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Project title: Strengthening management at district level to support the achievement of Universal Health Coverage

Ghana Country Report

Deliverable D2.1

PERFORM 2SCALE
IMPROVING HEALTH WORKFORCE PERFORMANCE

D2.1

Ghana country report

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Improving health workforce performance

Key project information

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List of abbreviations

ANC	Antenatal Care
AR	Action research
BP	Blood Pressure
CHAG	Christian Health Association of Ghana
CHC	Community Health Committee
CHMC	Community Health Management Committee
CHN	Community Health Nurse
CHO	Community Health Officer
CRT	Country Research Team
CW	Consortium workshop
DG	District Group
DHA	District Health Administration
DHMT	District Health Management Team
GHS	Ghana Health Service
HMIS	Health Management Information Systems
HIV/AIDS	Human immunodeficiency virus /Acquired immune deficiency syndrome
HR	Human Resource
ICA	Initial Context Analysis
IGF	Internally-Generated Funds
JOICFP	Japanese Organization for International Cooperation in Family Planning
MoH	Ministry of Health
MP	Member of Parliament
MSI	Management Strengthening Intervention
NGO	Non-governmental organisation
NSSG	National Scale-up Steering Group
NTD	Neglected Tropical Diseases
OPD	Outpatient department
RHA	Regional Health Administration
RSSG	Regional Scale-up Steering Group
PY	Project year
PPME	Policy, Planning, Monitoring and Evaluation
RT	Resource Team
TB	Tuberculosis
TBA	Traditional Birth Attendant
UHC	Universal Health Care

1. Executive summary

Background

A critical challenge in global health is to achieve Universal Health Coverage (UHC) by 2030. An adequate workforce is essential for the achievement of UHC. In the period 2011 to 2015 the PERFORM project developed a district Management Strengthening Intervention (MSI), aiming to improve the health workforce and service delivery in three African countries (Ghana, Uganda and Tanzania) using action research cycles. In these action research cycles the district health management teams (DHMTs) analyse their workforce performance and service delivery and develop work plans (**plan**), after which they implement their work plans (**act**), reflect and learn about management from the experience (**observe** and **reflect**). The MSI is based on the premise that workforce performance improvement is best achieved by intervening at management levels, close to frontline workers.

PERFORM2Scale has adapted a systematic approach for scale-up that has been developed by ExpandNet and WHO and tested in many contexts (WHO/ExpandNet 2010). This uses both a 'vertical' scale-up approach ("institutionalization through policy, political, legal, budgetary or other health systems changes in particular to support the horizontal scale-up") and a horizontal scale-up approach ("expansion and/or replication of the intervention across the country") to support an overall sustainable scale-up process. The scale-up process was a case study design which started with a group of three districts to implement the first MSI cycle. Following the completion of the first cycle, a second MSI cycle was planned for the same group of districts to continue the management strengthening process, whilst a second group of districts began work on their first MSI cycle. In this way, the district strengthening process would be ongoing and the geographical spread of districts using the MSI cycle would increase.

This report on the PERFORM2Scale programme in Ghana draws upon three areas: initial context analysis, process evaluation and outcome evaluation. A combination of quantitative and qualitative data collection methods were used. The report also gives an overview of the influence of key stakeholders on the scale-up, reports on how the MSI and scale-up were implemented and the cost involved.

Results

The political situation of Ghana is based on a democratic system with two dominant parties. Decentralization in Ghana is best described as a mix-model of 'quasi devolution' and 'de-concentration'. Government tends to prioritise, influence and support programmes and interventions that benefit their political constituencies. Decisions to invest in the health sector are frequently based on the preference for visibility that a certain initiative can create, rather than on evidence, eg infrastructural investments and new health facilities, rather than less tangible gains in quality of care and performance.

The main barrier to policy implementation in the health sector is a lack of funds/resources, and it was feared that limited health financing may affect the resources available for the PERFORM2Scale management strengthening implementation. Collaborations with private partners and donors were

identified as a fruitful strategy. Prominent and well-resourced health interventions are either private sector-led or funded by bilateral and multilateral partners, including global health initiatives.

Successes achieved with the MSI scale-up in Ghana are varied. The horizontal scale-up of the MSI has been largely successful with expansion to nine districts comprising District Groups 1, 2 and 3 (each made of three districts). The success with the horizontal MSI scale-up is evident in the fact that non-intervention districts aspire to use the MSI strategy, having witnessed evidence of success. The vertical scale-up is more challenging and therefore requires more attention to not only ensure the sustainability of the horizontal scale-up but also expand to other regions in the country. Key stakeholders (especially those in the NSSG and RT) are convinced of the utility of MSI. It is, however, not yet clear how this will lead to political commitment and financial support.

Overall, the approach that was taken to train the DHMTs on the MSI approach was highly appreciated by the different stakeholders and this has led to increased capacity of the DHMTs to implement the MSI. Problems selected by all of the districts for the MSI focused on services delivery. However, the root causes of the selected problems were generally traced to management issues. This implies that for DHMTs to resolve a selected service delivery problem, it must necessarily be routed through systems thinking strategy by tackling both human resource and health services challenges. Whereas districts in DG1 went through two cycles of MSI implementation, those in DG2 and DG3 went through one cycle. The disparity in the number of cycles between DG1, DG2 and DG3 was due to the method adopted for the scale-up of the MSI, which was done on an incremental basis. The findings revealed that as DHMT members carry out more MSI cycles, their skills and commitment to the application of the MSI tools in problem-solving improved. Plausibly, due to the hands-on and participatory approach of the MSI, the cognitive abilities of DHMTs regarding the use of MSI for problem-solving improved over time, thereby boosting their confidence for better and continual use.

One of the challenges that was identified in this study was the staff turnover, affecting the DHMTs' capacity with regard to the MSI implementation. Hence, measures that will ensure continuous transfer of knowledge and skills of the MSI must seriously be considered. This may include building a critical mass of RTs and champions, both at the regional and district levels, to ensure a smooth transfer of knowledge on MSI to newly posted staff. Secondly, contextual and global occurrences – e.g. clash programmes, COVID-19 pandemic, etc. – disrupted the MSI implementation thereby necessitating an adaptation to the timelines for the MSI cycles. For instance, the COVID-19 pandemic gravely affected the MSI implementation by further constraining scarce DHMT resources and immensely increasing DHMTs' workloads. Also, all DHMTs suspended their MSI strategies because of MoH/GHS suspension of most health services (eg OPD, outreach programmes etc.).

The reflection capacity of the DHMT members needs to be improved. There are several forms of reflection that can be explored by the members of the DHMT to ensure important issues that are discussed are properly documented. Furthermore, it is important that the DHMTs have properly instituted plans to ensure knowledge transfer so that new staff members are able to quickly integrate into the team to ensure continuity of the MSI implementation. One critical success factor for the MSI is the MSI training for DHMTs and sub-districts. On the other hand, for the MSI to succeed, there is a need to align the MSI strategies with DHMTs' existing annual workplans. All DHMTs selected their MSI HR/HS problems from their work plans. This ensures commitment and ownership of the MSI as it gets embedded in the routine activities of the DHMTs. Moreover, the MSI strategy of participatory decision making and consensus building promoted teamwork, thereby fostering team spirit among DHMT members for successful MSI execution.

