



Financial Analysis to Inform the Scale-up and Sustainability of Reproductive, Maternal, Neonatal, and Child Health Interventions and Services

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Introduction

Although many low- and middle-income countries commit to scaling up high-impact health interventions or services, they often do so without full knowledge of the costs of scaling up and sustaining them. Costing and other forms of financial analysis allow government decision-makers to estimate these costs or resource requirements to assess an intervention's feasibility or sustainability. Costing can also inform resource allocation decisions and assist governments in planning and advocacy to donors and domestic financiers to ensure funding for an uninterrupted scale-up process. Since 2014, the United States Agency for International Development's (USAID's) flagship Maternal and Child Survival Program (MCSP) has supported governments in select countries to analyze the costs of scaling up high-impact reproductive, maternal, newborn, and child health (RMNCH) interventions so decision-makers can allocate sufficient resources to sustain them in the long term. These country-led efforts to generate evidence that informs advocacy and planning for greater domestic investment in RMNCH are key to accelerating a country's journey to self-reliance.¹

This document synthesizes MCSP's efforts to strengthen health systems by analyzing scale-up costs and financial flows for RMNCH services. It includes MCSP's approach to financial analysis for scale-up and findings from analyses conducted in the Democratic Republic of the Congo (DRC), Ghana, Nigeria, Rwanda, and Uganda. This brief also presents lessons learned to improve future financial analyses to inform the scale-up and sustainability of RMNCH services.

Approach

To effectively support costing efforts for the scale-up of high-impact RMNCH interventions, MCSP worked closely with governments, implementing partners, and other stakeholders to clearly define a scalable unit and intervention package. MCSP then identified the intended audience and perspective for analysis outputs, such as the perspective of an implementer (i.e., MCSP) or the Ministry of Health (MOH), using government cost norms to generate cost estimates to support the approach's sustainability. MCSP ensured that the analysis showed costs by standard cost categories, cost drivers, and one-time versus recurring or maintenance costs.

¹ United States Agency for International Development (2019) Fact sheet: Financing self-reliance. Available at: <https://www.usaid.gov/documents/1868/fact-sheet-financing-self-reliance>.

Flexible cost models or tools were also developed to show costs under multiple scenarios to help in planning and discussions of the appropriate form for the package and to build the capacity of governments to use the results and tools. MCSP also presented costs in relation to programmatic outputs (if possible within the period of implementation) or the larger fiscal context (i.e., how much an intervention costs relative to current levels of government health expenditures). MCSP's approach to costing also included using the analysis findings to create clear dissemination and advocacy plans for the scale-up process. In addition to costing, MCSP supported countries to analyze the strengths and weaknesses of current financing policies and financing flows with respect to RMNCH services and provided recommendations to improve policies and implementation to support RMNCH services.

Summary Achievements and Results

In **Ghana**, the Community-based Health Planning and Services (CHPS) strategy aims to improve the delivery of primary health care (PHC) at the community level by increasing community participation in health decision-making. National expansion of CHPS began in 2000, but various factors, including lack of detailed costing information, resulted in slow and inconsistent scale-up across Ghana's 10 regions.² MCSP worked with the Ghana Health Service to develop [estimates](#) of the average start-up and operating costs of a CHPS compound (i.e., health post) to scale up CHPS. The costing exercise found that the average start-up cost to develop a CHPS compound was USD 18 per capita, with approximately USD 8 per capita per year to maintain the compound. These maintenance costs represent 14% of Ghana's per capita total health expenditure of USD 58 in 2014.³ Based on these cost estimates, MCSP developed a CHPS Costing Tool in 2017 to support national and subnational implementers to plan for establishment, refurbishment, and annual operations and maintenance costs of a CHPS compound. The tool allowed implementers to cost their own plans and compare them against their existing budget (if any) or against the CHPS National Implementation Guidelines costs, and identify funding gaps. MCSP developed an accompanying user manual to give implementers the necessary information to confidently navigate the tool and modify it to fit their needs. Most importantly, it provided guidance on how to interpret and use the results to mobilize resources and advocate for financing for CHPS from their communities, district assemblies, and other implementing partners. The Ghana Health Service formally adopted the tool and rolled it out to regional administrators.

