

Community Health Worker Program in Mali Under Threat:

Evidence to Drive Advocacy Efforts

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The Role of Community Health Workers Globally and in Mali

Globally, community health workers (CHWs) offer a cost-effective way to boost access to, demand for, and use of health services. CHWs can guarantee returns on investment at a rate as high as 10:1 (Dahn et al., 2015). Maintaining and strengthening CHW programs is one of the less costly ways to provide essential primary health services to rural populations. A review of 36 journal papers published between 2003 and 2015 showed the cost-effectiveness of CHW programs in low- and middle-income countries in the key areas of tuberculosis, malaria, and reproductive, maternal, newborn, and child health. CHW-based interventions can be 36% more cost-effective—or cost 74% less—than health facility-based care, depending on the disease area (Vaughan et al., 2015).

With 400 million people worldwide lacking access to essential healthcare services (WHO, 2015) and an estimated shortage of 17.4 million healthcare workers needed to attain universal health coverage worldwide (WHO, 2016), CHWs can play a central role in helping to achieve the health-related targets of the Sustainable Development Goals.

Since 2009, the health system in Mali has relied on CHWs to deliver essential community health services (ECS) to rural populations (services listed in Box 1). In 2015, CHWs covered over 3 million Malians living in such areas (Saint-Firmin et al., 2017). However, CHWs have not yet been mentioned in the country's national health system law, raising issues related to their eligibility to be paid from the national budget. This leaves the program almost completely dependent on donor funding and threatens the sustainability of the community health program. In the context of declining donor funding, there is an urgent need to support a transition from external to domestic sources of funding.

Challenges to Sustainable Financing

With a few exceptions, salary, training, and other associated costs for CHWs to provide essential care services in Mali is funded by donors, making the sustainability of this important workforce unlikely in the long term. Transitioning from external to domestic sources of funding, requires effective decision making and advocacy for sustainable financing.

Box 1. Services Provided by Community Health Workers as Part of the Essential Community Health Service Package

- **Curative services**
 - ◆ Curative consultation
 - ◆ Malaria rapid screening test
 - ◆ Uncomplicated malaria management
 - ◆ Referrals
 - ◆ Diarrhea management
 - ◆ Pneumonia management
 - ◆ Cough and cold management
 - ◆ Moderate acute malnutrition management
 - ◆ Other curative management
- **Promotive services**
 - ◆ Home visits
 - ◆ Health educational talks
 - ◆ Family planning counseling
- **Preventive services**
 - ◆ Demand generation
 - ◆ Newborn follow-up
 - ◆ Education on lactational amenorrhea method
 - ◆ Oral contraceptives (pill) provision
 - ◆ Male condom distribution
 - ◆ Female condom distribution
 - ◆ Standard day method cycle beads distribution
 - ◆ Spermicide-based contraceptives distribution
 - ◆ Provision of contraceptive injections
 - ◆ Referrals for family planning
- **Activity reporting**

To support Mali's journey to self-reliance, the Health Policy Plus (HP+) project, funded by the U.S. Agency for International Development (USAID), generated data to help the Ministry of Health and Public Hygiene (MOHPH) understand costs of and challenges to the CHW program. These challenges included:

- Inaccurate information about the numbers, location, terms of service, and modes of payment of the CHW workforce
- Absence of a central repository with information on how much CHWs are paid, and by whom
- Absence of documentation on employment prerequisites
- Uncertainty about the real cost of service provision components such as human resources (salary and benefits), drugs and supplies, pre- and in-service training, supervision, and other program management costs

From September 2016 to April 2017, the project conducted a situational analysis of the CHW program, developed a mapping tool for CHW workforce and program funding analysis, and conducted a service costing and financial gap analysis. The results of these activities—summarized in this brief—were used to formulate phased recommendations for increased public expenditure on the CHW program.

General Approach

Understanding how the CHW program operates was a key starting point for the MOHPH to successfully advocate for the mobilization of increased domestic funding. Combining primary

and secondary data, HP+ applied a unique approach involving computerized cost modeling and expenditure and geospatial mapping to answer underlying policy questions. Information collected between September 2016 and April 2017 included CHW numbers and deployment, expenditures mapped by region and source, funding commitments mapped by source and program input area, and financing required for the CHW program in compliance with national standard care protocols and intended scale. Funding needed was compared to actual expenditures and funding available to estimate gaps over the next five years (2016–2020).

