Costing the National Strategic Plan on Prevention and Control of Cervical Cancer: Zambia, 2019–2023

November 2020

World Health Organization

Costing the National Strategic Plan on Prevention and Control of Cervical Cancer: Zambia, 2019–2023

Suggested citation. Costing the National Strategic Plan on Prevention and Control of Cervical Cancer: Zambia, 2019–2023. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Printed in English

CONTENTS

ACKNOWLEDGEMENTS *iv*

CONSIDERATIONS FOR PLANNING ELIMINATION OF CERVICAL CANCER AS A PUBLIC HEALTH PROBLEM 1

BACKGROUND 3

INTERVENTIONS 4

- PRIMARY PREVENTION – HPV Vaccination 4
- SECONDARY PREVENTION – Screening and Pre-cancer Treatment 5
- TERTIARY PREVENTION – Cancer Diagnosis, Treatment and Palliative Care 6
- PROGRAMME SUPPORT ACTIVITIES COSTS – Secondary and Tertiary Prevention 6

COSTING SUMMARY 7

ASSUMPTIONS AND LIMITATIONS 11

REFERENCES 12

ANNEX 13

ACKNOWLEDGEMENTS

We would like to thank the following organizations and individuals who contributed to this work.

WHO Country Office, Nigeria

- Dr Olumuyiwa Ojo

WHO Regional Office for Africa

- Dr Prebo Barango

WHO Headquarters

- Dr Raymond Hutubessy
- Dr Karene Yeung
- Dr Cindy Gauvreau
- Mr Fayad El Sheikh
- Dr Nathalie Broutet

Clinton Health Access Initiative (CHAI)

- Ms Leslie Wentworth
- Ms Sophie de Chazal
- Ms Vivienne Mulema
- Mr Richard Freeman
- Mr Jason Zhu
- Mr Frederic Seghers
- Ms Prudence Haimbe

Key personnel and facilitators from the Ministry of Health in Zambia

- Dr Sharon Kapambwe

Special thanks go out to the many participants and local experts contributing to the data validation meeting in Zambia in February 2019:

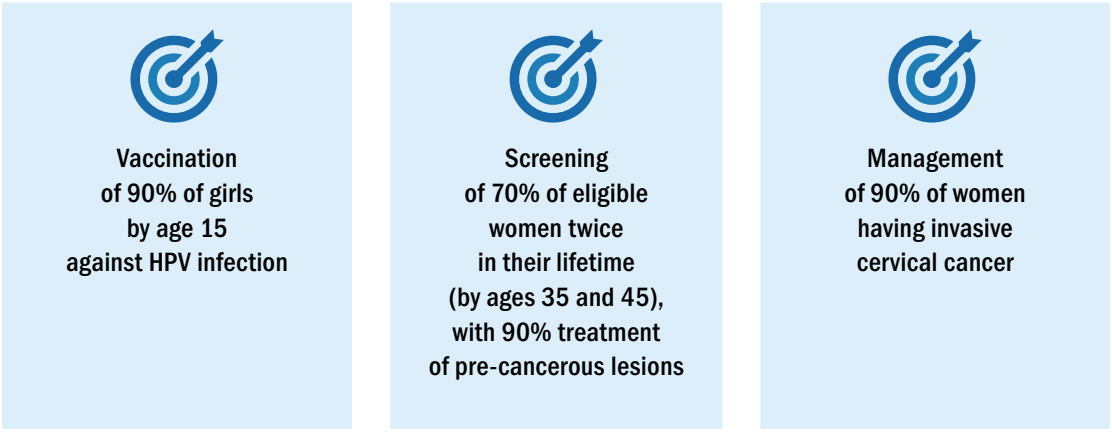
- From Cancer Diseases Hospital (CDH), Lusaka, Zambia: Dr Catherine Mwaba, Dr Lewis Banda, Dr Paul Kamfwa
- From Centre for Infectious Disease Research in Zambia (CIDRZ), Lusaka, Zambia: Mrs Cheryl Rudd Mallagh, Ms Jane Matambo Hamachila
- From Centers for Disease Control and Prevention (CDC), Lusaka, Zambia: Dr Omega Chituwo
- From Clinton Health Access Initiative (CHAI), Lusaka, Zambia: Ms Namwaka Mulenga
- From John Snow, Inc (JSI) Discover-Health, Lusaka, Zambia: Ms Lina Lessa
- From Ministry of Health, Lusaka, Zambia: Ms Anita Ndhlovu, Mr Evertrader Kabwe Musonda, Dr Mwate Joseph Chaila, Mr David Chanda (Cancer Control Unit), Ms Josephine Simwinga (Child Health Unit), Mr Patrick Banda (Planning and Budgeting)
- From Project Concern International (PCI), Lusaka, Zambia: Ms Yvonne Mulenga
- From University Teaching Hospital, Lusaka, Zambia: Dr Aaron Shibemba
- From University Teaching Hospital Women Newborn Hospital, Lusaka, Zambia: Dr M. Mwanahamuntu
- From WHO Country Office, Lusaka, Zambia: Dr Sarai Bvulani Malumo, Dr Penelope Masumbu, Ms Rosemary Muliokela

