



## INVESTMENTS TO ACCELERATE REDUCTIONS IN MATERNAL MORTALITY

FINDINGS FROM EXPENDITURE STUDIES IN UGANDA AND ZAMBIA FOR THE SAVING MOTHERS, GIVING LIFE PARTNERSHIP

Photo by: Zambia Prevention, Care and Treatment Partnership/Mike Welsh

### BACKGROUND

Every day, 800 women die of pregnancy- or childbirth-related complications worldwide, with more than half of these deaths occurring in Africa. Many of the countries with the highest maternal mortality rates are also burdened by high prevalence of HIV infection, further stressing the systems that provide maternal health services. Under the Global Health Initiative (GHI), the United States government (USG) launched the Saving Mothers, Giving Life (SMGL) endeavor, with the objective of reducing maternal mortality by up to 50 percent. To achieve this ambitious goal, the model was piloted in countries that had strong commitments to maternal mortality reduction and where it could build on existing decentralized service delivery platforms for maternal health supported by the USG through the U. S. President's Emergency Plan for AIDS Relief (PEPFAR). Zambia and Uganda, with respective maternal mortality ratios of 591 and 435 per 100,000 live births, invited the USG to jointly implement this endeavor. SMGL was officially launched as a public-private partnership in 2012 to prevent maternal and newborn deaths using the District Health Network Model

that increases access to, quality, and use of maternal health services. SMGL was designed to provide targeted support for strengthening the delivery skills of health professionals, strengthening health facilities to provide quality obstetric and newborn care for normal and complicated deliveries, increasing deliveries in health facilities, and mobilizing communities to generate demand for and use of these services.

SMGL aimed to maximize efficiency by using a District Health Network Model that built on service delivery platforms with existing HIV/AIDS technical support, rather than introducing a new, standalone platform. To document actual financial resources invested, as part of the SMGL partnership, USAID asked the Health Policy Initiative (HPI) Costing Task Order in Zambia and the Health Policy Project (HPP) in Uganda to undertake expenditure analyses of the pilot phase. The two studies were to answer: "What additional expenditures were made to reduce maternal mortality in SMGL districts during the pilot phase?" The data from the expenditure analyses would be used to better understand the magnitude and composition of the actual expenditures invested to

strengthen service delivery during the pilot period, and to inform budget estimation for future expansion of the SMGL model within Zambia and Uganda and into new countries.

The first phase of SMGL was implemented in four districts of each country: in Zambia, Mansa in Luapula Province, Lundazi and Nyimba in Eastern Province, and Kalomo in Southern Province; in Uganda, Kabarole, Kamwenge, Kibaale and Kyenjojo, all of which are contiguous and located in the Western Region. The timeframe for the expenditure analyses totaled 20 months in Zambia (October 1, 2011–May 31, 2013) and 17 months in Uganda (January 1, 2012–May 31, 2013). During this time, significant investments were made in both countries to enable districts to provide safe obstetric and neonatal care.

## METHODOLOGY

These cross-sectional analyses collected data on actual expenditures from all SMGL partners investing in maternal health interventions in the pilot districts during the pilot implementation period. Partners were identified by the USG interagency team and the District Health Management Teams. The studies collected data on all district-level expenditures that were specifically associated with SMGL activities. Additional government investments in maternal health during the SMGL implementation phase, beyond existing expenditures in maternal health, were collected from the district MOH offices. Expenditure data, as well as monitoring and evaluation data to capture outputs (e.g., the number of persons trained or ambulances procured), were captured through structured interviews using a qualitative data collection tool and users' guide developed specifically for this analysis by HPP, and a corresponding Excel-based quantitative data collection tool.

Both quantitative and qualitative data were collected through semi-structured key informant interviews directed at the program and finance staff. In Uganda, more than 20 interviews were conducted, covering four district health offices, four donor agencies, and eight implementing partners. In Zambia, 27 interviews were conducted, covering all four district health offices, one provincial health office, three Zambian government agencies, three donor agencies, and 12 implementing partners.

