

Financing for Cervical Cancer Elimination in **GUATEMALA**

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ABBREVIATIONS

CAGR	compound annual growth rate
GDP	gross domestic product
GHED	Global Health Expenditure Database
IARC	International Agency for Research on Cancer
IGSS	Instituto Guatemalteco de Seguridad Social (Social Security Institute)
IMF	International Monetary Fund
INCAN	Instituto Nacional Contra del Cáncer (National Cancer Institute)
MSPAS	Ministerio de Salud Pública y Asistencia Social (Ministry of Health and Social Assistance)
OECD	Organization for Economic Co-operation and Development
OOP	out-of-pocket
PAHO	Pan-American Health Organization
PEC	Programa de Extension de Cobertura (Extension of Coverage Program)
SUCCESS	Scale Up Cervical Cancer Elimination with Secondary prevention Strategy
WHO	World Health Organization

WHY DOES FINANCING MATTER FOR CERVICAL CANCER IN GUATEMALA?

To better understand how financing can accelerate global efforts to eliminate cervical cancer as a public health problem, the Union for International Cancer Control engaged ThinkWell to conduct reviews of financing for cervical cancer in four countries being supported by the Scale Up Cervical Cancer Elimination with Secondary prevention Strategy (SUCCESS) project: Burkina Faso, Côte d'Ivoire, Guatemala, and the Philippines. This work builds on a seminal report titled “Global action on financing cervical cancer elimination” conducted in 2021 by the Economist Intelligence Unit also commissioned by the SUCCESS project.¹

To produce the Guatemala country profile, ThinkWell conducted a desk review of the available literature to understand and bring to light the core financing challenges and opportunities for accelerating cervical cancer elimination in the country. Grounded in ThinkWell’s “fund flow map” methodology, each profile presents a snapshot view of the financing architecture for cervical cancer, explores the root causes of financing challenges, and concludes with policy recommendations for how those challenges might be resolved. By illuminating how health financing contributes to resource availability for cervical cancer services, and documenting the extent to which financing influences access, the profiles can help outline potential solutions for policymakers, donors, civil society organizations, and implementing partners as they advocate for more sustainable and equitable financing approaches for cervical cancer elimination.

Cervical cancer is the second leading cause of cancer deaths among Guatemalan women, and it is the cancer with the third highest incidence rate after prostate and breast cancers (International Agency for Research on Cancer 2020). As a country with a high proportion of the population living in poverty (49.1% as of 2014), Guatemala’s cervical cancer indicators reflect experiences in many low- and middle-income countries; access to services and knowledge about the disease are highly determined by social, Indigenous, and economic

1 “Global action on financing cervical cancer elimination” Economist Intelligence Unit. 2021. https://www.uicc.org/sites/main/files/atoms/files/eiu_uicc_global_action_on_financing_cervical_cancer_elimination.pdf.

status, as well as place of residence (urban versus rural) (World Bank Group 2021; Ministerio de Salud Pública y Asistencia Social, Instituto Nacional de Estadística, Secretaría de Planificación y Programación de la Presidencia, and ICF International 2017). Assessments of Guatemala’s health care system consistently point to inequities in health outcomes, access to services, and overall spending on health as pervasive roadblocks to reducing poverty and accelerating human development (Cabrera, Lustig, and Morán 2015; Avila et al. 2015).

The following profile provides a brief contextual overview of the policy, economic, and systemic factors that impact the financing and overall state of the health system, and then progresses into a more detailed review and analysis of how financing impacts access to cervical cancer prevention, care, and treatment services in Guatemala. The profile concludes with a brief set of potential policy options for country and global stakeholders to consider as they collectively work towards improving and expanding access to lifesaving cervical cancer services.

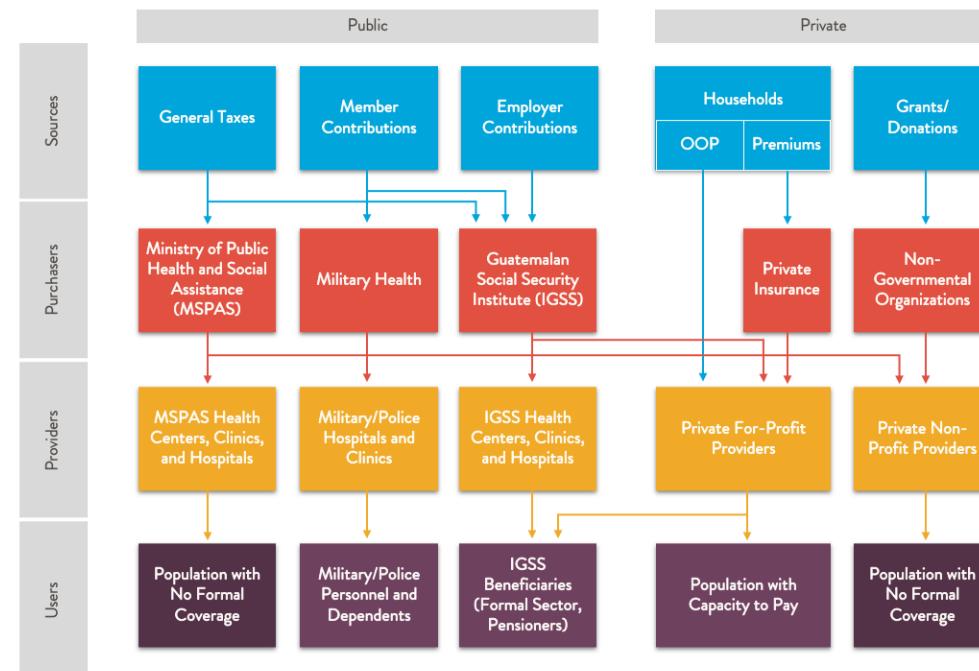
HOW IS THE HEALTH SYSTEM CURRENTLY FINANCED IN GUATEMALA?