CONSIDERATIONS FOR PLANNING ELIMINATION OF CERVICAL CANCER AS A PUBLIC HEALTH PROBLEM

Zambia is already a regional leader in scaling up cervical cancer control in all three pillars of primary, secondary, and tertiary prevention. With an expanded national response planned for 2019–2023, the Zambian government continues to show strong commitment and leadership amongst countries in the cervical cancer elimination effort. This current exercise, which began in 2018, to cost the response is a concrete step towards implementing that plan.

The results reported below illuminate the additional resources and expenditures required under the 2019–2023 Plan and helps inform government planners and programme managers as to its feasibility and affordability. The information may then be extended to help highlight areas of priority attention in planning the considerable acceleration of service provision that will be needed under a cervical cancer elimination strategy. Zambia's coverage targets for a future plan might take the 2030 targets of the Global Strategy towards Eliminating Cervical Cancer as a Public Health Problem into consideration (Fig. 1).

Fig. 1. **Targets of the Global Strategy towards Eliminating Cervical Cancer as a Public Health Problem**



HPV: human papillomavirus.
Source: World Health Organization (2020) *(1).*

In the context of future planning for accelerated scale-up of services and based on the costing exercise, the results of which are summarized below, several points may be noted.

1. The human papillomavirus (HPV) vaccine is currently subsidized substantially by Gavi in Zambia and so its full cost (assumed at US$4.50 unit cost per dose) is included in the economic costs while the financial costs only includes the subsidized cost (US$0.23 unit cost per dose) in this report. However, vaccine cost is the largest contributor to the vaccination delivery costs. As Zambia "graduates" from Gavi support, the difference between the economic and financial costs will close. That is, the portion represented by actual outlays by the government will grow. Nevertheless, primary prevention of cervical cancer through vaccination will remain highly cost-effective for long run health outcomes and health system utilization.

2. Microplanning costs constitute a substantial portion of the estimated budget for screening and treatment (approximately 28% of the total financial costs), driven primarily by the high cost and large number of microplanning activities at the district level. It may be worthwhile to closely monitor and analyze actual expenditure on district-level microplanning to understand these costs better and to develop more refined budget estimates.

3. We applaud the government plans to expand cancer treatment services nationally by committing to build additional cancer treatment centres to expand access. However, we caution that the costing model does not take into account the substantial cost associated with constructing these new centres. Therefore, the full cost of tertiary prevention is understated.

BACKGROUND

Cervical cancer is the highest burden cancer in Zambia. In 2018 Zambia had the third highest incidence rate of cervical cancer in the world with 66.4 new cases per 100,000 women (age-standardized to the world population) *(2)*. Cervical cancer mortality is high, with an estimated 1,839 women dying from the disease in 2018. Zambia's high incidence of cervical cancer is linked to the heavy burden of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) in the country, with female adult HIV prevalence at 13.8% in 2018 *(3)*. Early to respond, Zambia established a National Cervical Cancer Prevention Programme in 2006 and has been working to expand access to primary, secondary, and tertiary prevention.

