, and what are key bottlenecks?
3. Are services and tools adopted and integrated in global and national strategies?	EQ3.1 Are the gains from the Unitaids supported work sustainable and scalable? What conditions and mechanisms are likely to support or undermine the sustainability and scalability of Unitaids' contributions beyond the project period?
	EQ3.2 Which financing approaches—across public, private, and donor sources—are proving most effective in sustaining affordable HPV screening and treatment services over the long term? What are the true cost drivers of screening and treatment?
	EQ3.3 Were best practices from early-adopter countries applied to accelerate cervical cancer programming in other countries?
4. Is the Portfolio implemented efficiently?	EQ4.1 How timely, cost-efficient, and cost-effective was implementation (considering both allocative efficiency and technical efficiency) and what factors have been considered to ensure that value for money has been achieved from an efficiency standpoint? What mechanisms contributed to efficiency gains in different contexts?
	EQ 4.2. Has learning been captured and shared strategically, and how has project learning been incorporated in the lifetime of the investments? ¹⁰
	EQ 4.3 How effectively have strategic, implementation and sustainability/scalability risks been identified and managed throughout implementation?

⁹ Relates to comparative advantage of Unitaids.

¹⁰ Focus on the portfolio-wide learning. Intervention or country-level learning is addressed throughout the EQs

2.3 REALIST EVALUATION APPROACH AND THE THEORY OF CHANGE

The evaluation adopted a **realist evaluation approach** that moves beyond simple questions of whether interventions worked to ask what works, for whom, in what contexts, how, and why. This approach recognises that Unitaid's investments do not operate uniformly across settings and require examination of *context–mechanism–outcome (CMO) configurations* that vary depending on local conditions. The goal of a realist evaluation is to identify a robust and transferable ‘Programme specification’ theory, as opposed to a generalisable result which would be the goal of formal quantitative research.¹¹

By adopting the realist approach, the evaluation aimed to identify patterns across countries to understand what drives success or limits it, including contextual and human dimensions. Contexts such as health system capacity, resources, market maturity, policy alignment, HIV burden, culture, and prevailing gender norms interact with mechanisms such as prices, confidence in new technologies, provider incentives, and community trust to produce outcomes including accelerated uptake, more equitable access, and sustainable markets for cervical cancer prevention products. (See section below on CMO configurations and hypotheses)

Reconstructed Theory of Change applied for this evaluation (Portfolio ToC for 2019-2025)

Realist evaluation starts with theory and ends with theory and aims to test and refine the Portfolio Theory of Change (ToC), besides determining whether and how the programme worked in a particular setting, by testing various hypotheses around Portfolio outputs and outcomes.

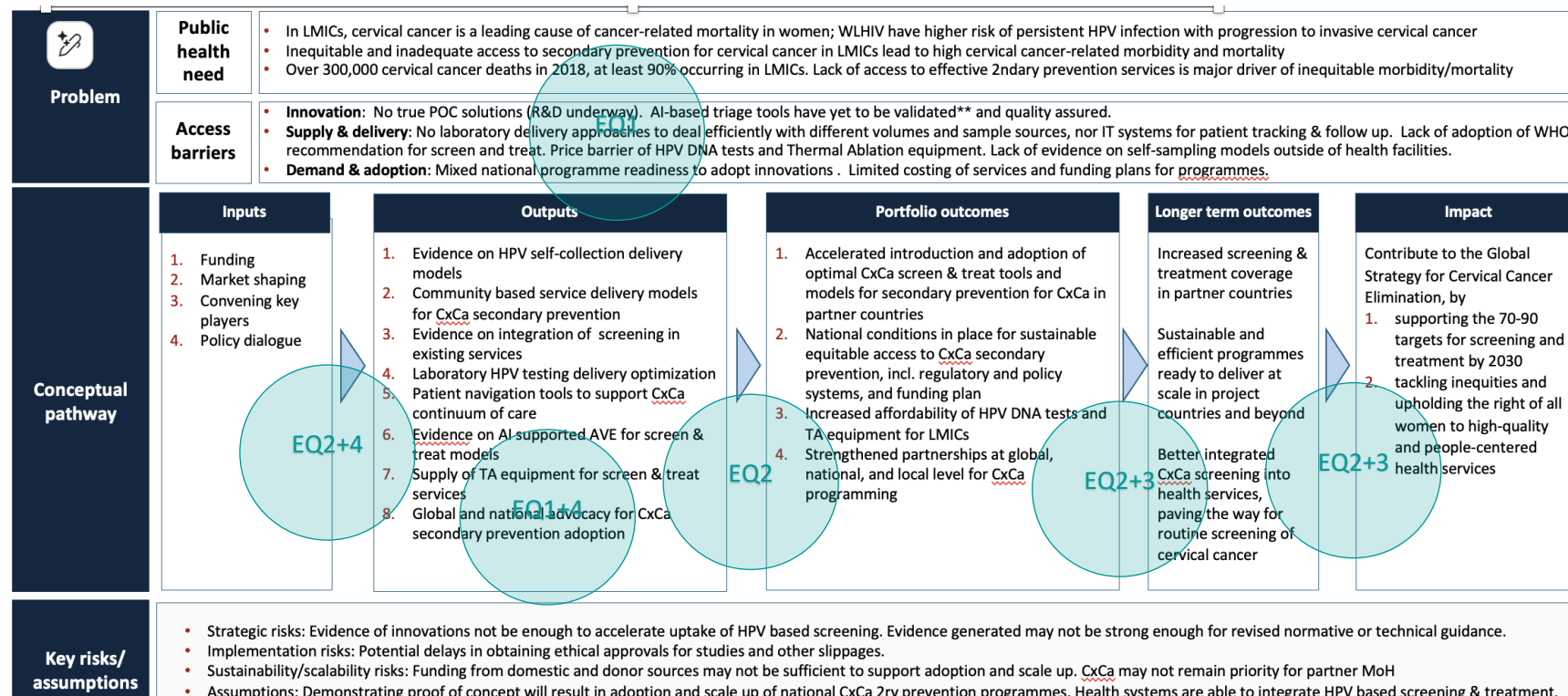
The figure below (Figure 1) reflects the ToC reconstructed for the evaluation. This ToC closely aligns to the Unitaid ToC developed midway implementation (2023), while adding additional elements appearing through the inception phase document review, discussions and workshops with Unitaid.

The ToC below reflects Unitaid’s comparative advantage as an early-stage investor that proves feasibility, lowers barriers for innovative health technologies, and creates conditions for other actors to scale equitable health interventions globally.

The evaluation questions were mapped to this ToC at four levels: responsiveness relates to the link between the Portfolio's problem assessment and its outputs; progress to results covers outputs, outcomes, and intermediate impact; sustainability relates to outcomes (system change) and impact; and implementation efficiency relates mainly to inputs, outputs, and risk management.

¹¹ Jack K What is realist evaluation? Evidence-Based Nursing 2022;25:111-113. <https://ebn.bmj.com/content/25/4/111>

Figure 1: Reconstructed ToC for the evaluation



Testing hypotheses related to the Portfolio ToC

Consistent with realist evaluation methodology, the evaluation tested a set of six explicit hypotheses derived from the and linked to the learning themes of the evaluation. These hypotheses articulated the causal mechanisms through which the Portfolio's investments are expected to produce their effects, and the contextual conditions under which those mechanisms are likely to succeed or fail. They are presented in Table 4 below and elaborated in Annex 6. The evaluation team tested the main proposition and the condition in each country case study and other countries where relevant, seeking confirming and disconfirming evidence in equal measure. Hypotheses were tested for structure, and mechanisms using examination of *context–mechanism–outcome configurations* (See Annex 6). These were used to refine the final ToC.

Table 4: Summary of evaluation hypotheses and linkages to the ToC, EQs and learning themes

Hypothesis title	Hypothesis in brief	ToC level	Key EQs	Learning themes
H1: Community delivery & self-sampling	Proof of feasibility of community HPV self-sampling triggers national adoption as a standard service model	Output	EQ2.1, 2.3, 1.3	1, 3
H2: Integrated service delivery & same-day treat	Integration into existing services + same-day testing/treatment triggers client convenience and health care workers confidence, reducing LTFU	Output	EQ2.1, 2.2, 2.3	1, 2
H3: Technology introduction & HW capability	Introduction of HPV testing and thermal ablation (and AVE), increase health worker diagnostic confidence, and willingness to treat precancerous lesions and improves continuity of care	Output	EQ2.1, 2.3	1
H4: Proof of concept & national adoption	Proof of concept from 'champion countries' triggers national government buy-in, leading to policy and budget inclusion	Outcome	EQ2.1, 3.1, 3.3	4
H5: Market shaping & price reduction	Price negotiation and volume procurement trigger MoH procurement otherwise financially infeasible	Outcome	EQ2.4, 3.1, 3.2	1, 5
H6: South-South learning & diffusion	Structured knowledge sharing from early adopters shortens innovation-to-scale timeline in later-adopter countries	Long-term outcome	EQ3.3, 4.2	6

2.4 DATA COLLECTION METHODS

The evaluation combined different data collection tools and methods described in further details below.

2.4.1 DOCUMENT AND DATA REVIEW

A comprehensive and structured document review of more than 100 key documents was conducted and included global strategies, Unitaids Strategies, Unitaids and implementing partners' programme documents (+ related ToCs, Grant agreements, Project documents, annual/semi-annual Implementation); Presentations and analyses, assessments, external and internal evaluations and peer reviewed research articles. This was complemented by a review of available procurement and pricing data and an analysis of performance data. This process extracted secondary data evidence against the evaluation questions and interrogated the

hypotheses. Annex 13 provides a list of reviewed documents while the country case study reports provide a separate bibliography section.

2.4.2 KEY INFORMANT INTERVIEWS AND FOCUS GROUP DISCUSSIONS

Key informant interviews (KIIs) were conducted with a wide range of stakeholders to generate qualitative insights that cut across the evaluation questions and hypotheses especially for areas that were not well covered by existing documentation. Interviews were semi-structured and conducted using KII guides provided in Annex 7, tailored to the specific profile and experience of the key informant. Focus Group Discussions (FGDs) were preferred over individual KIIs in cases where group interaction was expected to enrich the data or where stakeholders felt more comfortable responding in the presence of others. Interviews and group discussions were conducted in English, French, or local languages, as necessary.

The sampling of key informants was purposive, aiming to engage the most relevant key informants based on the evaluation questions while ensuring breadth and diversity across stakeholder groups, geographies and roles. Stakeholders were identified through advice sought from Unitaid and its implementing partners. Once interviews had started, a snowballing approach was applied, asking interviewees for connections with other potential stakeholders who might be able to contribute useful perspectives on the topics covered by the evaluation questions. As per the realist approach, data collection and analysis was conducted iteratively to test emerging explanations of how and why programme outcomes occurred in varying contexts.

The evaluation distinguishes between two tiers of primary data collection:

- **Virtual interviews and group discussions** targeting global, regional, and desk-based country stakeholders, through which we interviewed 54 key informants. (Figure 2)
- **In-depth country fieldwork** in the four case study countries (Burkina Faso, Kenya, Malawi, and the Philippines), through which we consulted a total of 192 stakeholders. Emphasis in these case studies were to get perspectives from health service users, health care providers and government– key informants who were less likely to access virtually. (Figure 3)

In total, the evaluation collected primary data from 246 key informants at global, regional, and country level. The distribution of key informants per stakeholder category are detailed in figures 2 and 3 below. A full list of key informants is provided in Annex 9.

Figure 2: Stakeholders interviewed virtually by category (n=54)

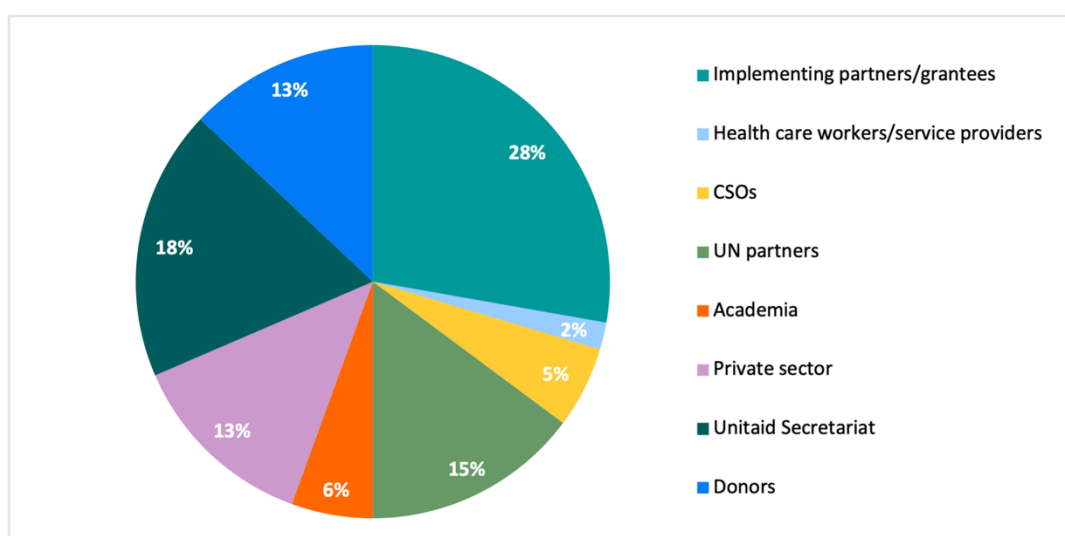
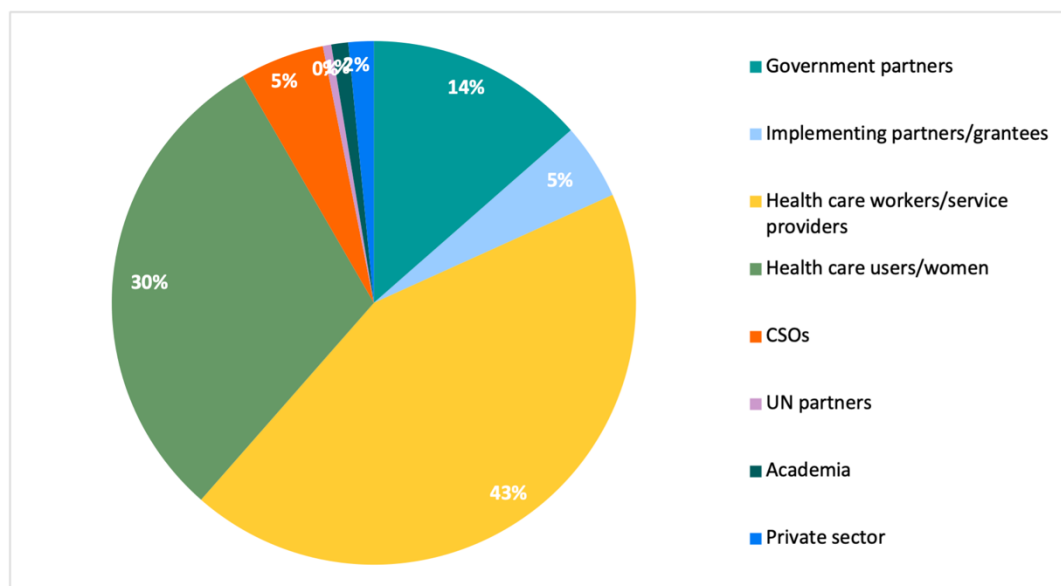


Figure 3: Stakeholders participating in KIIs or FGDs, across four country case studies (n=192)



2.4.3 COUNTRY CASE STUDIES

In-depth country case studies: Four countries – *Burkina Faso, Kenya, Malawi, and the Philippines* – were proposed as in-depth case studies in the ToR as they represent different contextual conditions, stages on the pathway to elimination, and diversity of delivery models. In these countries, national consultants conducted extensive fieldwork including KIIs, facility visits and direct observations of service delivery. The fieldwork engaged stakeholders across multiple levels: health service users, community groups, health workers who provide services, programme managers who oversee implementation, government representatives and other partners. National consultants visited health facilities where screening services were delivered, which allowed for direct observation of service delivery practices and identification of real-world implementation challenges.

Importantly, these in-depth studies created dedicated space for community dialogues that centred the voices of women with lived experience of cervical cancer screening programmes alongside civil society champions who work to advance women's health rights, people living with HIV and perspectives from health service providers. The country case studies informed the evaluation findings and reports are annexed to this evaluation report (see Annex 12).

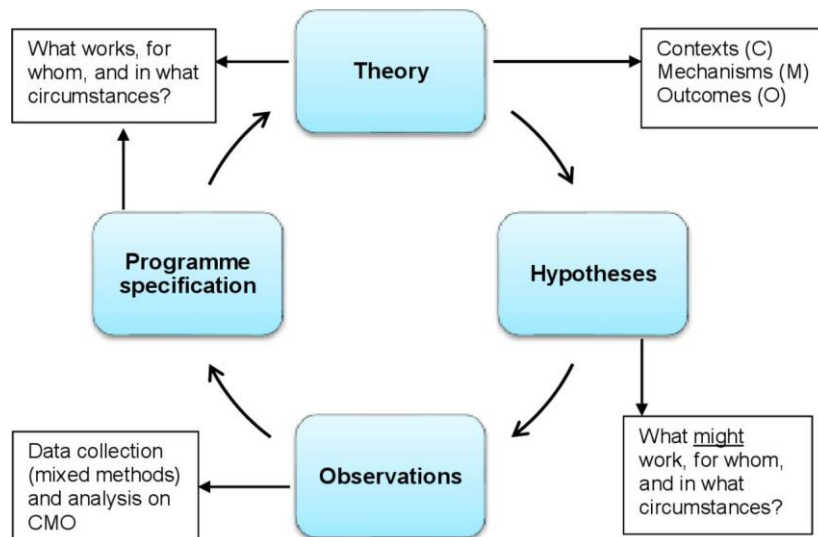
Revised approach to Portfolio-wide country learning: The ToR proposed four light-touch case studies in Guatemala, Senegal, Rwanda, and Nigeria. Following a structured review of the Portfolio's geographic scope and evidence base during the inception phase, and in consultation with the Unitaied M&E Manager, the evaluation team adopted a revised approach to maximise the learning value of the Portfolio-wide inquiry. Rather than conducting four discrete light-touch case studies, the evaluation embedded Portfolio-wide thematic learning across all relevant countries through targeted remote interviews and secondary data review across Rwanda, Nigeria, Zambia, Zimbabwe, South Africa, India, and Guatemala), structured around the six key learning themes.

2.5 SYNTHESIS AND ANALYSIS

Context–mechanism–outcome (CMO) analysis: CMO configurations were used to test the six hypotheses and the overarching evaluation ToC. Each of the six evaluation hypotheses (Table 4) were explicitly assessed

against the evidence gathered. This systematic hypothesis-by-hypothesis assessment intended to answer questions on what works for whom and in what circumstances and form the analytical backbone of the evaluation report, ensuring that findings are directly linked to the framework and hypotheses. (See figure below)

Figure 4: Realist evaluation cycle - CMO analysis



Source: The realist evaluation cycle (Pawson and Tilley, p85)

Both qualitative and quantitative data were used as part of the analysis:

Quantitative data (financial data, project data, monitoring and performance data) were cleaned and analysed using Excel. Descriptive statistics were utilized to analyse data trends over time.

Qualitative data from primary data sources such as KIIs, focus group discussions, as well as secondary qualitative data for the document review was subject to **content analysis**. All relevant primary and secondary data were coded against a bespoke coding tree, based on the evaluation matrix as well as the reconstructed ToC elements using Excel and MAXQDA - a qualitative analysis software.¹² This ensured that the analysis systematically considered and triangulated all relevant secondary and primary data, thereby reducing the risk of bias, and improving the robustness of findings and enabled us to assess strength of evidence for each finding.

Triangulation and strength of evidence rating. The synthesis and analysis phase employed a structured coding of data with triangulation of multiple data sources and a final rating of the strength of the evidence supporting key findings.

Triangulation was used to determine the extent to which the range of evidence pointed to the same finding across and within categories of data sources. The extent of data triangulation from all sources gathered (document and data review, KII and case studies) is reflected in an assessment of strength of evidence. In addition to triangulating across different data sources, the evaluation team also relied on triangulation within source categories of data. For example, the team triangulated responses of different key stakeholder

¹² <https://www.maxqda.com>

categories to determine the extent to which evidence was supported across the key informant categories or if evidence was conflicting.

In line with good evaluation practice, the evidence was assessed for “quality” as well as “quantity”. A strength of evidence rating (see Table 5 below) was used to orient the users of the final report to the strength of each high-level finding based on the level of triangulation that was possible:

- Quality of the evidence: evaluators considered aspects such as the source and reliability of the quantitative data and qualitative information (where possible/relevant), and any obvious bias (e.g., information bias, selection bias; see limitations in Section 2.6 below).
- Quantity of the evidence: evaluators assessed the extent to which findings were consistent after being triangulated across multiple sources of information. In terms of interviews, the team considered how many responses supported the same view, or instances in which views might have been contradictory.

Table 5: Strength of evidence rating for key findings

Rating	Assessment of the findings by strength of evidence
	High: The finding is supported by multiple sources of data of good quality, allowing for robust triangulations, including documents and different stakeholders in different contexts, and majority of consultations (both qualitative and quantitative sources)
	Medium: The finding is supported by a few data sources of good quality, where sources allow for reasonable robustness, but evidence sources not complete triangulation.
	Low: The finding is supported by very limited evidence (1 or 2 sources) or by multiple sources of low quality, and no triangulation
	Insufficient: the finding is supported by incomplete or unreliable or contradictory consultations (Should not be included in the report)

2.6 LIMITATIONS AND MITIGATION

Key limitations as well as adopted mitigation strategies are presented in the Table 6 below.