While there may have been non-SMGL investments in maternal health in these pilot districts, these studies only

looked at SMGL investments made on top of an existing platform of maternal health services. Since these studies focused on expenditures rather than costs, they did not seek to conduct cost analyses of the existing platforms, nor did they attempt to generate unit cost data (e.g., the cost of safe delivery or a C-section). The studies were not audits; therefore expenditures were not compared with the planned budgets. Because the districts were selected due to high levels of maternal mortality and existing platforms through which to provide services, the results must be interpreted within this unique context. As such, the analyses provide expenditure data that can be used as proxies for the magnitude and composition of investments needed to inform the scale-up of this model in other districts. Expenditures associated with special Proof of Concept studies, such as the retrospective maternal mortality survey and the ethnographic appraisal in Zambia, were not included.

## FINDINGS

### Expenditure Categories

SMGL expenditures fell into two major categories: 1) Service Delivery (expenditures that contribute directly to the improvement and use of maternal health services); and 2) System Support (expenditures that are cross-cutting and support service delivery but are not typically at the point of service delivery).

*Service Delivery expenditures* include three sub-categories (Table 1):

- **Capital Investments:** Expenditures for items or activities that are expected to have a useful life of more than one year, and directly impact labor and delivery services at the point of care;
- **Recurrent:** Expenditures resulting from those investments, i.e., for consumables and other items that are used routinely during the year. It is expected that the requirement for these expenditures will be ongoing to achieve any gains realized by the SMGL model; and
- **Community Mobilization/Demand Generation:** Expenditures to support community-level activities and demand generation to promote health facility deliveries, reduce the delay in seeking care for an obstetric emergency, and report potential maternal deaths.

*System Support expenditures* include three sub-categories (Table 1):

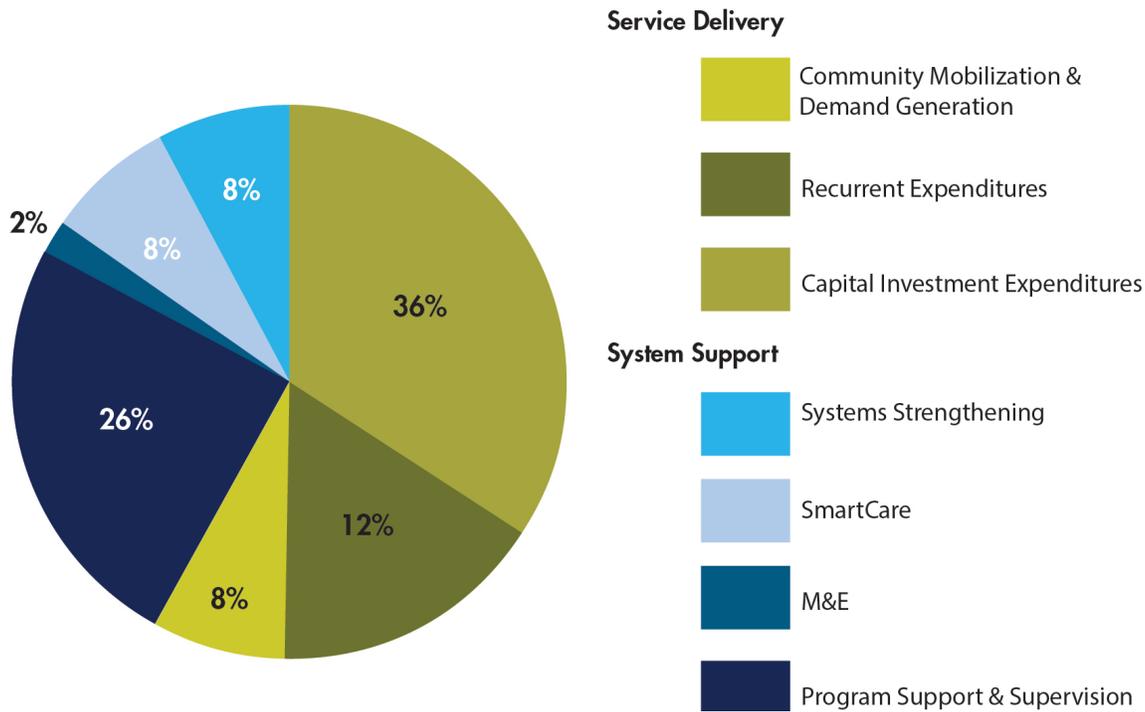
- Program Support and Supervision: Expenditures to support program implementation, coordination, and oversight that were not directly tied to the point of service delivery;
- Monitoring and Evaluation: Expenditures for routine monitoring of the SMGL initiative (these would be expected as part of the roll out of this model to any district and are not a part of the overall proof of concept); and
- Systems Strengthening: Expenditures contributing to the overall strengthening and improvement of the health systems that deliver services to pregnant women and their newborns.