In **Rwanda**, despite the introduction of the Helping Babies Breathe program, birth asphyxia remained a leading cause of newborn deaths. In 2016, MCSP worked with the MOH to roll out a new integrated Helping Babies Breathe/Essential Newborn Care (HBB/ENC) practice improvement package for clinical management of newborns with birth asphyxia. The package was initially introduced in four priority districts and later scaled to an additional six districts. The HBB/ENC practice improvement package includes low-dose, high-frequency (LDHF) training and mentoring of health care workers, and focused quality improvement (QI) activities. Results from the initial pilot indicated that the package improved provider capacity and clinical practices, and reduced fresh stillbirths and newborn deaths due to birth asphyxia. Based on the cost inputs required to implement the initial pilot, MCSP developed a flexible cost model to project the costs of [scaling up the HBB/ENC practice improvement package to the national level](#), emphasizing the district as the unit of scale-up and generating estimates of what it would cost the Government of Rwanda to scale and sustain the intervention. The analysis focused on activities to improve clinical practice, not necessarily the direct service costs at facility levels. Across the cost components of the practice improvement package (and start-up) activities, mentorship represented the largest cost driver of the overall intervention, followed by initial and refresher LDHF trainings. After achieving full scale-up to all 30 districts, the estimated total annual costs to implement the HBB/ENC practice improvement package was approximately RF 370 million (USD 438,000) per year or RF 35 per capita per year (USD 0.05). This annual cost represented less than 1% of the government's domestic health spending,⁴ suggesting it is a relatively low-cost clinical practice strengthening intervention with potential for high impact.

² Awoonor-Williams, J. K., et al. (2013) Lessons learned from scaling up a community-based health program in the Upper East Region of northern Ghana. *Global health, science and practice* 1(1), 117–133. doi:10.9745/GHSP-D-12-00012

³ WHO Global Health Expenditure Database (2014)

⁴ Rwanda National Health Accounts (2014)

In **Rwanda**, as of 2015, 51% of women who were less than 2 years postpartum wanted to delay or stop having children but were not using any form of contraception.⁵ The World Health Organization recognizes the immediate postpartum period (within 48 hours after birth) as a prime opportunity to reach women with a wide range of voluntary modern contraceptive methods, many of them long lasting. In 2016, MCSP worked with the MOH to introduce an integrated postpartum family planning (PPFP) package in four districts, later scaling up to an additional six districts. The clinical practice strengthening package includes training on voluntary family planning (FP) methods counseling, PPFP clinical skills, mentoring, and focused QI activities. Based on the cost inputs required to implement the pilot, MCSP developed a flexible cost model to project the costs of [scaling up the PPFP package to the national level](#) and allow national policymakers to anticipate how costs may change under different scale-up scenarios. The analysis generated estimates of what it would cost the Government of Rwanda to scale and sustain the intervention, using the district as a unit of scale-up; however, it did not include direct PPFP service delivery costs (e.g., cost of contraceptives) since the focus was the costs of the intervention. Across the main components of the PPFP package (and start-up activities), mentorship constituted the largest cost driver for the overall intervention, followed by initial and refresher FP counseling and PPFP clinical skills trainings. The estimated total annual cost for implementing the PPFP package in all 30 districts increases through the first 4 years of scale-up; however, it decreases to an average total annual maintenance cost of approximately RF 305 million (USD 360,000) per year in the 2-year maintenance period (or RF 10 million [USD 12,000] per district). In per capita terms, it would cost RF 37 (USD 0.05) per capita per year to maintain the intervention once fully scaled up. This annual cost represents less than 1% of the government's domestic health spending,⁶ suggesting that it is a low-cost intervention with potential for high impact, as initiation of a PPFP method before discharge increased from 1% to 45% in intervention districts over the course of 2 years. Based on the programmatic achievements of increasing access to PPFP and the intervention's relatively low cost, the Government of Rwanda committed to scaling up PPFP services nationally in 2018.