Table 6: Limitations and mitigation strategies

Limitation	Mitigation
Potential for selection bias: Sample case study countries were not random or representative – chosen by the client	The approach triangulated findings and lessons with those of other countries of the Portfolio (document review and KIIs) and data from virtual key informant interviews.
Potential for selection bias: KIIs list largely informed by the client.	To minimise selection bias in KIIs, the evaluation team ensured snowballing technique and targeting a wide and diverse range of key stakeholders for interviews and group discussions. The team also mitigated any selection bias by triangulation of methods and data and continuous assessment of any potential bias when determining strength of evidence.
Potential for information bias: Given that some activities commenced in 2019, key informants may have difficulty accurately recalling early project details, design rationales, and contextual conditions potentially leading to recall information bias. When interviewing KIs, recall bias may occur, particularly for events that, in some cases, may have taken place some time ago. This could affect the accuracy of their recall and their interpretation of events.	The team used its experience to help interviewees focus on the correct set of events by clearly emphasising our scope before and at the beginning of each interview. Moreover, KII guides included an orientation to the evaluation period and use documentary evidence to anchor discussions in specific time points. Recall-based evidence was triangulated with contemporaneous documentation; where they conflicted, the document record was be treated as the primary source and any discrepancy noted.
Availability of output and outcome data, and procurement data.	Extensive engagements required to gain access to procurement data from implementing partners, however some gaps persisted (e.g. limited detailed information received as to TA device country distribution) and are highlighted in the findings section 3.
Expertise France did not have country offices and has subcontracted JHPIEGO. The additional chains of communications and approvals to share country specific documents and approvals for case studies.	This caused some delays, but Unitaid made the necessary follow ups to ensure approvals to interview country stakeholders.
Within the light-touch country case studies and global stakeholder interviews, few government stakeholders were engaged.	As a result, some areas, particularly those relating to South-South learning, are informed largely by evidence from the four in-depth case studies and partner perspectives, which may limit the breadth of perspectives captured.

2.7 ETHICAL PRINCIPLES AND USE OF AI

Ethical principles: The evaluation adhered to the UNEG norms and standards for ethical conduct of evaluations.¹³ During the execution of the evaluation, the evaluation team upheld ethical principles as follows:

- **Informed consent was obtained verbally** prior to any consultation with stakeholders, ensuring that participants were fully informed on the purpose of the evaluation, how their responses will be used and of their right to withdraw from the interview at any time.
- **Confidentiality and anonymity were maintained** by ensuring that data was managed and stored securely by Tana-EHG on a separate shared folder that will be deleted at the end of the evaluation process. No personal data was shared - and interview notes, FGD transcripts and other data sources were fully anonymized prior to any sharing.
- **Privacy was observed** with the interviews and FGDs taking place in setting with no interruptions and presence of other people. Participants were not cited by name or title in the evaluation report.
- The evaluation team included **national consultants** fluent in local languages and were able to support the data collection to ensure participation of a wide range of stakeholders.
- The evaluation applied the **do-no-harm principle** by refraining from collecting or reporting on information that may compromise safety and wellbeing of respondents, including using trauma informed approaches for cervical cancer survivors/WLHIV.
- **Human rights-based principles** of participation, accountability, non-discrimination, were applied, particularly in community-level data collection.
- **A safeguarding approach was applied** throughout field-based data collection. Some participants, particularly women with lived experience of cervical cancer, women living with HIV, and community members in fragile settings, may be in vulnerable situations. National consultants were briefed on trauma-informed interview techniques before fieldwork commenced. Specific safeguarding guidance for national consultants was included in the country case study protocol.
- In the case of FGDs, participants were **organized according to their affiliation networks or professions and were split by gender** (separate groups for women and men) when deemed appropriate. The identity of participants was not recorded, and attention was paid to ensure that respondents of different abilities participated, for example, by seeking an accessible and safe venue, use of the local language and using facilitation techniques that draw out passive participants to give all participants equal opportunity to be heard.

Responsible use of AI: The evaluation used two AI-assisted tools to support data management and analysis. MAXQDA was used to code segments from primary and secondary source documents against the evaluation frameworks, enabling systematic organisation of evidence across evaluation questions, learning themes and programme hypotheses. Claude (Anthropic) was used to extract and synthesise findings from coded document sets, and cross-reference evidence across sources.

Both tools were used strictly as productivity and synthesis aids, not as substitutes for evaluator judgement. All AI-generated outputs were reviewed, validated, and triangulated by the evaluation team prior to inclusion in this report. Human oversight was maintained at every stage; Coding schemes were designed and quality-checked by the team; extracted findings were verified against source documents; and all interpretations, conclusions, and recommendations reflect the independent professional judgement of the evaluators. No confidential project data, personal information, or unpublished Unitaaid documents were shared with external platforms beyond the secure project workspace used for this evaluation.

¹³ <https://www.unevaluation.org/unevaluation-publications/unevaluation-ethical-guidelines-evaluation>

In accordance with Unitaids' requirements on the ethical use of AI in evaluation, the team takes full responsibility and accountability for all findings, conclusions, and recommendations contained in this report.

3 FINDINGS AND LESSONS

This chapter presents the evaluation findings thematically, in line with relevant learning themes. A full realist Context-Mechanism-Outcome (CMO) analysis of the six hypotheses is presented in Annex 1. An overview of findings per evaluation questions defined in the Terms of Reference are provided in Annex 2, and an assessment of progress towards the outputs and outcomes of the Theory of Change is provided in Annex 3.

3.1 DEMONSTRATING EFFECTIVENESS OF INNOVATIVE TECHNOLOGIES

In summary, the evaluation found that HPV molecular testing, hereafter referred to as ‘HPV testing’, improved *screening quality* because women and providers accepted a more accurate and less invasive technology than VIA. However, in health systems unable to provide same-day diagnosis and treatment, the additional steps introduced by HPV testing contributed to patient disengagement that increased loss to follow-up (LTFU). Patient navigation partially mitigated these losses, but persistent structural constraints limited programme effectiveness — including fragmented data systems, and weak referral systems. Innovative technologies that reduce clinical encounters, for example true point-of-care HPV testing, or AVE together with stronger referral and longitudinal follow-up systems, are likely to produce greater programme effectiveness.

HPV testing (provider and self-sampling)

Finding 1. HPV molecular testing is generally well-accepted by women and health care workers, enables self-sampling, and was already shown to be more accurate than VIA with sensitivity of more than 90% compared to 37% for VIA.

HPV molecular testing is the WHO recommended HPV screening test¹⁴ and the most sensitive primary screening modality available, with a pooled sensitivity of 90.4% (87.4–92.9%) compared to 36.6% (32.2–41.1%) for naked-eye VIA (and 60.1% (55.5–64.5%) for AVE)¹⁵ — a difference sufficient to transform the number of precancerous lesions detected at population scale. Unlike VIA, HPV testing requires no provider visual skill and accommodates self-sampling, which substantially improved acceptability across Portfolio countries.

Women and health care workers expressed broadly positive views of HPV testing relative to VIA across FGDs and KIIs conducted in country case studies. Women valued objectivity, the reduced invasiveness, avoidance of the metal speculum, and the self-sampling model. KIIs with service providers across all country case studies and the global interview series describe HPV testing as more accurate and objective than VIA, with providers appreciating the reduction in diagnostic subjectivity and increased confidence in counselling women about results.¹⁶

"HPV tests are game changers that improved accuracy and acceptability" — Kenya KIIs, Health care providers, Kenya Case Study

"Women themselves prefer that we start with this technique because the HPV search is less invasive than VIA" — Ministry of Health KII, Burkina Faso Case Study.

Finding 2. Introducing HPV testing led to substantive LTFU because across most programmes same-day screen-triage-treat was generally not feasible. LTFU was pronounced at the HPV test to HPV results step as

¹⁴ WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention, second edition. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

¹⁵ The five-country AVE validation study (Malawi, Rwanda, Senegal, Zambia, Zimbabwe; n=25,000+) confirmed the diagnostic superiority of HPV testing. In Malawi, AVE-assisted VIA sensitivity reached 81.7% — still well below HPV test performance, confirming that even enhanced visual methods fall well short of molecular diagnostics (African AVE Collaborative et al., Lancet 2026; CHAI Final Closure Report 2019–2025).

¹⁶ Country case study reports Burkina Faso, Malawi, Kenya, Philippines; KIIs at country level from Zambia and Rwanda and global KII stakeholders.

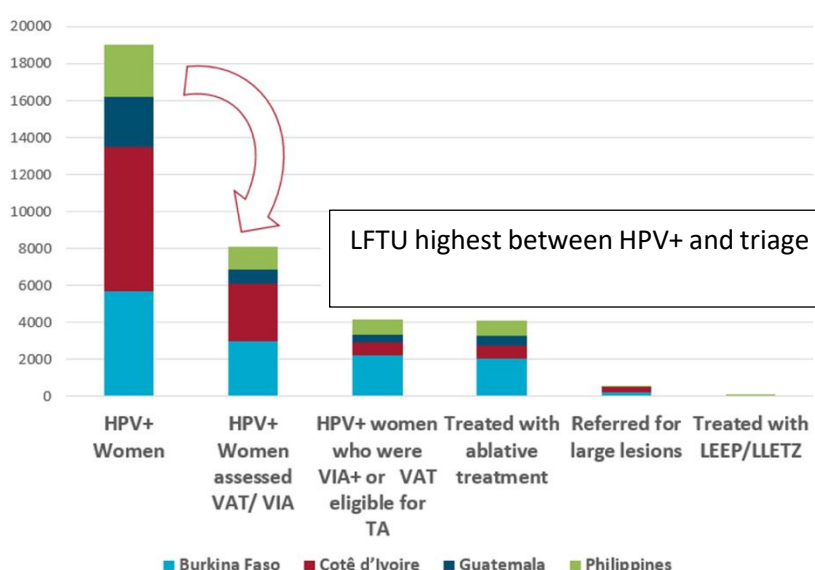
well as the HPV+ to triage step – thus negatively affecting screening outcomes.

Across the Portfolio, the shift from VIA to HPV-test based screening consistently introduced higher LTFU at the result-return and triage steps, because VIA remains the required triage step for HPV-positive women, meaning the transition to HPV test-based screening introduced an additional visit before VIA. While VIA has its diagnostic limitations with a low sensitivity, it does enable same-day triage and treatment.

The magnitude of LTFU at the different cascade steps varied significantly across countries and over time. The CHAI Final Closure Report (2019–2025) notes that across programmes assessed in 2020–2023, the average results-return and linkage rate was 73%, with same-day results achieved in only 16% of cases. Expertise France reported a LTFU of 58% over the period 2021–2023 between HPV + testing and triage under the SUCCESS project. (Figure 5). The CHAI five-country pilot (Malawi, Nigeria, Senegal, Uganda, Zimbabwe, 2019–2020) found that only 36% of HPV-positive women were linked to VIA.¹⁷

Follow up rates in country case studies. In *Burkina Faso* Phase 1 (2021–2023): 63.6% of HPV-positive women in the general population and only 44.4% of WLHIV returned for VIA triage. During the *Kenya* demonstration phase (2020–2021), only 22.3% of HPV-positive women had evidence of VIA being done, well below the desired 90% linkage. In *Malawi* (2019–2025) of the 14,520 HPV-positive women, 78.2% were linked to VIA triage over the full programme period — reflecting programme maturation and active follow-up systems during the second (outreach) phase. The 2019–2020 sub-study in Malawi found only 55% of HPV-positive women received results within 180 days — illustrating that result return, not triage or treatment, was the binding point of loss in Malawi.¹⁸

Figure 5: SUCCESS project cascade data 2021–2023



However, cascade attrition extended beyond initial triage to subsequent steps, including follow-up after negative VIA, precancer treatment, and referral for further management, for example after a negative VIA, precancer treatment. Recent implementation research¹⁹ found that only 17% of women returned for a follow-

¹⁷ CHAI Closure Report 2019–2025

¹⁸ Country case study reports

¹⁹ CHAI/Unitaid, Malawi, Rwanda, Zambia, 2023–2025, Follow-up and retention rates among HPV-positive women accessing cervical cancer screening services: A retrospective analysis in Malawi,

up visit at any time post-VIA or post-treatment – with the vast majority never returning. KIIs agrees that follow up, especially for women who need to return post TA treatment at 1 year or post HPV+ (5 year), is a big challenge.²⁰ This is characterized in the CHAI Closure Report as 'a critical weakness in the cervical cancer care cascade.'²¹

Multiple global KIIs highlighted the LTFU and the importance and implications of reducing LTFU. Women who undergo HPV testing but do not receive their results, or who receive a positive result but do not proceed to triage undermines the public health rationale for screening investments. From a cost-effectiveness perspective, screening without timely linkage to treatment has limited impact on reducing cervical cancer incidence and mortality. The evaluation found that the choice between testing technologies should be guided by a trade-off between diagnostic sensitivity and LTFU, and that the population-level benefits of HPV testing depend not only on its superior diagnostic sensitivity but also on programmes' ability to retain women throughout the screening cascade. In settings where health systems could not reliably return results and link HPV-positive women to triage and treatment, the gains associated with higher test sensitivity were substantially diminished.

"Loss to follow-up is as important as sensitivity when choosing between testing technologies" (KII Zambia). "50% LTFU doubles the effective cost per case found, making HPV appear unaffordable even at apparently low prices" (global partner KII)

Finding 3. A true point-of-care HPV test — one clinical encounter, one actionable result — is an innovative technology that cuts LTFU, but a market gap exists for this technology.

The evaluation found that HPV testing platforms available during the evaluation period did not consistently enable same-day screen–result–triage pathways at scale. A true point-of-care (PoC) HPV test—where testing can be conducted near the patient by non-laboratory personnel and actionable results are available during the same clinical encounter—has the potential to reduce loss to follow-up at both the HPV testing-to-results-return step and the HPV-positive-to-triage step. The Unitaid introduced 'near'-PoC platforms (GeneXpert, Abbott m2000) can theoretically produce test results in 90 minutes, compared to more than five hours for centralized laboratory testing. However, in practice, these platforms did not consistently function as point-of-care solutions because testing remained dependent on laboratory infrastructure, sample transport, batching, and platform availability for multiple clinical indications. Same-day results were only available in 16% of cases across the 10 CHAI Portfolio countries. Near PoC was difficult to fully implement because results are still processed in labs and platforms are not fully dedicated to cervical cancer (see details in finding 8). In the CBSS study the "near PoC" or GeneXpert devices were still located in an off-site laboratory, essentially making them no different than other platforms located at centralized labs.²²

Over the evaluation period, CHAI and Unitaid monitored the evolving HPV testing market, including on true PoC technologies. At the time of the evaluation, no WHO-prequalified true PoC HPV test was available but with prospects in the pipeline as reported by KIIs. KIIs continuously highlighted that a low cost, true PoC test would be a priority innovation and inferred that Unitaid should invest more in this regard.²³ The same conclusion was reported by the CHAI closure of project report:

"The availability of a low-cost true PoC test could be transformative, significantly improving linkage to triage and treatment and reducing attrition across the cervical cancer care cascade"²⁴ and expressed

Rwanda, and Zambia, October 2025 PPT

²⁰ KII CSO

²¹ CHAI Closure Report 2019–2025

²² CHAI Closure Report 2019–2025

²³ KIIs implementing partners, Global partner KIIs.

²⁴ CHAI Closure Report 2019–2025

Finding 4. Self-sampling successfully expanded access to cervical cancer screening by addressing important access and acceptability barriers, but sustainable cascade completion of community-based models depends on the strength of follow up and active patient navigation. Self-sampling has been one of the most consistently positive results across the Portfolio. Evidence from country case studies, implementation research, and FGDs confirms high acceptability and the value of self-sampling in reaching populations that facility-based models would have missed: *"Over 90% of community-reached women had never previously been screened — self-sampling is not simply more convenient for the already-reached but reaches a fundamentally different population"* (KII Implementing partner). Many women also appreciated the convenience of collecting samples at home without needing to visit a health facility. This addressed their concerns about time constraints due to childcare, agricultural work or other responsibilities, and the distance to health centre and transport costs.

Lesson on self-sampling. *In Burkina Faso:* 95.6% of women chose self-collection over provider collection. Women reported: *"I was afraid they would make me spread out on the table and there are many midwives... many women joined because they self-collect"* (Burkina Faso Case Study, beneficiary FGD). *In Malawi:* FGDs found uniformly strong satisfaction with self-sampling, with women describing the device as 'soft, small and painless'. The CBSS model enrolled a high proportion of first-time screeners and women who had previously declined VIA in Muslim-majority districts where cultural modesty norms made speculum examination unacceptable. *In Kenya:* Self-sampling 'opened the door for women who feared pelvic exams', with a demonstrably high proportion of first-time screeners reached through community approaches.

Source: Country case study reports – Vol II

Self-sampling within facility-based service also addressed access barriers and reduced provider burdens - it avoids facility congestion, long queues in the facility and women liked that there was no use of a speculum.²⁵ In Malawi, beneficiary accounts documented that self-sampling materially shifted male attitudes. Husbands who had previously withheld consent because they objected to a male clinician examining their wives became supportive once screening no longer involved physical exposure.²⁶ In Burkina Faso, demand sustained after project closure *"Even this morning there was an old woman who came asking if we continue to do it (HPV self-sampling) because she wants to redo it"* (KII Burkina Faso service provider)

Improvements in cascade outcomes from community based self-sampling models however depended on coupling with strong patient navigation systems. Self-sampling increases the number of women who initiate screening, but cascade completion is not automatic. The Portfolio evidence consistently shows cascade improvement when active follow-up is embedded in the model.²⁷

AVE – AI assisted visual examination

Finding 5. AVE almost doubles the diagnostic performance of VIA, but does not achieve the sensitivity of HPV testing. The Unitaids supported five-country external validation study (Malawi, Rwanda, Senegal, Zambia, Zimbabwe; n=25,000+) conducted in 2022-2023 confirmed that AVE meaningfully improves diagnostic performance over naked-eye VIA.²⁸ AVE significantly increased VIA sensitivity from 36.6% to 71.8%, though it

²⁵ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication); Kenya, Malawi and Burkina Faso country case study reports, KII CSO rep

²⁶ Malawi Case Study, beneficiary FGD

²⁷ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication); GLOBAL IMPLEMENTATION RESEARCH STUDY REPORT (2022-2024) Feasibility, acceptability and cost factors for implementing integrated HPV testing and treatment of pre-cancerous cervical cancer lesions with thermal ablation, September 2024; CHAI Closure Report 2019–2025; country case study reports;

²⁸ Henry Phiri, Francois Uwinkindi, Mamadou Diop, et al. Performance of an artificial intelligence-based tool for cervical precancer screening in five countries in Africa: a prospective, observational, diagnostic accuracy study, The Lancet Global Health, Volume 14, Issue 1, 2026, Pages e49-e60.

did not reach HPV test performance. Key performance metrics are presented in Table 7:

Table 7: Performance of HPV screening methods²⁹

Screening method	Sensitivity	Specificity
VIA*	36.6 (32.2 - 41.1)	94.2 (93.8 - 94.5)
AVE-assisted VIA ⁺	71.8 (67.6 - 75.8)	79.0 (78.3 - 79.6)
HPV test	90.4 (87.4 - 92.9)	80.1 (79.5 - 80.7)

Finding 6. AVE provides a potential solution for same-visit screening and treatment pathways and can improve VIA accuracy during the transition to HPV test-based screening. AVE generates results within a short time during a facility visit, enabling same-visit screen-and-treat pathways that HPV test-based screening currently cannot achieve. In settings where women are unlikely to return for second visits, this same-visit capability has significant public health value even at lower absolute sensitivity levels.³⁰

Country case studies demonstrated increasing acceptance of AVE among providers and women following initial sensitisation and training. In Malawi, provider acceptance was initially cautious due to concerns about cervical photography, but these were addressed through sensitization and training, after which both women and providers responded positively. In Zambia, the visual format extended an existing trust model (VIA).³¹ Considering evaluation evidence of high risk of LTFU before triage without strong patient navigations systems, and the low commitment of domestic budgets, the evaluation confirms the conclusion of CHAI in its final report that: *"AVE has a potential role as a primary screening tool in settings where HPV testing is not yet widely available, as a triage tool, or a decision-support tool to improve VIA accuracy during the transition to HPV-based screening."*³²

Finding 7. AVE's potential impact has been constrained by market and ecosystem barriers rather than by evidence of insufficient technical performance. Despite positive validation evidence, AVE has not progressed to widespread adoption. The evaluation found that disagreement and uncertainty among global partners regarding the appropriate role of AVE within the evolving HPV-based screening landscape contributed to limited momentum for further investment. Some stakeholders prioritised accelerating HPV test scale-up, while others highlighted AVE's potential role in contexts where HPV-based screening is not yet feasible or where same-visit management remains critical.

The Portfolio's original impact model assumed AVE would be available as a standalone screening tool by grant end, yet a three-year gap between validation completion and procurement processes existed, while a significant commercialization gap emerged when Global Health Labs ceased operations.³³ As of June 2026, WHO prequalification has not yet been submitted and no confirmed timeline for availability exists. However, a renewed interest from global partners after earlier reluctance is noted from KIIs, with opportunity to

²⁹ Source: Henry Phiri, Francois Uwinkindi, Mamadou Diop, et al. Performance of an artificial intelligence-based tool for cervical precancer screening in five countries in Africa: a prospective, observational, diagnostic accuracy study, The Lancet Global Health, Volume 14, Issue 1, 2026, Pages e49-e60. Notes: * VIA reported as practiced in each country: naked-eye VIA in Malawi, Rwanda, Senegal; VIA with cervicography in Zambia, Zimbabwe

⁺ AVE-assisted VIA refers to considering a client positive when either VIA or AVE algorithm is positive

³⁰ CHAI closure report; Henry Phiri, Francois Uwinkindi, Mamadou Diop, et al. Performance of an artificial intelligence-based tool for cervical precancer screening in five countries in Africa: a prospective, observational, diagnostic accuracy study, The Lancet Global Health, Volume 14, Issue 1, 2026, Pages e49-e60.