Step 1. Conduct a Situational Analysis

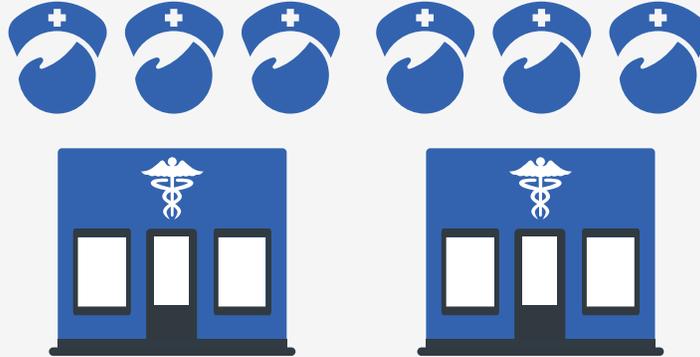
HP+ collected information from primary and secondary sources and synthesized workforce and program expenditure data to provide the basis for subsequent cost analyses. Information gathered included CHW numbers, locations, terms of service, payment sources, payment modes and amounts, reported expenditures by funding source, and program input areas.

Results from the situation analysis provided the MOHPH with critical information about the CHW program. The following are some key results from the analysis (see Saint-Firmin et al., 2017 for full results).

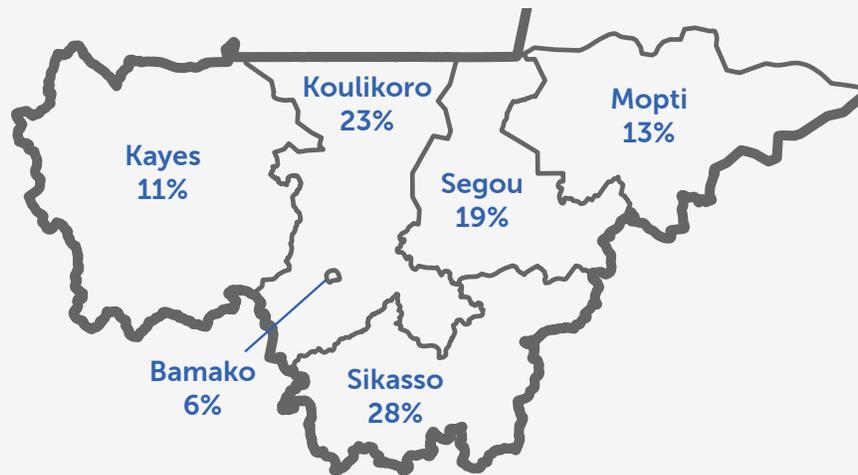
- ***CHWs contribute extensively to the provision of care in rural Mali.*** In 2015, the five regions of Southern Mali had 2,337 CHWs affiliated with 775 facilities covering 49% of the rural population. CHWs were working in over 2,026 villages across five regions plus Bamako District (see Box 2).
- ***The CHW program relies primarily on donor resources for funding.*** In 2015, the CHW program had more than 10 funding sources, including the World Food Programme (47%), the United Nations Children’s Fund (UNICEF) (18%), and PSI (14%) (see Box 2). Relatively small contributions were mobilized by some communities and municipalities, and the central government has yet to provide budgetary support to the CHW program.
- ***Cost for drugs and commodities represents a challenge to the sustainability of the program.*** The 2015 cost of the CHW program was estimated at US\$13.01 million, 88% of which was supported by donors and implementing partners. Among the six program input areas considered, CHW salaries and equipment—thought to be the biggest program cost—represented only 20% of the resources, while drugs and commodities accounted for 63% and capital costs represented 11%.
- ***Inadequate working conditions contribute to high turnover.*** Most CHWs (2,187 out of 2,337) lacked a formal employment contract and many were not paid on time or provided with adequate working conditions by the local communities.
- ***The compartmentalization of donor and implementing partner interventions makes resource coordination and planning for the CHW program difficult for the MOHPH to manage.*** No implementing partners operated across all regions and program areas in 2015, and only two (the World Food Programme and UNICEF) supported all five southern regions.