Overall, the DHMTs across the districts have been more exposed to informal management training, but less to formal training in comparison to baseline. The informal trainings were frequently initiated by vertical disease programs and focused on strengthening specific capacities among the district health managers, eg relating to malaria case management or vaccine management, rather than on strengthening the district health managers' core managerial and leadership skills, such as planning, financial management, supervision, etc. Furthermore, formal trainings are often need-driven and focus on special technical areas of service delivery, and funded by national level, ie Ghana Health Service and Ministry of Health. Hence, the DHMTs are limited financially regarding formal trainings (which have a longer duration), but ride on the back of vertical programmes to undertake in-service or informal trainings. Improvements were observed also in the management competencies and skills domain. Overall, an increase of 24.5% was registered in participants' rating as having 'good' competencies and skills across the districts. Higher ratings in management competencies and skills were observed among females than males in the endline. This could be attributed to the proactive involvement of females in the MSI implementation compared to males. A slightly lower level of confidence was reported with regards to the general management and leadership competencies except for leadership skills which maintained the same rate as in the baseline.

The constrained decision space at district level has important implications for the MSI. This is partly because of the competing interests where change requires balancing multiple interacting relationships and interests, in a complex hierarchical and political arena characterized by a lack of trust. The decision space is also limited with regards to budget and expenditure, high staff turnover, low staff motivation, weak accountability and weak health information systems which may work against the implementation and scale-up of the MSI. While DHMTs are nominally responsible for the supervision of health services and implementation of plans and policies, they are not well positioned to have substantial influence nor introduce meaningful change due to political interference, low financial autonomy, and limited interactions in policy processes. Working within these prevailing limitations is likely to be one of the principal challenges to the MSI.

The MSI had a mostly small and moderate effect on health workers' perceptions of the different scales in the areas: teamwork climate, supportive supervision, district management, management at the health facility and job satisfaction. This is not surprising given the MSI intervention largely intervened at the district management level. Moreover, the PERFORM2Scale theory of change anticipated that by intervening at the district management level, the managerial skills and competencies would be passed on to the lower-level managers and this would result in better management at the health facilities and as a result further translate into positive perception of health workers. Accordingly, on most of the different scales, there was improvement or positive scores which indicate that the perception of health workers had improved compared to the baseline. The small effect could be explained by a number of factors in the environment such as health worker transfers, lack of equipment and suppliers at the respective health facilities, poor working conditions as cited by elsewhere. The COVID-19 pandemic could have had an effect on the health workers' perceptions, however, this warrants further investigation.

Conclusion

The MSI horizontal scale-up has been largely successful, with DHMTs reporting evidence of the strategy being fit for purpose. In all districts, both individual and team management competencies were developed in problem solving which translated into an improvement in service delivery. The problem-solving skills acquired in the MSI strategy have had rebound effects on other areas of health service delivery, eg planning, communication, use of data, etc. DHMT planning skills were

strengthened and teams were better able to effectively and efficiently use resources through the integration of activities. Although the flexible MSI approach presented opportunities that facilitated the MSI scale-up, several contextual factors mitigated against the realization of bigger effects, eg staff turnover, COVID-19 pandemic, resource limitations, etc.

The myriad of competing priorities, dynamic political environments, and shifting national funding priorities within the scarcely-resourced health sector may affect the progress made toward the MSI scale-up and its sustainability. Thus, decision making and priority setting within the health sector is politically influenced. Similarly, the NSSG and the national champion can use their political influence to prioritize the MSI in this highly resource-constrained setting for its sustainability. This was evident, for example, in the scaling up of the *Project Five Alive*, where strong relationships built with stakeholders proved invaluable for acceptance at local levels, for scale-up and sustainability at the end of the project. Also, the acceptability of the MSI will be a key element in ensuring successful horizontal and vertical scale-up of the MSI regardless of the health sector's high staff turnover and high vacancy rates.

Moreover, DHMT, RT and NSSG commitment and ownership of the MSI processes appear to be particularly critical for sustaining the progress made so far, yet potentially challenging as they simultaneously face competing interests and priorities with other initiatives, priorities and challenges (eg low autonomy over budget and expenditure, lack of effective monitoring and evaluation systems, and lack of logistics and infrastructure). However, the pathways to horizontal and vertical scale-up of the MSI nationwide need to be both robust and flexible enough to withstand and respond to rapid changes within the health system and be part of the solution for strengthening performance and helping it to respond positively to challenges.

Meanwhile, having a clear MSI scale-up strategy plan which spells out specific processes and activities to be undertaken is crucial for both the horizontal and vertical scale-up. Modifications have been made in various areas under the scale-up plan, such as strengthening the scale-up, integration of MSI capacity building into regular DHMT refresher trainings, and MSI reporting period aligning with the DHMTs. Other aspects of the strategy, such as stakeholder support, resource needs and operational plans, has been further elaborated. The report is currently in its final draft stage and yet to be validated by the NSSG and other identified stakeholders. Furthermore, successful implementation and sustainability of the MSI importantly require an inclusive approach by way of collaborations with private partners and donors; stakeholder engagement at all levels; regular supportive site visits; and maintaining flexibility, ability and alignment of the intervention to new contexts and priorities of the national health system and partner organizations.

2. Introduction

Improving health workforce performance is critical to achieving Universal Health Coverage (UHC). A management strengthening intervention (MSI) for district health managers to improve health workforce performance was tested in three African countries during the PERFORM project between 2011 and 2015 (PERFORM2Scale Consortium, 2017). Management teams solved workforce performance problems, within existing resource constraints that improved service delivery and helped them to become better managers.

To have a wider impact, and thus contribute to UHC, this MSI is being scaled-up in the PERFORM2Scale project in Ghana, Malawi and Uganda. The overall aim of the project is to develop and evaluate a sustainable approach to scaling up a district-level management strengthening intervention (MSI) in different and changing contexts.

This MSI uses an action research (AR) approach to enable the district health management teams (DHMTs) to:

- analyse their own workforce performance and service delivery problems and develop appropriate workplans (**plan**),
- implement the workplans (**act**), and
- learn about management from the experience (**observe** and **reflect**).

PERFORM2Scale has adapted a systematic approach for scale-up that has been developed by ExpandNet and WHO and tested in many contexts (World Health Organization, 2010). This uses both a 'vertical' scale-up approach ("institutionalization through policy, political, legal, budgetary or other health systems changes in particular to support the horizontal scale-up") and a horizontal scale-up approach ("expansion and/or replication of the intervention across the country") to support an overall sustainable scale-up process. In each country, a structure - generically referred to as the National Scale-up Steering Group (NSSG) - was planned to be developed in collaboration between the Country Research Team (CRT) and the Ministry of Health to support and eventually lead on the scale-up process. The plan was also for the CRT to work with the NSSG to identify Resource Team (RT) members to assist with the implementation for the MSI cycles' subsequent expansion as part of the scale-up. The scale-up process was designed to start with one group of three districts, close to each other, to implement the first MSI cycle. Following the completion of the first cycle, a second MSI cycle was planned for the same group of districts to continue the management strengthening process, whilst a second group of districts was started. In this way, the district strengthening process would be ongoing and the geographical spread of districts using the MSI cycle would increase.