Table 1. Overview of cervical cancer disease

Cervical Cancer Age-standardized Incidence Rate in 2018[a]	66.4 per 100,000 women
Cervical Cancer Age-standardized Mortality Rate in 2018[a]	44.5 per 100,000 women
HPV Prevalence in HIV+ adult women*	6–47%
HIV Prevalence (females aged 15–49)[b]	13.8%

HPV: human papillomavirus; HIV: human immunodeficiency virus.
* No data on HPV prevalence amongst all women irrespective of HIV status is available; rate reflects prevalence of high-risk HPV strains from two molecular testing platforms with varying sensitivity and specificity. The full list of studies can be found in the HPV Information Centre report on Zambia *(4)*.
Sources: [a]International Agency on Research for Cancer (2018) *(2)*. [b]UNAIDS (2020) *(3)*.

Zambia developed a National Cancer Control Strategic Plan (2016–2021) which presents a strategic framework for the management and control of cervical, breast, and prostate cancers as well as retinoblastoma, with the goal of reducing non-communicable disease-associated mortality by a third by 2030. A costing of the cervical cancer portion of the Strategic Plan was conducted in 2015, which piloted the World Health Organization (WHO) Cervical Cancer Prevention and Control Costing (C4P) tool *(5)*. Resulting from a collaboration between the Ministry of Health of the Republic of Zambia and the WHO, here we provide a summary report of the updated costing of Zambia's 5-year national strategic plan on cervical cancer prevention and control, covering 2019–2023. The report is presented from the public provider perspective in terms of financial costs (actual expenditures) and economic costs (financial costs plus monetary value of resources used for the programme). All costs were calculated using the WHO C4P tool and are reported in 2018 US dollars. Technical notes on costing methodology can be found in the Annex.

INTERVENTIONS

PRIMARY PREVENTION – HPV Vaccination

Zambia first introduced the HPV vaccine on a pilot basis in 2013 and it is now integrated into the routine immunization programme. The country has demonstrated success in delivering other vaccines through the routine immunization programme, reaching 90% coverage of DTP-3 in 2018 *(6)* and will leverage elements of that system to deliver two doses of the quadrivalent HPV vaccine *(7)*. Zambia is still eligible for Gavi subsidies as it is in the preparatory transition phase and will consequently receive US$ 9,200,000 between 2019 and 2023 to support the scale-up of HPV vaccination *(8)*.

Zambia plans to achieve an overall HPV vaccination coverage rate of 90%, fully immunizing a total of 2.1 million girls aged 9 to 14 years over five years. 80% of the target population will be reached through schools while the rest will be vaccinated through outreaches (15%) and health facilities (5%). Zambia will achieve this coverage at a financial cost of US$ 6.09 per fully immunized girl (FIG).

Table 2. Costing summary of HPV vaccination

	2019	2020	2021	2022	2023	2019–2023
Target vaccination coverage	90%	90%	90%	90%	90%	N/A
Number of FIGs per year	1,186,967	229,251	235,899	242,548	249,196	2,143,851
Financial cost per FIG (US$)	5.83	5.97	6.53	6.51	6.55	6.09*
Economic cost per FIG (US$)	17.99	12.91	17.02	17.00	17.12	17.13*

HPV: human papillomavirus; FIG: fully immunized girl.
* Average cost per FIG over 5 years, calculated as (total cost from years 1–5)/(number of FIGs from years 1–5).
Note: costs reported in 2018 United States dollars (US$).

SECONDARY PREVENTION – Screening and Pre-cancer Treatment

In the STEPS survey in 2017, 16.4% of women aged 16–69 years reported being screened for cervical cancer and among those aged 30–49 years, only 1 in 5 have ever undergone cervical cancer screening *(9)*. Visual inspection with acetic acid (VIA) is the current principal screening modality, although as of 2016 services were only available in 27 of 103 districts *(10)*. Same-day treatment by cryotherapy is

offered to eligible VIA-positive women, and those ineligible for cryotherapy are referred for loop electrosurgical excision procedure (LEEP) or invasive cancer management for suspected cases.