Some additional categories of expenditures were unique to each country: the roll out of the SmartCare Electronic Health Records System in the SMGL district health facilities in Zambia; and two voucher schemes that reimbursed transportation and medical costs for private care associated with delivery and obstetric emergencies in Uganda.

**Table 1: Expenditure Categories**

| Service Delivery  |  | System Support  |  |
|---|--|---|--|
| Capital Investments   | Community Mobilization/<br>Demand Generation   | Program Support and<br>Supervision  | Systems Strengthening  |
| Training<br>Emergency transportation<br>Equipment and furniture<br>Communication equipment<br>Voucher training and<br>equipment (Uganda only)<br>Construction and renovation<br>Other | Personnel (community<br>workers/volunteers)<br>Media<br>Volunteer job aids<br>Travel and transport<br>Information, Education<br>and Communication (IEC)<br>materials production and<br>development<br>Training<br>Community mobilization<br>activities | Personnel<br>Equipment and supplies<br>Planning and coordination<br>Travel and transport<br>Other   | Personnel<br>Supportive supervision<br>MIS<br>Travel and transport<br>Curriculum and materials<br>development<br>Other |
| Recurrent   |  | Monitoring and Evaluation<br>(M&E)  | SmartCare Electronic<br>Health Records System<br>(Zambia only)   |
| Personnel<br>Medical supplies and drugs<br>Non-medical consumables<br>Travel and transport<br>Communications<br>Voucher reimbursements<br>(Uganda only)<br>Other                      |  | Personnel<br>Coordination and meetings<br>Equipment and supplies<br>Health facility assessments<br>Travel and transport<br>Other M&E expenditures | Personnel<br>Equipment and supplies<br>Travel and transport<br>Training  |

**Figure 1: Zambia SMGL Expenditures**



### Zambia Country-Specific Findings

A total expenditure of \$8.14 million was invested by SMGL partners in the four districts in Zambia during the 20 months for which data were collected. Of this amount, \$4.5 million (56%) went to service delivery and \$3.6 million (44%) was spent on systems support. Expenditures varied widely by district, ranging from \$0.88 million to \$2.29 million depending on the unique gaps and context determined at baseline, district population, number of facilities, and resources available to address the gaps. Across the four pilot districts, there was large variation in the quantity and type of investments.

Capital investments in service delivery (36%) constituted the largest portion of total expenditures. These investments included training medical personnel in safe delivery and emergency obstetric care; procuring ambulances and other emergency transportation vehicles, facility equipment, and furniture; and renovation and refurbishment of health facilities and mothers’ waiting shelters. Recurring expenditures made up the third largest category (12% of total expenditures), which was spent on medical supplies and drugs as well as salaries for doctors, nurses, midwives, lab technicians, and other health facility personnel directly involved in service delivery. Community mobilization and demand generation expenditures accounted for 8 percent

of total expenditures and were mostly spent on training community volunteers, including their travel, compensation, and job aids; IEC material and media development and production; and community mobilization activities. Expenditures for systems support included program support and supervision (26%), monitoring and evaluation (2%), the SmartCare Electronic Health Records System (8%), and systems strengthening (8%).

The four SMGL pilot districts in Zambia were far apart, with only two located in the same province. As a result, investments did not fully benefit from economies of scale, and resources such as trainers, vehicles, and improvements to the blood storage system could not be shared among districts.