Box 2. Services Provided by Community Health Workers as Part of the Essential Community Health Service Package

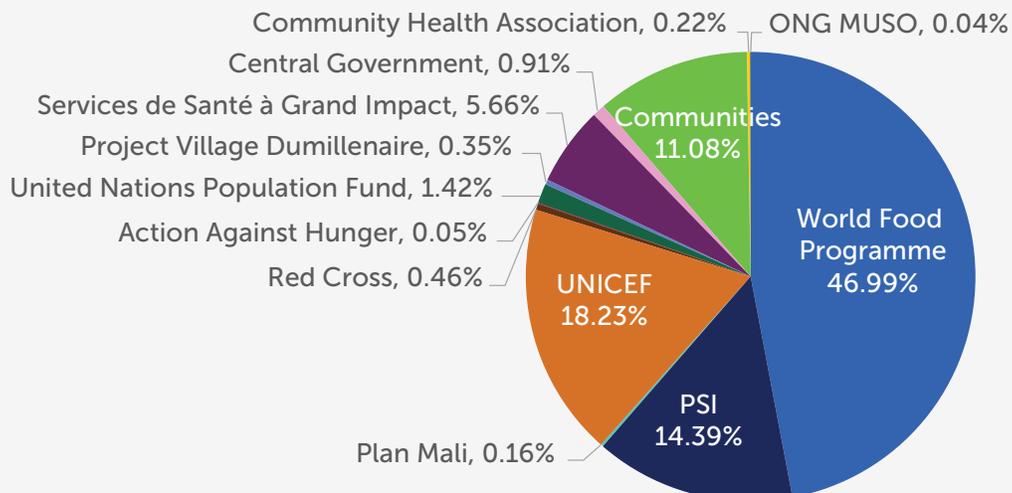
Overall, 2,337 CHWs at 775 facilities



Distribution of CHWs by Region



CHW Funding Sources



Step 2. Create a Community Health Worker Resource and Geospatial Mapping Tool

To complement the situation analysis, HP+ developed a mapping tool to provide clear, concise, and accurate data on active CHWs, amounts spent by source and program area, location of health facilities and CHW-covered villages and health districts, and population density. This information, which was initially collected during the situation analysis, was entered into the mapping tool to create visualizations that can be used to advocate for evidence-based domestic resource mobilization to finance the CHW program (see Box 3).

Specifically, the tool illustrates key functionalities that can be used to facilitate program workforce planning and funding coordination. The home page allows the MOHPH's National Directorate of Health (NDH) to enter donor data by region and year. The NDH can create custom indicators and add new donor organizations, updating information over time. The tool exists as a web- and computer-based repository of data with geospatial analytic capabilities, providing real-time data for decision making and advocacy. Key stakeholders can access data on different funding sources and program areas supported. Information is available on individual tabs by donors and can be regularly updated by the NDH. Box 4 provides images of the tool's workforce information and program funding data, as well as a regional-level output map. Results across regions such as Sikasso and Koulikoro revealed that CHWs and health facilities may be inefficiently clustered and/or dispersed. Distribution of health resources across some municipalities is inadequate and does not necessarily follow population density, leading to suboptimal coverage.