Between 2019 and 2023, Zambia will provide 2,275,621 screening services attaining a 65% national coverage rate. Capacity for screening will be ramped up at the facility level such that 111 facilities will be able to provide screening services, up from 45[1]. The eligible population will constitute 15 to 59-year-old HIV-positive women and 25 to 59-year-old HIV-negative women. All eligible women will be screened every three years regardless of HIV status. Women who are referred to diagnosis and treatment for pre-cancer after screening will be rescreened in one year. The principal screening modality will be VIA with 90% of women being screened using this method at a financial cost of US$ 2.31 per service. HPV DNA testing will also be introduced starting in 2019 and be utilized in 10% of all screenings at a financial cost of US$ 23.00 per service. HPV-positive women will be referred for triage using VIA to determine the presence and extent of lesions. Women requiring treatment for pre-cancerous lesions will be treated with thermal ablation at a financial cost of US$ 3.36 per service; for women not eligible for thermal ablation, LEEP will be performed at a financial cost of US$ 29.27 per service. All costs are exclusive of programme support activities costs.

Table 3. Costing summary of screening and pre-cancer treatment

	2019	2020	2021	2022	2023	2019–2023
Target initial screening coverage	20%	25%	38%	50%	65%	N/A
Number of screening services provided	330,072	419,926	508,541	508,541	508,541	2.28m
Financial cost per screening service provided (US$)*	5.40	4.80	4.36	4.36	4.36	4.59
Economic cost per screening service provided (US$)*	7.61	6.87	6.33	6.33	6.33	6.62
Number of pre-cancer treatment performed	48,800	58,703	68,468	68,468	68,469	312,908
Financial cost per pre-cancer treatment performed (US$)*	9.92	8.83	8.07	8.07	8.07	8.50
Economic cost per pre-cancer treatment performed (US$)*	12.41	10.97	9.96	9.96	9.96	10.53

* Cost per screening service or treatment above is represented as the weighted average cost of the service based on expected distribution of screening or treatment methods.
Note: costs reported in 2018 United States dollars (US$).

[1] This projection does not capture new decisions taken after the collection of data. The current projected number of screening facilities has increased to 132 due to a more accelerated scale-up by the Government.

TERTIARY PREVENTION – Cancer Diagnosis, Treatment and Palliative Care

Tertiary prevention for invasive cancer is currently provided at one centre in the country. In 2016, between 30% and 50% of eligible patients received either surgery or chemo-radiation therapy *(10)*. The country plans to increase both these rates to at least 80% by 2021 through increasing the number of sites providing care from one to three over the next five years *(10)*. A total financial cost of US$ 6.3 million will be required to provide 10,568 diagnostic services and provide 16,384 services for invasive cancer.

Table 4. Costing summary of cancer diagnosis, treatment and palliative care

	Pathology	Surgery	Chemo-therapy	Radio-therapy	Palliative care
5-year target coverage	80%	80%	80%	80%	80%
Number of services provided in 5 years	10,568	1,440	8,305	4,981	1,658
Financial Cost per service (US$)	14.55	43.22	474.15	474.15	206.90
Economic Cost per service (US$)	28.27	594.25	539.27	539.27	339.22

Note: costs reported in 2018 United States dollars (US$).

PROGRAMME SUPPORT ACTIVITIES COSTS – Secondary and Tertiary Prevention

Additional costs for programme support activities like microplanning, training, social mobilization, and supervision encompassing screening and treatment of both pre-cancer and cancer require a financial expenditure of US$ 10.3 million.