At the same time, the project planned both process and outcome evaluation activities to identify lessons about the MSI and the scale-up strategy. The research questions used were:

1. How could the political and economic structures influence scale-up of the MSI?
2. How could stakeholders and relations between these stakeholders influence scale-up of the MSI?
3. How is the MSI implemented?

4. How do various factors, processes and initiatives facilitate or hinder implementation of the MSI?
5. What are the effects of the MSI on management strengthening, workforce performance and service delivery?
6. What are the costs of the MSI?
7. How do various factors, processes and initiatives facilitate or hinder implementation of the scale-up of the MSI?
8. What are the costs of the scale-up?
9. What are the outcomes/ effects of scaling up the MSI?

This report on the PERFORM2Scale programme in Ghana addresses each of these questions using data collected during the life of the programme, as described in the Methods section that follows. The Findings section is complemented by a detailed case study of the implementation of the MSI in three district groups (see separate document). The report concludes with a Discussion section which provides lessons on the experience of using the MSI in multiple districts and on the process of scale-up of the MSI.

3. Methods

Study design

The study design is a case study approach, focusing on understanding the implementation and effects of the MSI and its scale-up in the three countries (Ghana, Malawi and Uganda). The evaluation draws upon three areas: initial context analysis, process evaluation and outcome evaluation. A combination of quantitative and qualitative data collection methods were used.

Initial Context Analysis

The ICA comprised three main activities namely: (1) desk review, (2) semi-structured interviews with key stakeholders and, (3) CRT reflection. The desk review was done in the last quarter of 2017 whereas the interviews were done in first quarter of 2018 (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Desk review

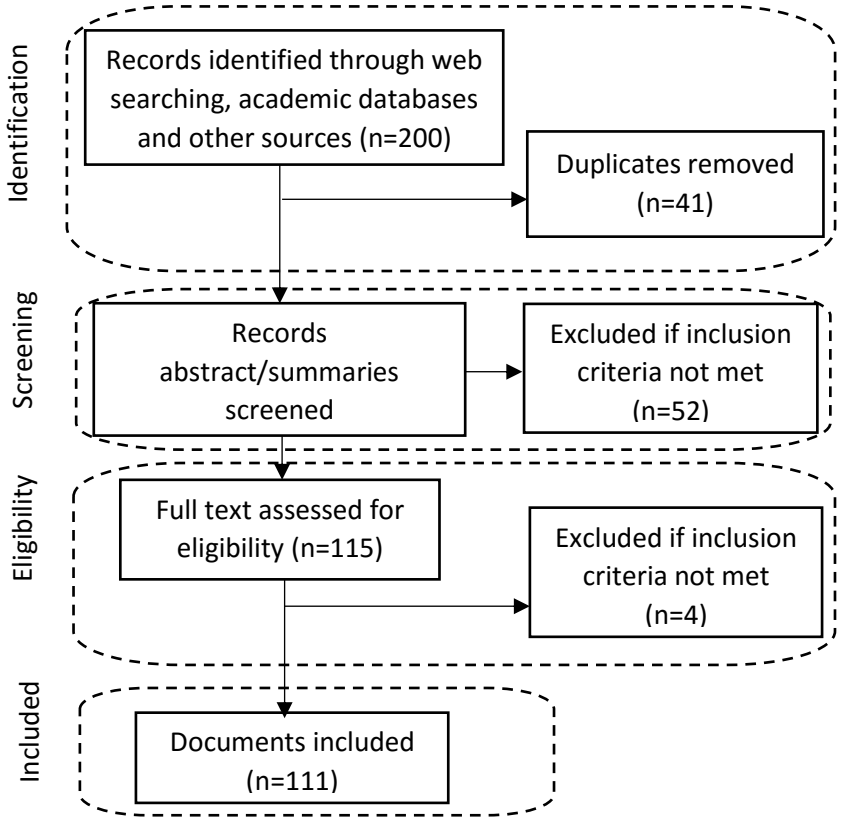
Aim: The desk review was performed to capture existing information about political, social, cultural and economic factors that could influence the scale-up of the MSI. In addition, the lessons learned from other management strengthening interventions or scale-up experiences of other health interventions were captured in the desk review.

Sample: The review was conducted using a desk review template (see Appendix 2). Some documents identified and reviewed included:

- The national constitution and development plans
- Health policies and strategies from national government
- Academic political economy literature
- National studies, documents of similar initiatives in scaling up, management/quality improvement/HRH development
    - Reading documents
    - Internet searches
    - Visiting relevant organizations
- Lessons learned documents
- Scientific articles on scaling up, management/quality improvement/HRH development from the country of interest
- Legislation (regulation, decrees etc.) and administrative legislation initiative procedures (SOPs)
- Grey literature (including reports of programmes/interventions)

Figure 1 shows the four phases of the PRISMA flow chart illustrating the study selection process from initially identified records to finally included documents.

Figure 1: Schematic presentation of PRISMA flow chart for documents selection



Data collection: The CRTs collated and reviewed documents to identify the structures and stakeholders and how they will influence the scale-up of the intervention.

Country Research Team reflection

Aim and sample: To capture the views and experiences of all four CRT members regarding factors and actors influencing the MSI and the scale-up of the MSI.

Data collection: Using a topic guide, KIT and paired partner researchers facilitated a discussion between the CRT members on barriers and facilitators to policy implementation, decision makers and their perceptions of MSI, and stakeholders that might hinder or facilitate scale-up of the MSI.

Semi structured interviews on context

Aim: To provide in-depth information on experiences of stakeholders at national and district level regarding power relations and authority around change or scale-up.

Sample: A total of 32 key stakeholders were individually interviewed. The interviewees were identified through a thorough stakeholder analysis process. This purposive sampling process allowed representation from national, regional and district levels including government employees and non-governmental organisation (NGO) and faith-based organisation (FBO) representatives. The interviewees included stakeholders from the Ministry of Health and Ghana Health Service (n=6), the Regional Health Administration (n=2), DHMTs of Fanteakwa (n=5), Suhum (n=5) and Yilo Krobo (n=5), as well as from the respective District Assemblies (n=6), NGOs (n=2) and FBOs (n=1).

Data collection: A topic guide was used to guide the interviews which included experiences with similar interventions and scaling-up of health programmes, views on scaling-up the MSI, impressions on decision makers and power dynamics/politics.

Analysis and synthesis

Key informant interviews (KIIs) and group discussion data were transcribed verbatim in English and anonymised, according to ethical procedures. All transcripts, including the CRT reflections, were loaded into NVIVO Version 10. For data coding, an already established coding framework (see Appendix 3) was used. The deductive coding approach was expanded when new codes or themes emerged, which were included in the already existing coding framework. Queries were run to summarize themes under appropriate sub-headings and interesting quotations were identified to support the themes.