³¹ Malawi county case study

³² CHAI Closure Report 2019–2025;

³³ KIIs global partners

reactivate discussions on AVE's role in the global cervical cancer screening pathway.

Thermal ablation

Finding 8. Introduction of Thermal ablation devices successfully addressed key market and implementation barriers to precancer treatment, enabling decentralized same-day treatment pathways, although device utilisation remains below potential.

The evaluation found strong evidence that TA has been one of the Portfolio's most successful technology investments. Unitaïd invested in deployment of over 6,000 TA devices across 28 countries at a sustained 45% price reduction. The evaluation found strong triangulated evidence that TA is an effective replacement for cryotherapy and enables decentralized treatment while eliminating the recurring gas-refill cost and removing the infrastructure footprint that had made cryotherapy infeasible for outreach.³⁴ TA devices are battery-powered, portable, and operable at lower facility levels by nurses and midwives after training. The CHAI Closure Report documents a 75% reduction in cost per treatment compared to cryotherapy; and procedures average 1–2 minutes versus 10–20 minutes for cryotherapy.

Across nine CHAI countries, precancerous treatment coverage rose from 54% in 2019 to 77% by 2023. More than 100 000 women received TA treatment.³⁵ The SUCCESS annual report confirm TA introduction and high treatment rates among eligible women, but do not provide trend data on treatment coverage.³⁶ A implementation research study in the four SUCCESS countries, found similar high treatment coverage among more than 8000 included women (87% to 100%) across both women living with HIV (WLHIV) and the general population.³⁷

Evidence from country case studies found substantially increased treatment rates of precancerous lesions across Kenya and Burkina Faso largely attributed to the introduction TA devices. Findings also support that before Unitaïd's investments there was no use of TA devices. Yet a quite modest usage of the device over the implementation period was observed, with approximately 10 average treatments per device in both Kenya and Burkina Faso (however noting data gaps) out of an expected 2000 treatments over the lifetime of the TA device.

Lesson on TA device deployment. In *Kenya*: more than 1200 TA devices were deployed across 25 counties in Kenya and TA procedures grew from virtually zero in 2019–2020 to 4,344 annually by 2024 and 12,000+ cumulatively. Treatment rates of suspicious lesions improved from approximately 60% in 2019 to almost 100% by 2025. In *Burkina Faso*, 61 devices were deployed to 21 screening sites. 575 women received TA treatment for VIA-eligible moderate lesions during Phase 1. (Additional women received TA in Phase 2, but exact numbers are not available.) 94.1% of eligible general-population women and 89.9% of WLHIV received TA treatment. Post-project, HPV testing collapsed entirely at all sites due to lack of government funding, while TA continued at some facilities (no exact numbers provided). In *Malawi*, 570 devices were distributed nationally to 331 health facilities, with 298 at the primary level. Malawi did not report trend data and provided aggregated numbers of precancerous lesions treated among eligible women which included TA (92% over the period 2019–2025).

Source: Country case study reports – Vol II

Finding 9. TA is highly acceptable among healthcare workers and enabled task-shifting; evidence on

³⁴ GLOBAL IMPLEMENTATION RESEARCH STUDY REPORT (2022–2024) Feasibility, acceptability and cost factors for implementing integrated HPV testing and treatment of pre-cancerous cervical cancer lesions with thermal ablation, September 2024, CHAI Closure Report 2019–2025; SUCCESS annual report 2021, 2022; 2023, 2024; KIs Zambia, Rwanda, Nigeria; Country case study reports Kenya, Malawi, Philippines and Burkina Faso.

³⁵ CHAI Closure Report 2019–2025

³⁶ SUCCESS annual report 2021, 2022; 2023, 2024;

³⁷ GLOBAL IMPLEMENTATION RESEARCH STUDY REPORT (2022–2024) Feasibility, acceptability and cost factors for implementing integrated HPV testing and treatment of pre-cancerous cervical cancer lesions with thermal ablation, September 2024,

women's experience of treatment is more limited. The effectiveness of TA depends on the conditions required for reliable same-day treatment delivery, namely a functioning device; a trained and confident provider present; sufficient consumables; reliable electricity and the woman accepting treatment.

Healthcare worker satisfaction with TA was consistently high across all country case studies. Providers appreciated portability, ease of use, low infrastructure requirements, and the ability to offer same-visit triage and treatment. Task-shifting to nurses and midwives was successfully implemented without reported adverse events. Evidence on women's direct experience of TA as a procedure is more limited, however FGDs with women who received TA reported satisfaction with the procedure's simplicity, short duration, and minimal discomfort. Further evidence on women's perspectives and longer-term acceptability would strengthen understanding of TA implementation outcomes.

The evaluation found that TA enabled substantial improvements in same-day triage and treatment when integrated within functional service delivery systems. Evidence from Burkina Faso Phase 2 CBSS confirms near-universal treatment: (91.7–98.9%) achieved when Community Health Worker (CHW) follow-up brought women to VIA at high rates and same-day TA reduced further attrition. However, same-day TA remains contingent on a functioning device; a trained and confident provider present; sufficient consumables; and the woman being eligible for ablation³⁸ and accepting treatment.

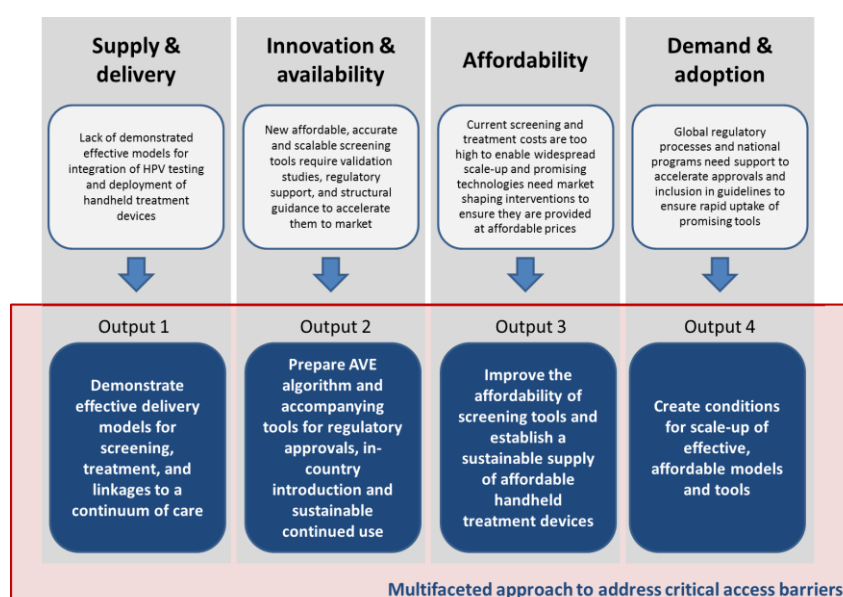
Key barriers related to TA introduction include healthcare workers turnover - requiring continued training and support supervision consistently identified as the primary operational barrier to TA scale-up across all case studies. In Kenya, high staff turnover left many facilities temporarily without trained providers. Even trained providers who remained in post sometimes avoided using TA devices, particularly for more complex presentations, without structured supportive supervision. Lack of consumables (probes as reported in Kenya, Malawi, Burkina Faso) and nonfunctioning device/battery/power bank failures (Malawi, Kenya, Burkina) were other commonly reported barriers in the case studies. KILs in Kenya noted downtime due to lack of spare parts, battery charging challenges after prolonged non-use, and inadequate maintenance plans. In Malawi, about 506 of the deployed devices still work and 64 do not, mainly because of worn probes and failed power banks which had not been repaired due to lack of (domestic) funding for maintenance. The case study in Burkina Faso referred to shipping costs for TA device repairs often exceeding the value of the device itself. In Kenya and Burkina Faso, unreliable electricity limited device charging limited TA use at lower-level facilities.

3.2 MARKET SHAPING TO INCREASE ACCESS TO TECHNOLOGIES

The Portfolio documents identify four access barriers, each with a market shaping objective (see Figure 6). This chapter will focus largely on Output 3: 'Affordability' as other sections focus on the other three market shaping objectives: Output 1: 'Supply and Delivery' – including deployment of technologies and demonstrating feasibility and Output 2: 'Innovation and Availability' are largely discussed in section 3.1, whereas AVE support is addressed under this chapter; Output 4: 'Demand and Adoption' - including national adoption of innovative technologies and conditions for scale-up - is analysed and presented in section 3.7.

Figure 6: Market shaping objectives of the Portfolio³⁹

³⁸ lesions covering less than 75% of the cervix — larger lesions require LEEP referral or other referrals



Summary: The hypothesized mechanism related to market shaping efforts was that price negotiation for HPV molecular tests and pooled/volume procurement for TA devices would reduce prices enough so that MoH would be able to procure and there would be increased affordable access. In summary, this worked at the price reduction level but not at the MoH procurement level. Market shaping through price negotiation and volume commitment worked as it was applied to relatively mature, small-supplier markets (TA devices) or when combined with large-volume demand aggregation (HPV). However, it did not trigger MoH procurement when landed costs (including the cost of transport, handling fees, duties etc.) remain vastly above willingness-to-pay thresholds and when countries lack domestic financing certainty. The mechanism works reasonably in countries with an existing procurement mechanism (e.g. South Africa and Rwanda) but not in countries with minimal fiscal space. Disruptive market shaping targeting smaller manufacturers (for HPV molecular tests) or upstream true PoC/AVE technology development or marketization was not applied in this Portfolio and represents a missed opportunity.

Finding 10. Market shaping objectives and efforts are broad with opportunity to bolster additional market shaping approaches.⁴⁰ Market shaping is both an input and output of the Theory of Change, and a key corporate Unitaids strategy. Unitaids market shaping efforts under the Portfolio included price negotiations, stimulating supplier confidence, establishing transparency mechanisms such as pricing databases, promoting regulatory acceleration of key products and WHO prequalification processes, procurement support and technology introduction, evidence generation and demand creation. Alternative market shaping approaches that Unitaids applies in other portfolios, were not as comprehensively applied in the cervical cancer secondary prevention Portfolio, for example 1) supporting manufacturers to enter the market, for example for testing collection and transport solutions or generic platforms for HPV tests; 2) technology transfer and local manufacturing support, and 3) supporting regional pooled procurement (beyond PAHO). Several global respondents consider these as opportunities for the future.

Finding 11. HPV molecular tests: prices were significantly reduced but costs remained unaffordable for project countries and with recurrent costs. CHAI, Unitaids's key market shaping partner, applied various strategies to improve affordability of HPV tests in the three phases of the Portfolio, mainly through price

⁴⁰ Wagner CM, et al. (2026) Advancing global health access through market shaping: Cases and learnings. PLOS Glob Public Health 6(2): e0004523. <https://doi.org/10.1371/journal.pgph.0004523>

negotiations.⁴¹ In 2019-2020, the focus was on market development and early price negotiation to transform an initially underdeveloped and highly expensive HPV testing market dominated by a few major diagnostics companies. This approach helped reduce test prices to under \$9 on average and significantly lowered costs for sample collection kits. Improving transparency by shifting suppliers toward all-inclusive pricing that better reflected total programme costs (including instruments, maintenance, and distribution) improved price comparability and supported more informed procurement decisions across countries and global financing mechanisms.

In 2021-2023, prices remained above what many countries could sustain and varied significantly across buyers and regions. Market intelligence efforts improved transparency through demand forecasting, pricing fact sheets, and dissemination via global platforms, increasing awareness of negotiated prices. By 2024, global access prices had been established across all four major suppliers, and HPV testing prices approached parity with HIV and TB diagnostics, although some gaps remained. Product and pricing innovations also helped countries better compare diagnostic platforms and make more cost-effective procurement decisions, leading to shifts in supplier choices in several settings. In 2023-2025, the HPV testing market was stabilized, but significant challenges in affordability and equitable access remained, particularly outside the African region where prices varied widely and were often substantially higher. Market intelligence efforts focused on improving global price transparency, addressing inconsistent pricing across regions, and supporting country access to negotiated agreements. CHAI worked on product and innovation efforts to support the emergence of new technologies, including true point-of-care HPV tests, to enable entry of new products into LMIC markets and improve the conditions for future competition.

The main market shaping strategy for HPV testing was supplier engagement, which included active collaboration with manufacturers and distributors to improve price, access, supply, and market competition with the purpose of removing affordability as access barriers. Supplier engagement included:

- Negotiating lower prices with manufacturers through Global Access Price (GAP) agreements.
- Encouraging market entry by supporting new suppliers to enter low- and middle-income country markets, increasing competition.
- Discussing volume commitments and demand forecasts so suppliers can plan production and offer lower prices.
- Addressing procurement and distribution barriers that prevent countries from accessing agreed prices.
- Improving transparency around pricing, supply availability, and procurement channels.
- Supporting regulatory and market access processes that enable suppliers to sell products in more countries.

HPV test affordability (Output 3) however remains a challenge despite initial price reductions. Barriers to timely, affordable and equitable access remain. According to the CHAI 2019-2025 CxCA Market Shaping Memo⁴², while HPV test prices have fallen significantly, five persistent gaps continue to affect affordability and access.

1. **Limited pricing awareness.** Many buyers, including Ministries of Health and public procurers, remain unaware of Global Access Prices (GAPs) and other reference prices, limiting their ability to secure affordable and predictable pricing.
2. **Restricted GAP access.** GAP agreements cover only some HPV tests, and contractual, procurement, distribution, and regulatory barriers can prevent eligible buyers from benefiting from them (even if Unitaidd support public entities to access GAPs).

⁴¹ CHAI Market Shaping Memo: Transforming Access to Cervical Cancer Prevention Tools. From Final Report, Section 2.2. Market Shaping Deep Dive

⁴² CHAI Market Shaping Memo: Transforming Access to Cervical Cancer Prevention Tools From Final Report, Section 2.2. Market Shaping Deep Dive

3. **Insufficient price transparency.** Procurement and distribution costs can significantly increase the final price per test, creating wide price variation across countries. Greater demand consolidation and optimized supplier allocation could improve price consistency.
4. **Incomplete cost visibility.** GAPs and reference prices often exclude important procurement and supply chain costs. Where no GAP exists, buyers lack benchmarks for fair pricing, and limited cost breakdowns make it difficult to assess price drivers.
5. **Limited market competition.** Supplier or distributor monopolies and duopolies in some markets reduce competitive pressure, contributing to higher and less consistent pricing.

The African Society for Laboratory Medicine⁴³ contains the HPV molecular pricing database from August 2024. It shows the pricing structure complexities as manufacturers quote different in co-terms such as ex-works or free carrier (FCA) and have included several costs that differ from each manufacturer. While Abbott and Hologic include maintenance, others do not. Hologic is the only one that includes supply chain inbound costs. CHAI has undertaken a deep costing analysis and generated several documents on global access prices (GAP).⁴⁴ Table 9 shows a summary of HPV test pricing from the test supplier price to the total cost.

Table 8: Indicative cost estimates of HPV tests from supplier price to total cost (2024)

Indicative estimates					
Manufacturers and platforms	Abbott Alinity m (HR) HPV	Hologic Aptima HPV	Roche Cobas 4/6/8800	Cepheid Xpert HPV	Qiagen Care HPV
HPV Test supplier price	\$8.49	\$9.00	\$7.90	\$14.90	\$4.95
Laboratory and supply chain costs (all inclusive)	\$10.77	\$9.56	\$9.12	\$18.41	\$6.57
Sample collection	\$1.18	\$0.50	\$2.00	\$2.95	\$2.77
Total cost	\$11.95	\$10.06	\$11.12	\$21.36	\$9.34

Source: Adapted from the CHAI Affordability of Screen and Treat Tools for Cervical Cancer, HPV pricing slides P10.

Access to negotiated pricing tends to reflect relationships with manufacturers with in-country presence. While MOH and public entities can gain GAP through UNICEF SD, in practice, other procurement pathways were available, directly through the manufacturer or in the case of the project, through the implementors, though unclear from the country perspective. The advantage of procuring through the manufacturer/in-country distributor is that it avoids the UNICEF handling fee. As experienced in Kenya, Malawi, Burkina Faso and the Philippines, while governments committed to the use and adoption of HPV tests, domestic funding is yet to be identified and with very limited procurement of HPV tests with domestic resources. Alternative funding from the US Government and or the Global Fund remain an HPV access possibility. South Africa and Guatemala have used domestic funding to procure small volumes, and Rwanda has used health insurance to procure tests beyond the Unitaids allocation.⁴⁵

Limited supplier diversity in WHO prequalified HPV diagnostics, results in continued dependence on a small number of manufacturers. Each manufacturer requires a different platform for sample testing with no 'generic' platform available that could be used across all HPV testing (Cepheid-GeneXpert, Hologic-Panther, Roche-Cobas). These HPV testing technologies remain relatively expensive and technologically complex for some settings particularly in remote areas.⁴⁶

Specific issues affecting HPV manufacturers is the Cepheid dependence on the Thin Prep Hologic solution to undertake HPV tests raises further challenges and costs (\$2.50). While UNICEF SD has encouraged 'bundling' of the Cepheid test with the Hologic Thin Prep, Hologic argues it is proprietary but available worldwide. Cepheid is their supplier where Hologic has no geographical presence. However, as Cepheid uses the

⁴³ <https://aslm.org/resource/diagnostic-pricing-database/>

⁴⁴ CHAI, Affordability of Screen and Treat Tools for Cervical Cancer. July 31st, 2024, Version 3.

⁴⁵ Four country studies, manufacturers, UNICEF, documentation.

⁴⁶ Target Access Profiles, CHAI market shaping memo, annual reports and KIIs Unitaids, Manufacturers, UNICEF SD.

GeneXpert platform, it has the highest market share serving around 145 countries, the largest in the HPV market. The development of a Cepheid's own testing solution would improve cost effectiveness of the test as the total cost estimated by CHAI is \$21.36 in contrast to Hologic \$10.06, Roche \$11.12 and Abbott \$11.95.⁴⁷

Ongoing costs for consumables, maintenance, calibration, transport, and logistics continue to burden programmes.⁴⁸ Supply chain and equipment maintenance challenges persisted throughout implementation, including servicing constraints, limited availability of spare parts, and procurement delays. In many cases, countries remained dependent on project funding to sustain operations and maintain equipment. In the Philippines for example, true cost drivers for screening and treatment are cartridges and consumables, workforce, and supervision. The dominant cost driver is the HPV cartridge (from US\$14.90 to US\$7.90 per test) a unit cost so high relative to fiscal space that the DOH retained VIA and cytology in a national guideline. The cost of screening services also includes health systems strengthening. Supervision is another hidden cost to enable HPV testing, without dedicated budget or visibility as a cost driver, and most likely to be under-resourced post-project, including mentorship and support for data flow from supervised facilities, because it is absorbed into existing staff.

Finding 12. Supporting over 600 HPV test manufacturers to enter the market with WHO prequalification is an opportunity for market shaping, because prices negotiated with the current manufacturers are unlikely to reach affordable levels. In Rwanda, the MOH and RBC already allow the use of powder-based HPV molecular tests, in the Elekta Foundation supported outreach model, for centralized high-throughput PCR testing. This test is cheaper and does not require a cold chain. Under the Unitaid grant, Elekta foundation used the Roche Abbott equipment, which has WHO PQ, but creates logistics delays. Several respondents recommended supporting prequalification pathways for alternative manufacturers.⁴⁹

Unitaid has been primarily engaging large established manufacturers (Roche, Abbott, Hologic, Cepheid) who have limited commercial incentive to fundamentally restructure their pricing for LMIC HPV markets. The more tractable target for disruptive price reduction may be smaller manufacturers — Chinese companies, African manufacturers, or startups — for whom the LMIC HPV market represents a significant business opportunity, and a Unitaid investment of a few million US\$ would be an incentive, whereas for multibillion dollar firms that is a minimal amount. COVID demonstrated that smaller manufacturers could scale rapidly when demand and financing are available, for example Molbio (an Indian company) growing 10–20 times after COVID-era Indian government investment in COVID tests.^{50 51}

Finding 13. Supporting newer true PoC technologies also provides a market shaping opportunity, when HPV molecular tests in practice do not allow for same day results (and triage). Multiple respondents across different stakeholder categories agree that true PoC HPV molecular test is the goal to allow same day test-treat recognizing that the main lesson of the current programme is that LTFU is an issue as important as sensitivity of the screening method.⁵² Such technologies do exist and are currently being used in countries like Zimbabwe. The Zambian MoH has requested support to pilot true PoC HPV test, because the current HPV screen algorithm yields a 32% return rate for HPV positive women. CHAI is engaged for market shaping work around true PoC tests, but a pilot has not been initiated yet.⁵³ CHAI considers the PoC HPV market shaping potential as very important, and the programme partners Unitaid, CHAI and WHO have already developed target product profiles with target prices 'the global community could stand behind'. Countries reportedly are interested, but the constraint is funded commitment, sufficient for manufacturers to commit to a sustainable business model. Unitaid could work with its TB investment (which already work with a true PoC manufacture)

⁴⁷ CHAI, Affordability of Screen and Treat Tools for Cervical Cancer. July 31st, 2024, Version 3.