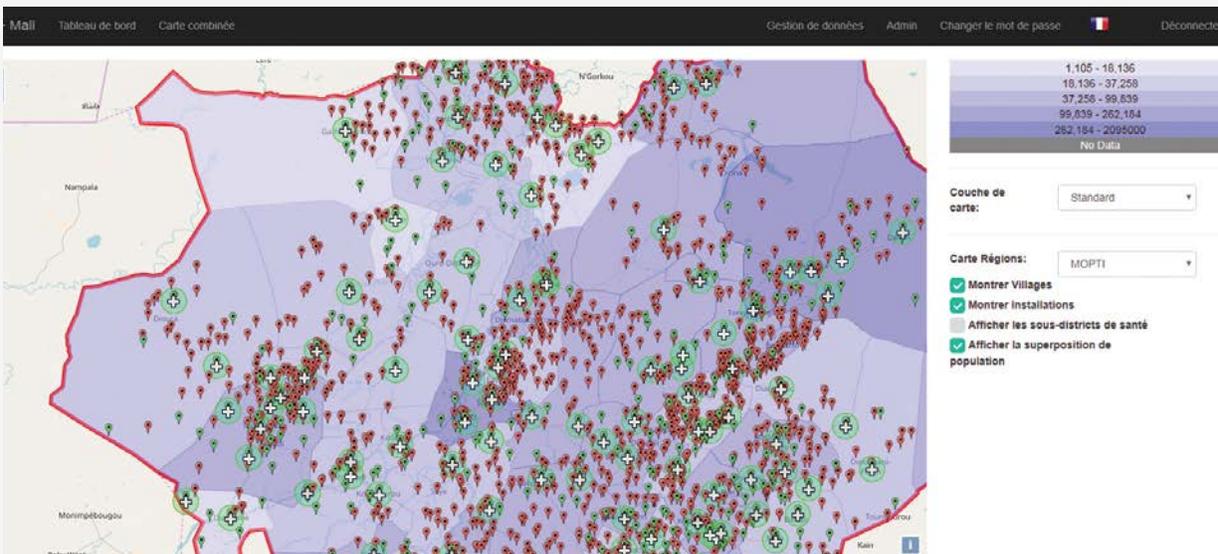
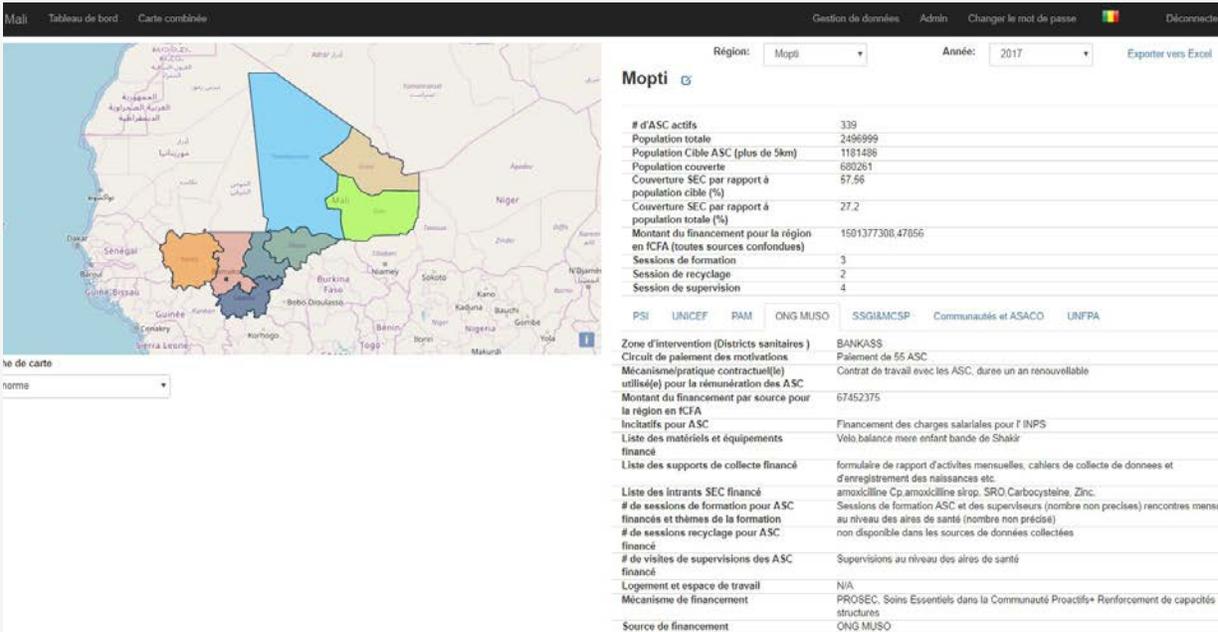
HP+ trained the NDH, civil society organizations, donors, and implementing partners on how to use the tool in order to build joint accountability for an improved ECS program. The mapping tool empowers the MOHPH and other stakeholders (like the Federation of Community Health Associations) to make informed decisions, while encouraging better coordination to improve efficiency in resource allocation for maximum impact.