Guatemala’s constitution guarantees the right to health care for every citizen, yet almost half the population lacks access to affordable, quality health care. Similar to other countries in the region, Guatemala’s health system (Figure 1) is organized based on historical solidarity principles wherein an individual’s coverage is linked to formal employment status or affiliation (Becerril-Montekio and Lopez-Davila 2011).

All Guatemalans can access the public health system for free through the Ministry of Health and Social Assistance, called Ministerio de Salud Pública y Asistencia Social

(MSPAS), which both provides and contracts out basic health service provision to nongovernmental organizations (NGO). In the public sector, Guatemala’s Social Security Institute, called Instituto Guatemalteco de Seguridad Social (IGSS), covers formal sector workers and their dependents and pensioners. As Figure 1 shows, the organization, funding, and provision of health care is verticalized and fragmented, with the population that is lacking formal coverage having to pay out-of-pocket (OOP) or relying entirely on the public system for care, or both.

Figure 1. Overview of the Guatemalan Health System



Source: Adapted from Becerril-Montekio and Lopez-Davila 2011; Avila et al. 2015

The Guatemalan government spends less on health as a proportion of overall health expenditures compared to other countries in the region and relies heavily on OOP to finance its health system.

The fragmented organization of the system combined with overall low public investment in health leads to a situation where those who are least able to afford to pay rely on an under-resourced system while those who are better off can access care at private facilities by paying out-of-pocket or through private voluntary insurance. Guatemala's government invests less in health as a proportion of overall health spending and is among the lowest performers in the region comparatively in terms of prioritization of health (Figures 2 and 3).

Allocation of public resources is heavily skewed toward tertiary care, which is only available in urban areas; between 2010 and 2017, the MSPAS budget for hospitals almost doubled, while funding for primary care has remained essentially flat (Telesur 2016).²

Further, for a population with high rates of poverty, over 50% of health is financed OOP, with many of these expenditures going to essential medicines, medical supplies, and diagnostic tests that are supposed to be provided for free through the public sector system (Juarez, Austad, and Rohloff 2021). Per a 2019 report from the International Monetary Fund (IMF), to achieve “good performer” status in health and be on a stronger trajectory towards achieving the health Sustainable Development Goals, Guatemala would need to more than double public spending on health by 2030 (from around 2.0% of gross domestic product (GDP) in 2016 to 4.4%) (Ruiz, Ester, and Soto 2019).

Guatemala's low levels of health spending are not correlated with economic performance. Indeed, health spending has not increased proportional to economic growth (Figure 4); however, because much of this growth is driven by consumption as opposed to public investment, Guatemala's public sector remains highly vulnerable to economic shocks that impact consumption.

The structural weaknesses of Guatemala's health system directly influence both the financing and delivery of cervical cancer elimination interventions across a patient's lifetime (Figure 5). Financing is both a contributor to, and a victim of, the broader health system; cervical cancer interventions are impacted by

underfinancing and late disbursements from the central government to line ministries; there is no capacity or implementable regulatory framework that allows for resources to be mobilized locally; funds are allocated on a historical basis and not strategically based on provincial decisions about health needs, nor on the existing allocation formula for population density and poverty or health prerogatives.