In **Uganda**, MCSP, in collaboration with the Government of Uganda and USAID's Regional Health Integration to Enhanced Services bilateral programs, conducted a [costing analysis](#) to understand the financial implications of expanding a prioritized essential child health package (ECHP) in South West and East Central regions. The ECHP combines the integrated management of newborn and childhood illness (IMNCI) with other key preventive and curative services—such as static immunization clinics, community-based outreach sessions, nutrition counseling, and HIV/TB testing and referral—to help accelerate progress on under-5 mortality in priority districts. The analysis included estimating the costs of transitioning program-supported integrated trainings and mentorship and the costs to deliver the full ECHP at public PHC facilities to inform resource allocation and ongoing results-based financing initiatives. To roll out the ECHP in the four demonstration districts, MCSP and the Regional Health Integration to Enhanced Services programs employed two approaches for training and mentorship—a short-interrupted course in two districts and a distance learning approach in two districts⁷—which were subsequently costed. The analysis showed that although the short-interrupted course, which required facility staff to spend more time offsite, was more expensive than the distance learning approach, pre- and post-test results from the training/mentorship showed a similar 30% improvement in health worker competencies in IMNCI for both methodologies, suggesting that there was no significant difference in competency improvements between the two. The service delivery costing estimated that the annual per capita and per child under age 5 costs to deliver the ECHP were UGX 4,266 and UGX 19,184 (USD 1.15 and USD 5.18), respectively, representing 5% of Uganda's current per capita health expenditure from external and domestic sources (as some inputs were provided by external sources, such as Gavi and The Global Fund) and approximately 10% of per capita domestically sourced general government health expenditures. Thus, the ECHP represents a relatively low-cost package of curative and preventive PHC services. At the service delivery level, the combined set of interventions supporting the delivery of the ECHP corresponded to a greater percentage of cases appropriately managed and treated per the ECHP guidelines. With improved health worker capacity, case

⁵ Moore, Z., Pfitzer, A., Gubin, R., Charurat, E., Elliott, L., Croft, T. (2015) Missed opportunities for family planning: an analysis of pregnancy risk and contraceptive method use among postpartum women in 21 low- and middle-income countries. *Contraception* 92(1), 31–39.

⁶ Ibid.

⁷ The short-interrupted course for IMNCI involved two in-person sessions ideally 2 weeks apart—a 3-day session followed by a 2-day session, and then three mentorship sessions. The distance learning approach involved three 1-day in-person sessions followed by independent/group-led learning onsite and four mentorship sessions.

management, and quality of care, these cost estimates provided important inputs into advocating for resources to scale up the ECHP to help reduce under-5 mortality across Uganda.

In tandem with the child health costing analysis in **Uganda**, MCSP [assessed financing policies](#) and health funding flows, as well as health financing reforms (proposed and in development), to understand the effects that such initiatives may have on RMNCH services. A combination of desk review, secondary data review, and key informant interviews was used to gather information on challenges and opportunities related to RMNCH financing. The analysis revealed that subnational funding levels, particularly the low non-wage portion of district-level health grants (i.e., the amount used to provide outreach services, buy basic supplies, etc.), appear to limit the ability to provide high-quality RMNCH services. Review of Uganda's decade-long experience using results-based financing (whether solely targeting provider payments or embedded in a demand-side voucher) showed improved service coverage rates and adherence to clinical guidelines. As a result, the Government of Uganda plans to scale up results-based financing as a primary mechanism for discretionary funding to districts and facilities and as a major component of its RMNCH strategy. The results of these analyses, coupled with the costing of the ECHP, were important inputs for the MOH in planning to scale up the results-based financing scheme to priority districts.