COSTING SUMMARY

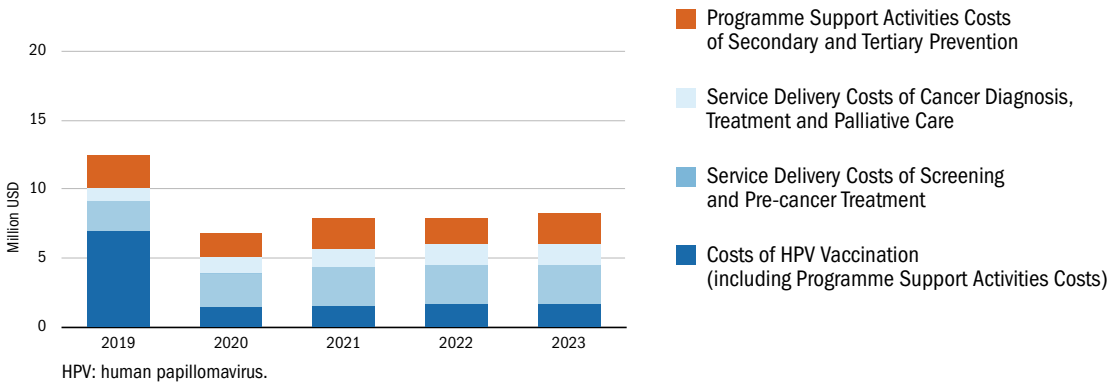
We estimate the National Strategic Plan on Prevention and Control of Cervical Cancer in Zambia for the years 2019–2023 to be implemented at a financial cost of US$ 42.9 million. Of the total estimated cost, 30% will be for vaccination (including programme support activities costs), 31% for service delivery of screening and pre-cancer treatment, and 15% for service delivery of cancer diagnosis, treatment and palliative care while the remaining 24% will be for programme support activities costs of secondary and tertiary prevention.

Table 5. Summary of total financial costs of the national response by programme areas and by years

Programme Areas	2019	2020	2021	2022	2023	Total
Costs of HPV Vaccination (including Programme Support Activities Costs) (million US$)	6.9	1.4	1.5	1.6	1.6	**13.0**
Service Delivery Costs of Screening and Pre-cancer Treatment (million US$)	2.3	2.5	2.8	2.8	2.8	**13.2**
Service Delivery Costs of Cancer Diagnosis, Treatment and Palliative Care (million US$)	0.9	1.1	1.3	1.6	1.6	**6.5**
Programme Support Activities Costs of Secondary and Tertiary Prevention (million US$)	2.3	1.8	2.3	1.8	2.2	**10.3**
Total	**12.4**	**6.8**	**7.9**	**7.8**	**8.2**	**42.9**

HPV: human papillomavirus.
Note: costs reported in 2018 United States dollars (US$).

Fig. 2. National response by programme areas over five years (financial cost)



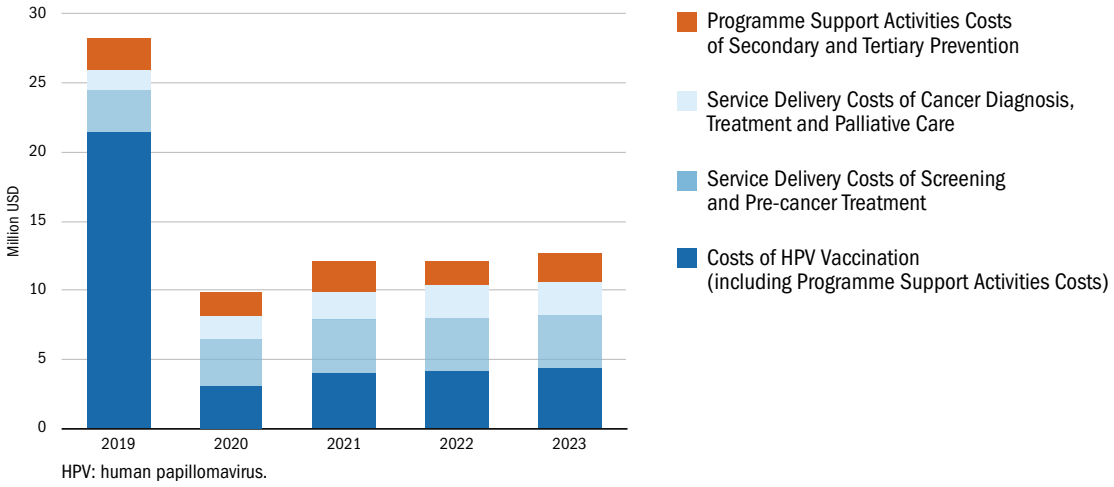
HPV: human papillomavirus.