Process evaluation

Scale-up tracking

Aim: To monitor the activities and outputs involved in the implementation and scale-up of the MSI throughout the project. This also includes the costs associated with the implementation and scale-up of the MSI. The tracking generates insights into the activities that did or did not take place and might provide explanations for certain outcomes of (the scale-up of) the MSI (Agyemang et al., 2021; Aikins, Agyemang, Amon, Dieleman, & Bulthuis, 2019)

Data collection: An integrated tracking-costing MSI-scale-up-Excel costing and budgeting tool was used to collect the data. The tool was developed to collect cost data and to ensure data collected across setting and countries is comparable. The two types of interventions were separately costed, i.e. the scale-up and the MSI. An activity-based approach was employed to estimate the total costs based on quantities and unit costs of all inputs required for the two cost objects. The assignment of costs through activity-based costing occurs in two stages: (1) Cost objects (i.e. the scale-up and the MSI) consume activities; and (2) activities consume resources, which generates costs.

Scale-up assessment

Aim: To generate insights from stakeholders involved in the scale-up of the MSI on how the scale-up operates and by what and how it is influenced.

Baseline: The initial stakeholder analysis was conducted in July 2017 by the CRT (Moses Aikins, Samuel Amon, Kaspar Wyss, et al., 2018).

Sample: The CRT identified the relevant stakeholders (i.e. organisations, agencies, departments and/or individuals within these bodies) who may support the scaling up of the MSI intervention and prepared a preliminary list of relevant stakeholders. The preliminary stakeholders list was then refined by assessing how each stakeholder could influence scaling up of our MSI and their relevance for embedding and sustainability. There were seventeen (17) stakeholders included in the preliminary stakeholder list, out of which ten (10) were considered for initial engagement based on

the cumulative degree of their level of interest, alignment, influence and accessibility (see Appendix 4).

Data collection: First, participants received a list of statements about factors relevant (or not) for "their scale-up situation" and individually scored whether they agreed or disagreed with the statements. Second, a guided group discussion took place where the outcomes of these individually scored statements were discussed.

Endline: The second stakeholder analysis was conducted in June 2020 by the CRT using a structured template designed by the PERFORM2Scale project.

Sample: All stakeholders identified prior to inception of the MSI remain relevant for a successful and sustainable horizontal and vertical scale-up of the MSI. No additional stakeholders have been identified. Interest of both Regional and District Health Administrations has remained high

Data collection: The same process as in the baseline assessment was repeated.

Analysis: The analysis was guided by lessons from the successes, facilitators and barriers to engagement with stakeholders identified in the first analysis.

Semi-structured interviews on MSI

Aim*:* To explore DHMT's perceptions and experiences of implementation of the MSI, including any barriers and facilitators.

Baseline: In-depth interviews were performed in April-June 2018 with DHMT members in the three districts where the MSI has been implemented.

Sample: Interviews took place with three (3) members per district at baseline in DG1 and included the District Director of Health Services (DDHS) and two (2) additional DHMT members who have been involved in PERFORM2Scale.

Data collection: A topic guide was used to guide the interviews which included 1) their experiences of problem identification and analysis, strategy selection, plan development, implementation of the plan, reflection on the process and changes, and 2) the effects of the MSI cycle (which were mainly used for the outcome evaluation). The interviews were conducted by the CRTs and took between one and a half and two hours.

Endline: In-depth interviews were performed in March-April 2021 with DHMT members in the four (4) districts, which is two (2) DHMT members in DG1 and two (2) DHMT members in DG2 where the MSI has been implemented.

Sample: Interviews took place with six (6) members per district from two districts in DG1 and two in DG2 districts making four (4) districts for endline. Three (3) members from each district were interviewed on the process evaluation aspect while another three (3) members of the DHMT were

interviewed on the outcome of the MSI. In all, a total of twenty-three (23) DHMT members from DG1 and DG2 were interviewed.

Data collection: A topic guide was used to guide the interviews which included 1) their experiences of problem identification and analysis, strategy selection, plan development, implementation of the plan, reflection on the process and changes, and 2) the effects of the MSI cycle (which were mainly used for the outcome evaluation). The logistics for the interviews were organised by the CRT, however, due to COVID-19 travel restrictions the interviews were conducted virtually by the KIT and SWISS-TPH teams.

Analysis: The interviews was recorded, verbatim transcribed and anonymized. In addition, detailed notes were taken during the interviews and group discussions. A thematic analysis was developed and coding of all transcripts and notes was done using NVivo 11 by the KIT and SWISS-TPH teams. A coding framework was developed, based on the interview guides. If new themes emerged from the data analysis, they were added to the coding framework. Based on the coding, summaries/narratives were written, including relevant quotes to support the narratives.

Country Research Team (CRT) reflection (process evaluation)

Aim: To capture the views and experiences of CRTs regarding factors and actors influencing the MSI and the scale-up of the MSI

Baseline: Group discussions were performed in June 2018 with CRT members (Aikins, Agyemang, Amon, Dieleman, et al., 2019).

Sample: Discussions took place with four (4) CRT members (3 males and 1 female).

Data collection: A CRT reflection took place, which entailed a group discussion with four (4) CRT members to capture the views and experiences of the CRTs regarding factors and actors influencing the MSI and the scale-up of the MSI. A topic guide was used during the group discussions. This discussion was facilitated by researchers from KIT.

Endline: Group discussions were performed in April 2021 with four CRT members (Agyemang et al., 2021).

Sample: Discussions took place with four (4) CRT members (3 males and 1 female).

Data collection: A CRT reflection took place, which entailed a group discussion with four (4) CRT members to capture their views and experiences regarding factors and actors influencing the MSI and the scale-up of the MSI. A topic guide was used during the group discussions. However, due to COVID-19 travel restrictions, the interviews were conducted virtually by the KIT team.

Analysis: The group discussion was recorded, verbatim transcribed and anonymized. Thematic analysis was developed and coding of all transcripts and notes was done using NVivo 11 by the team. A coding framework was developed, based on the interview guides. If new themes emerged from

the data analysis, they were added to the coding framework. Based on the coding, summaries/narratives were written, including relevant quotes to support the narratives.

Outcome Evaluation

District situation analysis

Aim: To support the identification of problems to be addressed in the MSI, to serve as a baseline for tracking the effects of the MSI cycle, and to provide some contextual information about the district.

Data collection: Using a data collection form, data from the routine Health Management Information System (HMIS), human resources reports and district-level reports were collated for each study district. These included areas such as staffing data, DHMT membership and functioning, district planning and financing, information systems, priority health issues, medicine and supplies, and HR programmes. Data for the district situation analysis for selected districts were collected by study DHMTs prior to the first MSI workshop using a structured questionnaire and with support from the CRT. Data were analysed by the study DHMTs with support from the CRT and Resource Team (RT) (Aikins, Agyemang, Akweongo, & Amon, 2019; Aikins, Amon, Akweongo, & Agyemang, 2018).