The variations in investments across the four districts demonstrate the benefits of conducting a Health Facility Assessment at the outset of SMGL to identify specific areas of need in each district, resulting in tailored responses to reduce maternal and neonatal mortality.

The expenditure analysis highlighted the potential for immediate benefit and impact from targeted infrastructure investments in health facilities, equipment, and emergency



Photos by: Zambia Prevention, Care and Treatment Partnership/Mike Welsh

In Mansa, Zambia, SMGL supported the renovation of the Matumbusa Mothers' Shelter, providing a safe space for pregnant women to stay near a health facility as they prepared to go into labor.

transportation, and long-term investments in skills development through training and mentoring. While the analysis shows lower recurrent expenditures than capital investment expenditures, the total amount required to sustain the initial investments may increase over time to support longer-term investments, as new infrastructure investments become functional and demand generation leads to increased use of facilities and services.

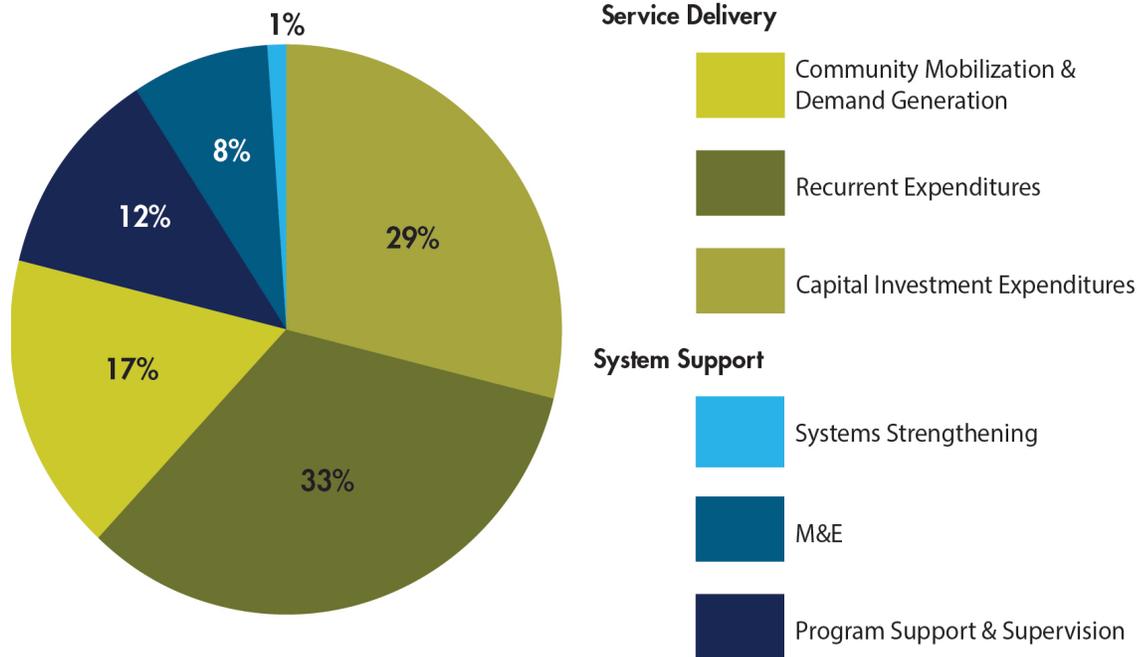
Community mobilization expenditures included training of 1,548 community volunteers to form Safe Motherhood Action Groups (SMAGs), at an average of \$190 per person. In addition, a one-time investment in job aids for the SMAGs supported their work visiting communities and households to promote health facility deliveries, helped them make arrangements for transport during emergencies and report potential maternal deaths, and acted as an incentive to retain their volunteer services. The job aids included bicycles, t-shirts or uniforms, umbrellas, raingear, bags, and branded chitenge fabric at an average cost of \$130 per person.