Table 6. Summary of total economic costs of the national response by programme areas and by years

Programme Areas	2019	2020	2021	2022	2023	Total
Costs of HPV Vaccination (including Programme Support Activities Costs) (million US$)	21.4	3.0	4.0	4.1	4.3	**36.8**
Service Delivery Costs of Screening and Pre-cancer Treatment (million US$)	3.1	3.5	3.9	3.9	3.9	**18.3**
Service Delivery Costs of Cancer Diagnosis, Treatment and Palliative Care (million US$)	1.4	1.6	1.9	2.3	2.3	**9.5**
Programme Support Activities Costs of Secondary and Tertiary Prevention (million US$)	2.3	1.8	2.3	1.8	2.2	**10.3**
Total	**28.2**	**9.9**	**12.1**	**12.1**	**12.7**	**74.9**

HPV: human papillomavirus.
Note: costs reported in 2018 United States dollars (US$).

Fig. 3. National response by programme areas over five years (economic cost)



HPV: human papillomavirus.

Table 7. Overall summary of Zambia's National Strategic Plan on Prevention and Control of Cervical Cancer, 2019–2023 (five-year totals and averages)

TOTAL COST OVER FIVE YEARS	
Total financial cost of National Strategic Plan over five years	**US$ 42,911,456**
Total economic cost of National Strategic Plan over five years	**US$ 74,896,772**
HPV VACCINATION	
Delivery strategy and interventions	80% delivered through school-based methods throughout the 5 years
Target coverage	90%
Number of FIGs	2,143,851
Cost per FIG (financial)	US$ 6.09
Cost per FIG (economic)	US$ 17.13
Total cost (financial)	US$ 13,048,190 (including programme support activities costs)
Total cost (economic)	US$ 36,714,221 (including programme support activities costs)
SCREENING	
Delivery strategy and interventions	• VIA as primary screening modality. HPV DNA testing as supplementary primary screening • For women with a positive HPV test, VIA for triaging and for determining treatment modality
Target coverage	65%
Number of services provided	2,024,860 – VIA 250,761 – HPV DNA
Cost per service (financial)	US$ 2.31 – VIA US$ 23.00 – HPV DNA
Cost per service (economic)	US$ 3.84 – VIA US$ 29.08 – HPV DNA
Total service delivery cost (financial)	US$ 10,448,847 (excluding programme support activities costs)
Total service delivery cost (economic)	US$ 15,059,631 (excluding programme support activities costs)

PRE-CANCER TREATMENT	
Delivery strategy and interventions	• Thermal ablation as the treatment modality for eligible women • LEEP for women who are ineligible for thermal ablation
Target coverage	100% of all women presenting with lesions
Number of services provided	250,773 – Thermal ablation 62,135 – LEEP
Cost per service (financial)	US$ 3.36 – Thermal ablation US$ 29.27 – LEEP
Cost per service (economic)	US$ 3.73 – Thermal ablation US$ 37.97 – LEEP
Total service delivery cost (financial)	US$ 2,660,118 (excluding programme support activities costs)
Total service delivery cost (economic)	US$ 3,294,952 (excluding programme support activities costs)
CANCER DIAGNOSIS, TREATMENT AND PALLIATIVE CARE	
Delivery strategy and interventions	Number of facilities providing comprehensive care increased from one to three
Target coverage	100% of all women in need of services
Number of services provided	26,952
Cost per service (financial)	US$ 14.55 – pathology US$ 43.22 – surgery US$ 474.15 – chemotherapy US$ 394.33 – radiotherapy US$ 206.90 – palliative care
Cost per service (economic)	US$ 28.27 – pathology US$ 594.25 – surgery US$ 539.27 – chemotherapy US$ 663.75 – radiotherapy US$ 339.22 – palliative care
Total service delivery cost (financial)	US$ 6,460,948 (excluding programme support activities costs)
Total service delivery cost (economic)	US$ 9,501,615 (excluding programme support activities costs)