⁴⁸ KII supplier, KII manufacturer and country studies and reports

⁴⁹ KIIs CSO, KII global partners, Academia

⁵⁰ KIIs global partners, Academia

⁵¹ KII Unitaid

⁵² KII Academia

⁵³ KII CHAI

and Diagnostics portfolio to create a synergy in this market shaping strategy.^{54 55}

Finding 14. Support for AVE market access is another market shaping opportunity, as AVE doubles the sensitivity of VIA and allows for same day triage and treatment. Unitaïd supported evidence on the performance of AVE, but further efforts to make AVE accessible were put on hold. The market shaping strategy was to prepare an AVE algorithm and tools for regulatory approval, with the aim of improving VIA sensitivity. Zambia has the most experience with AVE as a triage tool. The strategic entry for Unitaïd's investment came early, with a primary focus to undertake research to explore the feasibility of AVE, with the CHAI Zambia country office managing the consultancy and broader national programme landscape. The finding of the study was that AVE algorithm sensitivity reached almost 72%, which was below the required threshold, set as golden standard. Because the system was trained on just two populations (Zambia, India), this was hypothesized to contribute to the lesser performance. Global Health Lab undertook additional training of the tool across Rwanda, Malawi, and Kenya, reportedly further improving outcomes. Currently AVE is undergoing commercialization. The Ministry of Health in Zambia is actively seeking AI to improve VIA sensitivity (currently 50%) given HPV testing costs \$25 per woman, cell phones are already placed in sites for deployment once approved.⁵⁶ And in Malawi a demonstration study resulted in validation evidence and inclusion in Malawi's next strategic plan, resulting in ongoing commercialisation discussions.⁵⁷

There is renewed interest in AVE from partners after earlier reluctance and commercialization is ongoing. Unitaïd have already proposed support for AVE in the next phase. The project generated evidence that AVE is an important improvement on VIA and is worth continued investment, because visual examination remains the backbone of cervical cancer screening in the absence of affordable HPV testing, and in primary health care facilities where HPV testing does not deliver same-day results.

Finding 15. TA devices: volume guarantee and pooled procurement resulted in price reductions and device donations beyond project countries. There were three phases through which Unitaïd and CHAI market shaped the TA device market throughout the project, mainly through volume guarantees.⁵⁸ Phase 1 (2019-2020) focused on initial volume guarantees, after a global assessment of TA manufacturers, technical performance, regulatory approvals, production capacity, and business sustainability. CHAI implemented a volume guarantee mechanism, committing to procure 6000 TA devices over two years (4000 from Liger and 2000 from Wisap). CHAI secured substantial price reductions and expanding access to preferential pricing to more than 130 LMICs (43% for Liger and 58–59% for Wisap). CHAI ultimately procured 5745 devices, representing 89% of its commitment. The organization provided manufacturers with business development support, including assistance with regulatory approvals, distribution network development, and business model design for LMIC markets, which enabled improvements in production capacity and supply chain efficiency. In phase 2 (2021-2022) CHAI's support helped suppliers maintain production during COVID-19 by diversifying supply chains, strengthening inventory management, and providing operational assistance. A second volume guarantee in 2022 aimed to sustain stability, but CHAI procured only 43% of the committed devices as independent buyers increasingly entered the market. Overall, Unitaïd-supported efforts enabled the deployment of 6000 devices across 28 countries in Africa, Asia, and Latin America. In phase 3 (2023-25) CHAI and Unitaïd concluded that the TA device market had matured sufficiently to no longer require external volume guarantee support. However, to date, very limited TA procurement has been done in project countries with domestic funds. Overall, the intervention was viewed as having successfully transformed a fragmented, high-cost market into a more sustainable and accessible ecosystem, enabling faster access to treatment for precancerous cervical lesions in LMICs. In Burkina Faso for example, the costing for the 2024-25 national implementation plan estimated US\$1,000 per device and 2,000 treatments per device, or a capital cost per treatment of US\$0.50, plus US\$3 for consumables, totalling US\$3.50 per treatment. This compares favourably

⁵⁴ KII CHAI

⁵⁵ KII CHAI

⁵⁶ KII CHAI

⁵⁷ Malawi Case study

⁵⁸ CHAI Market Shaping Memo: Transforming Access to Cervical Cancer Prevention Tools From Final Report, Section 2.2. Market Shaping Deep Dive

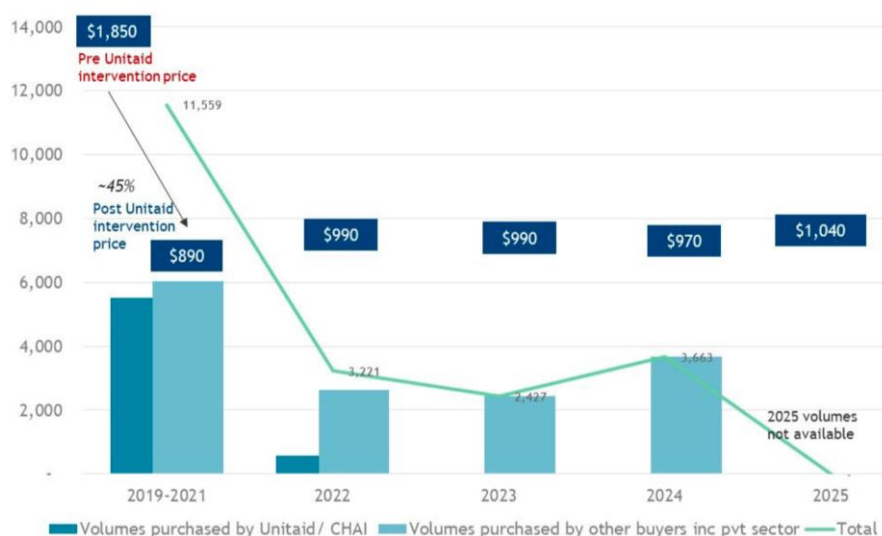
to cryotherapy (estimated US\$5–US\$8 per treatment including gas) and LEEP (estimated US\$50–US\$100 per treatment including anaesthesia and consumables).

Finding 16. Despite significant reductions in TA device prices, affordability remains constrained by the total cost of ownership, including maintenance, spare parts, replacement components, training, and service delivery costs, limited manufacturers and a lack of direct engagement with manufacturers to access prices.

The graph below (Figure 7) shows the reference prices achieved during the project. However, beyond the project, the reference price has increased from US\$970 to US\$1,040 or by 7%. Also, continued reliance on donor funding, limited domestic budgets for equipment replacement, procurement inefficiencies, and a concentrated supplier market further challenge the sustainable financing and scale-up of TA treatment.

Despite expanding access to TA devices in 28 LMICs, challenges remain related to market concentration, sustainable financing, procurement and maintenance systems, workforce capacity, monitoring and integration into national health systems. Ensuring long-term availability will require continued market development, supplier diversification, and strengthening of country capacity to procure, maintain, and effectively deploy devices at scale. The market of TA devices was small with two manufacturers Liger and Wisap Medical providing TAs that were WHO pre-qualified. Engaging only two manufacturers represents a risk as price competition is weak and further price reductions may be harder to achieve. Even if countries can access reduced pricing, they still face challenges around procurement channels as the project countries did not procure directly or have direct engagement with manufacturers. UNICEF SD includes TA devices in their Cervical Cancer Toolkit⁵⁹ available to all eligible countries however, in the project countries, TA devices were received from either CHAI or Expertise France with a donation from WHO.

Figure 7: TA device volumes and prices 2019-2024



Source: CHAI, “Unitaid Final Closure Report (2029-2025)”: Market Shaping Memo: Transforming Access to Cervical Cancer Prevention Tools. Final Report, section 2.2 Market Shaping Deep Dive

Countries are likely to face additional barriers related to minimum order quantities, maintenance requirements, warranty coverage, and the replacement of probes and battery packs. Evidence from the Malawi country study highlights these challenges: of 570 TA devices deployed, 64 (11.2%) were non-functional due to shortages of spare parts and insufficient domestic resources to procure replacements. Although nationwide scale-up of TA services is not an objective of this project, countries may face significant challenges in independently procuring and sustaining TA devices due to the upfront procurement costs.

⁵⁹ UNICEF SD Cervical Cancer Toolkit 2023.

Lessons on deployment of TA devices distributed

TA devices were procured through three channels: CHAI which procured 5,745 units, Expertise France which procured 200 and WHO 150. The TAs were provided to project and non-project countries, a total of 28 countries across the world. Most TA devices, 5,271 or 92% were deployed to project countries. Countries that received devices were India, Kenya, Malawi, Nigeria, Rwanda, Senegal, South Africa, Uganda, Zambia, Zimbabwe, Cambodia, Peru, Barbados, El Salvador, Paraguay, Burkina Faso, Ivory Coast, Guatemala, Philippines, Cameroon, Eswatini, Liberia, Myanmar, Tanzania, Ethiopia, Papua New Guinea, Lesotho, and Botswana. Devices were delivered to the Ministry of Health in each country. In non-project countries there is no information as to how these were deployed/utilized, but allocation criteria used for country selection included the presence of cervical cancer services, health system capacity to operate TA devices, and demonstrated need for (additional) devices.

While there was a split between Liger and Wisap Medical, 64% were procured from Liger and 36% from Wisap Medical. Nigeria and Kenya received over 1,000 TAs (1,172 and 1,100 respectively) Rwanda received a significant allocation of 911 units. The table with the TA distribution can be found in Annex 10. The four SUCCESS countries also received CHAI procured devices albeit in much lower amounts. Cote d'Ivoire received 17 units, Burkina Faso 13 and both Guatemala and the Philippines 10 units each. From the Burkina Faso country report, additional units were provided by EF through another funder receiving a total of 61 units. Philippines reported an additional 250 units from the WHO country office.

All country studies included an assessment of the TA devices, and it was reported that most of the devices were allocated to facilities. Kenya and the Philippines reported a small number being retained at central level for training (100 units in Kenya) or for the CLAMS project in the Philippines. Annex 10 shows the TA device management in Kenya, Malawi, Burkina Faso and the Philippines. In these countries, the use of TAs was free at PoC and monitored through DHIS2 or routine HMIS systems.

Sources: Procurement data received from CHAI and Country case study reports – Vol II

Finding 17. Although the Portfolio supported regional procurement in Latin America, most countries' continue to rely on donors for procurement, which threatens sustainability. Unitaids' collaboration with the PAHO Strategic Fund for regional pooled procurement of HPV tests is good example of capacity transfer and sustainability, but this has not been replicated in Africa, for example through the African Pooled Procurement Mechanism (APPM). Also at country level, Unitaids' market shaping efforts have accelerated adoption of HPV testing and TA, but with limited efforts to develop country-level procurement capacity or for governments to negotiate independently or manage contracts in the long-term. Expertise France found that the Unitaids negotiated price reduction for TA devices was not sustained outside the project for governments using their national procurement systems. The price jumped from approximately US\$ 1,000 per device (through UNICEF at negotiated prices) to US\$ 4,000 in Benin — a critical sustainability gap. The respondent suggested that national procurement systems suffer from monopoly markups or intermediary fees that multiply the cost.⁶⁰ Malawi ministry staff identified manufacturer price negotiation as a critical capacity gap, noting that the project did not provide support in this area despite its importance for developing sustainable procurement and contracting systems. Suggestions included for Unitaids and its partners to strengthen the long-term sustainability of the market by supporting country capacity for procurement, maintenance, and workforce development, while continuing global-level efforts to diversify the supplier base and reduce market concentration risks.

3.3 DEMONSTRATING EFFECTIVENESS AND EFFICIENCY OF INNOVATIVE SERVICE MODELS

In summary, the evaluation found that no single service delivery model was sufficient to achieve cervical cancer screening and treatment goals across all populations and contexts. The effectiveness of delivery models

⁶⁰ KII Expertise France

depended on how well they matched the needs of the target population and the capacity of the health system to support follow-up and referral. Integration of cervical cancer screening into HIV services was an effective strategy for reaching women living with HIV (most at risk) and this approach benefitted from established HIV service infrastructure for patient navigation and referral, where women receive services by the same provider and in the same setting, and where there is no additional stigma. However, integration into HIV platforms alone was insufficient to achieve broader screening coverage and could inadvertently reinforce perceptions of cervical cancer screening as an HIV-associated service. Integration into Reproductive Health/Family Planning platforms (rather than solely HIV) improved reach and works better for reducing stigma and broadening reach by positioning screening as part of routine women's health services. Outreach-based HPV screening models⁶¹ effectively reach women who have little access to facility-based services and first-time screeners, particularly in settings with high speculum-avoidance, strong cultural modesty norms, and male gatekeeping. However, outreach models require embedded CHW follow-up and strong patient navigation systems. The evaluation found that proof of concept alone does not automatically result in national adoption as a standard, routinely funded service and continued need for investment in CHW incentives, patient navigation infrastructure, and domestic procurement financing.

Finding 18. Integrated service delivery models are useful for reaching women living with HIV, who have a higher prevalence of HPV, but has not been sufficient to achieve elimination-level screening coverage amongst women living with HIV. The Portfolio's early targeting of WLHIV through HIV/ART platforms was epidemiologically sound and operationally effective and efficient. The initial Portfolio design prioritized WLHIV as a primary target group given their three- to six-fold higher HPV prevalence and the accessibility of established HIV/ART infrastructure. The approach leveraged existing laboratory systems, sample transport networks, and trained staff.

However, cervical cancer screening coverage of WLHIV across country case studies remains below the global elimination target (of 70% among all women). In *Kenya*, coverage reached 41% of WLHIV in 2024 (from 4% in 2020) before declining to 30% in 2025. In *Burkina Faso*, 62.4% of the WLHIV screening target was reached in Phase 1. Moreover, in Burkina Faso, 63.6% of HPV-positive general-population women returned for VIA, versus only 44.4% of WLHIV. WLHIV additionally experienced higher LTFU at the treatment step: among those who did return for VIA and were eligible for ablation, 94.1% of general-population women received TA versus 87.3% of WLHIV — a further 6.8 percentage-point gap at the treatment step. Case studies in Malawi and the Philippines as well as key implementation studies (e.g. Global SUCCESS IR Study Report) do not provide LTFU disaggregated by HIV status.

Finding 19. Expanding integration beyond HIV services to sexual and reproductive health service improved reach and acceptability by positioning cervical cancer screening as routine women's health care, but required stronger system integration than was initially established. Services designed primarily around HIV service platforms, created in some countries a structural association between cervical cancer screening and HIV that inadvertently stigmatized services and limited reach to the wider eligible population.⁶² Also, evidence from all country case studies demonstrates that broadening integration beyond HIV — to family planning, reproductive health, maternal and child health, and outpatient services — improved both uptake among sexually active women and acceptability. (see Box below). Evidence across data sources also found that sites with stronger integration models (e.g. standardized across service delivery points with job aids, workflows, and SOPs) consistently reported better screening uptake and more efficient use of existing infrastructure and workforce than those with ad hoc or HIV-only integration.⁶³

Lessons on integrated service models from country case studies:

⁶¹ Note that where the portfolio talks about CBSS (Community Based Self Sampling), this report differentiates between 'outreach-based service models' (as opposed to facility-based services) and self-sampling, a technology that may be used in both facility and outreach-based services.

⁶² Kenya, Malawi and Burkina case study reports, Global partner KII, CSO rep,

⁶³ Kenya case study, Burkina case study report; SUCCESS 2023 Annual Report,

In *Burkina Faso*, providers reported successful opportunistic integration into routine reproductive health services: *"We were able to integrate the activity into our activities — a woman who comes for family planning, we take the opportunity to do cervical cancer screening"* (CMA Do provider). The SUCCESS project embedded screening into family planning and postpartum platforms at all 21 sites, normalizing it as part of routine women's health care rather than a disease-specific intervention. The case study names three specific barriers to integrate with HIV/ART services: transportation costs, stigma at HIV clinics, and fatigue from multiple competing health demands of WLHIV.

In *Kenya*, the case study finds that *"integration in reproductive health services and family planning services was less pronounced but could reduce access barriers related to stigma"*, and that *"previously integration was only within HIV settings which led to stigmatization of services as only for HIV-infected women — following integration into RH/FP settings, it made it easier"* Kenya illustrates both sides of this trade-off: the same HIV-platform integration that achieved efficient reach to high-risk women also generated the stigma effect described above, resolved only once RH/FP integration was also introduced.

In *Malawi*, screening was integrated into ART, MNCH, family planning, and outpatient services, with several sites adding dedicated VIA rooms within ART clinics; the case study confirms that *"operational integration was generally strong but uneven"*, with HIV platform integration more developed than reproductive health and family planning integration.

In the *Philippines*, The WLHIV target underperformed (140 screened vs. a target of 664), and the case study is explicit that this was not a demand problem but a supply-side integration failure. WLHIV integration failed because it was never systematically designed. HIV and cervical cancer services operated in separate budget/lab silos. At San Lazaro Hospital's HIV clinic, GeneXpert was physically present and technically compatible with HPV cartridges, but because HIV and TB/cervical cancer operated under separate budget lines and custodianship, HPV testing "could not be operationalized inside the HIV lab system." The platform was "organisationally siloed." Moreover, WLHIV consistently described fear that presenting for cervical cancer screening would require disclosure of their HIV status to unfamiliar providers, and that a positive HPV result would be read by family or partners as confirmation of sexual behaviour they had been managing privately, a double stigma that demand-generation strategies did not address. A woman explained that *"an extra facility visit, for a different service, creates another opportunity for her status to become visible."*

Source: Country case study reports – Vol II

Lessons on linkages between cervical cancers screening and other health services. Positive examples exist outside the project countries, rarely "top down" integration (the Benin Ministry of Health assigned the cervical cancer work to its HIV department), but more promisingly "bottom up" integration (primary health care workers in Madagascar taking a holistic, person-centred approach to women's health). In Rwanda, the Elekta-supported outreach model includes mandatory screening for breast cancer (though physical examination): all women are screened for both cancers and women with lumps are referred for further radiological triage.⁶⁴

Finding 20. Outreach-based services reach more women faster than routine services, but risks straining laboratories, Community Health Worker (CHW) capacity, and triage systems in the process, a trade-off that required significant investment in system capacity building. The Portfolio shifted focus toward broader outreach-based screening, because WHO elimination targets require 70% screening coverage among all women at ages 35 and 45 — not only for WLHIV. The evaluation found that outreach-based cervical cancer screening models were effective in reaching women who were unlikely to access routine facility-based services. However, outreach models also introduced additional demands on laboratory systems, community health worker (CHW) capacity, referral pathways, and triage services, requiring significant scale-up of

⁶⁴ KII CSOs

community health worker systems.⁶⁵ A recent study by Unitaid found that door-to-door and community-level outreach is more expensive per HPV+ woman and requires a well-resourced CHW network.⁶⁶ which is a sustainability concern where CHW incentive donor dependency exists, and domestic financing is unavailable.

While large-scale campaign models can reach large numbers of women quickly, they also risk overwhelming laboratory systems, displacing CHW capacity from other services, and creating triage backlogs. Portfolio evidence identifies a strategic tension between campaign models targeting the general population (broader coverage, lower diagnostic yield, higher cost per detected lesion) and targeted models focusing on high-risk groups (higher yield, more intensive follow-up possible, but smaller absolute reach). WHO's 90-70-90 framework implicitly requires both approaches at different stages. The Portfolio has generated useful comparative evidence on this trade-off, though cross-Portfolio synthesis is limited by cascade data fragmentation (see finding below). The CHAI-Unitaid CBSS study directly demonstrates this trade-off. Community-based models and particularly door-to-door models (broader, general-population-oriented reach) showed a lower HPV positivity and higher cost per HPV-positive woman identified/treated than health-facility models, because facility-based screening disproportionately captured higher-risk (HIV-positive) women. Rwanda being an outlier on the health post model, but with no further information available to explain this (Table 8).⁶⁷

Table 9: Cost per HPV+ woman linked to triage⁶⁸

Cost per HPV+ woman linked to triage in:	Health facility model	Health post model (relative to health facility)	Door-to-door model (relative to health facility)
Zimbabwe	\$97	\$178 (+84%)	\$137 (+42%)
Rwanda	\$188	\$144 (-23%)	\$ 214 (+14%)
Malawi	\$74	\$85 (+16%)	NA

Finding 21. LTFU improved substantially in outreach-based service models through strengthened patient navigation and use of CHWs. The high LTFU reported in the first phase informed a clear focus on addressing this in outreach-based services. LTFU at the triage step measurably improved as programmes introduced active follow-up interventions and the programmes matured. The most striking improvements were associated with models embedding CHW follow-up. The recent prospective study in five African countries (Nigeria, Malawi, Rwanda, Zambia and Zimbabwe) reported from 80%+ triage rate of women receiving HPV positive results. All three service delivery models (health facility, health post and door-to-door) included strong attention to patient navigation systems, CHW mobilization, allowances for CHW for tracking women and collecting samples.⁶⁹ (Figure 8). This is corroborated by the SUCCESS community-based self-sampling (CBSS) study in Burkina Faso, which similarly recorded strong follow-up outcomes under structured CHW-supported models.^{70 71} The study recommended strengthening triage systems using SMS notifications and community health workers to ensure timely follow-up. It recommends recognizing the critical role of CHWs as trusted members of their communities and their adequate compensation (to mobilize and sensitize women to seek

⁶⁵ Kils with EF, CHAI, CSO partners, WHO, country case studies Vol II,

⁶⁶ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

⁶⁷ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

⁶⁸ Source: Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

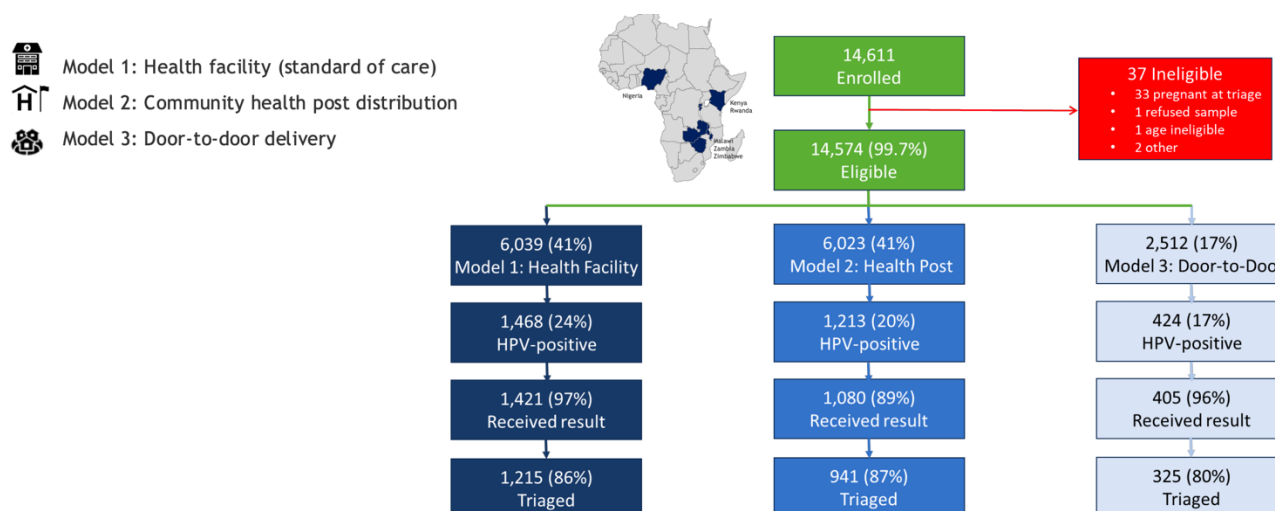
⁶⁹ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

⁷⁰ Burkina Faso country case study – vol II.