Management competency survey

Aim: To assess the management competencies of the DHMTs at baseline and endline in order to measure the effects of the MSI on district health managers' management competencies.

Baseline: Questionnaires were administered to the DHMT members in April-June 2018 (Moses Aikins et al., 2018).

Data collection: The data was collected through a quantitative survey that was distributed to the selected district health managers from the three districts in DG 1 at baseline (Project Year 1). The tool covered the following areas: socio-demographic information, role and responsibilities in the DHMT, management experience, competencies related to planning, implementing, observing and reflection, general management and people leadership skills, human resource management, health systems management and functioning support systems. It took approximately 60 minutes to complete the questionnaire.

Endline: Data were collected in March 2021 (Moses Aikins et al., 2021).

Sample: The study was conducted in two of the same PERFORM2Scale districts where the baseline survey took place for DG1 and two new districts in DG2. At baseline, 32 (16 males and 16 females) district health managers participated in the survey while at endline 42 (21 males and 20 females) district health managers participated in the survey.

Data collection: The questionnaire for the endline survey was distributed to district health managers in the four PERFORM2Scale study districts. The inclusion criteria for study participation were 1) member of the District Health Administration (DHA) in one of the selected PERFORM2Scale districts

at the time of the study, and 2) having a management and/or leadership role, including supervision responsibilities. The same self-administered questionnaire was used as in baseline but with four additional questions on the effect of the COVID-19 pandemic on MSI implementation. The questionnaire collected data relating to eight aspects of district health management, namely: 1) the district health managers' socio-demographic information, 2) their previous management experience and training; 3) functional support systems; 4) general management skills and leadership competencies, 5) specific health system management skills and leadership competencies, 6) overall management performance, 7) their perception of being part of a DHMT, and lastly, management competencies and the effect of the COVID-19 pandemic on MSI implementation.

Analysis: Data from the questionnaires were entered into MS Excel v.15 and transferred to STATA v.16 (Stata 16; StataCorp LP, College Station, TX, USA) for analysis. Descriptive statistics including frequencies, means, standard deviation, range and proportions were used to summarize the data. All analyses were stratified by district.

Decision space assessment

Aim: To explore DHMTs' decision space for human resource management and how this changes following MSI implementation.

Baseline: Questionnaires and interviews were conducted between April-June 2018.

Sample: At baseline, all districts in DG1 with four (4) DHMT members from each district. A total of 6 males and 6 females participated.

Data collection: The first part of the tool is a group self-assessment of perceived decision space of DHMTs in human resource management, where the members discussed and reached consensus about their perceived authority. Then the CRT facilitated a focus group discussion with the DHMT members to explore their actual practice in human resource management. The discussion took approximately 90 minutes.

Endline: Data were collected in April 2021 (Mansour, Agyemang, Amon, & Aikins, 2021).

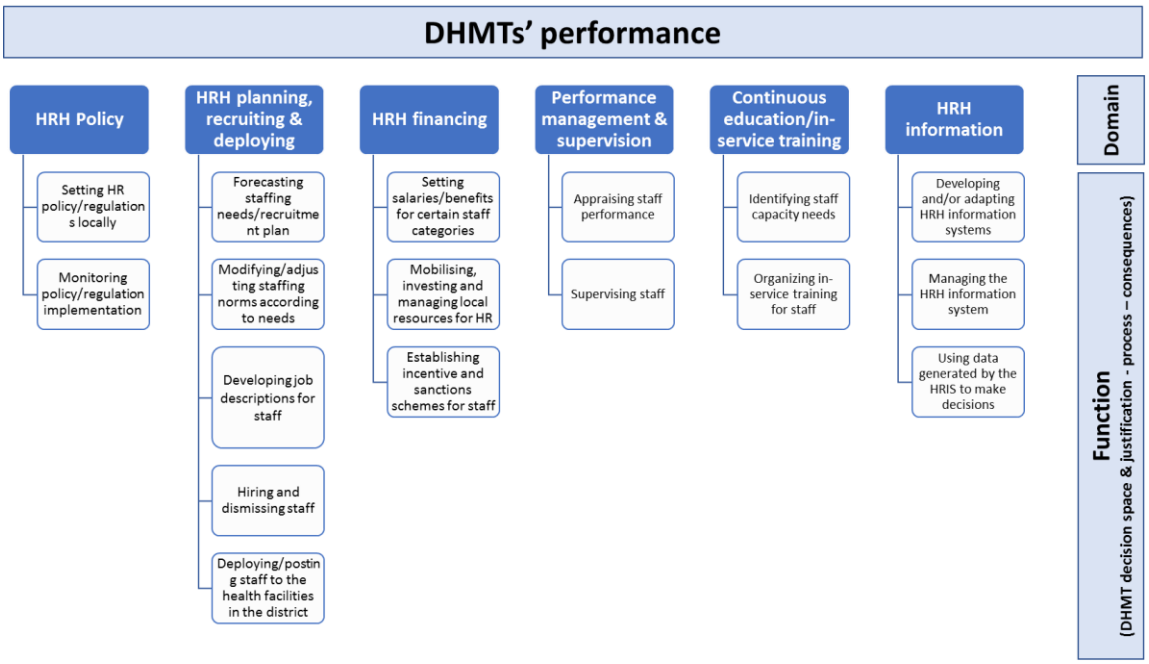
Sample: In the endline, all three (3) districts in DG1 with four (4) DHMT members from each district were repeated again. Where possible, the same participants in the baseline were included in the endline assessments. A total of 5 males and 6 females participated.

Data collection: The baseline assessment process was repeated.

Analysis: Analysis of the self-assessment questionnaire was done numerically where 'Full' refers to the DHMTs having complete control over the function and represented by 'two'; 'some' indicates partial control showed as 'one'; and 'none' is having no control at all showed as 'zero'. Each group reached a consensus score regarding their level of decision space for each HRM function as they perceived it, and all scores were added together showing the total score for each district. These responses were then discussed in detail in each focus group discussion (FGD). Analysis of the FGDs was guided by a framework developed by the research team (Figure 3). NVivo qualitative data

analysis software was used to conduct a thematic analysis for each district. Within each domain/high level code, functions/themes were identified and text relevant to any of these functions was highlighted and coded. This was used to generate insights about the level of control that the DHMTs have over HRM functions and how they use it, and finally to compare the findings across the three districts.

Figure 2: Framework for analysis



Human resource strategies survey

Aim: To track the effects of the human resource and health system strategies implemented in the MSI from a health worker perspective.

Baseline: Questionnaires were administered to the DHMT members in April-June 2018 (Vallières et al., 2021).

Sample: The sample size was determined based on a published sample size table (Israel, 2009), with an estimated number of clinical health staff (i.e. professional groups) within the facilities in each of the three districts in DG 1. This resulted in a sample size of 252 health workers. Ultimately, 241 (96% response rate) participants were recruited (n=182, 75.5% female; n=59, 24.5%).