Box 3. Geographic Information Systems for Decision Making

Geographic information systems (GIS) are a powerful and easy way to display information to assist decision-makers in visualizing bottlenecks. The mapping system developed by HP+ will assist the MOHPH in planning and evaluating the CHW program and provide evidence to mobilize resources to finance the program. Breaking down complex data into accessible and interpretable information has the potential to lead to positive outcomes including:

1. Improved prioritization of high-impact interventions for identified at-risk or under-served populations
2. Cost-savings through improved allocation of resources
3. Increased transparency for citizen engagement through more effective involvement of civil society organizations at the regional level
4. Strengthened collaboration among international partners
5. Enhanced overall decision-making and planning by government officials

Box 4. Mapping Tool: Program Funding and Workforce Dashboard (top) and Regional-Level Geospatial Output (bottom)



The figure above depicts 2017 workforce and program funding information for ONG MUSO, a local civil society organization, working in the Mopti region. Green locations are villages covered by CHWs and red locations are areas not covered by CHWs. Health facility locations are represented by white crosses surrounded by a green radius representing its immediate catchment area (< 5 km). The different shades of purple represent population density at the municipality level. With this tool, population coverage by CHWs and community health centers can be visualized and inefficient distribution of community health resources—leading to suboptimal coverage—can be easily identified by municipality across all five regions.

Step 3. Determine Funding Needs

Building off the data collected during the situation analysis, HP+ led a costing analysis of the CHW program to further inform advocacy for improved sustainability, answering the following questions:

- How much funding is needed for CHW salaries, training, and other costs to reach national intended scale and targets?
- How might CHW workforce requirements and costs change over time?
- What is the average cost of the program per CHW or service provided?
- What changes to program implementation can provide cost savings?

To answer these questions, HP+, implementing partners, and key NDH staff worked together to collect and analyze data from national protocols, surveys, and expert panels. Data were entered into the Excel-based Community Health Planning and Costing Tool, developed by Management Science for Health and UNICEF, to model cost estimates for individual health services, packages of services, and public health programs such as for family planning, malaria, nutrition, and maternal, newborn, and child health. Box 5 is a summary of the data collection and analysis process.

Box 5. Data Collection and Analysis Process

- Analyzed the nature of the package of services provided by CHWs based on the national CHW guide
- Collected incidence and prevalence rates using national published data
- Reviewed standard treatment guidelines provided by the MOHPH to determine the standard level of inputs required by CHWs to provide health services to the community
- Estimated time required for CHWs to provide each service (based on input from a panel of community health experts)
- Collected reported 2015 utilization data from all facilities implementing the CHW program
- Collected unit prices for medicines, supplies, and equipment using an official product pricing list for 2015 provided by the Ministry of Economy and Finance
- Collected supervisory and management workforce salary information from the human resources department and an expert panel
- Collected and analyzed financing contributions and commitments from all funding sources of the CHW program
- Populated the Community Planning and Costing Tool and reviewed results to ensure quality data

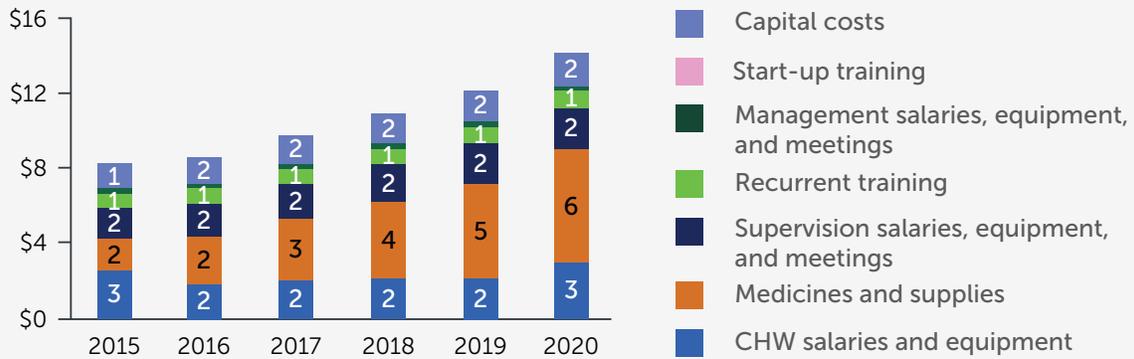
Some of the key results include the following:

- Sustaining the CHW program to meet coverage targets requires increased program financing.*** Increasing CHW-provided service coverage is a national strategic priority for the government of Mali to reach the village level with health services. Sustaining a steady coverage increase across all services for the next five years requires an increase in the total number of services provided and an increase in the cost of the program per CHW over time. In the first year (2015), the estimated total cost of the program per CHW was \$5,949.¹ However, currently available resources are expected to diminish as funding commitments decline from \$13.01 million in 2015 to a projected \$9.71 million in 2020 (see Box 6).
- Costs for services included in the ECS package can be reduced through efficiencies.*** In 2015, \$13.01 million was invested in the CHW program, 55% more than what was needed if standard care protocols were followed. If resources were utilized according to Mali's established care protocols, only \$8.36 million (\$3,823 per CHW) would have been needed to provide the same amount of services, indicating that resources could have been used more efficiently. The ECS package provided by CHWs in 2015 was estimated to cost an average of \$10.50 per service—this amount could decrease to \$2.52 by 2020 from potential benefits of increased workforce productivity, and technical and allocative efficiency from compliance with national standards.
- Allocative efficiencies and opportunities for domestic resource mobilization should be explored.*** Although the CHW services that reach rural populations are better and less costly than similar facility-based services, funding needs for the ECS package will increase the cost of most major public health programs over time. Total funding needed for the CHW program is expected to rise to \$14.15 million by 2020 (see Box 6); allocative efficiencies need to be explored while also ensuring increased funding, preferably through growing domestic resource mobilization. Potential domestic sources of funding to support the cost of CHWs in Mali might include tax-based financing from the central government to the public health system, decentralized budgets at the municipal level, and revenue from community health associations that manage primary health care facility user fees.
- Some components of the CHW program benefit from a funding surplus while others face a deficit.*** Projected funding commitments for the CHW program in Mali over the next five years indicate that areas of program support, such as medicines, supplies, and consumables and start-up trainings, will be over-funded while others, such as supervision, management, recurrent training, and CHW salaries and equipment, will be underfunded. With the decline in donor funding, there is a projected cumulative financial gap of \$18.75 million mainly for supervision, management, recurrent training, and CHW salaries by 2020 (see Box 6). This represents 12.8% of government health expenditures, based on the 2014 National Health Accounts (MOHPH, 2016). Mobilizing domestic funding through increased public spending and targeting these areas of the CHW program are critical for its sustainability in the short and medium term.

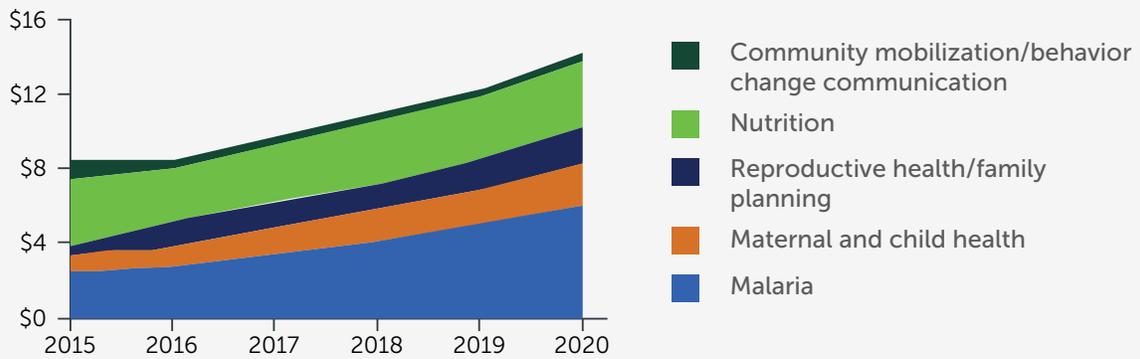
¹ All costs are presented as constant 2015 U.S. dollars.