PROGRAMME SUPPORT ACTIVITIES COSTS	
Total programme support activities costs for screening, pre-cancer treatment, and cancer diagnosis, treatment, and palliative care (financial)	US$ 10,293,354
Total programme support activities costs for screening, pre-cancer treatment, and cancer diagnosis, treatment, and palliative care (economic)	US$ 10,326,354

FIG: fully immunized girl; HPV: human papillomavirus; DNA: deoxyribonucleic acid; VIA: visual inspection with acetic acid; LEEP: loop electrosurgical excision procedure.
Note: costs reported in 2018 United States dollars (US$).

ASSUMPTIONS AND LIMITATIONS

The analysis presented in this report represents a cost estimate of implementing the 2019–2023 national strategic plan on cervical cancer prevention and control in Zambia, and thus does not take into account current programming activities and their observed costs. The report is not intended to show actual expenditures or capacity but to give broad indications of cost distributions between interventions, patterns of expenditures over a 5-year programme cycle, and to identify possible gaps in planning or programming. In developing a new cervical cancer control strategy, particularly in regard to scaling-up services to achieve elimination targets, it is advised that a more detailed, comprehensive micro-costing study be undertaken.

Local estimates of costs and other inputs provided from government sources were used as much as possible, but some estimates rely on older data (including from a 2016 costing report for Zambia) or comparable estimates from other countries or global sources when more current local figures were not available. Key costs were validated at a consultation with members of the Ministry of Health and relevant stakeholders in February 2019. Because the model is from the public provider perspective, patients' costs, such as for travel, lost wages due to screening and treatment or out-of-pocket payments for provider fees or medications, were not included.

The scope of this analysis is limited to public health system planning of cervical cancer prevention and treatment services, and presents an indicative picture of the main resources required to scale-up current programme. However, it does not extend to ancillary services or equipment such as ambulances. Finally, the C4P tool was built as a modeling tool to assist countries with understanding potential costs associated with cervical cancer programming, but as with any model there is a level of uncertainty inherent in the results, which should be considered as estimates and not exact values. Details on relevant technical aspects of the C4P tool can be found in the Annex of this report.

REFERENCES

1. Global strategy towards eliminating cervical cancer as a public health problem. Geneva: World Health Organization; 2020 (https://www.who.int/initiatives/cervical-cancer/strategy).
2. Cancer Today: data visualization tools for exploring the global cancer burden in 2018 [website]. Lyon: Cancer Today — IARC; 2018 (https://gco.iarc.fr/today/home, accessed 22 October 2020).
3. Zambia Fact Sheet 2018 [website]. Geneva: UNAIDS; 2020 (https://www.unaids.org/en/regionscountries/countries/zambia, accessed 22 October 2020).
4. Chibwesha CJ, Frett B, Katundu K, Bateman AC, Shibemba A, Kapambwe S et al. Clinical performance validation of four point-of-care cervical cancer screening tests in HIV-infected women in Zambia. J Low Genit Tract Dis. 2016 Jul; 20(3):218–223.
5. WHO Cervical Cancer Prevention and Control Costing (C4P) Tool. In: WHO/Immunization, Vaccines and Biologicals/Vaccines and diseases [website]. Geneva: World Health Organization; 2020 (https://www.who.int/immunization/diseases/hpv/cervical_cancer_costing_tool/, accessed 22 October 2020).
6. Immunization coverage: WHO/UNICEF estimates of national immunization coverage. In: WHO/Immunization, Vaccines and Biologicals/Monitoring systems [website]. Geneva: World Health Organization; 2019 (https://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index4.html, accessed 22 October 2020).
7. Decision letter on support for Human Papilloma Virus Vaccine. Geneva: Gavi, the Vaccine Alliance; 2018 (https://www.gavi.org/sites/default/files/document/decision-letter-hpv-routine-zambia-2019pdf.pdf, accessed 22 October 2020).
8. Country fact sheet: Zambia [website]. Geneva: Gavi, the Vaccine Alliance (https://www.gavi.org/programmes-impact/country-hub/africa/zambia, accessed 22 October 2020).
9. Zambia STEPS Survey for non communicable diseases. Zambia Report for 2017. Lusaka: Zambia Ministry of Health; 2017 (https://www.who.int/ncds/surveillance/steps/Zambia-NCD-STEPS-Survey-Report-2017.pdf, accessed 22 October 2020).
10. National cancer control strategic plan 2016–2021. Lusaka: Zambia Ministry of Health; 2017 (https://www.iccp-portal.org/system/files/plans/NCCSP%20Final%20Version%20Zambia.pdf, accessed 22 October 2020).