In **Liberia**, approximately 28% of newborn deaths are caused by severe infections⁸ such as sepsis, which is caused in part by improper cord care. The MOH adopted a national policy in 2013 stating that chlorhexidine should be applied to the newborn's umbilical stump for all deliveries. However, pilot implementation of chlorhexidine was halted as a result of the Ebola epidemic. Starting in 2015, MCSP worked with the MOH and other partners to reinstitute and [scale up chlorhexidine use](#) at facilities and through community platforms throughout the country by costing a national scale-up plan over a 5-year period (2012–2017). The five primary strategies in the scale-up plan were to 1) strengthen leadership, governance, and coordination; 2) ensure adequately trained and supervised health workers; 3) ensure adequate procurement and distribution; 4) ensure correct application of chlorhexidine; and 5) develop systems to monitor chlorhexidine use for cord care at all levels. MCSP analyzed the cost per strategy per year, and outputs helped inform the MOH and other partners as they mobilized resources for the operationalization of the chlorhexidine scale-up plan. From October 2017 to February 2018, chlorhexidine coverage increased nationally from 50% to 76%, and it appears that Liberia has already achieved its target of 75% nationwide facility coverage by the end of 2018. As the country prepares to expand this lifesaving intervention to the community setting in 2019, it is on track to contribute to a 9% decrease in newborn mortality and save over 700 newborn lives⁹ with chlorhexidine scale-up.

In the **DRC**, as of 2015, the leading causes of childhood deaths were neonatal complications, diarrhea, pneumonia, and malaria.¹⁰ To address this challenge, the government of the DRC began [scaling up the full package of integrated community case management \(iCCM\) for childhood illness](#) in 2005. The iCCM approach is the extension of the facility-based IMNCI strategy, and it brings lifesaving treatment of childhood illnesses closer to children by training and supporting community health workers to manage and treat cases of diarrhea, pneumonia, malaria, malnutrition, and other illnesses. MCSP has been supporting the MOH to scale up iCCM since 2016 by ensuring that synergetic interventions such as training and supervision, logistics and supply system, and communication strategies are carefully designed, systematically costed, and regularly monitored. To support the scale-up of both iCCM and continued provision of IMNCI, the MOH with MCSP support developed a National Strategic Plan for IMNCI (*Plan Stratégique Nationale de la prise en charge intégrée des maladies du nouveau-né et de l'enfant 2018–2022*), which included cost projections to reach select under-5 mortality targets. The MOH Study and Planning Directorate led the costing exercise with support from

⁸ Liberia Institute of Statistics and Geo-Information Services (LISGIS), Ministry of Health and Social Welfare [Liberia], National AIDS Control Program [Liberia], ICF International (2014) *Liberia Demographic and Health Survey 2013*. Monrovia, Liberia: LISGIS and ICF International. Available at <http://dhsprogram.com/pubs/pdf/FR291/FR291.pdf>.

⁹ LiST calculation performed by MCSP using LiST v5.67. Using the results of the recent meta-analysis of CHX effectiveness (Sankar MJ, Chandrasekaran A, Ravindranath A, Agarwal R, Paul VK. (2016). Umbilical cord cleansing with chlorhexidine in neonates: a systematic review, *J Perinatol*. 36 Suppl 1:S12–20. doi: 10.1038/jp.2016.28.), the effectiveness of CHX in preventing deaths from neonatal sepsis was updated in LiST to 95% for home births and negligible for facility births. It was assumed that in post-Ebola Liberia, about 50% of births were home births, giving a weighted overall effectiveness of CHX of against neonatal sepsis of 48%.

¹⁰ Liu L, Oza S, Hogan D, et al. (2015). Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: an updated systematic analysis. *The Lancet* 385(9966): 430–40.

MCSP. The costing focused on four main domains—improving provider skills, improving family and community practices, strengthening health systems, and strengthening health system coordination for child health—and estimated a 5-year total resource requirement of USD 223 million. An accompanying analysis of the mortality impacts of the National Strategic Plan for IMNCI showed that 314,085 children under age 5 could be saved as result of the collective set of interventions.¹¹

In **Nigeria**, MCSP supported the state MOH and State Primary Health Care Development Agency in designing and launching a PHC-level [drug revolving fund pilot in Ebonyi State](#) to improve the financing and effective management of adequate facility-level stocks of essential drugs. Between 2017 and 2018, MCSP worked closely with state authorities to design drug revolving fund financial and logistics management methods for 171 facilities in each local government area across the state. MCSP developed a financial model for routine monitoring of the drug revolving fund scheme, which projected commodity use, revenues and costs, and profit distribution across the facilities to aid the implementation team with proactive analysis and monitoring. MCSP led a training for the Ebonyi State MOH to hand off the financial model as a core management tool. In 2018, drug revolving fund learnings and processes were presented to Ebonyi State officials to ensure multistakeholder ownership and sustainability of the Ebonyi drug revolving fund scheme.