Figure 2. Regional Health Expenditure Trends, 2010-2019

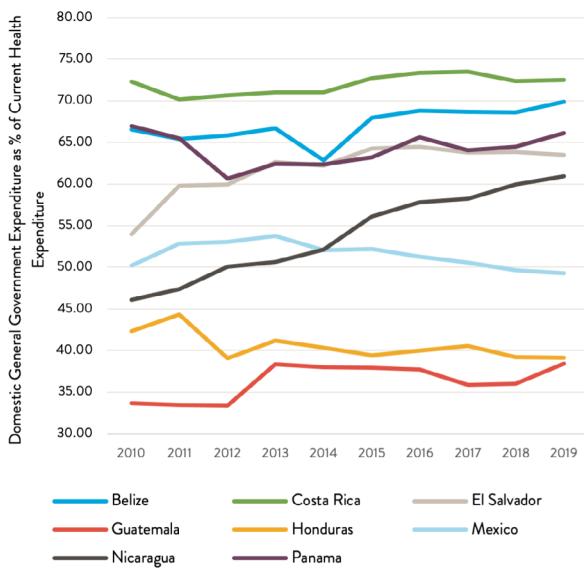
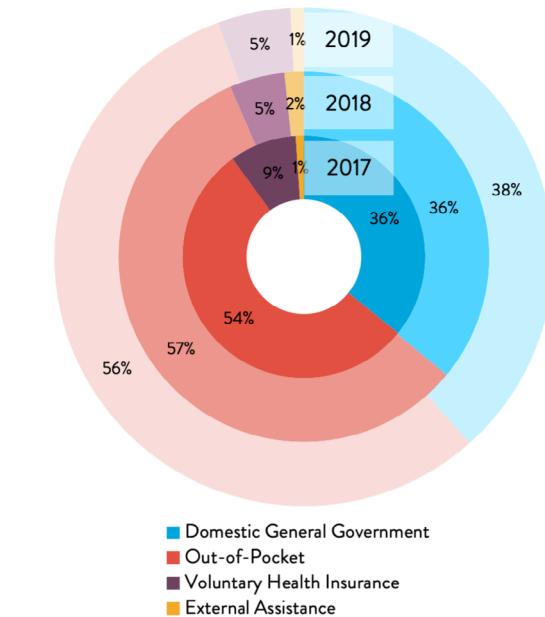
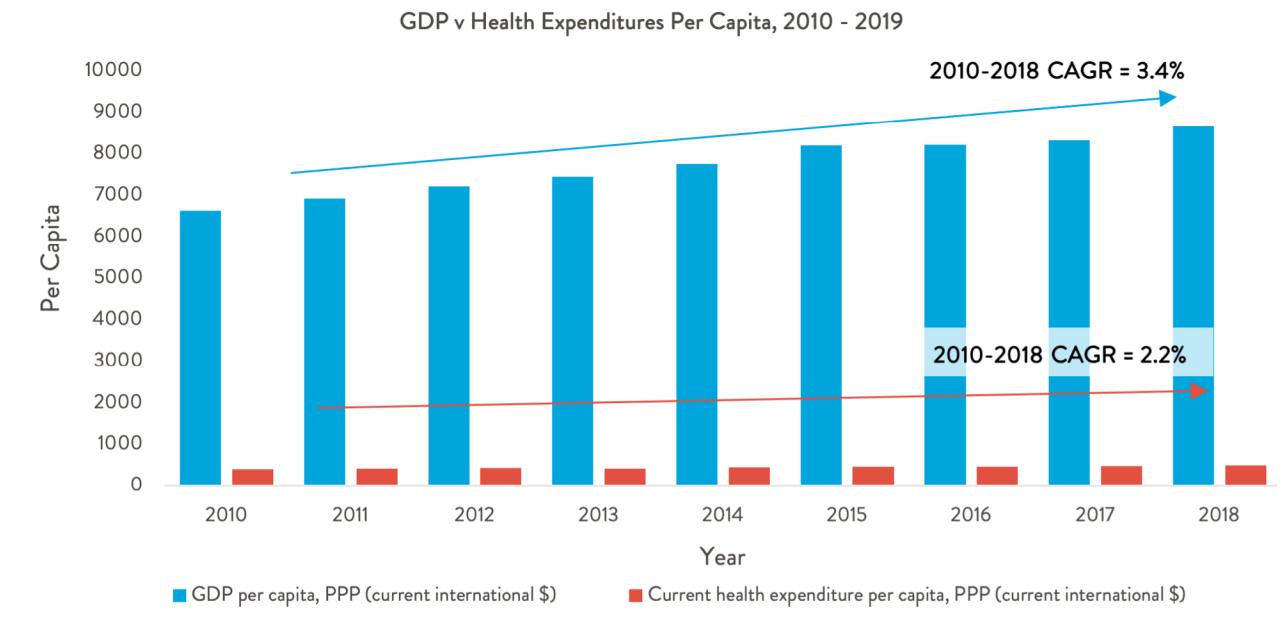


Figure 3. Health Expenditures by Category, 2017-2019



Source: World Health Organization (WHO) Global Health Expenditure Database (GHED), 2021
2 Per Guatemala's National Health Accounts in 2017, the primary health care budget was increased substantially in 2014 but then halved in 2015 due to a corruption scandal and funding crisis that impacted the public sector.

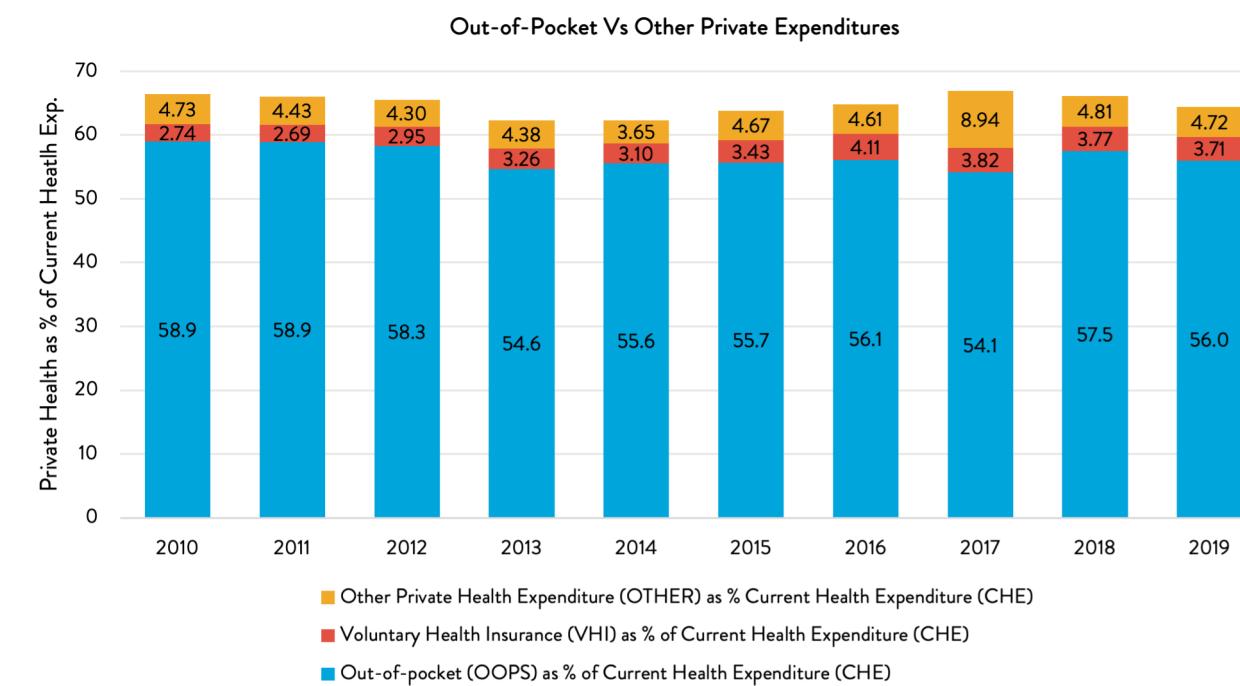
Figure 4. Health Spending Relative to GDP Growth, 2010-2019