Box 6. CHW Funding Needs, Availability, and Gaps

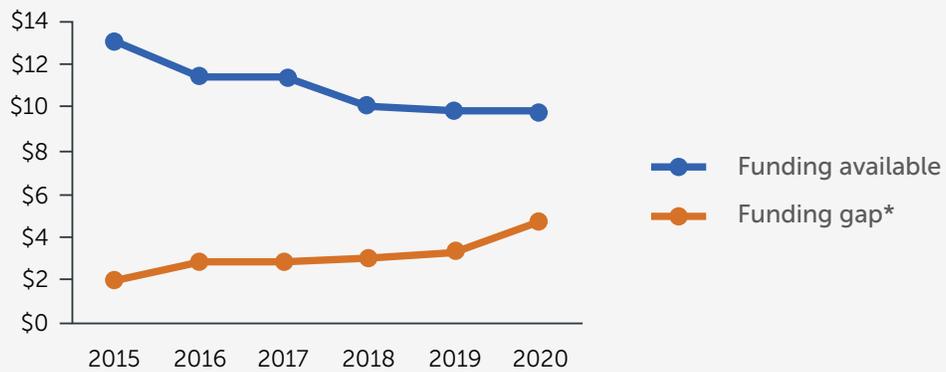
CHW Funding Needs, by Program Input (US\$ Millions)



CHW Funding Needs, Across Public Health Programs (US\$ Millions)



Projected Available Funding and Funding Gap for the CHW Program (US\$ Millions)



* Mainly for supervision, management, recurrent training, and CHW salaries.

Conclusion and Next Steps

Mali's journey to self-reliance is bolstered by the government's commitment and open and accountable governance, which translates into substantial political will (USAID, n.d.). The evidence generated by HP+ can catalyze more active government involvement as a financing source and a coordination body for partners involved in CHW program planning and implementation. This research has provided the government of Mali with evidence to more accurately estimate how much funding is needed for the CHW program and where to invest those funds. The MOHPH, local authorities, CHW advocates from civil society, and implementing partners now have evidence to make well-informed decisions and ensure that financing of village-level community health services stays on the agenda as the country embarks on broader health system financing reforms.

The mapping tool provides accurate workforce and funding information by region that can be used to inform government and partner resource allocation investment decisions for the CHW component of the ECS program. The CHW services costing tool provides information on funding allocations and can be used to examine data per capita, service, or CHW by average cost of package and/or by program area. The cost analyses explored the criteria for resource allocation while ensuring efficiency and quality and considering financial commitments, program scale-up, and the cost implications of current inefficiencies.

Using the results from the situation analysis, mapping, and cost analyses, the MOHPH and its partners formulated core recommendations to drive advocacy efforts aimed at improving CHW program planning and financing. These include:

1. Leverage financing at the central and municipality levels, prioritizing under-funded elements like remuneration of CHWs and supervision costs
2. Enforce national protocols for standards of care through a dedicated supportive supervision system built around three areas: (i) systematic supervisor review of CHW reports, (ii) observation of the CHW at work, and (iii) collection and review of beneficiary assessments of CHWs
3. Strengthen coordination and implementation structures of the CHW program at all levels.
4. Ensure investments are based on national priorities and needs and align technical and financial partners with national strategic priorities

The MOHPH and partners are following through on these recommendations to include CHW costs in national- and municipal-level budgets. Strong government commitment to a well-rounded community health program supported by government-employed workers, a dynamic supervisory and management workforce, strong supply chains, and an effective flow of health information will ensure that rural populations are not left behind.

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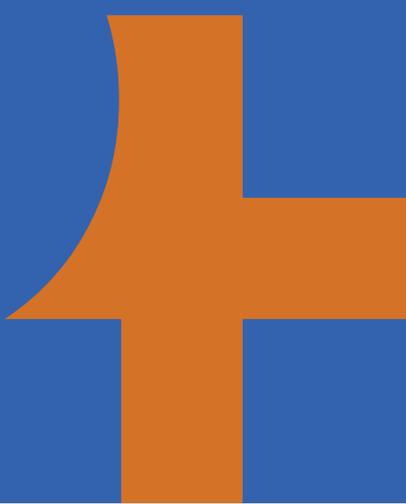
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