Lessons Learned

- Cost analyses provided important analytics to government decision-makers to sustain programmatic approaches and to scale up high-impact interventions. Costing informed almost all MCSP’s prioritized scale-up interventions, including chlorhexidine in Liberia and Nigeria and iCCM in the DRC. Cost modeling of HBB/ENC and pre-discharge PFP in Rwanda and the ECHP in Uganda showed governments that they were relatively low-cost interventions with potential for high impact. To sustain investments, cost analysis should be accompanied by additional support to promote domestic resource mobilization and prioritization of RMNCH as part of country efforts to transition donor financing and reduce dependency. In Ghana, for example, costing was accompanied by tools and training for mobilizing domestic resources, which enabled decision-makers to advocate for funds to sustain investments.
- **The methodology chosen for analysis should produce cost data relevant to the right decision-makers.** Since many of the MCSP-supported costing analyses had an explicit goal to provide evidence for domestic resource mobilization, it was critical that the analyses’ outputs showed the required resources for a government to sustain MCSP approaches. Costing and financial analyses must incorporate this perspective, as well as relate the required resources to programmatic outputs, to present compelling investment cases to government stakeholders involved in resource allocation decisions. Beyond the costing perspective, the unit of analysis (e.g., district or facility) must be applicable to current financing arrangements so decision-makers can directly understand the implications of the findings on the relevant level of the health system.
- **Financing flows for RMNCH are often less understood than for other health programs, and frequently donor financing arrangements are fragmented and subnational funding needs are poorly aligned with financial flows.** In Uganda, subnational funding levels appeared to limit the ability to provide high-quality RMNCH services. Strengthening public financial management systems and accountability for health spending can help countries to advance along a path toward greater financial sustainability. More analytics and support are needed to understand and address these issues as they pertain to the sustainability of RMNCH outcomes and the realization of self-reliance.
- **Costing analyses should be coupled with comprehensive analysis of system-level scale-up needs.** Although cost and other financial analyses provide critical information to mobilize domestic resources to scale and maintain critical RMNCH services, they should more often be accompanied by other systems-focused analyses that consider the inputs required to increase coverage. Such analyses could

¹¹ The analysis was conducted with the Lives Saved Tool (LiST) and included the following high-impact interventions: exclusive breastfeeding, hygienic handwashing, insecticide-treated net use, IMNCI, and iCCM.

include health workforce investments to sustain mentorship models or the impact of scaling up on commodity security. Integration of such analyses at the beginning of programs creates an opportunity to present needed evidence to governments of the comprehensive system requirements to scale and maintain such interventions.

Way Forward

Findings across the DRC, Ghana, Liberia, Nigeria, Rwanda, and Uganda demonstrate the importance of realistic costing to develop feasible and sustainable scale-up plans for RMNCH services. National scale-up plans should routinely integrate costing and cost modeling to show the true, detailed incremental costs of integrating new processes and services into routine practice. Such modeling should also attempt to quantify the morbidity and mortality impacts if appropriate data is available through programming. Furthermore, additional analyses of a country's health financing environment should be conducted to understand the implications that new initiatives may have on RMNCH interventions. This work could also be combined with larger system-level analytics to understand financial bottlenecks of RMNCH services and cost-benefit or cost-effectiveness analyses with the goal of improving domestic resource mobilization to create more self-reliant systems capable of delivering high-impact RMNCH interventions.

Financial analyses to inform the scale-up and sustainability of RMNCH interventions should continue to be fully mainstreamed in all country engagements to support national scale-up of approaches after projects have ended. Supporting countries to generate evidence to inform domestic resource mobilization strategies, monitor public expenditure flows for RMNCH, and strengthen public financial management will help accelerate countries on their paths to self-reliance.

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