The governance, managerial, infrastructural, and demand-side barriers to overall access for underserved and marginalized Guatemalans are significant. High-potential interventions are very positive steps forward

but will face ongoing systemic roadblocks. This policy achievement along with other measures will be essential in serving Guatemalans facing health challenges including cervical cancer.

Figure 5. Composition of Private Health Expenditure in Guatemala



HOW DOES HEALTH FINANCING IMPACT CERVICAL CANCER ELIMINATION EFFORTS IN GUATEMALA?

Mapping The Flow of Funds for Cervical Cancer

The flow of funds (Figure 6) for cervical cancer elimination follows the organization of the health system illustrated in Figure 1. The public sector system is funded through taxes collected on general revenue or through contributions to the social security scheme. Private for-profit and not-for-profit services are funded through private insurance or through direct OOP payments. The funding flow in Figure 6 is described in greater detail below.

Sources

Funds for cervical cancer services originate from general revenues (taxes), payroll contributions from formal sector workers, and out-of-pocket payments.

As the public sector system relies on tax revenues to support delivery of health services, any decline or disruption in overall macroeconomic performance is likely to negatively impact service delivery given resource constraints. Prior to COVID-19, Guatemala was experiencing a period of relative macroeconomic and fiscal stability. But the IMF recently concluded that while Guatemala's immediate mitigation measures during the initial period of COVID-19 were successful in shoring up the economy, as well as protecting the most vulnerable, the longer-term outlook is worrisome given the slow pace of vaccination and worsening health and social trends, particularly for acute malnutrition (IMF 2021).

Figure 6. Fund Flow for Cervical Cancer Services in Guatemala

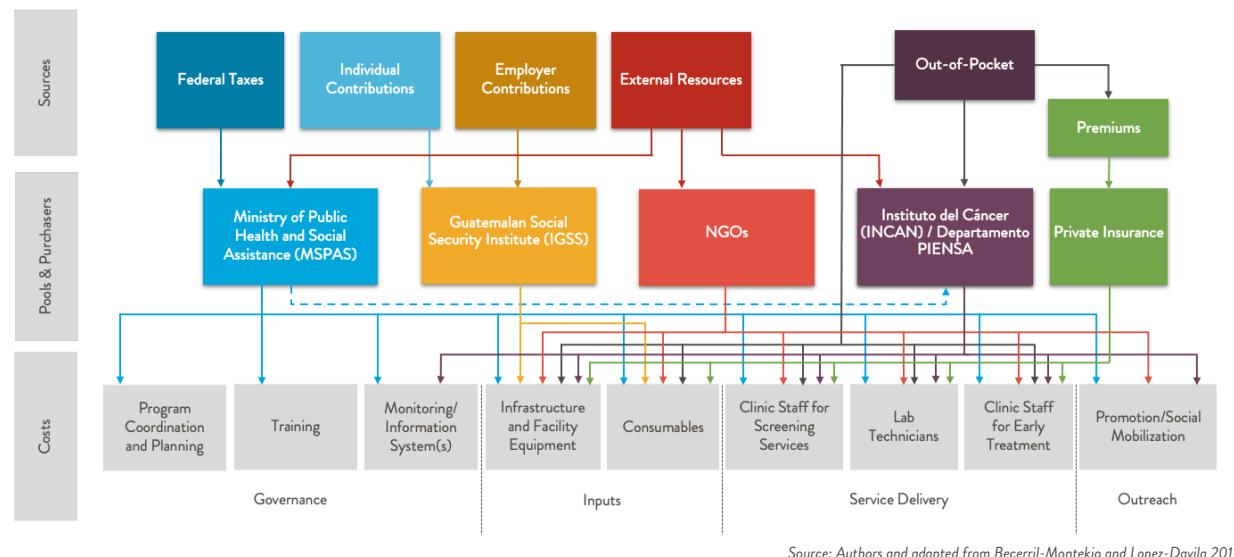
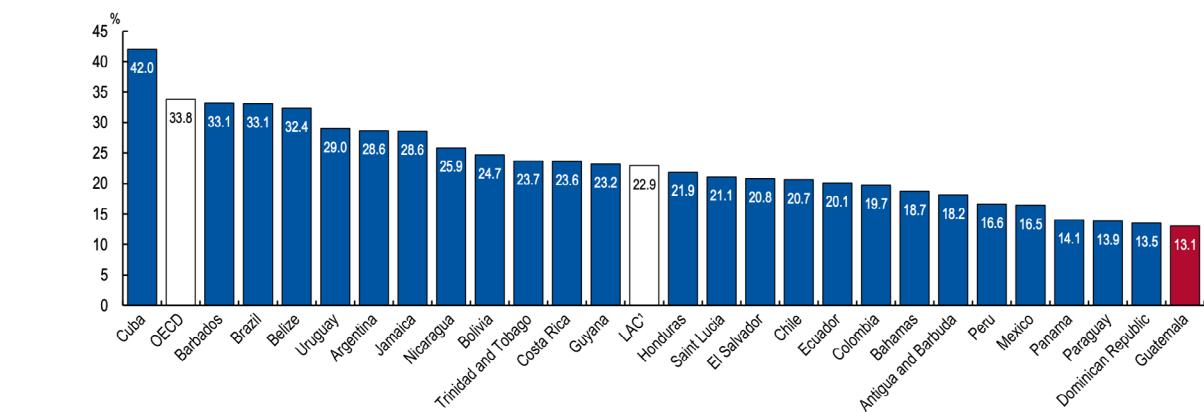