⁷¹ Other SUCCESS CBSS: Côte d'Ivoire attempted CBSS but halted it when PNLs restricted Global Fund HPV tests to WLHIV only; Guatemala and Philippines' CBSS phases were still in early rollout as of the 2024 Annual Report, without comparable outcome data yet). So the corroboration is Burkina Faso-specific, not portfolio-wide across all four SUCCESS countries.

prevention services, build trust, transport samples, deliver results, and follow up to ensure women return for triage and treatment.)⁷²

Figure 8: Health post distribution & Door-to-door delivery evaluated in comparison to the Health-facility based model



Source: Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

Country case study reports and KIIs confirm these ways to improve the cascade. (See also text box below). In *Rwanda*, CHAI trained more than 5000 CHWS in all nine activated districts, with 5,375 CHWS involved in demand generation, community awareness, and community follow-up, integrated into Rwanda's performance-based funding system — the most structurally embedded CHW model in the Portfolio, produced the Portfolio's highest follow-up rates (~90%) through structured weekly testing and dedicated follow-up days. In *Kenya*, community health promoters drove CBSS uptake across 25 counties, though fear, stigma, and gender power imbalances continued to limit reach despite improved awareness.^{73 74}

Lessons on reducing loss to follow up⁷⁵: In *Burkina Faso* Phase 2 (2023–2025), the door-to-door CHW model achieved 94.6% VIA/VAT completion and 98.4% treatment completion; the CSO/CBO model achieved 91.7% VIA/VAT and 98.9% treatment completion — a significant improvement over Phase 1 rates of 36.4–44.4%. In *Malawi*: community-based service delivery in two implementation districts achieved ~80% HPV-positive linkage to VIA and 92% treatment rate among eligible women. Quality counselling was also highlighted, in Malawi, as an important mechanism for helping women understand their results and return for care. In the *Philippines*, same-day screen-and-treat and short result-turnaround (31 days on-site vs. up to 185 days centralised) are the strongest protective mechanisms, while device/equipment availability, quality counselling (phone call, same-call return booking), and digital tracking tools drive site-level performance differences. *Rwanda's* Elekta Foundation model achieved low LTFU through district-level PCR labs, Monday–Thursday testing with dedicated Friday follow-up days, and structured phone-based notification within a 2-week result turnaround threshold. This model achieved approximately 90% follow-up according to KII evidence. KII evidence from *Zambia* confirmed a 32% baseline result return rate which subsequently raised to 48% with additional active follow-up effort.

⁷² Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

⁷³ Country case study reports Kenya and Burkina Faso, Vol. II

⁷⁴ CHAI Closure Report 2019.2025

⁷⁵ Sources: Country case study reports and KIIs Rwanda and Zambia

Finding 22. Facility-based services remain the backbone of cervical cancer services with outreach models functioning primarily as an access pathway rather than a substitute for facility capacity. All country case studies confirm that facility-based services remain the primary modality for triage, treatment, and management of screen-positive women. Outreach functions can act as an access funnel — directing women to facilities — rather than a complete alternative. Outreach models' effectiveness depends ultimately on the capacity of the facility-based system to which they refer women. In settings where facility readiness is variable, community outreach will not improve cascade outcomes if referral facilities lack trained providers, TA devices, consumables or laboratory capacity.⁷⁶

Finding 23. Sectoral silos limited progress towards cervical cancer elimination by inadequate integration across HPV vaccination, cervical cancer screening, treatment, and long-term care. Across Portfolio countries and at the global level, cervical cancer sits at the intersection of HIV, NCDs, EPI and sexual and reproductive health without being fully claimed by any of them. Key informants describe cervical cancer as an 'orphaned disease' where no single government entity feels primary ownership, and the disease consequently receives residual rather than dedicated attention. An implementing partner leader identified the challenge as structural silos between HIV programmes and NCD/cancer programmes within ministries and international partners (e.g. Gavi and Unitaids) alike. Cancer coalitions in some SUCCESS countries engaged only midway the project, instead of being involved at the design stage.

At the global architecture level, the silo is replicated across major multilateral partners. Within Global Fund, HPV is mainly considered an HIV coinfection, and this framing has shaped both the scope of investment and its equity implications — formulated by a key informant: *"cervical cancer as 'a by-the-way' of HIV programming"*. PEPFAR funding and in some cases also Global Fund resources, are strictly limited to WLHIV whilst CHAI programming was open to both WLHIV and HIV-negative women, creating a fragmented service within the same country systems. In Gavi, HPV vaccination is routed through the EPI team and treated as a vaccine rather than a cancer intervention, severing its programmatic connection to secondary prevention. Some global partners expressed interest in a closer collaboration with Unitaids. Africa CDC reported limited structural partnership with Unitaids on cervical cancer despite having HPV interventions. Likewise, the Global Fund requested Unitaids for more timely sharing of visions and plans and increased coordination. The Gates foundation has limited traction to cervical cancer, whereas the World Bank (specifically the World Bank-hosted Global Financing Facility (GFF)) presents a possible opportunity currently being explored by Unitaids.^{77 78}

The evaluation found that while the Portfolio made important contributions to expanding secondary prevention through HPV-based cervical cancer screening and precancer treatment, cervical cancer elimination requires coordinated action across the full prevention and care continuum, including vaccination, screening, diagnosis, treatment, palliative care, and long-term follow-up. In practice, implementation occurred within health systems characterised by organisational silos across Ministry of Health departments (e.g., HIV, immunisation, sexual and reproductive health, non-communicable diseases, and universal health coverage) and between government, donors, and implementing partners. These structural arrangements limited opportunities to design and implement integrated service delivery models with clear linkages and referral pathways. Several respondents indicate links with vaccination and treatment services have been neglected, and that screening without ensuring access to invasive cancer treatment raises ethical concerns. Missed synergies include vaccinating HPV negative women, or screening mothers at HPV vaccination services. As a senior implementing partner⁷⁹ representative communicated: *"the portfolio has been designed as a secondary prevention programme, but elimination cannot be achieved through secondary prevention alone"*.

It needs a cross-pillar design evolution beyond the current Portfolio's scope. Efforts to combine HPV vaccination and screening services were implemented through a Unitaids Gavi grant in Nigeria and Cote

⁷⁶ Country case study reports Kenya, Malawi, Burkina Faso and Philippines – Vol II

⁷⁷ CHAI Final Closure Report 2019–2025

⁷⁸ KIIs global partners, donors, Unitaids,

⁷⁹ KII CHAI

d'Ivoire. In Nigeria across six intervention facilities in Lagos and Rivers States, integrated communication and service delivery increased HPV vaccination coverage by 112% more in intervention areas than controls in Lagos ($p=0.044$), and increased HPV screening uptake in Rivers State (26 more women screened per facility, $p<0.001$). The brief concludes that *"integrating cervical cancer screening and HPV vaccination creates a positive ripple effect, where mothers who undergo screening are more likely to bring their daughters for vaccination" - a two-in-one model with demonstrated population-level benefit*.⁸⁰

Despite these examples, the mother–daughter integration opportunity remained largely untapped across the wider Portfolio. Within Gavi's own structures, HPV vaccination enters through the EPI vaccine team and is treated as a vaccine intervention rather than a cancer intervention, creating internal coherence gaps that limit the mother–daughter integration opportunity at scale.⁸¹ Similarly, the SUCCESS 2024 Annual Report confirms that while integration into reproductive health and HIV was achieved across all project facilities, the linkage between vaccination and screening platforms was not systematically pursued.⁸² Linkages of women with invasive cancer lesions to treatment services was equally inadequate and is explored in the next finding.

Finding 24. Linkage between screening and invasive cervical cancer treatment and care are critically weak.

This gap is generally not reported by implementing partner progress reports as it is not part of their log frames and outside the scope of Unitaids' Portfolio. However, it is an important gap in cervical cancer elimination and an ethical issue that warrants considerations by Unitaids going forward, as screening scale-up creates an obligation to ensure that women identified with disease can access appropriate next steps. Country case study reports⁸³ and multiple KIIs⁸⁴ reported a critical gap in access to histopathology as well as treatment of invasive lesions of cervical cancer in project countries, with specific country examples from Burkina Faso, Kenya, Zambia, and Malawi. In Malawi, the histopathology step (for LEEP samples) was identified as a structural bottleneck in the treatment cascade - a district coordinator reported that biopsy specimens for the entire southern region depend on a single referral laboratory with a turnaround of approximately two weeks, during which women who had undergone LEEP had to wait for weeks to months to get their results, which determine whether the procedure was successful or not. In Burkina Faso, women participating in FGDs reported severe distress of being diagnosed with invasive cancer but not being able to afford treatment.

"Only about 30% of women identified with invasive cancer in Zambia reach the Cancer Disease Hospital for treatment — a 1,000km journey from Machinga district with no lodging or navigation support"
"Pathology lab wait times of 6–12 months for LEEP results, fewer than 20 pathologists nationally, serving multiple cancer types" (KII Zambia)

"I met an oncologist seeing 60–70 patients per day, more than half with pre-cancerous lesions — of whom more than half return years later or having died from lack of follow-up linkage to treatment" (KII Unitaids)

Finding 25. Targeting evolved from an HIV-driven focus to broader geographical access, but vulnerability beyond HIV status was not systematically built into programme design. As a result, several high-burden groups — sex workers, adolescents, women over 49, and those in conflict-affected areas — remain largely outside programme reach. In the early phase of the Portfolio, women living with HIV (WLHIV) were prioritised because of their substantially higher risk of HPV infection and cervical cancer. This reflected the Portfolio's origins within the HIV programme. In the second phase, the approach shifted towards improving geographical access by extending services to women in rural and underserved communities through outreach approaches. In Burkina Faso for example, HPV positivity among WLHIV was double that of the general population (27.5%, versus 13.7%).⁸⁵ WLHIV positivity in the Malawi 2019–2020 sub-study was 43%, the highest in the five-country

⁸⁰ CHAI Learning Brief Nigeria (2025)

⁸¹ Global partner KIIs, CHAI Learning Brief Nigeria (2025)

⁸² SUCCESS 2024 Annual Report

⁸³ Country case study report Burkina Faso

⁸⁴ Global partners, CSO partners, Implementing partners

⁸⁵ Burkina Faso case study

cohort.

Some key informants maintain that the project should focus on WLHIV, because that makes elimination more cost-effective (and equitable)⁸⁶ However, even WLHIV coverage remains below elimination targets in all countries. In the same Burkina Faso study, the LTFU for WLHIV was 13–19 percentage points higher, indicating that additional support is needed.⁸⁷ In Malawi, after Unitaid–CHAI exit, HPV testing continued for WLHIV through PEPFAR partners at some sites but ceased for HIV-negative women.

The evaluation found that important dimensions of vulnerability, beyond HIV status, were not consistently incorporated into programme targeting. Sex workers were identified as a priority population in Kenya and Zambia but were not explicit programme targets in most countries. Women with disabilities, adolescent girls, women outside formal health structures, and women in conflict-affected areas (Burkina Faso's security crisis zones) were identified as vulnerable but not systematically targeted. Women aged under 25 and over 49 were excluded by prevailing guidelines in most programmes, despite evidence that HPV infection and disease burden extend beyond these age bands.

Lesson on equity and targeting. In Zambia, the national cervical cancer screening programme started in 2006, targeting WLHIV and cervical cancer as an HIV co-morbidity, supported by PEPFAR's Campaign at University Teaching Hospital. Unitaid support enabled the programme to expand to underserved northern regions (Mpolongo, Chilonga, Cham). When doctors at the Cancer Diseases Hospital identified that 50% women presenting with invasive cancer were HIV negative, they called for expansion to target all women. The National Technical Working Group approved screening of all women, and PEPFAR-funded services were also allowed to treat HIV negative women.

3.4 MEASURING THE CONTINUUM OF CARE CASCADE

In summary, the Portfolio was unable to directly compare LTFU across various service models and target populations, because cascade indicators were not consistently defined, measured, or reported between Portfolio implementing partners.

Finding 26. Monitoring retention of women across the continuum of care cascade is crucial given the high levels of LTFU, but this is inadequately measured across the Portfolio due to fragmented cascade definitions and measurement systems. The evaluation found that LTFU between HPV-positive results and VIA triage was the most visible bottleneck in HPV-based screening implementation (see also Finding 2 and 4). A fundamental methodological challenge across the Portfolio is the absence of a standardized cervical cancer cascade definition and indicator framework. In particular, the number of HPV-positive women who received test results and subsequently accessed VIA triage — the most critical LTFU indicator — are not systematically included in routine reporting in most countries. Different data systems and reporting tools track different cascade steps and define terms inconsistently - for example 'linkage', 'loss to follow up', and 'treatment'. In many progress reports, progress towards service coverage across the continuum of care is presented in absolute numbers, without denominator, which makes it impossible to interpret coverage. Finally, many reported service statistics fail to disaggregate between service models (facility based, integrated or outreach) or target audience (WLHIV or general population). This was also apparent in country case studies. The Portfolio's monitoring systems did not systematically capture equity in reach, because it does not disaggregate services statistic by socioeconomic status, educational level, geographic remoteness, or other equity dimensions — making it challenges to determine whether awareness gains reached the most marginalized women or were concentrated among those who already had better access. In Kenya, programme data for the 25 Unitaid-supported counties do not capture the number of women undertaking VIA triage, preventing any

⁸⁶ KII Academia

⁸⁷ Burkina Faso case study

quantitative analysis of attrition between HPV+ result and triage. In Burkina Faso, Phase 1 data similarly omit the HPV+ to VIA triage step from routine monitoring. KII evidence confirmed the absence of a standardized cascade indicators at programme start as a documented design gap.⁸⁸

CHAI and Expertise France use different indicators to measure outcomes across the uptake-screening-triage-treatment cascade, because the Portfolio consisted initially of three separate sub agreements (CHAI, Expertise France, and WHO) each with a separate result framework. A Portfolio-level ToC was only agreed in 2023, facilitating greater alignment as implementing partners shared one conceptual framework – but the original M&E systems remained a barrier to comparing results.

Experts advocate a cervical cancer elimination cascade monitoring framework analogous to the internationally agreed HIV cascade: a limited set of key indicators for each step in the screening pathway (uptake and denominator). It aligns with the existing WHO's "90–70–90" targets, normative and programme delivery guidance. WHO and technical partners are currently working on this, and this could be supported as part of the next phase of the Portfolio.⁸⁹

Lesson on monitoring the cascade of cervical cancer screening services.

The *Kenya* case study found significant LTFU of HPV-positive women to triage, referral, or treatment. Another finding is weak monitoring of the continuum of care data with no reporting on number and proportion of HPV+ women who underwent triage, and data gaps. MOH/NCCP, with support from key partners, has worked to strengthen reporting by printing and disseminating updated reporting tools at the subnational level. This weakness prevented analysis across the continuum and hindered development of tailored strategies.⁹⁰

In the *Philippines*, the national Field Health Services Information System (HMIS) captures women screened, and women screened positive but does not capture treatment outcomes. The DOH chose to wait for an algorithm decision before updating the national HMIS. The project filled the gap with study-specific registers and a project-built monitoring tools, but there was a mismatch between a decentralized system without a national screening registry and a project-specific monitoring system.⁹¹

In *Rwanda*, the Elekta outreach model uses a separate monitoring system for the campaign style screening model, in order not to burden the primary health centres. This system uses tablets, and enables real-time tracking of performance indicators, including daily updates during the campaign. The plan is building cloud-based screening software, to be used in multiple countries, based on WHO standard outputs.⁹²

3.5 ASSESSING AND ADDRESSING HEALTH SYSTEM BARRIERS

In summary, the evaluation found that introducing new cervical cancer screening technologies required substantially greater Unitaïd investment in health system strengthening (e.g. lab systems strengthening, supply chain strengthening, training of lab and health care workers/CHWs, follow up systems and referral pathways, health information systems) than initially anticipated. Lessons from Portfolio implementation demonstrated that introducing technologies alone did not overcome existing system constraints and barriers; their effectiveness depended on the readiness of laboratory networks, referral pathways, patient navigation systems, commodity supply chains, workforce capacity, and data systems. HPV molecular testing illustrates this lesson clearly. Services outcomes depended on whether, laboratory systems could prioritise HPV testing

⁸⁸ Unitaïd KII, Implementing partner KIIs

⁸⁹ *Curr. Oncol.* 2025, 32(7), 407; <https://doi.org/10.3390/currncol32070407>, Framework for Monitoring the Implementation of the WHO Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem (Including indicator metadata)

⁹⁰ Kenya case study. Vol II.

⁹¹ Philippines country case study, Vol II

⁹² KII CSO

alongside other high-volume programmes, patient communication, navigation and referral systems allowed for sharing test results and return for triage for HPV positive women, procurement and supply systems ensured sufficient supply of commodities, and health workers were able and allowed to deliver services. Similarly, the assumption that proof of concept would translate into scale is also hindered by system challenges, and only happened with support for health policy development, service financing and resource mobilisation. According to key informant interviews with implementing partners, Unitaïd ended up investing heavily in health system strengthening efforts such as lab systems strengthening, supply chain strengthening, health workforce, CHW follow up systems, referral pathways, and health information systems. Overall, Unitaïd reported that over 50-75% of the grants were spend on implementing partners staff costs as opposed to commodity procurement, while acknowledging that financial data from implementing partners were not available to triangulate this proportion.⁹³ Another lesson is that health system strengthening requires longer time horizons than introducing technologies. Finally, an important lesson for the next phase of the Portfolio is that innovative technologies should be introduced through a health-system-based approach rather than as stand-alone innovations requiring the system to adapt around them.

Finding 27. HPV testing scale-up depended on health system readiness, with weaknesses in laboratory capacity, supply chains, referral systems, data infrastructure, and platform and staff competition constraining cascade completion. Supply-side barriers at the health system level were documented across all case studies, multiple documents and KIIs. Evidence highlights that laboratory infrastructure readiness, HIV/TB burden, and capacity to handle the HPV tests, as well as patient navigation and referral systems and data systems are important factors to consider before implementation of the HPV molecular testing approach.⁹⁴

a) Platform and laboratory staff competition caused delays in results return - especially in high prevalent TB and HIV settings. Leveraging existing molecular platforms was assumed to be key enabler of HPV testing introduction, but at the same time created an unanticipated trade-off: HPV testing competed for laboratory capacity with programmes perceived as more urgent, particularly HIV viral load, early infant diagnosis, and TB testing. Country case studies and KIIs from across the system confirmed that the platform decision is what made early scale feasible. Country case studies acknowledge how laboratory capacity was strengthened through training, consumables procurement, and supply chain integration across Burkina Faso (239 lab technicians trained across 17 laboratories), Kenya (22 near-PoC sites and 9 conventional labs), and Malawi (district-level GeneXpert integration into HIV viral load networks). However, while this introduced efficiencies, leveraging existing PCR platforms caused a competition with HIV and TB samples for lab machine and lab personnel time especially in countries with a high prevalence of TB and/or HIV. TB and HIV are often considered more urgent and prioritized over HPV tests which prevent generating same-visit results for HPV tests. Both KIIs, the document review and country case studies reported this unanticipated competition as a recurrent issue across the Portfolio⁹⁵ which resulted in longer waiting time for results and largely prevented same day test and treat algorithms. A KII expressed that “*GeneXpert machines that are running HIV viral load, EID, and TB cannot give same-day results for HPV — HPV tests compete for platform time and are frequently deprioritized relative to other high-volume or acute tests*” (Global partner KII). The SUCCESS five-country implementation study formally identified the shared-platform constraint as a key operational limitation.⁹⁶

The SUCCESS implementation study further reports that the cascade step that took longest time was time from receipt of results at the health facility to when the woman returned for VIA/treatment, with a median delay from sample collection to HPV result at 28 days (range: 16 days in Guatemala to 41 days in Côte d'Ivoire). It also notes that women receiving results over 40 days after sample collection were less likely to return

⁹³ KII Unitaïd

⁹⁴ KIIs CSOs, Unitaïd, CHAI, EF; Country case study reports, GLOBAL IMPLEMENTATION RESEARCH STUDY REPORT (2022-2024) Feasibility, acceptability and cost factors for implementing integrated HPV testing and treatment of pre-cancerous cervical cancer lesions with thermal ablation, September 2024

⁹⁵ CHAI Closure Report 2019–2025; SUCCESS annual report 2022; KIIs Zambia, Rwanda, Nigeria; Country case study reports Kenya, Malawi, Philippines and Burkina Faso.