Data collection: The self-administered questionnaire was conducted at baseline (Project year 2) and endline (Project Year 4). The tool was distributed through the CRTs during site visits and self-administered by the health workers. The tool included the following areas: socio-demographic information, including educational background and current position; timeliness and time management; teamwork; general satisfaction with management; intrinsic job satisfaction;

organizational commitment; human resource management; training support and quality of care. It took approximately 30-40 minutes to complete the questionnaire.

Endline: Questionnaires were administered to the DHMT members in April 2021 (Aikins, Agyemang, Amon, Muho, & Wyss, 2021).

Sample: In the endline, 231 health workers from DG1 participated in the survey, out of which 56 were males and 174 were females. An additional 147 health workers from DG2 also participated in the endline survey. From the DG2 participants, 30 were males and 117 were females.

Data collection: The baseline assessment process was repeated.

Analysis: Data was entered using MS Excel and exported and analyzed in STATA Version 16 (StataCorp LP, College Station, Texas). Descriptive statistics - mainly frequencies, percentages, means and standard deviation – were derived. Chi-square test and analysis of variance (ANOVA) were used to test for differences between participant characteristics and district.

Aim: To provide a comprehensive estimate of the cost of the MSI and the MSI scale-up(Hanlon, Wyss, Aikins, Agyemang, & Amon, 2021).

Data collection: The Excel-based data collection tool allowed for tracking of data on resource quantities and unit costs on areas such as personnel, transport, materials and supplies, and rental of workshop sites. It was integrated into the MSI scale-up process evaluation tracking tool. Data was collected by the CRT.

Analysis: The full methodology is described in the Costing approach in the Research protocol and the costing concept note written in 2017. Cumulative costs of scaling up the MSI in the three implementation countries including one-time start-up costs and the recurrent costs of maintaining the intervention guided the logic of cost expenditures. Based on these cumulative costs and the number of cycles implemented, an average cost of a cycle was calculated. The number of cycles completed in Ghana was 5 cycles. The total country costs data over the years 2018-2021 were summed and divided by the number of cycles completed to get the country's average cycle costs. The analysis considers both financial and economic costs. Financial costs represent the accounting cost of implementing the intervention, whereas the broader notion of economic costs captures the opportunity cost of the resources used in the intervention, whether or not a financial cost was incurred. Differences arise between financial and economic costs for goods or services for which there are no financial transactions, and where the price of the good does not represent its actual value (i.e. voluntary work of social health workers). The cost of government salary costs, for example, have been estimated based on the salary scales of the government for health services staff. These can be considered to be conservatively estimated at the lower end of these salary scales. Analysis of the data was done using Microsoft Excel 2016 by the paired partner (Swiss TPH). The analysis centred on the biggest driver of the costs along the continuum of the activities. In addition, the cost differences were analysed between cycles in the same district, between the district groups and between the implementation and scale-up activities.

Table 1: Summary table of methods

		Sample size		
Phase	**Method**	**Base-line (project yr 2)**	**End-line (project yr 4)**	**Total**
Initial context analysis	1. Document review	111 documents reviewed	Not applicable	111 documents
	2. CRT reflection	4 CRT members (3 males and 1 female)	4 CRT members (3 males and 1 female)	4 CRT members (3 males and 1 female)
	3. Semi-structured interviews on context	32 key stakeholders (16 males and 16 females)	Not applicable	32 key stakeholders (16 males and 16 females)
Process evaluation	1. Scale-up tracking	DG1 districts	DG1, DG2 and DG3 districts	
	2. Scale-up assessment	17 stakeholders	N/A	17 stakeholders
	3. CRT reflection	4 CRT members (3 males and 1 female)	4 CRT members (3 males and 1 female)	4 CRT members (3 males and 1 female)
	4. Semi-structured interviews on MSI	11 DHMT members	23 DHMT members	33 DHMT members
	5. Semi-structured interviews with additional stakeholders	None	None	None
Outcome evaluation	1. District situation analysis	DG1 district	DG1, DG2 and DG3 districts	
	2. Management competency survey	32 DHMT members (16 males and 16 females)	42 DHMT members (21 males and 20 females)	74 DHMT members (37 males and 36 females)
	3. Decision space assessment	12 DHMT members (6 males and 6 females)	11 DHMT members (5 males and 6 females)	23 DHMT members (11 males and 12 females)
	4. HR strategies survey	241 healthworkers (59 males and 182 females)	377 healthworkers (86 males and 291 females)	618 healthworkers (145 males and 473 females)
	5. Costing scale-up tracking	DG1 district	DG1, DG2 and DG3 districts	

Limitations of the methods

1. Due to the outbreak of the COVID-19 pandemic, a virtual data collection approach had to be applied for a few of the questionnaires. The virtual approach was in some instances affected by poor internet connectivity. This consequently affected the quality of some interviews.
2. Comparing baseline and endline results was problematic since the participants for each study period were different.
3. Due to time constraints, some follow-ups for additional data had to be postponed or cancelled.

4. Findings

This section is structured by research questions, as listed in the table at end of document

How could the political and economic structures influence scale-up of the MSI?

As was highlighted in the Initial Context Analysis (ICA), the decentralization in Ghana is best described as a mix-model of "quasi devolution" and "de-concentration". This decentralisation model has resulted in reform efforts being described as uncoordinated, incoherent and sometimes contradictory. Administrative devolution without transfer of authority to allocate and expend financial resources is an important constraint for local administrations who have little control over health budgets. Budgeting and expenditure largely occur at national level or are earmarked to specific health programmes (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Political patronage and inequality in resource allocation has exacerbated disparities in poverty levels across the country. The decisions to invest in the public sector tend to be based on political interests rather than evidence, with ruling elites using public institutions to secure short-term political gains. This politicisation of the health sector undermines technical elements of policy formulation and implementation. The government tends to prioritise, influence and support programmes and interventions that benefit their political constituencies. Decisions to invest in the health sector are frequently based on the preference for visibility that a certain initiative can create, rather than on evidence, e.g. infrastructural investments and new health facilities, rather than less tangible gains in quality of care and performance. The politicisation of the health sector also undermines trust between health management and professionals or between managers and the political boards due to the competing interests in resource allocation (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Political interference in policy implementation was emphasized by multiple study participants. For successful policy implementation, interviewees stressed the need to address political interests through lobbying and political stakeholder engagement. The majority of participants reported that decision makers are influenced by superiors at higher level, and that development and donor agencies providing funding to health sector activities often influence, steer or direct decisions on national health priorities and policies.