## Uganda Country-Specific Findings

In total, \$10.5 million was spent over 17 months for the four districts in Uganda. The majority (79%) of expenditures went to improve the quality and use of services, and the remaining 21 percent was spent on system support. Expenditures varied widely by district, ranging from \$0.83 million to \$4.16 million depending on the unique gaps and context determined at baseline, district population size, number of facilities, and existing resources available to address gaps.

Expenditures for service delivery included: 1) Capital investments (29%) for construction of mothers' shelters and renovation of health facilities, equipment and furniture for the facilities, emergency and other transportation, training of medical personnel in safe delivery and emergency obstetric care, and voucher scheme training and equipment; 2) Recurrent expenditures (33%) for costs associated with capital investments, in addition to salaries for medical and program personnel directly providing clinical services, voucher reimbursements for medical care and transportation, non-medical consumables, medical supplies and drugs, and travel and transportation; and 3) Community mobilization and demand generation (17%) to promote health facility deliveries through community worker training, compensation, and job aids, as well as IEC material and media development and production, and community mobilization activities. The remaining funds were spent on system support for program

**Figure 2: Uganda SMGL Expenditures**



support and supervision (12%), M&E (8%), and systems strengthening (1%).

There were differences in the package of SMGL services provided in different districts. One innovative program implemented under SMGL allowed low-income women to purchase transport vouchers that provided taxi fare at a fraction of the cost for a motorcycle taxi so they could reach the nearest health facility when they went into labor. This program generated so much demand that within three months of its inception, all the vouchers allocated for the entire length of the SMGL implementation phase had been purchased. The program was only available in three of the pilot districts, and not in Kibaale.

There is anecdotal evidence that the SMGL-supported renovation of facilities led to many deliveries occurring outside of SMGL districts during the construction period. This may have affected recurrent expenditures such as drugs/supplies and transportation, and the investment period will likely show a lower level of recurring expenditures than when the facilities are fully operational. Though the data were collected toward the end of the pilot period, many partners were still in the process of making additional investments, such as training.

## DISCUSSION AND CONCLUSIONS

One of the key contributions that partnerships such as SMGL can make toward rapid improvements in maternal health is direct financial support for capital investments. These investments have a long-term impact on service quality and availability. Because the impact of these investments is expected to last well past the duration of the pilot phase of SMGL, the study team projected the number of births for a five-year period in the pilot districts and calculated the per-birth cost of capital investments in service delivery. Over the next five years, Uganda is projected to have 431,276 births in the four pilot districts, resulting in a total of \$6.93 spent on capital improvements per birth, while Zambia is projected to have 226,963 births in pilot districts, resulting in a total of \$12.74 expended on capital improvements per birth. It is important to contextualize the interpretation of the results from these studies given the differences between countries and across districts within each country. One of the main reasons for the difference in expenditure per birth is the population density in each country—while the total expenditures in capital investments were similar (\$3 million in Uganda

compared to \$2.9 million in Zambia), the population reached in Uganda was roughly twice that in Zambia. Additionally, because the pilot timeframe was short, all required investments may not yet be incurred, and recurrent expenditures associated with investments have yet to take full effect. Therefore, the cost projection only reflects the average per-birth capital investment in service delivery made by SMGL in the pilot districts. Recurrent expenditures were not included in this calculation due to the fact that they will rise as more women use the new services provided by SMGL. To further decipher the differences in the levels of investment required per district and estimate SMGL's attribution in the total cost, these studies also suggest the need for a more comprehensive understanding of the cost per delivery in each district after all the projected investments have been made and service delivery takes full effect.

The SMGL endeavor aims to demonstrate how a district-strengthening model can accelerate the reduction of maternal and neonatal mortality in resource-constrained countries. These studies provided important expenditure data and findings on the level and types of SMGL investments made in the pilot districts. These data and findings are essential for informing the planning and efficient roll out of this model to additional districts and countries.

- Health facility assessments in each country identified district-specific gaps and allowed for customized and targeted investments.
- The types of investments in infrastructure and equipment were similar across districts in the two countries.
- Expenditures on personnel, training, and mentoring varied significantly depending on the baseline level of human resource availability and competency in the districts.
- Investments in community mobilization addressed barriers to access and use of services and helped in the identification and reporting of deaths at the community level.
- Costs for program support and supervision will likely decrease dramatically as ownership of SMGL activities is transitioned to host governments and the model is scaled up because fewer partner-funded staff will be required to support program implementation.