⁹⁶ BMJ Open 2023 five-country implementation study

compared to those who received their results within 20 days ($p < 0.001$).⁹⁷

The Burkina Faso case study found that laboratory capacity was insufficient to handle the volume of HPV samples, and many sites lacked on-site GeneXpert machines, necessitating transport of samples to distant laboratories. One gynaecologist explained: *“The GeneXpert device is not available at all sites. Samples must be sent elsewhere, which causes long wait times—sometimes weeks or months”*. A midwife in Burkina Faso noted, *“We don’t have the GeneXpert machine here. We had to send samples to another site, and it takes a very long time for results to come back”*. In Malawi, one district relied on a single four-module GeneXpert, creating acute morning congestion and in Kenya, the use of GeneXpert platforms facilitated adoption but faced competition with other disease programmes. In Nigeria, the health-post community model was found inferior to the facility model (66.0% vs 98.9% triage linkage), due to the additional transport step and wait time before triage.⁹⁸

b) Weak referral, tracking and patient navigation systems. Referral and navigation systems were often insufficiently developed to manage the additional complexity introduced by HPV testing. According to the CHAI closure report, weak linkage between screening, triage, and treatment emerged as a critical bottleneck — particularly during early implementation — driven by gaps in result return systems, service readiness, and patient follow-up. Likewise, delays in communication of test results were reported by the Global SUCCESS IR Study report.⁹⁹ The Kenya country case study also reported weak referral systems from community/outreaches to primary health care facilities (levels 1–3) and between these lower-level health facilities and higher-level treatment facilities (levels 4–6) along the cervical cancer cascade, *“In some counties, lack of clear referral pathways meant HPV-positive women were sent to distant facilities without structured, clear client navigation support.”* In Burkina Faso, follow-up systems relied on individual provider memory and initiative rather than structured tools. Moreover, women were sometimes not reachable on provided telephone numbers, making result notification impossible.¹⁰⁰ The CBSS model sought to address some of these gaps through CHWs providing direct, personal follow-up, with some success, although this is difficult to sustain without dedicated staff or systems for the purpose.

c) Data fragmentation was also a repeated barrier with data tools and incomplete DHIS2 integration limiting monitoring along the cascade and planning for scale-up.¹⁰¹ The absence of interoperable data systems limited both programme management and learning. Specific examples were from Kenya, Burkina Faso, and Côte d'Ivoire. The latter two countries conducted a pilot integration of cervical cancer data into the national health information system (DHIS2), but the DHIS2 Tracker data entry was found to be burdensome and error-prone and full national rollout did not occur with additional challenges noted concerning interoperability and internet connection. In Côte d'Ivoire, laboratory results generated outside DHIS2 were not captured in cascade data.¹⁰² In Kenya, parallel data tools were affecting the introduction of HPV testing and its monitoring. *“There is tool fatigue — multiple parallel systems with some facilities using EMRs not interoperable with KHIS2, resulting in data gaps”*¹⁰³

d) Stockouts of HPV tests and consumables was another recurrent supply side barrier that affected introduction of HPV testing during the project and reported across all case studies. Pooled procurement reduced prices but did not by itself ensure continuity of supply. In Kenya, stockouts of HPV test kits and related consumables (gloves, lab reagents, preservatives, etc.) disrupted HPV test service continuity.¹⁰⁴ In Burkina Faso, the fire at the central warehouse (CAMEG) in 2022, destroyed all HPV test stocks (over 11,400 HPV tests) and caused result delays of six months or more at multiple sites. *“Women became discouraged and stopped*

⁹⁷ GLOBAL IMPLEMENTATION RESEARCH STUDY REPORT (2022-2024) Feasibility, acceptability and cost factors for implementing integrated HPV testing and treatment of pre-cancerous cervical cancer lesions with thermal ablation, September 2024

⁹⁸ Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

⁹⁹ CHAI Closure Report 2019–2025, Global SUCCESS IR Study report.

¹⁰⁰ Kenya and Burkina Faso country case study report – vol. II

¹⁰¹ Kenya country case study report – vol. II

¹⁰² Burkina Faso country case study report – vol. II; KII CIV,

¹⁰³ Kenya country case study report – vol. II

¹⁰⁴ Kenya country case study report – vol. II

returning for results.”¹⁰⁵ In Malawi, shortages of HPV test and consumables were also frequently reported. “At some point, the lab had no chemicals to process the tests. So, the samples took a long time to be tested.”¹⁰⁶ The CHAI Closure Report found that while pooled procurement reduced unit cost it did not secure continuity of supply.¹⁰⁷ The Côte d'Ivoire evidence from the SUCCESS 2024 Annual Report adds a further country-specific example of HPV test stock out halting programme activities entirely.¹⁰⁸

Finding 28. Patient navigation and implementation support improved cascade completion, but remain dependent on external financing for most LMIC. CHWs are consistently mentioned as the most critical implementation actor for community outreach and LTFU reduction across the Portfolio. However, CHW performance in cervical cancer services is heavily dependent on project-funded incentives — transportation, airtime, and per diem — that typically cease when project support ends.¹⁰⁹ Other interventions supported by the Portfolio included 1) Structured return appointments scheduled at screening based on expected turnaround time; 2) SMS-based result notification (approximately 70% results return rates obtained in Côte d'Ivoire when mobile numbers were correct)¹¹⁰; 3) CHW phone follow-up and door-to-door home visits for women who missed appointments; 4) Peer support groups for HPV-positive women; 5) Male partner sensitization (e.g. in Burkina Faso, 76% of men who attended sensitization sessions reported subsequent home discussions about cervical cancer); and 6) treatment device directories (Kenya) to match HPV-positive women to the nearest facility with a functioning TA device. In Kenya, while the programmes successfully integrated HPV screening into existing HIV, reproductive health, and family planning systems, reliance on donors for health worker capacity building, supervision, mentorships and other consumables such as gloves and speculums limited reach in all supported counties.^{111 112}

Lesson on engaging community health workers and sustainability¹¹³ *Burkina Faso:* Post-project: ‘During the project, we had resources for telephone follow-up. Now, we don’t have airtime to call women’ (midwife, Burkina Faso Case Study). *Malawi:* The case study questions whether CHW-facilitated follow-up represents a sustainable approach that public health systems can finance. *Kenya:* CHW involvement was strong during project implementation; sustainability within county health budgets is uncertain. Informal workarounds by facility staff were also noted in several countries, though these cannot substitute for structural investment.

Finding 29. Case studies highlight the need for robust health system readiness assessments before introducing innovations, and a more context-specific design in resource-constrained settings. The evaluation found that *facility-level* readiness assessments, as undertaken at project initiation, were insufficient to predict whether innovative cervical cancer service models could be implemented effectively at scale. Successful introduction requires assessment of *broader health system* conditions, including commodity supply chains, workforce availability and retention, referral pathways, financing arrangements, data systems, and governance structures. While the programme undertook a *facility level* baseline readiness assessment in Kenya, county officials and facility providers reported that “the model assumed readiness that counties didn’t have.”¹¹⁴ indicating that design assumptions underestimated *systemic* barriers, including supply chain barriers and commodity stockouts of support equipment and supplies such as speculums, gloves (which were to be procured by domestic funds), human resources shortages necessitated by huge staff turnovers due to brain drain¹¹⁵, and weak referral systems from community/outreaches to primary health care facilities and between

¹⁰⁵ Burkina Faso country case study report – vol. II

¹⁰⁶ Malawi country case study report – vol. II

¹⁰⁷ CHAI Closure Report 2019–2025

¹⁰⁸ SUCCESS 2023, 2024 Annual Reports

¹⁰⁹ CHAI Closure Report 2019–2025, Results from the study: Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication); SUCCESS 2023, 2024 Annual Reports; Kenya, Burkina Faso and Malawi Case Study; KIIs with CSO representative, Implementing partners, Unitaids, global partners

¹¹⁰ KII Côte d'Ivoire

¹¹¹ KII Kisumu County

¹¹² KII Machakos County

¹¹³ Country case study reports – Vol II

¹¹⁴ Country case study, Kenya, Vol II

¹¹⁵ KII with Master trainer

these lower-level health facilities and higher-level treatment facilities along the cervical cancer cascade.

While the programmes successfully integrated HPV screening into existing HIV, reproductive health, and family planning systems, reliance on donors for health worker capacity building, supervision, mentorships and other consumables such as gloves and speculums limited reach in all supported counties.^{116 117}

The evaluation found a contrasting experience in Rwanda, where the programme design leveraged existing health system infrastructure rather than creating parallel systems. Health centres already had qualified staff, district hospitals had referral capacity, and digital health information systems were already in place. This allowed the programme to integrate cervical cancer screening, treatment, and follow-up into routine service delivery efficiently. The design was also evidence-informed, enabled by earlier lessons from prior district-level screening programmes, including about sample collection, referral systems, treatment pathways, and patient follow-up.¹¹⁸

3.6 ASSESSING AND ADDRESSING GENDER BARRIERS AND ENGAGING CSOS

In summary, the evaluation found that the design and implementation of the Portfolio was gender-sensitive in recognising and addressing many practical barriers faced by women accessing cervical cancer screening and treatment, but it was not designed as a gender-transformative intervention. Programme innovations addressed some gender-related barriers, such as privacy concerns, stigma and distance but did not systematically assess at the design stage, or later, the deeper structural drivers of inequality, including household decision-making power, gender norms, economic dependency, and unequal distribution of care responsibilities.¹¹⁹ The Portfolio's engagement with civil society organisations represented a partial success: community-based organisations were engaged to support outreach-based services, but generally not engaged systematically in programme design or governance.

Finding 30. Secondary cervical cancer screening uptake and retention depends crucially on addressing gender related social and economic barriers at various stages of the service cascade, but the Portfolio was more effective in addressing practical access barriers than structural gender inequalities. Barriers were consistently documented across all country case studies, KIIs, and FGDs. Barriers for triage related to costs, stigma, misinformation and male gatekeeping to accessing secondary prevention. Transport costs and opportunity costs are the most cited practical and financial barriers. This includes costs related to transport and food to attend a facility for VIA/ or testing, but also childcare duties, and loss of income. Fear of a cancer diagnosis and stigma associated with HIV clinics caused some women to avoid screening. In Kenya¹²⁰ and Zimbabwe¹²¹, integration with HIV services inadvertently stigmatized the procedure. Male gatekeeping was another repeated concern and access barrier which was not included in the design of the Portfolio but partially addressed during implementation.¹²² Multiple KIIs across various categories and country case study reports noted that women routinely required spousal permission for screening across Portfolio countries. A final recurring demand side access barrier involved misinformation. In Malawi, for instance, FGDs revealed beliefs that acetic acid testing causes infertility, is associated with witchcraft. Of these barriers, male gatekeeping and spousal-permission requirements appear the most resistant to programmatic fixes. Unlike transport cost or stigma, both of which responded to design changes elsewhere in the Portfolio (self-sampling, RH/FP integration), few interventions tested in this Portfolio directly addressed household decision-making

¹¹⁶ KII Kisumu County

¹¹⁷ KII Machakos County

¹¹⁸ KII CHAI Rwanda

¹¹⁹ Gender sensitive means acknowledging existing gender roles and inequalities. It ensures policies or programs avoid doing harm but accepts the status quo without trying to change structural power dynamics. Gender transformative actively dismantles root causes of inequality, aiming to change harmful norms and power imbalances

¹²⁰ Country case study report Kenya

¹²¹ Results from the study: Effectiveness, feasibility & cost of three HPV self-testing implementation models: A prospective analysis in Malawi, Nigeria, Rwanda, Zambia, and Zimbabwe. Study result summary PPT Oct 2025 (pending publication)

¹²² Global CSO KIIs, Unitaids KIIs, Global partner KIIs, Country case study report for Malawi, Burkina Faso and Kenya.

authority.

Post-treatment abstinence requirements created an under-addressed barrier to TA acceptance. The four-to-six-week post-treatment abstinence requirement following TA treatment was a documented driver of treatment refusal in some contexts—distinct from barriers at the screening or triage steps. The impact was particularly acute for female sex workers, for whom abstinence represented direct income loss: *"Even though I am HIV positive, I work as a sex worker and feed my children through my work. If I was to go for cervix treatment, I would be out of work for six weeks, what will my children eat?"* (Kenya KII, Kenya Case Study). The CHAI Closure Report acknowledges the barrier and notes that practical adaptations including counselling on condom use and linking sex workers to income-replacement associations were developed during implementation, though not built into programme design from the outset.¹²³ Beyond sex workers, the abstinence requirement triggered male gatekeeping at the treatment step specifically, with women in Malawi and Burkina Faso reporting they needed to consult or bring their husbands before proceeding with TA treatment.¹²⁴

Economic barriers compounded gender barriers throughout. Transport costs, missed workdays, and childcare burdens disproportionately affected women's ability to complete follow-up visits and return for treatment. Providers in Kenya noted that *'the poorest women are screened last and treated last'* (Kenya Case Study). In Burkina Faso, transportation subsidies of 3,250 FCFA per visit were provided to WLHIV and demonstrably reduced LTFU — but no equivalent mechanism was designed for general-population women facing the same structural barrier. In the Philippines, HPV screening was free, but indirect follow-up costs (approximately USD 6/visit for transport, food, and lost wages) fell disproportionately on lower-income and informally-employed women, with costs highest at the treatment stage — not screening — when the health need was most urgent. Unlike Burkina Faso, no subsidy or flexible-scheduling mechanism was designed to offset this for any population group, general or WLHIV.¹²⁵

Across the Portfolio, the primary gender-responsive interventions — self-sampling, and integration into HIV/RH platforms — addressed practical gender needs. Self-sampling removed the speculum barrier, reduced male gatekeeping at the screening step, and enabled first-time screeners who had previously declined or not accessed VIA. These are documented gains. However, they represent adaptations to structural gender inequality rather than a systematic attempt to address the underlying social, economic, and cultural conditions that determine whether women can access services.¹²⁶ *"The portfolio addressed technical access barriers without adequately investing in the social, economic, and cultural conditions that enable women to act on technical access"* (Global KII partner). A key finding from Kenya is that despite increased awareness from community engagement efforts, fear, stigma, gender power imbalances, and misconceptions about cervical cancer and concerns regarding screening (and vaccination) continued to influence service uptake in some communities. During the FGDs and KIIs it was raised that many women required spousal permission for screening and faced stigma for attending clinics alone. In Malawi, religious norms around modesty (among Muslim communities) were also cited as a barrier. Male gatekeeping and household decision-making power were among the most persistent gender-related barriers identified across country case studies but under-addressed. In Burkina Faso, male decision-making was the dominant gender barrier, but sensitisation drove real change (76% of engaged men discussed cervical cancer at home) — though this reached only 1,006 men confirming that male engagement is effective but was under-resourced. Self-collection and female CHWs were the most effective gender-responsive design choices. The Burkina Faso case study noted that the project focused primarily on practical gender needs rather than strategic gender interests, and deeper engagement with gender norms around women's bodily autonomy, sexuality, and reproductive health decision-making was absent from programme design. In Malawi, district coordinators identified lack of male involvement as the

¹²³ CHAI Closure Report 2019–2025

¹²⁴ KII, Malawi Case Study; midwife FGD, Burkina Faso Case Study.

¹²⁵ Burkina Faso, Kenya and Philippines Country case study reports – Vol II

¹²⁶ KIIs CSO partners, Unitaaid, Global partners, country case study reports vol II-

primary access barrier. FGDs with women beneficiaries documented the specific mechanism through which self-sampling reconfigured male gatekeeping: husbands who had withheld consent because they objected to a male clinician examining their wives became supportive once screening no longer entailed a pelvic examination — several described husbands who 'were happy' once this changed.¹²⁷

A gender analysis at design stage could have identified structural barriers and underlying gender issues earlier, to address these effectively. The Kenya KIIs indicate that gender considerations were not fully systematic and called for more explicit gender-responsive analyses and corresponding strategies in subsequent phases. This echoes an observation from the Philippines, where programme design addressed the supply side effectively but assumed - rather than verified - that offering self-sampling would also resolve demand-side gender and equity barriers. The Malawi case study report characterizes the pattern – a gender-responsive design was added during implementation rather than built in from the outset.¹²⁸

Finding 31. Civil society engagement shifted from primarily implementation support to more strategic partnership, but remained uneven, under-resourced, and insufficiently embedded in programme design and governance. CSOs played three distinct roles: demand generation and community mobilization; patient navigation and follow-up; and policy advocacy for cervical cancer financing and inclusion. The Portfolio's performance against each role was uneven. The shift toward community-based delivery in phase 2 created conditions for more substantive CSO involvement, despite the initial design assumption being that facility staff could manage community mobilization without dedicated civil society resourcing.¹²⁹ The overall trajectory moved from limited, instrumental engagement toward more substantive partnership — but this shift occurred late and was under-resourced throughout.

In terms of supporting outreach-based services in Zambia, CSO-led outreach sustained post-project demand, with women proactively requesting self-sampling kits at community events.¹³⁰ In Burkina Faso, grants to 10 CSOs reached almost 7000 women; In Nigeria and Rwanda, substantial and structured CSO engagement produced measurable gains in awareness, demand, and navigation. In Malawi and Burkina Faso phase 1, CSO engagement was limited, and under-resourced, representing a missed equity opportunity.

CSOs were also contracted for advocacy and general awareness raising. Several respondents identified the importance of engaging women opinion leaders and (male) gatekeepers in health promotion.¹³¹ In *Burkina Faso*, the SUCCESS project structure placed civil society engagement responsibility with UICC as a global partner, with 10 local CSOs receiving small grants for community mobilization. These CSOs reached 6,865 women and 1,006 men through educational talks and discussion groups, which is described as effective within its scope, with community leaders and women expressing strong appreciation for CSO engagement. Note that UICC's engagement concluded before phase 2 community-based screening began — meaning that civil society capacity built during phase 1 was not retained or resourced for phase 2.¹³²

The *Malawi* case study documents candidly CSO engagement limitations in the Portfolio. The head of a national CSO reported working with the implementing partner for only two to three months, without sub-granting and with resources that community volunteers viewed as inadequate. The case study concludes that civil society engagement was inadequate and missed an equity opportunity. The programme assumed that health surveillance assistants and facility-based providers could manage community engagement on their own, generating reach in implementation facilities but not extending meaningfully to women outside designated catchment areas. WOCACA (women's coalition against cancer) and COWLHA (coalition of women living with HIV) were engaged in community-based demand creation in Machinga and Balaka districts from 2023, but this partnership was described as late-phase and without formal sub-grant mechanisms or capacity-

¹²⁷ Burkina Faso and Malawi Country case study reports – Vol II

¹²⁸ Burkina Faso; Kenya and Malawi Country case study reports – Vol II

¹²⁹ CHAI closure report 2019-2025, KIIs CSOs, KIIs CHAI

¹³⁰ KIIs Zambia

¹³¹ CHAI Closure Report, CHAI Learning Brief Nigeria 2025

¹³² SUCCE 2023 annual report

building allocation.¹³³

The CHAI closure report documents the most developed CSO engagement model in the Portfolio. In *Nigeria*, CHAI established cervical cancer secondary prevention CSO forums in all three focal states as multi-stakeholder coordination platforms. Lagos state demonstrated the Portfolio's strongest domestic financing response, with a 500% increase in cervical cancer budget allocation in 2022, attributable in part to coordinated CSO advocacy efforts.¹³⁴

3.7 ADOPTING, SCALING AND SUSTAINING CERVICAL CANCER SERVICES

In summary, the evaluation found that the sustainability assumption that service scale up would be financed domestically and through donor funding, did not hold. Policy adoption was a success, but financing was not: most project countries have adopted the WHO elimination goals, but no country has been able to scale up cervical cancer service delivery, although Rwanda is on track with external and domestic financial support. The same sustainability assumption if carried forward in the next phase of the Portfolio, in a worse financial context, will create a sustainability risk for project which warrants explicit risk mitigation strategies such as securing binding financing commitments.

Finding 32. The Portfolio effectively translated implementation evidence into policy adoption through advocacy and technical assistance. The evaluation found strong evidence that Unitaids' investments successfully generated demand for and accelerated adoption of HPV-based cervical cancer screening approaches within national cervical cancer policies and clinical guidelines. Demonstration projects generated implementation evidence, increased provider and policymaker confidence toward HPV-based screening approaches. Strong user acceptance of self-sampling tools contributed to increased demand for screening and facilitated community- and home-based approaches.

Across the fourteen key Portfolio countries, national guidelines incorporating HPV molecular testing and TA have been formally adopted in all countries - except in India where VIA remains the preferred method. South Africa and Kenya had adopted HPV-based screening guidelines prior to Unitaids' investment and the remaining twelve completed adoption between 2019 and 2024. Costed implementation plans are in place in seven countries — Rwanda, Malawi, Zambia, Nigeria, Guatemala, Philippines, and Kenya — representing a stronger policy institutionalisation outcome among CHAI countries and the two higher-income SUCCESS countries than among Cote d'Ivoire and Burkina Faso, where plans remain partial or donor-contingent. Specific adoption dates are incompletely documented across the Portfolio, particularly for TA guidelines, which limits systematic cross-country comparison. See Table 9 for an overview and Annex 11 for more detail.