In 1996, the health sector in Ghana underwent a restructuring with decentralisation as an important component. The Ministry of Health delegated power to two agencies, namely the Ghana Health Service and Teaching Hospitals. The Ghana Health Service is the main provider of public health care services in collaboration with a network of different Christian church denominations - the Christian Health Association of Ghana. Overall, more than half of health services in Ghana are provided by the private sector. Health service delivery takes place at five levels, ranging from basic services provided at community health facilities to advanced care provided at Teaching Hospitals. User fees at the point of receiving public health services were replaced for all Ghanaians by the National Health Insurance Scheme in 2003 (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

The health sector is managed at central, regional and district levels. The DHMTs are responsible for overseeing the operation and maintenance of the health system within their districts. They are thus the main focus of PERFORM2Scale, and their commitment and ownership of the project is critical. Limited leadership capacity and governance result in weak coordination and implementation of policy, alongside poor supervision and management. These deficiencies are reflected in poor financial and human resource management practices. DHMTs are facing multiple challenges; lack of effective monitoring and evaluation systems, lack of logistics, poor infrastructure, high workload, high staff attrition, irregular resource allocation and unclear lines of authority. Further reported limitations are low community involvement and challenges in the implementation of Public Private Partnership policies (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Most of the study participants at the district level had previously been involved in some sort of management strengthening intervention (e.g. bottle-neck analysis), yet none focused on strengthening managerial capacity at district level. The participants identified five major factors that are of relevance to a successful MSI and its scale-up: (1) the focus on strong stakeholder engagement at all levels prior to as well as during the implementation of activities; (2) the scale-up should initially take place within a limited geographic area to gain confidence in the methods and ideas and to stay flexible and adapt the intervention to new contexts; (3) regular supportive site visits during implementation of the MSI to gain the commitment of the managers; (4) the definition of key process and outcome measures alongside effective monitoring and evaluation systems to document and measure progress, and (5) both horizontal and vertical scale-up to ensure sustainability and alignment with the priorities of the national health system and partner organizations by utilizing existing structures to promote ownership.

How could stakeholders and relations between these stakeholders influence scale-up of the MSI?

In the decentralized context of Ghana, the relations between the local government and the DHMTs are challenging, with the DHMTs having both horizontal and vertical accountabilities. It is therefore important that the local government is strongly involved during the implementation and scale-up of the MSI and a fully inclusive and consultative processes is undertaken with all stakeholders before carrying out activities and supportive site visits during implementation. The functions of these are to share ideas and insight, gain buy-in and acceptability, and avoid interventions that will be perceived as controversial. Ghana has an established regional structure, and the number of districts is high

which makes the scale-up process more complex. The regional level will need careful consideration when scaling up the PERFORM2Scale MSI. Having a strategy for scale-up that is open to change and the involvement of the Regional Health Administrations during the scale-up is therefore critical.

Decision making within the health sector is usually done in a top-down approach. Influencing the decision-making process at regional or district level therefore also requires a top-down approach, indicating the important role of the NSSG and particularly national champions as influencers on high-level decision making. Since decision making is highly politicized, and political interference is described as an important barrier to health reforms, this highlights the importance of a clear understanding of the political interests of the different actors involved. The potential political gains of supporting the MSI are relatively few, and this will reduce the motivation for key actors to be fully engaged unless the technical and efficiency gains can be well pitched to those in a position to influence the success of the MSI scale-up and the identification of stakeholders who have sufficient management skills and will. Based on these insights, the stakeholders that steer the implementation and scale-up of the MSI may need to adapt their approaches for specific stakeholders. Continuous mapping of stakeholders, their roles, mandates, power and interests is important as this may change over the years.

How is the MSI implemented?

In the following paragraphs we will explain how the MSI has been implemented, will provide an overview of which problems have been identified by the DHMTs and summarize the focus areas in the work plans. Hereafter, we will discuss the adaptations that have been made to the MSI and what the differences have been while implementing across the different cycles. We conclude by discussing the different facilitators and barriers to the implementation of the MSI.

4.1 Overview of problems and content of work plans

4.1.1 Yilo Krobo - DG1 Cycle 1: (August 2018 – April 2019)

Problem statement and analysis: The Yilo Krobo DHMT prioritized low case detection of NTDs, specifically yaws, for their first MSI cycle. While there was knowledge of the existence and problems related to yaws in Yilo Krobo, the Municipality had recorded low cases for the past three years: 2015 (0 Cases), 2016 (0 Cases) and 2017 (3 Cases). By comparison, their neighbouring districts recorded more cases: Akwapem North (2015 (0 Cases), 2016 (11 Cases) and 2017 (11 Cases)); Upper Manya Krobo (2015 (2 cases), 2016 (2 Cases) and 2017 (14 Cases)). The root causes of this low case detection were identified as poor knowledge among the health workers posted to the district; low awareness among community members; insufficient efforts to identify yaws cases; passive case search, and poor monitoring and supervision (Aikins, Agyemang, Amon, & Akweongo, 2018a).

Strategies workplan: The following five human resource/ service delivery-focused strategies were developed to address the selected problem in Yilo Krobo: (1) Community awareness-raising about the problem of yaws; (2) In-service training for health staff to build their competencies in NTDs; (3) Use of health staff for active and passive case search to improve case detection; (4) Use of volunteers and non-formal health workers for active case search; and (5) Quarterly monitoring/supportive supervision to make sure the case searching actually took place (Aikins, Agyemang, Amon, & Akweongo, 2018b).

4.1.2 Yilo Krobo - DG1 Cycle 2: (July 2019 to present)

Problem statement and analysis: Yilo-Krobo Municipality has recorded no case of Buruli ulcer and leprosy for the past three years (2015-2018) compared to the previous years. The problem is

attributed to poor knowledge among health workers, inadequate planning for Buruli ulcer and leprosy case detection and, poor monitoring and supervision which can lead to high disease burden of Buruli ulcer and leprosy in the municipality. The rationale for selecting this problem was mainly due to experience and successes the DHMT had achieved with yaws in their first cycle.

Strategies workplan: The following six human resource/ service delivery-focused strategies were developed to address the selected problem: (1) In-service training; (2) Community engagements; (3) Build capacity of volunteers; (4) Conduct active case search on Buruli ulcer and leprosy and submit reports monthly by trained volunteers; (5) Use of health workers (active and passive case search); (6) Strengthen integrated monitoring and supportive supervision.

4.1.3 Fanteakwa - DG1 Cycle 1: (August 2018 – April 2019)

Problem statement and analysis: The Fanteakwa DHMT prioritized low out-patient department (OPD) attendance in their first MSI cycle. In the past three years in Fanteakwa, average OPD attendance per inhabitant has seen a constant decline from 0.82 in 2015, to 0.81 in 2016 and 0.72 in 2017. This resulted in high operational cost and institutional mortality. The increasing institutional mortality was observed as 2.6%, 2.7% and 2.9% for 2015, 2016 and 2017 respectively within the district. Low OPD attendance was attributed to poor health seeking behaviour among community members and poor staff attitude. In 2017, there were substantial differences in the average OPD attendance: men consult at OPD an average of 0.54 per year while for women the figure was 0.84 (Moses Aikins, SA Agyemang, Samuel Amon, et al., 2018a).