- Scale-up to contiguous districts will likely result in cost savings for the initial investments required and reduce recurring transport and accommodation costs as more of the training and mentoring is conducted locally.
- Many facilities participating in voucher-for-service programs had not factored overhead costs into the contracted amount of voucher reimbursement. At one facility, the number of deliveries tripled, but the voucher reimbursement was insufficient to allow the facility to hire new midwives or purchase beds to support the larger caseload.
- Districts with existing PEPFAR implementing partners spent significantly less on system support, suggesting the benefits of building on strong existing platforms.

In many low- and middle-income countries, governments are stretched to prioritize and provide support for improvements in district health systems and services. The data captured through these expenditure analyses and the impact results from SMGL's Proof of Concept provide strong evidence that donors can make an immediate and positive contribution toward rapidly reducing maternal and neonatal mortality by providing targeted investments at the district level. Important investments included filling gaps in medical personnel, providing training and mentoring in safe delivery and emergency obstetric care, increasing access to functioning health facilities by improving equipment and infrastructure and investing in transport, and mobilizing communities to create demand. By assessing the needs of various districts across the two countries, data on actual expenditures provide significant value in guiding and informing the planning process for expansion of the SMGL model across other districts. Significant investments have been made in the existing HIV and maternal health platforms. Building on the synergies from these platforms, it is only natural to focus on strategically investing resources where they are most needed. In addition to the quantitative data on level and type of expenditures incurred during the SMGL implementation, the studies generated useful qualitative findings that can help contextualize the quantitative findings and assist the host national governments and the USG with decision making related to scale-up and improvements in safe motherhood.

## ACKNOWLEDGMENTS

The expenditure analysis in Zambia was conducted by Joni Waldron, Policy Analyst, Futures Group; Dr. Adebisi Adesina, Senior Economist; and Dr. Bill Winfrey, Senior Health Economist, Futures Institute. In Uganda the expenditure analysis was conducted by Joni Waldron, Policy Analyst, Futures Group; Dr. Adebisi Adesina, Senior Economist, Futures Institute; and Mr. Mark Tumwine, Health Economist, CDC.

HPP would like to thank the following individuals and organizations for their valuable contributions: In Uganda: Mr. Mark Tumwine, Economist, CDC; and Ms. Sheba Bamutiina, Budget Specialist, USAID. In Zambia: Dr. Maximillian Bweupe, Deputy Director, Public Health and Research, Ministry of Health; Dr. Jorge Velasco, Deputy Health Team Lead, USAID; and Dr. James McAuley, Deputy Country Director, CDC. In Washington, DC: Dr. Marta Levitt, Senior Multisector Advisor, USAID Office of HIV/AIDS; and Mr. Elan Reuben, Economist (USAID OHA). Additionally, HPP would like to thank all of the district, provincial and regional health offices and SMGL implementing partners for their time and support in providing the data for these analyses.

The work in Zambia was conducted under the USAID | Health Policy Initiative, Costing Task Order.

### Contact Us

Health Policy Project  
One Thomas Circle NW, Suite 200  
Washington, DC 20005

[www.healthpolicyproject.com](http://www.healthpolicyproject.com)  
[policyinfo@futuresgroup.com](mailto:policyinfo@futuresgroup.com)

The Health Policy Project is a five-year cooperative agreement funded by the U.S. Agency for International Development under Agreement No. AID-OAA-A-10-00067, beginning September 30, 2010. The project's HIV activities are supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). It is implemented by Futures Group, in collaboration with CEDPA (part of Plan International USA), Futures Institute, Partners in Population and Development, Africa Regional Office (PPD ARO), Population Reference Bureau (PRB), RTI International, and the White Ribbon Alliance for Safe Motherhood (WRA).

The information provided in this document is not official U.S. Government information and does not necessarily represent the views or positions of the U.S. Agency for International Development.