Table 10: National policy adoption status across 14 project countries¹³⁵

Country	HPV testing in national guidelines	Thermal ablation in national guidelines	Costed implementation plan	Date: HPV guidelines	Date: TA guidelines	Date: Costed plan
Kenya	Yes	Yes	Yes	2018	~2021	2025

¹³³ Malawi case study report – vol II

¹³⁴ CHAI closure report 2019-2025

¹³⁵ CHAI Final Closure Report 2019–2025 (April 2026); SUCCESS Annual Reports 2020–2024; Global SUCCESS IR Study Report (Sept 2024); Kenya Case Study (June 2026); Malawi Case Study (June 2026); Burkina Faso Case Study (June 2026); Philippines Case Study; KIIs (May 2026); BMJ Open 2023 five-country HPV implementation study; TA White Paper (April 2025)

Country	HPV testing in national guidelines	Thermal ablation in national guidelines	Costed implementation plan	Date: HPV guidelines	Date: TA guidelines	Date: Costed plan
Malawi	Yes	Yes	Yes	2019	~2022	2022
Nigeria	Yes	Yes	Yes	~2020	~2020	2023
Rwanda	Yes	Yes	Yes	~2021	~2021	2024
Zambia	Yes	Yes	Yes	~2021	~2021	2022
Zimbabwe	Yes	Yes	Not confirmed	~2022	~2022	—
Uganda	Yes	Yes	Not confirmed	~2021	~2021	—
Senegal	Yes	Yes	Partial	~2020	~2020	—
South Africa	Yes (pre-2019)	Yes	Yes*	Pre-2019	~2021	May 2026*
India	No (VIA)	Yes	Not confirmed		~2021	—
Burkina Faso	Yes	Yes	Partial	Dec 2024	Dec 2024	—
Côte d'Ivoire	Yes	Yes	Partial	Jun 2023	Jun 2023	—
Guatemala	Yes	Yes	Yes	Dec 2020	Dec 2020	Mar 2024
Philippines	Yes	Yes	Yes	~2023–2024	~2023–2024	2025

Key

Yes	Confirmed in documents reviewed
Not confirmed	No direct source found in documents reviewed
Partial	Some elements confirmed; plan incomplete or donor-contingent

Advocacy efforts supported adoption of cervical cancer elimination policies and strategies, especially when driven by committed opinion leaders, often female. Unitaied investments supported a significant policy shift, where the demonstrated feasibility of HPV testing increased confidence among governments, donors, and implementing partners to endorse global cervical cancer elimination goals and strategies, but challenges remain to operationalize these policy commitments.

In *Rwanda*, Unitaied support built on a pre-existing strong government ownership from the outset. The programme aligned closely with Rwanda's broader national transformation agenda and Vision 2050, particularly the goal of reducing non-communicable diseases. Earlier, high-level political advocacy, including

by the First Lady as a cervical cancer champion, had elevated cervical cancer as a national priority.¹³⁶ The Government of Rwanda progressively assumed ownership of the programme and integrated cervical cancer services into national systems. This included adoption of community-based self-sampling models, integration of TA into national clinical guidelines and training systems, in-service and pre-service training for nurses. Despite this progress, the CHAI team identified sustainability concerns, including maintaining gains over the long term. These include domestic financing and procurement of devices and supplies, management of medical equipment, sustained patient follow-up systems through CHW, continued innovation, and addressing hard-to-reach populations.¹³⁷ In *South Africa*, the National Cervical Cancer Elimination Strategy was launched in 2025 after two years of work that began with stakeholder engagement. The strategy aims for elimination by 2030, driven by strong political commitment from the Deputy Director General and ministerial support. Presidential visibility amplifies program priority and unlocks private sector engagement. In *Nigeria*, the engagement of the first lady helped policy advocacy around cervical cancer elimination. In *Burkina Faso* the government made strong policy commitments to cervical cancer elimination, including Technical Working Group for Elimination of Cervical Cancer by ministerial decree (2021); free (VIA) screening and treatment of precancerous lesions, and free HPV vaccination for girls.¹³⁸ In *Malawi* a symposium that exposed to members of parliament how little government funding reaches cervical cancer, generated commitments.¹³⁹ In the *Philippines*, Unitaid funding supported the National Cervical Cancer Elimination Strategy 2025-2028 and a national operational plan for secondary prevention; clinical practice guidelines and treatment algorithms; HPV assay kits and TA devices were brought into the Health Technology Assessment process that opens the route to PhilHealth coverage; and HPV indicators were added to the Field Health Services Information System national list for 2025 reporting onward. Importantly in a decentralized health system, sub-national uptake reinforces the picture with Quezon City placing cervical cancer screening on a legally binding local instrument in 2024.

Finding 33. Some countries were able to continue or scale up cervical cancer screening services beyond Unitaid-supported demonstration sites, driven by strong government commitment *plus* additional domestic or external resources; no country achieved nationwide implementation during the evaluation period. Scale-up from demonstration projects to national programmes was limited, and translating early adoption into national scale proved more challenging than anticipated. Countries that achieved the greatest progress combined political commitment with continued domestic and external investment. For example, the Government of *Rwanda* assumed ownership of the programme and integrated cervical cancer services into national systems, including expansion of cervical cancer screening to nearly all districts through outreach campaigns and facility-based screening, pending financial support from the Elekta Foundation and other donors. In the *Philippines*, a key informant concluded that the original SUCCESS project sites attracted additional investment, through a Roche-supported CLAMS project (Centralized Laboratory Model for HPV Screening) reaching more than 5,000 women and managed by Jhpiego. Also, the successful Global Fund GC7 grant application included an HPV molecular assay and approved procurement of 20,000 HPV molecular test kits for WLHIV. The Philippines WHO Country Office also contributed 250 TA devices to reinforce the treatment side, and phase 2 community-based service delivery was co-financed by Expertise France and L'Initiative.¹⁴⁰ In the Philippines, where health policy is largely decentralized, continuation of services happened through local government Cancer Control Ordinance legislation in Quezon City, but not yet in other cities and nationally.

Finding 34. Continued dependence on external financing limits the sustainability of cervical cancer services, and recent reductions in development assistance increase these risks. The Portfolio assumed that successful demonstration would attract continued domestic and international financing to support wider

¹³⁶ KII CHAI

¹³⁷ KII CHAI Rwanda

¹³⁸ Burkina Faso case study

¹³⁹ Malawi case study

¹⁴⁰ Philippines case study

implementation. The evaluation found that this assumption was only very partially realised. Although some countries were able to mobilize Global Fund resources for HPV testing, funding remained fragmented, in some cases late, and insufficient to support national scale-up. *Burkina Faso* secured Global Fund GC7 cervical cancer-specific funding in 2023, requesting coverage for HPV screening of 20% of WLHIV. As of May 2026, however, HPV tests procured through Global Fund have not yet reached service delivery sites. Policy commitments have not translated into budget allocation.

In *Burkina Faso*, HPV testing stopped entirely when the Unitaids supported programme ended - the Transition Plan explicitly noted that “*the Ministry has seen that... it cannot support this burden*” and therefore reverted to VIA as the primary screening method.¹⁴¹ In *Kenya*, implementation outcomes varied between counties depending on their ability to allocate resources for cervical cancer services and maintain programme gains independently. While some counties in *Kenya* maintained HPV-based service, most counties reverted to VIA after the end of the project support. In *Malawi*, HPV testing continued to some extent in some sites supported by PEPFAR- but only for WLHIV, the remaining sites reverted to cervical cancer screening through VIA after project end.¹⁴²

The evaluation also found that the broader financing environment became increasingly uncertain over the evaluation period. Changes affecting major development partners—including reductions in official development assistance and disruptions to United States Government (USG) -supported programmes—reduced available resources for laboratory systems, commodities, workforce development, and service delivery in several countries. In *Zambia*, for example, PEPFAR used to contribute US\$5 million annually for cervical cancer within the HIV comorbidity package, but the USG stop work order impacted commodities, capacity building, and lab systems funding. A new bilateral agreement with the USG, pending presidential and Ministry of Justice approval, may restore this funding channel. The Global Fund supports some HPV commodity procurement but cannot fill the gap PEPFAR left.¹⁴³

Lesson on innovative financing¹⁴⁴

Trilateral debt swaps are one example of external financing outside traditional ODA. Bilateral debt swaps have largely been done, but trilateral swaps involve a development finance institution (e.g., USDFC, AFTB) to generate moderate, long-term (10–15 year) financing streams from debt savings rather than new ODA. Cervical cancer is a strong candidate for this model because it is measurable, costs are manageable if prices come down, and the outcomes are demonstrable. CHAI is reportedly actively exploring this model.

However, the ‘innovative financing’ as a concept has limitations, and there is no “magic money tree” as some believe. Any financing mechanism, innovative or not, requires a purchaser who actually buys the commodity, i.e. ‘funded demand’. Guarantees and payment innovations can reduce costs and extend timelines but cannot replace that fundamental requirement.

Finding 35. Domestic financing for cervical cancer remained limited, with most countries financing routine health system functions but not the additional costs required to sustain HPV-based screening at scale. The evaluation found that domestic financing was the weakest element of sustainability across the Portfolio. While governments routinely financed core health system functions—including health workers, facilities, and elements of existing HIV and reproductive health services—few countries allocated sufficient additional resources to sustain HPV testing, TA commodities, equipment replacement, laboratory systems, and community follow-up after external support ended.

Guatemala is the only country in the Portfolio with confirmed domestic government budget allocation for cervical cancer screening at national level, with *Nigeria*, *Philippines* and *South Africa* demonstrating partial domestic commitments, largely decentralized in certain states (*Nigeria*) or local governments (*Philippines*)

¹⁴¹ Burkina Faso case study

¹⁴² Country case study reports – Vol. II

¹⁴³ KII with Global Partners, Implementing partners, CSOs

¹⁴⁴ KII CHAI

with political commitment to cervical cancer elimination. Domestic financing is absent in SUCCESS countries *Burkina Faso* and *Côte d'Ivoire* and in most lower-income CHAI countries (*Malawi*, *Zimbabwe*, *Uganda*), thus remaining wholly donor-dependent. (see Table 10 - Annex 11 provides a more detailed overview). An important aspect of domestic financing is that most countries pay for recurrent costs, e.g. health workers and health facilities where cervical cancer screening takes place. For example, the *Zambia* MOH budget covers all 522 facilities with government-employed providers¹⁴⁵ Other costs covered by some governments include cervical cancer screening in existing HIV or women's health services, e.g. training costs, facility costs, and in some cases limited procurement.¹⁴⁶

In *Burkina Faso*, HPV testing stopped after the project ended; a former MoH official stated: “After the project ended, HPV testing stopped completely. We don't have the resources to continue”.¹⁴⁷ The reasons for limited domestic financing include the price of HPV tests compared to ministry resources; competing health priorities for the MoH and security priorities for the Ministry of Finance; as well as underlying health systems challenges for procurement and distribution¹⁴⁸ In *Malawi*, despite policy commitment domestic budget for cervical cancer remains very small, because political will has not translated into fiscal action. In fact, no financing pathway is yet in place for the future replacing of donated TA and LEEP devices. The Malawi government often treats donor-supported programmes as donor responsibilities according to national key informants, and cervical cancer has not yet achieved a priority status for domestic resource allocation.¹⁴⁹

Table 11: Domestic budget allocation and donor financing by country

Country	Domestic budget allocation and donor financing
Kenya	Partial GF/PEPFAR dominant; SHA integration advanced but capitation insufficient for HPV costs
Malawi	Not confirmed Wholly donor-dependent; no domestic budget line confirmed
Nigeria	Partial State-level allocations (Lagos 500% increase; Kebbi State); embedded in state AOPs
Rwanda	Partial Multi-source financing secured, including government, GF, PEPFAR and GAVI — but documents do not confirm a standalone domestic government budget line for HPV screening specifically.
Zambia	Partial ZAMMSA domestic procurement of 50,000 HPV kits (2025); otherwise largely GF/PEPFAR dependent
Zimbabwe	Not confirmed No domestic allocation; all PEPFAR sites suspended (2025); near-total donor dependency
Uganda	Not confirmed No domestic budget confirmed; GF/PEPFAR dependent
Senegal	Not confirmed Costed scale-up plan developed; donor engagement facilitated; no domestic budget confirmed
South Africa	Partial Confirmed domestic budget allocation for cervical cancer screening is not clearly evidenced in the documents despite head-of-state political engagement and KII statements.
India	Not confirmed VIA/TA programme domestic financing was aspirational rather than confirmed.
Burkina Faso	Not confirmed No domestic budget line created; MoH acknowledged it 'cannot support this burden'
Côte d'Ivoire	Not confirmed GF GC7 allocation secured (30,000 HPV tests); eSIGL commodity integration; no domestic budget
Guatemala	Yes , MSPAS national budget earmarked; districts manage HPV/TA procurement; Cancer Care Law 2024
Philippines	Partial First domestic commitment announced late 2025 (through 2027); Quezon City Ordinance; GF GC7 (WLHIV only); national procurement track not yet established (2–3 yr RA 9184 process)

¹⁴⁵ KII CHAI

¹⁴⁶ KII CHAI

¹⁴⁷ Burkina Faso case study

¹⁴⁸ Burkina Faso case study, KII CHAI

¹⁴⁹ Malawi case study

Key

Yes	Confirmed in documents reviewed
Partial	Some elements confirmed, pending formal approval or limited in scope
Not confirmed	No direct evidence found in documents reviewed

Finding 36. Political commitment is a necessary but insufficient condition for domestic financing; sustained resource mobilisation requires explicit financing strategies and an investment case. Political commitment is a condition for domestic resource allocation, and CHAI reports that in *South Africa* political commitment and accelerated targets catalysed resource allocation (even though it remains unclear how much and for which budget cycles). This was done under strong leadership from the Deputy Director General and endorsement by the President, who mentioned HPV screening in the State of the Nation Address. An investment case is under development. According to Expertise France, the *Philippines and Guatemala* are the strongest case for domestic financing absorption across the four SUCCESS countries. *Philippines* has domestic budget commitments to HPV testing extending through 2027. In *Zambia* the MoH procured 50,000 HPV test kits for the first time in 2025.

Countries approach domestic resource mobilization in different ways, including:¹⁵⁰

1. **Inclusion in service delivery guidelines to force budget inclusion**, for example Malawi's integrated service package
2. **Effective advocacy** to expand the overall health budget envelope rather than competing within a zero-sum health pie, e.g. by a first lady (Nigeria) or senior political champions (South Africa President and DDG). Or the Malawi symposium for parliamentarians.¹⁵¹
3. **Optimization of existing domestic budgets**, e.g., in Eswatini MoH is paying for services, and CHAI support the MOH to optimize the use of the resources;
4. **Inclusion in external funding applications that require co-financing** (e.g., Global Fund, GFF, PEPFAR) which forces government prioritization
5. **Inclusion in national health insurance benefits package**, e.g. in Rwanda's single-purchaser system, or in the Philippines where local governments included cervical cancer in the PhilHealth package.
6. **A sin tax for alcohol/cigarettes for cancer**, e.g. in Guatemala¹⁵²
7. **Public-Private Partnership and private sector support for public screening services**. In South Africa, the strong commitment from the President created momentum for engagement with medical aid schemes and mining sector to mobilize additional resources. It is not evident if this strategy resulted in service delivery¹⁵³. *Guatemala* negotiated a \$25 all-inclusive package with Roche.

An important lesson is that an investment case for cervical cancer screening is a condition for Finance Ministries to allocate scarce resources, and that costing alone did not unlock domestic budget. Several project countries developed costing implementation plan, including Rwanda, Malawi, Kenya, South Africa, Zambia, Nigeria, Guatemala and the Philippines. (See Table 9). However, cervical cancer screening often has an 'orphan status', creating a framing mismatch that limits both political prioritization and sustainable financing compared to other health priorities. In *Malawi*, a district official reported that cervical cancer '*has been ignored for a long time*' and lacks even a basic budget line, whilst HIV, EID, and malaria programmes receive

¹⁵⁰ KII CHAI

¹⁵¹ Malawi case study

¹⁵² KII Jhpiego

¹⁵³ KII CHAI

full partner support.¹⁵⁴ *South Africa* is an exception, they are developing an investment case showing return on investment scenarios for programme delivery through 2030, as part of strong advocacy for resources. In the *Philippines*, the C4P costing exercise informed the DOH's 2025 budget request for HPV testing, domestic public sources are not yet made available for cervical cancer screening in a meaningful way, due to other priorities and limited resource availability, especially for preventive services.¹⁵⁵ Most countries have not yet made a cost-benefit analysis vis-à-vis other diseases, or an investment case for secondary prevention, as exists for HPV vaccination. Costing exercises were completed; an investment case that translates costing into the language of value for money and fiscal impact for parliamentary and local government budget advocacy was not. SUCCESS in the Philippines generated rigorous evidence and made it available; what was missing was the next-stage packaging that would convert evidence into policy and fiscal change. The next phase of the Portfolio should treat investment-case development as a deliberate component of any future Unitaid programming round in similar settings, not as an add-on activity, as reported by a KII in the Philippines: “Costing exercises alone are insufficient; an investment case supports advocacy and funding. It would facilitate parliamentary and local government budget allocations. Without it, reliance on national program budgets limits scale and sustainability.”¹⁵⁶

On health insurance inclusion, the lesson is that inclusion of screening in the package can help domestic (and international) resource mobilisation, but only if the insurance scheme itself is sufficiently resourced, and health care providers are interested to participate. *Rwanda* stands out as the sole country with confirmed integration into a national insurance scheme (CBHI/Mutuelle de Santé), however with limited domestic resourcing and fragility. The CHAI representative warns that the sustainability of the Rwanda model is not secure, as someone needs to pay for the costs, even if included in the health insurance.¹⁵⁷ *Kenya and the Philippines* have advanced insurance pathways but also with caveats. The *Philippines* uses the national health financing system (National Integrated Cancer Control Act, Universal Health Coverage, and Health Technology Assessment for PhilHealth). PhilHealth is updating its benefit package: It covers cervical cancer treatment since 2013, but screening coverage is narrow, facility-based and provider-initiated, limited to roughly thirty implementation sites. PhilHealth aims to approve a screening package in late 2026 including the price set for screening services. An important variable for success is cooperation from the Philippine Society of Gynaecologic Oncology, which resists the update if it sets professional fees too low.¹⁵⁸ In *South Africa*, cervical cancer screening is provided free of charge as part of the constitutional service benefits framework but is not formally included in the National Health Insurance scheme yet. All testing costs are borne by Provincial government budgets, which pay the national reference lab (NHLS) a fee-for-service.¹⁵⁹

Table 12: Health insurance inclusion by country

Country	Health insurance / benefit package inclusion
Kenya	Partial cervical cancer in SHA benefit package; coverage limited to ages 35 & 45; rates below HPV test cost
Malawi	Not confirmed No health insurance coverage confirmed
Nigeria	Not confirmed No NHIS inclusion confirmed
Rwanda	Yes CBHI/Mutuelle de Santé integration progressed; RSSB engagement with CHAI support
Zambia	Not confirmed No national insurance inclusion confirmed; PEPFAR stop-work exposed donor dependency
Zimbabwe	Not confirmed No health insurance coverage confirmed

¹⁵⁴ Malawi Country Case Study

¹⁵⁵ SUCCESS grant data, internal. Figures drawn from the Unitaid–Expertise France grant agreement face sheet, the 2023 project plan amendment (cost-extension), and SUCCESS annual narrative reports for 2020 through 2024.

¹⁵⁶ KII implementing partner Philippines

¹⁵⁷ KII CHAI

¹⁵⁸ Philippines and Malawi case study

¹⁵⁹ KII CHAI

Country	Health insurance / benefit package inclusion
Uganda	Not confirmed No health insurance inclusion confirmed
Senegal	Not confirmed No health insurance inclusion confirmed
South Africa	Partial Cervical cancer screening is provided free of charge as part of the constitutional service benefits framework. Discovery Health (private) cited as precedent; national public inclusion not yet confirmed
India	Not confirmed No evidence in documents reviewed.
Burkina Faso	Not confirmed RAMU does not cover HPV testing or TA; inclusion advocacy ongoing
Côte d'Ivoire	Not confirmed No health insurance inclusion confirmed
Guatemala	Partial Cancer Care Law provides legal basis; no specific benefit package inclusion confirmed
Philippines	Partial PhilHealth HTA inclusion confirmed for HPV kits and TA; YAKAP screening benefit update targeted Q4 2026 — 'ambitious rather than secure'; treatment covered since 2013; screening benefit remains narrow

Key

Yes	Confirmed in documents reviewed
Partial	Some elements confirmed; pending formal approval or limited in scope
Not confirmed	No direct evidence found in documents reviewed

Notes: 'Health insurance' refers to confirmed or in-progress inclusion in a national, social, or community benefit package.

Finding 37. The Portfolio's catalytic financing model was ineffective where the conditions required for transition to sustainable domestic or partner financing were absent, limiting sustainability beyond Unitaïd support. Carrying the same assumptions regarding follow up funding into the future requires risk mitigation.