Figure 7. Regional Comparison of Guatemala's Tax-to-GDP Ratio

Tax-to-GDP ratio compared to other Latin American and Caribbean (LAC) countries and regional averages, 2019

Guatemala's tax-to-GDP ratio in 2019 (13.1%) was below the LAC average (22.9%)¹ in this year's Revenue Statistics in Latin America and the Caribbean publication by 9.9 percentage points and below the OECD average (33.8%).



Source: OECD and World Bank Group 2020

Pools & Purchasers

In the Guatemalan public health sector, there is no reimbursement mechanism and no enrollment required. MSPAS is the only purchaser of goods and services in public sector health facilities for all primary, secondary, and tertiary services, meaning that primary, secondary, and tertiary services for cervical cancer are all offered free of charge via the MSPAS system; however, given severe resource constraints in human resources, supplies, diagnostic equipment, and medicines, consistent quality of care is not uniformly available. Lack of sufficient resources in the public sector create both supply- and demand-side barriers, from insufficient supplies and equipment to lack of awareness about cervical cancer and perceived (or real) costs that limit or impede women's access altogether (Flood et al. 2018; Corral et al. 2012; Gottschlich et al. 2020).

Guatemala's social security scheme provides full coverage to formal employees and their dependents, as well as pensioners. IGSS provides full coverage to citizens that have a formal job and pay a portion of their gross income into the scheme via a payroll contribution, which is also supplemented by the employer. The contribution is split by the employer and the employee: each employee gives 4.83% of their monthly salary and the employer pays 12.67% for each employee. Beneficiaries are formal employees and can receive care at the IGSS and certain contracted private clinics in the IGSS network. Demand for services often outstrips supply and long wait times are common when trying to access services including for cervical cancer.

Private insurance covers secondary and tertiary cervical cancer interventions. Insurance premiums vary; usually the copayments are 20% by the patient and 80% by the insurance company for medicine, routine exams, and doctor's office visits. Private insurance also pays for hospital-level care in Guatemala's 45 private hospitals, almost all of which are in urban areas. Private insurance is held by a small minority of Guatemalans and is generally financially out of reach for most of the population. Individuals with private health insurance can access care through MSPAS or IGSS.

La Liga Nacional Contra el Cáncer's Instituto de Cancerología y Hospital (INCAN) is the comprehensive cancer institute in Guatemala. Commonly referred to as INCAN, the non-profit organization has a unique structure in that it both mobilizes funds for the services it provides and receives subsidies from MSPAS to offer higher level cancer care at its facility.

As the sole provider of tertiary cancer care for poor and underserved populations, INCAN plays an essential role both as a pooling agent and as provider and purchaser for cancer care services including cervical cancer. INCAN charges fees to patients who can afford to pay and receives payments for those who cannot through an annual allocation from MSPAS; however, given its reliance on user fees, donations, and resources from the public sector, its funding stream is not predictable, and demand outstrips supply evidenced by long wait times and a shortage of specialists (Velarde et al. 2020).

WHAT ARE THE ROOT CAUSES OF CERVICAL CANCER FINANCING CHALLENGES IN GUATEMALA?

Guatemala's vision for cervical cancer elimination is documented in its [national plan](#), though it is not fully implemented due to limited staff and resources, and the country has an operational national cancer control plan as well (WHO 2022). National guidelines on cervical cancer were adopted in 2020. Currently, access to screening is covered through the health system structures noted in the previous section; for those who are covered by the public sector system, screening can be accessed at MSPAS-operated or contracted health centers, through the social security system, at INCAN, or through services provided through NGOs. HPV vaccines are offered by MSPAS through public facilities and public schools and procured through the Pan-American Health Organization Revolving Fund (PAHO n.d.).

According to the WHO 2021 cervical cancer country profile, since introduction in 2018, around 20% of eligible girls have completed their second HPV vaccination dose, while around 50% of women have been screened for cervical cancer in the last five years (WHO 2021). While Guatemala has made some recent progress in scaling up elimination strategies for cervical cancer, longstanding access challenges related to overall health system financing influence the country's ability to accelerate its pathway towards achieving the WHO 90-70-90 targets.

Governance. Though there is a strong national cervical cancer strategy, the targets are general and implementation guidelines and recommendations are not uniformly implemented. As health promotion and primary elimination services are the sole responsibility of MSPAS, any supply or delivery bottlenecks related to MSPAS funding or capacity will directly impact eligible populations. Decision-making and priority setting are highly centralized and there is limited participation from civil society in terms of official priority setting. This further exacerbates mistrust and lack of confidence in the public sector and leads many rural and Indigenous communities to seek care through a combination of public, private, and traditional medicine, often at their own expense.

Management. While beyond the scope of this profile, the transition of management for essential services from a contracting-out model, called the Programa de Extension de Cobertura (PEC) (Box 1), back to a centralized structure has further burdened already limited administrative capacity in the MSPAS system.

Box 1. Programa de Extension de Cobertura

The PEC was introduced in 1996 to meet the health provision goals of the 1996 Peace Accords.