ANNEX

Technical note on the WHO cervical cancer prevention and control costing methodology

The Cervical Cancer Prevention and Control Costing (C4P) Tool is intended specifically to assist low- and middle-income country programme managers in planning cervical cancer control strategies and approximating the 5-year cost projections of such a comprehensive national cervical cancer programme at country level. The methodology used is a "bottom-up" or "ingredient-based" approach, whereby each additional resource required for the intervention is identified and valued. To the extent possible, country-specific data on resources use and prices are collected and/or expert opinion is used, allowing users to model future strategies of their national cervical cancer programmes.

Costs are presented in two ways:

1. financial terms to assist in analysis of monetary and budgetary flows;
2. economic terms for analysis of sustainability and resource allocation.

Financial costs (sometimes referred to as "bookkeeping costs") are defined here as actual payments or expenditures made to acquire inputs and resources for developing and implementing the national (cervical cancer control) programme. Economic costs include additionally the value of resources that are already in place in the healthcare system and are diverted for the programme. Economic costs also include volunteer time, donations or subsidies provided for programme inputs; that is, expenditures made by parties other than the national government. Thus, economic costs provide a more complete and accurate picture of the resources used by the cervical cancer control programme.

In the C4P Tool a distinction is made between two broad categories of costs:

1. service delivery costs, for direct inputs needed to provide patient services, including staff, supplies, infrastructure and capital costs;
2. programme support activities costs, such as training, microplanning, social mobilization, and supervision, monitoring and evaluation.

Another distinction is annualization versus non-annualization of costs. Annualization is applied to resource items that have a useful "lifetime" of more than one year. This adjustment reflects that although the items may have been paid for in a single year, they are actually used over multiple years. In the service delivery category annualization is applied to both financial and economic costs of infrastructure and equipment without excess capacity and, in the programme support activities category,

to the financial and economic introduction (or set up) costs portion of the individual activities. Recurrent costs of these activities are not annualized; they are simply reported in the year in which they are incurred.

In the case of financial costs, the extent of annualization stops at dividing the financial item cost by its number of years of use or useful life to yield equal annual costs assuming straightline depreciation. However, economic costs require further treatment to reflect the opportunity cost of money, that is, tying it up for inputs for the cervical cancer programme instead of say, investing it. This leads to the concept that having money today is more valuable than having it in the future. To express this, economic costs are discounted, giving less value to costs in the future. To streamline the two aspects of annualization and discounting, the economic item cost is divided by an annualization factor incorporating the number of useful years and the discount rate to yield the annual cost. In this report the useful life of relevant inputs is extended over the five years of the programme and a discount rate of 3% is used, with a resulting annualization factor of 4.58.

All costs were calculated using the version of the C4P Tool that was current in 2018. It should be noted that the C4P is constantly updated to reflect new cervical cancer prevention and screening guidelines, updated input data, and model fixes.

The C4P tool including its manual can be downloaded here: https://www.who.int/immunization/diseases/hpv/cervical_cancer_costing_tool.


World Health
Organization