The financial sustainability assumptions identified in the Theory of Change was not realised under prevailing conditions and the risk "that funding from other donor sources may not be sufficient to support adoption and scale up" materialized: USG funding for women's health has been decimated, other ODA is reducing significantly, and even Unitaïd's own funding reported to be reducing. An important lesson from the first phase is that financial sustainability beyond Unitaïd support was minimal, and many respondents consistently recognised Unitaïd as a key funder of secondary prevention services, if not *de facto* the main investor. For example, 80% of UNICEF SD HPV commodity procurement is confirmed as Unitaïd-funded¹⁶⁰, with no natural institutional successor.¹⁶¹

In the next phase of the Portfolio (2026-2030) Unitaïd continues to position itself as a catalytic investor whose role is to provide time-limited support that enables governments or larger financing partners to assume responsibility for programme scale-up and long-term financing. This catalytic model assumes – despite the lesson identified above - that successful demonstration of impact from secondary screening services at scale will activate government commitment and/or attract additional donor investment, creating a pathway from to sustainable national service delivery.¹⁶² ¹⁶³ This carries real sustainability risk for project countries and reputational risk for Unitaïd, which may be mitigated by clear co-financing targets for project countries. Some

¹⁶⁰ UNICEF SD, KII

¹⁶¹ KIIs global partners, donors, Unitaïd,

¹⁶² Theory of Change Second Phase

¹⁶³ Email Gamu 10 June

respondents propose financing approaches that bridge donor procurement and government absorption as most promising to mobilize external funding, especially if it includes a multi-year co-financing transition with binding government commitments.¹⁶⁴

Lesson on sustainability risk: A risk and mitigation analysis for *Burkina Faso* confirms a similar trend across project countries: risk management was reasonable for implementation risks (see below) but limited for strategic and sustainability risks. In Burkina Faso, the sustainability/scalability risks (high HPV test costs, limited government capacity, competing health priorities, private sector engagement) were identified, but remained largely unmitigated, threatening loss of all project investments. Likewise, strategic risks (government financing, policy commitment, security crisis) were identified early, but inadequately managed, ultimately resulting in failure to sustainable financing and service delivery.¹⁶⁵

3.8 LEARNING FROM 'CHAMPION COUNTRIES'

In summary, the evaluation found that knowledge diffusion occurred, but not through the mechanism originally envisaged. Knowledge sharing from early adopters to shorten the innovation-to-scale timeline in later-adopter countries was only partially realised. South-South learning worked better informally, through shared implementing partner institutional knowledge, peer exchanges between country teams, and publication-based diffusion. On the other hand, within-country adaptive learning from phase 1 influenced design of service models in phase 2.

Finding 38. South-to-South learning from champion countries is most effective when knowledge from early adopters is deliberately translated into transferable implementation practices, supported by dedicated resources and structured opportunities for peer exchange. i.e.: early-adopter experience is packaged into transferable practice guides (not just publications); dedicated budget is allocated for learning activities; cross-consortium coordination platforms are formalized; and when country implementation timelines are sequenced to allow genuine 'early adopter to later adopter' knowledge flow. The evaluation found that countries valued learning from peers, particularly for new technologies, supply chain approaches, and digital data systems.¹⁶⁶ The project undertook various South-to-South sharing activities, but exchange from early adopter countries was mainly informal. Lessons point to the need for a more systematic mechanism to harmonize learning across countries. Formalized South–South learning structures—such as regional technical working groups, cross-country mentorships, and routine sharing of knowledge products—were limited.

There is no evidence that countries copied experiences from ‘champion countries’ directly (although of course this happened indirectly through technical assistance from implementing partners). But *Kenya* benefited from exposure to experience in early-adopter countries (Nigeria and South Africa), including peer insights on device deployment, management, and self-sampling integration. One of the county implementers acknowledged that “*seeing what worked elsewhere helped us avoid mistakes.*”

Conversely, Kenya also contributed to regional capacity building, with some of its master trainers called upon to build the capacities of Rwanda and South Africa.¹⁶⁷ In the *Philippines*, the implementation research is documented but not yet packaged as regional practice guide for other Asia-Pacific countries to adopt. But when Manila was host to the 2023 Asia-Pacific regional dialogue this allowed an on-site visit to a project facility. Because Manila also hosts the WHO Regional Office, informants identify potential for influencing regional strategies directly, for example a Philippine civil society leader joined the taskforce for the regional strategic framework for cervical cancer control and elimination.¹⁶⁸ *Burkina Faso* shared its own lessons at regional platforms (Project ECHO, Regional Dialogues, AFRAVIH), international conferences (AIDS2024, UICC,

¹⁶⁴ KII global partner, KII CHAI, KII Unitaïd, KII CSO,

¹⁶⁵ Burkina Faso case study

¹⁶⁶ Kenya case study

¹⁶⁷ Kenya case study

¹⁶⁸ SUCCESS grant data, internal. Figures drawn from the Unitaïd–Expertise France grant agreement face sheet, the 2023 project plan amendment (cost-extension), and SUCCESS annual narrative reports for 2020 through 2024. These project documents are not externally citable.

IPVC), and through publications.

In *Burkina Faso* however, sharing from early-adopter countries was limited. Burkina Faso benefitted more from Jhpiego's informal knowledge transfer, as they manage similar projects across multiple project countries, than from formal platforms and global technical assistance (e.g. Project ECHO, Regional Dialogues). Factors limiting knowledge sharing included for Burkina Faso (but also for other countries) 1) Language barriers, despite Project ECHO addressed this by operating in French; 2) Geographic distance between project countries and champion countries; 3) simultaneous implementation, limiting opportunities to apply lessons from early adopters before starting in Burkina Faso; and 4) project budget prioritization towards service delivery, training, and commodity procurement over South-South learning activities.¹⁶⁹

Within countries, lessons were more easily shared and adopted. A lesson from Rwanda is that continuous adaptation and learning are necessary for service relevance and effectiveness. The programme continually adapted based on implementation experience and operational evidence, for example 1) revising screening models; 2) adjusting communication strategies; 3) strengthening adverse event monitoring and 4) sharing implementation lessons through white papers and technical working groups. Also in other countries, lessons from implementation research and programmatic monitoring data, and qualitative stakeholder consultations, were disseminated at national dissemination workshops and/or in Technical Working Group meetings (Burkina Faso), or county review meetings (Kenya). This successfully contributed to national guidelines, training curricula, data systems, community mobilization strategies. The Burkina Faso case study also identified missed opportunities, for example, currently an MSF- HPV testing project is implemented in Burkina Faso, but there is no evidence that this project benefited from lessons learned from SUCCESS.¹⁷⁰

3.9 IMPLEMENTATION EFFICIENCY AND PORTFOLIO MANAGEMENT

In summary, the evaluation found that the Portfolio was implemented efficiently and timely, despite significant external shocks such as Covid-19. Implementation benefited from adaptive management and cost-saving measures at country level. However, Portfolio-level management was less effective in anticipating strategic risks, particularly those affecting long-term sustainability and financing. Coordination among consortium partners was generally effective but was constrained where roles, communication, and country presence were not well aligned

Finding 39. The Portfolio achieved cost reductions and efficiencies where market shaping could achieve commodity price reduction, and where new technologies could be integrated in existing service platforms, without this resulting in reduced programme performance. Pooled procurement of equipment, global price negotiations and using UNICEF Supply Division were the most important cost-saving mechanism of the project. This is central to the Portfolio's market shaping strategy, discussed earlier, and resulted in a Portfolio-wide reduction of approximately 40 percent on HPV tests and 45 to 52 percent on TA devices.

Integration of cervical cancer screening into existing services and systems increased cost-effectiveness of service delivery for both clients and health systems, avoiding double clinics visits. KIIs consistently reported that integration into HIV, MNCH, and FP platforms "*brought screening to where women already come,*" driving efficiencies in both staffing and infrastructure.¹⁷¹ Kenya and most other countries integrated screening in HIV clinics supported by programmes such as PEPFAR, proving highly effective and cost-effective in reaching high-risk populations. *Burkina Faso* integrated screening into routine reproductive health care services, so that women could be screened opportunistically, using existing consultation rooms, equipment, and staff, avoiding the need for dedicated cervical cancer clinics.¹⁷² *Rwanda*, uses a strong pre-existing primary health care

¹⁶⁹ Burkina Faso case study

¹⁷⁰ Burkina Faso case study

¹⁷¹ Kenya case study

¹⁷² KII CMA

system, and an established community health worker network to support outreach, follow-up, counselling and patient navigation.¹⁷³

Using existing lab equipment for HIV and TB, to conduct cervical cancer testing, avoided the need to purchase expensive lab equipment, but resulted in competition for lab capacity, delays in test results and loss to follow up, as described above. A lesson from *South Africa* is to use the National Health Laboratory Service excess virology capacity rather than building parallel systems: HPV testing is integrated into NHLS virology labs (while initially laboratory services for demonstration projects were separate from the national system)¹⁷⁴ In some countries, e.g. *Burkina Faso*, many service sites lacked on-site GeneXpert machines altogether, resulting in transport of samples to distant laboratories and delays¹⁷⁵

Using and training existing health workforce for project implementation, instead of recruiting dedicated project staff, resulted also in efficiencies, but with some trade-offs. Avoiding project specific staff recruitment is clearly cost saving (as happens in integrated service models), but it is also true that this is at the cost of other services if they are already fully employed. The *Philippines* case study identified that health workers may not be able to dedicate sufficient time to cervical cancer services, without creating inefficiencies elsewhere. Respondents mentioned that patient supervision was rationed, visits were delayed, mentorship was inconsistent, and data coming back from supervised facilities was incomplete. Some even argued that dedicated project staff would have improved implementation significantly. Similarly, in *Rwanda* and other countries, the use of existing community health workers for outreach and patient navigation (as happens for screening campaigns) at the cost of them neglecting other duties, creates a trade-off between cost-saving and sustainability, especially if incentives are involved. Other strategies for cost-effectiveness include training-of-trainer (TOT) approaches, and task shifting. The project generally used a TOT model and supportive supervision, training health workers who could then train others. This cascade training approach is more cost-efficient than centralized training, as it creates a multiplier effect. Task shifting was used extensively, and pioneered in *Zambia*, as one of the first countries where cervical cancer services were led by nurses, not physicians. Since the programme was established in 2006, nurses were responsible for VIA and TA. More recently due to a backlog in LEEP procedures, the national TWG authorized 'Medical Licentiates' and 'Clinical Officers' to perform LEEP procedures, after pathology quality monitoring showed comparable margins to physicians.

Finding 40. Operational implementation remained largely on schedule despite external disruptions, but short funding cycles reduced planning certainty and implementation efficiency. There were no significant delays in project implementation except during project start-up due to Covid-19. Several Country Operational Plans for 2021 noted pandemic-related constraints, and Annual Reports document reduced travel and field activities due to pandemic restrictions. GeneXpert machines were running 24 hours a day for COVID testing and Cepheid temporarily stopped producing HPV cartridges to focus on COVID demand. At the same time, Expertise France at global level re-contracted a new SUCCESS consortium partner, Jhpiego, resulting in delays but not more than already happening due to COVID-19. Other delays were country specific, for example *Burkina Faso's* deteriorating security situation constrained implementation timeliness and coverage.¹⁷⁶ In the *Philippines*, a year-long national ethics review of the implementation research protocol and subsequent change of DOH leadership in 2023 briefly slowed the national cancer control work that the project depended on, but after that implementation was timely.

Short duration of the initial Portfolio, and subsequent extensions, affected predictability and efficiency. The programme was implemented in three phases, the first 3 years (2019-2022) focusing on demonstration research, the second phase (2023-2025) focusing on service delivery scale up), and an extension in 2025. Some

¹⁷³ KII CHAI

¹⁷⁴ KLII CHAI

¹⁷⁵ KII CMA

¹⁷⁶ Burkina Faso case study

partners ¹⁷⁷ argue that Unitaid's lack of predictability as a funder has been an efficiency barrier over the programme duration, making it hard for implementing partners, governments, and manufacturers to plan. Year-by-year planning is not compatible with five-year elimination strategies: partners cannot make long-term commitments to country relationships, manufacturers cannot commit to pricing models, and governments cannot base national plans on Unitaid's continued presence. This is an important lesson for the next phase, and the 5-year investment duration is positively perceived.

Finding 41. Stakeholder coordination in the Portfolio worked best when all implementing partners communicate effectively and country presence were aligned. Working with implementing partners without country presence creates challenges in communication and monitoring of country level progress. Coordination challenges between Expertise France (without country presence but with overall accountability) and Jhpiego (country presence but no direct relationship with Unitaid or CHAI) had a negative impact on programme delivery. Respondents consistently mention that reporting, lessons learning, and coordination were affected. In the Philippines, coordination friction between Expertise France and Jhpiego at HQ level reduced the visibility of programme decisions to the Philippines country team, and the cost of that friction is visible in the documentation gaps the evaluation has had to triangulate around. The Expertise France respondent admitted that some budget and procurement information was not visible to the Jhpiego country team

Finding 42. Risk management at country level was effective for implementation-level risks, but global level strategic and sustainability risks were inadequately managed. The evaluation did not find Portfolio level risk monitoring systems. At a strategic level, the consortium was not fully able to mitigate important Portfolio level risks. The distribution of 'excess' TA devices to non-project countries carried a risk because monitoring would not be possible but was managed adequately through applying strong selection criteria. However important risks identified in the theory of change (see findings above) were not mitigated effectively, e.g. the external finance disruption, health ministries unable to secure domestic resources, resulting in sustainability of HPV testing, or market concentration of manufacturers, limiting price reduction potential.

That said, at implementation level in countries, risks were generally identified in progress reports and adequately managed by implementing partners. Respondents in Kenya underscored that "risk plans exist but are not actively used". Risks related to procurement delays, device breakdowns, and funding uncertainties were often addressed after disruptions occurred. More formalized, forward-looking risk monitoring systems to mitigate predictable supply, workforce, and financial risks were not present.¹⁷⁸ The risk and mitigation analysis for Burkina Faso concludes that Implementation-level risks (supply chain disruptions, result delays, LTFU, provider motivation) were identified and partially mitigated through adaptive management, but a warehouse fire exposed critical vulnerability.

¹⁷⁷ KII CHAI

¹⁷⁸ Kenya case study

4 CONCLUSIONS AND STRATEGIC RECOMMENDATIONS FOR FUTURE INVESTMENTS

4.1 STRATEGIC RECOMMENDATIONS FOR THE NEXT PORTFOLIO PHASE

The recommendations below are addressed to the Unitaid secretariat, and to the Unitaid Board to inform design and implementation of the next phase of the Portfolio. The high priority recommendations are to be considered with appropriate urgency, so that lessons from the Portfolio inform the next phase.

High priority recommendations

Conclusion on introducing innovative technologies: The Portfolio demonstrated that HPV molecular testing is more sensitive than VIA but that same-day screen–triage–treatment is rarely feasible, resulting in high loss to follow-up among HPV-positive women, where patient navigation systems are weak, as in most low resource settings. Despite substantial price reductions, HPV testing remains unaffordable for many LMICs. Alternative technologies, including true point-of-care HPV tests and AVE, have potential to combine improved diagnostic performance with same-day management, if they can be brought to market. (Findings 1-9)

Recommendation: Fund targeted market shaping efforts to accelerate the development, regulatory approval, commercialisation and integration of emerging technologies, including AVE and true point-of-care HPV testing as complementary tools for secondary cervical cancer screening in LMICs. Technology choice should follow context: where patient navigation systems and lab systems are strong, HPV testing remain effective; where navigation and lab systems are weak, same-day options (true PoC, AVE) reduce attrition; in rural/last-mile settings without HPV testing access, AVE-enhanced VIA is a pragmatic improvement.

Conclusion on price reductions, affordability and broader market shaping: the Portfolio achieved substantial price reductions for HPV molecular tests and TA devices, but the highly concentrated, platform-locked market limits the scope for further gains through price negotiation alone, keeping landed costs too high for many LMICs to be procured with domestic resources. Unitaid's added value and market-shaping expertise provides opportunities to address persistent market failures for HPV testing technologies (including collection and transport media) and TA devices (Findings 10-17)

Recommendation: Direct future market-shaping investments towards creating competitive and sustainable markets for HPV testing technologies (including collection and transport media), by supporting new market entrants, supplier diversification, technology transfer and regulatory facilitation, while progressively transferring market-shaping functions to regional bodies.

Conclusion on supporting innovative service models: Integration of cervical cancer screening within HIV and broader sexual and reproductive health services improves equity and cost-efficiency by reaching women at highest risk through existing service platforms. Community outreach expands access to underserved women but is more resource-intensive and presents sustainability challenges. Better integration of screening with HPV vaccination, cervical cancer screening and treatment (including both precancerous and invasive lesion) represents both an efficiency opportunity and an ethical imperative. (Findings 18-25)

Recommendation: Prioritise support for integrated cervical cancer screening within HIV and sexual and reproductive health services while reducing barriers to access and loss to follow-up. Continue to support outreach-based services to reach first-time screeners where cost-effective, recognising the trade-off between reach of positive cases and costs. Strengthen linkages between HPV vaccination, cervical cancer screening, and treatment of cervical cancer (including for invasive lesions), and embed cervical cancer screening and precancerous within broader cancer, health and social service systems.

Conclusion on adoption and sustainability: While policy adoption has been a notable success, the assumption that service scale-up would be financed through domestic resources and external donors has not been realised. Domestic financing remains limited and international funding has declined, creating increasing tension between Unitaids' perception of catalytic investor and stakeholder current expectations about Unitaids as the main funder for secondary prevention of cervical cancer elimination efforts. Without revised financial sustainability assumptions and clearer transition arrangements, this represents a sustainability risk. (Findings 32-37)

Recommendation. Recalibrate Unitaids' role as catalytic investor to reflect the current global financing landscape. Future catalytic investments should be conditional on credible pathways towards domestic or external financing commitments and agreed transition milestones and contain mitigation strategies where sustainable financing is unlikely. Strengthen investment cases for Ministries of Finance to support long-term domestic financing. Demonstration of effectiveness alone should not be considered sufficient evidence of readiness for scale-up.

Medium priority recommendations

Conclusion on health systems capacity: The assumption that existing health systems could readily absorb new screening technologies proved unrealistic. Introduction of new technologies was least successful where health-system constraints limit retention, scale-up and sustainability, and more successful where laboratory systems, the health workforce, patient navigation, and health information systems were stronger. Overall system readiness is a prerequisite for successful implementation and allows for introduction of context-appropriate innovations. (Findings 27-29)

Recommendation: Design future investments around health-system readiness and minimum implementation requirements before introducing technologies. Consider whether achieving sustainable system strengthening requires a longer investment horizon than Unitaids' traditional catalytic investment model.

Conclusion on continuum of care: Retention across the continuum of care remains a major challenge, but where differences in monitoring frameworks and indicator definitions exist, it is harder to consistently measure and compare cascade performance disaggregated for service models or target groups. A harmonised cervical cancer cascade, with standard definitions and indicators, is being developed and would represent an important global public good. (Finding 26)

Recommendation: Require future implementing partners to use a harmonised indicators and monitoring frameworks disaggregated by service model and population group, and support WHO and partners in finalising standardised global cervical cancer cascade indicators.

Conclusion on gender: Access to services was most effective where the Portfolio was gender responsive and addressed *practical* gender needs, e.g. through approaches such as self-sampling and the use of female community health workers. However, the programme was not gender transformative and did not systematically address the *broader structural* gender barriers that continue to affect women's access to screening and treatment. (Findings 30-31)

Recommendation: Extend the Portfolio's gender-responsive approach beyond practical interventions by systematically addressing strategic gender barriers, including women's autonomy in health decision-making and the economic barriers faced by disadvantaged women.

4.2 IMPLICATIONS FOR THE PORTFOLIO THEORY OF CHANGE

The next phase of the Portfolio, based on the success and lessons from 2019-2025, is under development and intends to move from demonstrating proof of concept to catalytic funding to 1) enable selected champion countries to deliver services at scale and address health system barriers; 2) provide evidence for cervical cancer elimination in LMIC, and share this evidence beyond project countries; and 3) provide market shaping support for newer technologies for cervical cancer screening (true PoC HPV tests and AI supported visual examination), and 4) support resource mobilisation from domestic and international sources, so that **champion countries achieve the 70-90 elimination targets**, ultimately towards the longer term WHO cervical cancer elimination goals. Underlying assumptions are that 1) countries' health systems are robust enough to be able to scale up screening and treatment into existing health services; 2) champion countries will achieve elimination goals (70% eligible women screened and 90% of eligible women treated) and 3) countries are able to sustain service delivery beyond Unitaids catalytic funding with domestic or international funding.

The evaluation concludes that current barriers to scaling up cervical cancer screening and treatment in LMICs are consisting of 1) limited access to appropriate technologies, 2) generic health system weaknesses and gender-based barriers, and 3) limited financing. Given Unitaids comparative advantage, its catalytic investment to support these countries is therefore most efficiently targeted to support the development and market access of emerging HPV screening technologies that promise to be more affordable and appropriate to existing health systems, and further price reduction of HPV tests. Because of the catalytic nature of Unitaids financial support and the identified and real sustainability risk, Unitaids should put risk mitigation activities in place. The external evaluation, based on the above recommends adjusting the ToC for the second phase in the following ways:

1. Because affordability remains a major constraint for LMIC adoption of HPV testing, **strengthen the critical role of Unitaids in market shaping and drive further price reduction.**
2. Because HPV testing alone has not consistently enabled same-day screening pathways, prioritise **market shaping support for true PoC HPV technologies, and AI-supported VE methods that may enable simplified, same-day management pathways.**
3. Because technology introduction without system readiness resulted in cascade failures, **require health-system readiness assessments before catalytic investments are initiated, undertake regular follow up health technology assessments, and base continued catalytic funding support on minimum criteria.**
4. Because loss to follow up remains the critical bottleneck and monitoring remains fragmented, **support development of a global, cervical cancer cascade indicator framework, aligned to WHO elimination targets.**
5. Because domestic and international follow up funding for secondary prevention of cervical cancer services is unlikely post 2030, **make sustained catalytic funding conditional on increasing levels of counterpart funding.**

The Figure below presents the proposed revised ToC for the Portfolio (2025-2030) while the detailed rationale is provided in Annex 4.

Figure 8: Proposed new ToC for Unitaid’s cervical cancer secondary prevention portfolio (2025-2030)