The PEC was a major health reform in Guatemala, aimed at extending health services to rural communities through a combination of investment in health posts and an auxiliary nurse cadre as well as contracting out of essential services to NGOs operating in rural communities. Cervical and breast cancer screening were included in the package of services along with other basic care.

While the program faced constraints due to wavering political support and other factors, at its peak, the PEC was serving the health and nutrition needs of 54% of the rural population. In 2014, funding for the PEC was eliminated by MSPAS "...for reasons that are still not clear, and which likely related to the general breakdown of governmental services in 2014 and 2015 under the weight of exposures of extensive mismanagement and corruption in high levels of government including MSPAS."

The impact on primary care has been severe and many rural and Indigenous Guatemalans effectively have no access to formal primary care through the public sector.

Sources: Avila and Wright, 2015

Infrastructure. Guatemala has one of the lowest levels of human resources in the region, with a health worker density of 12.5 per every 10,000 people (the WHO recommends 22.8, while the International Labor Organization recommends 34.5). COVID-19 has further burdened an already overstretched workforce. Lack of trained staff at health centers and health posts is routinely cited as a driver of low utilization and poor health outcomes. As one government representative put it in a review of hypertension management in Guatemala:

"It is not just in the Ministry of Health, but at the national level. The problem is that there is no budget. And that is due to the low tax collection in the country...the Ministry of Health does what it can with the limited budget that it has, which is less than 1.5% of the gross domestic product. In other words, they are actions that are palliative, right, and just to cover the most urgent needs. But to make a substantive change, that is not possible. And usually politicians do not understand—or do not want to understand—that. And so long as that does not change, that the resources for the state are not more, the Ministry of Health and the whole government will have very limited functions" (Fort et al. 2021: 8).

RECOMMENDED POLICY ACTIONS TO IMPROVE CERVICAL CANCER FINANCING IN GUATEMALA

To support health stakeholders in advocating for sustainable financing solutions for cervical cancer, this section outlines actions that can be taken to increase policy attention and to present viable strategies for decisionmakers to address the cervical cancer burden in Guatemala. As shown in Figure 8, these actions are all part of a continuum that spans the macro and micro contexts within any given country. While generalized, the framework shows how targeted policy actions on different elements of health financing can lead to stronger investment in cervical cancer elimination. To activate any or all the proposed policy actions, advocates should use the evidence presented in this profile to work within and across various government and donor planning and coordination cycles to ensure that cervical cancer elimination strategies—across the life cycle—are elevated as a step towards achieving the health Sustainable Development Goals and as integral to universal health care.

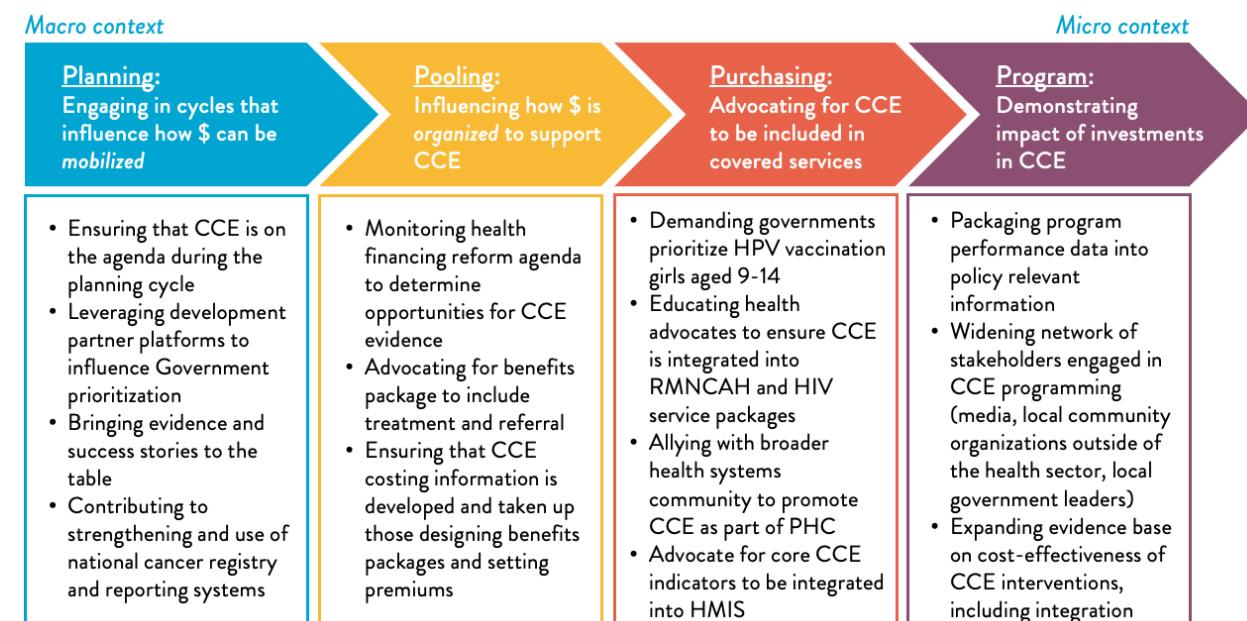
Policy Action 1. Relentlessly advocate for increased public funding for health and hold the government accountable for meaningful investment in primary health care. Guatemala is one of the lowest public spenders on health in Latin America, and access to cervical cancer care services is unacceptably low for rural,

Indigenous women. While there are numerous demand-side barriers that are well documented in the literature, government investment in health is already so low that even a marginal increase in funding for frontline services could have a dramatic impact on screening and early detection. Advocates should clearly and consistently push for the following:

- The government to increase its spending, as a proportion of overall health spending, year-to-year
- MSPAS to increase the amount it spends on primary care versus tertiary care
- For the financial burden on households to decrease (measured by lower OOP) without constraining access to primary care (measured by utilization)

Policy Action 2. Demand for greater investment in strategies that will help reduce inequity in access to cost-effective elimination strategies. The inequities in the Guatemalan health system are well documented; access to health services is dramatically different depending on which part of the population is being considered. The already limited share of public spending on health disproportionately benefits urban—and therefore marginally wealthier—Guatemalans, with over 80% of public expenditures going to tertiary

Figure 8. Financing for Cervical Cancer Elimination Involves Policy Actions Across the Macro to Micro Contexts



Source: Authors

care. The poorest of the poor are the least likely to be able to finance their own care and most likely to suffer catastrophic economic and health outcomes because of financial barriers to access. Thus, in addition to advocating for overall increases in public investment in health, advocates must ensure that these public funds are used in the following ways:

- Pro-poor, meaning that proven, cost-effective primary and secondary elimination strategies are reaching populations who stand to benefit the most. This is measured in budget flows to health centers and health posts in rural or hard-to-reach areas.
- Some, if not all, for promotion and elimination activities should be allocated to organizations that are trusted and networked into communities. Given Guatemala's diverse Indigenous population and their geographic distribution, promotion activities that are not locally relevant or resonant will be a misuse of resources. Metrics should be built in to show increases in utilization and potential payment or incentive models could be designed to support NGO providers for increasing outreach and mobilization impact with public sector funds.

Policy Action 3. Advocate for routine tracking of health expenditures and for budget transparency at all levels of the health system. It is neither feasible nor realistic to try and estimate cervical cancer-specific expenditures as disease or condition-specific expenditure tracking is generally not supported nor recommended by governments.³ Focusing on cervical cancer as a "standalone" health priority also undercuts broader ambitions to achieve universal health coverage and reach the health Sustainable Development Goals. To advance financing for cervical cancer services under broader universal health care objectives, advocates can align around budget transparency in the health sector and call for routine collection and reporting of how health resources are used to influence how decision-makers prioritize public health and primary health care.

³ While some donors have pushed for disease-specific subaccounts, most governments adhere to the System of Health Accounts 2011 framework for estimating annual health expenditures. Read more here: https://www.oecd.org/health/health-systems/Strengthening-Resource-Tracking-and-Monitoring-Health%20Expenditure_Final-Report.pdf.

Policy Action 4. Promote integration as a "value-for-money" cervical cancer policy intervention.

Given the financing fragmentation in the Guatemalan system, cervical cancer advocates should focus efforts on how cervical cancer services can be fully integrated into other platforms (e.g., primary health care, maternal and adolescent health, sexual health, HIV services, and oncology care) and demonstrate the value of integration, whether through observed increases in overall utilization at the primary level (discussed in Policy Action 2), improvements in referral pathways, or better tracking and management of patients who are in need of treatment.

An integration opportunity might be pursued via the PAHO Strategic Fund to investigate purchasing efficiencies as a mechanism to scale up access to HPV testing.

Policy Action 5. Explore the potential for leveraging prior investments as well as future public-private partnerships to increase funding for cervical cancer services. Advocates may review and highlight the impact of previous cervical cancer program investments from donors and technical partners as evidence supporting future funding. Advocates can explore the potential for private sector partnerships with the public sector including opportunities with employer groups.

CONCLUSIONS

Cervical cancer can be eliminated as a public health problem in Guatemala, and sufficient and well-targeted financing can support the country's efforts to accelerate progress in reaching the WHO 90-70-90 targets (WHO 2020).⁴ Even as Guatemala continues to be challenged by the ongoing COVID-19 pandemic, there remains a need for increased financing and better use of public financing to ensure a more equitable and responsive health system for all Guatemalans, and particularly for under-resourced health issues like cervical cancer. The primary health care level is the entry point for both primary and secondary care, and access barriers to both must be eliminated if Guatemala is going to accelerate its progress in achieving the WHO targets.

LIMITATIONS

This study has several important limitations. As noted in the other country profiles, direct estimates of expenditures related to provision of cervical cancer services are not routinely collected or reported in Guatemala. Understanding how new public commitments will impact cervical cancer services will require deeper analysis on what is currently spent on cervical cancer and how much an optimal cervical cancer elimination strategy would cost. Additionally, we were not able to interview any external stakeholders due to the unique political context of Guatemala; thus, our findings and recommendations are based solely on review of the available literature and on interpretation of how the current financing architecture in Guatemala impacts the different elements of cervical cancer services. This study and its recommendations can be a starting point for convening country stakeholders around the questions of how to improve access to cervical cancer elimination across the life-course and how to work with government decision-makers to increase overall investment in primary health care for all Guatemalans.

⁴ The WHO's Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem calls for 90% of girls to be fully vaccinated with HPV vaccine by the age of 15; 70% of women screened using a high-performance test by the age of 35, and again by the age of 45; and 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.

REFERENCES

- Austad, Kirsten, Anita Chary, Sandy Mux Xocop, Sarah Messmer, Nora King, Lauren Carlson, and Peter Rohloff. 2018. "Barriers to Cervical Cancer Screening and the Cervical Cancer Care Continuum in Rural Guatemala: A Mixed-Method Analysis." *Journal of Global Oncology*, no. 4 (December 2018): 1-10. <https://doi.org/10.1200/JGO.17.00228>
- Avila, Carlos, Rhea Bright, Jose Carlos Gutierrez, Kenneth Hoadley, Coite Manuel, and Natalia Romero. 2015. "Guatemala Health System Assessment 2015." Bethesda, MD: United States Agency for International Development (USAID). https://www.usaid.gov/sites/default/files/documents/1862/Guatemala-HSA%20_ENG-FULL-REPORT-FINAL-APRIL-2016.pdf
- Becerril-Montekio, V., and L. Lopez-Davila. 2011. "Sistema de Salud de Guatemala [The Health System of Guatemala]." *Salud Pública Mex* 53 Suppl 2: s197-s208.
- Cabrera, Maynor, Nira Lustig, and Hilcias E. Morán. 2015. "Fiscal Policy, Inequality, and the Ethnic Divide in Guatemala." *World Development* 76: 263-79. <https://doi.org/10.1016/j.worlddev.2015.07.008>
- Corral, Juan E., Lauren D. Arnold, Erwin E. Argueta, Akshay Ganju, and Joaquín Barroyna. 2012. "Clinical Preventive Services in Guatemala: A Cross-Sectional Survey of Internal Medicine Physicians." Edited by James LoGerfo. *PLoS ONE* 7, no. 10 (October 31, 2012): e48640. <https://doi.org/10.1371/journal.pone.0048640>
- Flood, David, Anita Chary, Kirsten Austad, Merida Coj, Walecka Lopez, and Peter Rohloff. 2018. "Patient Navigation and Access to Cancer Care in Guatemala." *Journal of Global Oncology*, no. 4 (December 2018): 1-3. <https://doi.org/10.1200/JGO.18.00027>
- Fort, Meredith P., William Mundo, Alejandra Paniagua-Avila, Sayra Cardona, Juan Carlos Figueroa, Diego Hernández-Galdamez, Kristyne Mansilla, et al. 2021. "Hypertension in Guatemala's Public Primary Care System: A Needs Assessment Using the Health System Building Blocks Framework." *BMC Health Services Research* 21, no. 1 (December 2021): 908. <https://doi.org/10.1186/s12913-021-06889-0>
- Gottschlich, Anna, Pamela Ochoa, Alvaro Rivera-Andrade, Christian S. Alvarez, Carlos Mendoza Montano, Claudia Camel, and Rafael Meza. 2020. "Barriers to Cervical Cancer Screening in Guatemala: A Quantitative Analysis Using Data from the Guatemala Demographic and Health Surveys." *International Journal of Public Health* 65, no. 2 (March 2020): 217-26. <https://doi.org/10.1007/s00038-019-01319-9>
- International Agency for Research on Cancer (IARC). 2020. *Globocan. Guatemala Fact Sheet.* <https://gco.iarc.fr/today/data/factsheets/populations/320-guatemala-fact-sheets.pdf>. Accessed January 4, 2020.
- International Monetary Fund. 2021. "Guatemala: 2021 Article IV Consultation-Press Release; Staff Report; and Statement by the Executive Director for Guatemala." <https://www.imf.org/-/media/Files/Publications/CR/2021/English/ITGMEA20210101.ashx>
- Juarez, Michel, Kirsten Austad, and Peter Rohloff. 2021. "Out-of-Pocket Costs for Facility-Based Obstetrical Care in Rural Guatemala." *Annals of Global Health* 87, no. 1 (August 2, 2021): 75. <https://doi.org/10.5334/aogh.3223>
- Ministerio de Salud Pública y Asistencia Social (MSPAS), Instituto Nacional de Estadística (INE), Secretaría de Planificación y Programación de la Presidencia (Segeplan), and ICF International. 2017. ---"Encuesta Nacional de Salud Materno Infantil 2014-2015: Informe Final." Rockville, Maryland, USA: MSPAS, INE, Segeplan, and ICF International. <http://dhsprogram.com/pubs/pdf/FR318/FR318.pdf>
- OECD/The World Bank (2020), *Health at a Glance: Latin America and the Caribbean 2020*, OECD Publishing, Paris, <https://doi.org/10.1787/6089164f-en>
- Pan American Health Organization (PAHO). N.d. PAHO Revolving Fund. <https://www.paho.org/en/revolvingfund>
- Tellesur. 2016. "Guatemala Hospitals Face Worst Crisis in History". Accessed on January 7, 2022 from <https://www.telesurenglish.net/news/Guatemala-Hospitals-Face-Worst-Crisis-in-History--20160123-0010.html>
- Velarde, Angel, Kirk Douglas Najera, Hiram Gay, William G. Powderly, Sasa Mutic, Jonathan Green, Jeff M. Michalski, et al. 2020. "Taking Guatemala From Cobalt to IMRT: A Tale of US Agency Collaboration With Academic Institutions and Industry." *International Journal of Radiation Oncology*Biology*Physics* 107, no. 5 (August 2020): 867-72. <https://doi.org/10.1016/j.ijrobp.2020.04.001>
- World Bank Group. 2021. Databank: Poverty headcount ratio at \$5.590 a day (2011 PPP). Accessed January 4, 2022. <https://data.worldbank.org/indicator/SI.POV.UMIC?locations=GT>
- World Health Organization (WHO). 2022. "Guatemala Cancer Country Profile 2020." Accessed January 7, 2022 from https://www3.paho.org/hq/index.php?option=com_docman&view=download&category_slug=4-cancer-country-profiles-2020&alias=51544-guatemala-country-profile-2020&Itemid=270&lang=en
- . 2021. "Guatemala - Cervical Cancer Profile 2021." Geneva: World Health Organization.
- . 2020. *Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem*. Geneva: WHO. <https://apps.who.int/iris/handle/10665/336583>