Strategies workplan: The following eleven human resource/ service delivery-focused strategies were developed to address the selected problem: (1) Lobby for the recruitment of Physician Assistants, Enrolled Nurses, Senior Registered Nurses and Doctors to supplement the inadequate number in the district; (2) Develop retention incentives to ensure staff remain in the district for longer periods; (3) Use of temporary staff measures and volunteers; (4) Practice regular monitoring of staff attendance and supportive supervision of staff work; (5) Provide copies of staff job description for the relevant staff and train them on understanding their job description; (6) Strengthen regular open appraisals of staff during trainings and meetings; (7) Develop criteria for rewarding the best performing staff; (8) Use of team meetings, trainings and multi-tasking of staff at DHMT and sub-district levels; (9) Enforce disciplinary actions to promote adherence to disciplinary guidelines; (10) Train health staff on customer care relations; and (11) Strengthen community engagement and participation (Moses Aikins, SA Agyemang, Samuel Amon, et al., 2018b).

4.1.4 Fanteakwa - DG1 Cycle 2: (April 2020 to present)

Problem statement and analysis: Fanteakwa district has recorded low Tuberculosis (TB) case detection for the past three years: 38.1% (2016), 38.4% (2017) and 54.8% (2018). This has resulted in high TB deaths: 4 (2016), 7 (2017), 4 (2018) and MDR cases 1 (2017) and 2 (half year for 2019). The low TB case detection rate is linked to inadequate screening at health facilities and contact of TB cases, late reporting and inadequate commitment of staff towards the management of TB cases.

Strategies workplan: The following fifteen human resource/ service delivery-focused strategies were developed to address the selected problem of low TB case detection: (1) Improve TB screening services; (2) Collaborate and engage with prayer camp In-charges and chemical sellers who become first point of call for these patients and delay early access formal care; (3) Monitor and support supervision to prayer camps and chemical sellers; (4) Community education and sensitization on TB; (5) Capacity building of staff on TB with emphasis on screening; (6) Enhancement of contact screening of TB clients; (7) Integration of home verification into routine health service; (8) Institute

rewards for staff who detect more cases TB; (9) Proposal development; (10) Integrate TB indicators into the appraisal of CHOS; (11) Develop of proposal for funding monitoring and support visit to facilities; (12) Coach newly posted staff on TB activities; (13) Refresher training for all staff on TB activities; (14) Monitoring and supportive supervision; (15) Action plan development with TB activities factored.

4.1.5 Ayensuano - DG2 Cycle 1 (September 2019 to August 2020)

Problem statement and analysis: The Ayensuano DHMT prioritized low Antenatal Care (ANC) coverage for their first MSI cycle. For the past three years the Ayensuano District had recorded a downward trend for ANC coverage; 76% in 2016, 62% in 2017 and 55% in 2018. This had led to low-skilled delivery and poor delivery outcomes (1 neonatal tetanus in 2016 and low birth weight – 0.4%, 0.6% and 0.5% in 2016, 2017 and 2018 respectively). The root cause of this low ANC coverage was socio-cultural beliefs, absence of ANC services in some facilities and inadequate laboratory investigative services (Aikins, Agyemang, Amon, & Akweongo, 2019a).

Strategies workplan: The following ten human resource/ service delivery-focused strategies were developed to address the selected problem: (1) Community engagement; (2) Formation and revitalization of Community Health Management Committees (CHMC); (3) Staff Orientation; (4) Development and application of a reward system; (5) Improved supportive supervision; (6) Lobbying and advocacy for resources; (7) Procurement of basic laboratory equipment; (8) Capacity building of health staff on ANC services; (9) Community engagement; and (10) Orientation of health staff (Aikins, Agyemang, Amon, & Akweongo, 2019b).

4.1.6 Abuakwa South - DG2 Cycle 1 (September 2019 to August 2020)

Problem statement and analysis: The Abuakwa South DHMT prioritized low ANC coverage for their first MSI cycle. Notably, for the past three years Abuakwa South had recorded low ANC coverage - 57.2% (2016), 56.3% (2017), 47.4% (2018) - that contributed to poor maternal and neonatal health outcomes. Maternal mortality ran at 146⁄100,000 LB (2016), 89/100,000 LB (2017), 112/100,000 LB (2018) and neonatal mortality at 5.8/100 LB (2016), 12.6/1000 LB (2017), 13.0/1000 LB (2018). This problem was partly due to poor staff attitude, lack of comprehensive midwifery services and unapproved charges and traditional birth attendant (TBA) activities (Aikins, Agyemang, Amon, et al., 2019a).

Strategies workplan: The following eleven human resource/ service delivery-focused strategies were developed to address the selected problem: (1) In-service training for Midwives and Community Health Nurses (CHN) on customer care; (2) Monthly monitoring and supervision; (3) Development and application of reward system; (4) Quality service assessment to measure change in staff attitude towards clients; (5) Update community register for pregnant women; (6) Community engagement via durbars and Community Health Management Committee (CHMC) meetings; (7) Recruitment /orientation; (8) Mentorship and Coaching; (9) Outreach programme for ANC services; (10) Engagement with TBAs, prayer camps and private health facilities; and (11) Abolition of the collection of unapproved ANC service charges through sensitization and orientation of health staff as well as application of sanctions to culprits (Aikins, Agyemang, Amon, et al., 2019b).

4.2 Adaptation of MSI

Over the course of the project, several adaptations of the MSI have been made to make the intervention fit better to its context and to address certain challenges.

4.2.1 Involvement of sub-districts in MSI

The PERFORM2scale project was originally designed to focus on DHMTs as co-researchers, implementing the MSI with support from the CRT and RTs. However, to ensure broader horizontal scale-up, ownership and commitment of the sub-district level, the CRT organized MSI training for all of the sub-districts in each study district with support from the Regional Health Administration, RTs and DHMTs. Through this training, anecdotal evidence suggests that some of the sub-districts are using the MSI approach to solve sub-districts' specific local problems in addition to the different larger problem being addressed by the district led by the DHMT.

A DHMT member of Yilo Krobo acknowledged the importance of sub-districts inclusion, as they act as the link between the DHMT and the health care facilities. Meanwhile the need for continuous MSI training for new health staff posted to the district was emphasized.

> *"…the sub-districts leaders have been involved in the MSI because they deal directly with the health staffs and supervise them, and they also know the health issues in their catchment area, so they are like a link to the facilities and DHMT." (Yilo Krobo DHMT member - female)*

4.2.2 Approach of training sub-districts

The sub-district leaders or in-charges were trained on the use of the MSI. They were taken through a one-day training session at the district facilitated by the RTs. They were trained in using the PERFORM2Scale research approach to identify the root causes of their problems. They were trained on how to develop feasible strategies to address these identified problems. It was explained that the ideas and knowledge gathered at the workshop by the sub-district heads are subsequently transferred to other staff within the sub-district. Unlike the lengthy MSI training for DHMTs, the training for sub-districts was shorter, hence it was expressed by participants that the presence of DHMT members (for the district) facilitated easy understanding by the sub-district level team due to prior knowledge in the MSI and understanding of the context. Several DHMT members explained that it was intended that they would stay constantly in touch with the sub-districts through already existing platform, mainly WhatsApp, to provide support on the MSI.

> *"The sub-districts would share some experience with the other sub-districts…We have a platform [WhatsApp] where we communicate with each other, and we also share experiences. Sometimes if they face challenges they also call us [DHMT] for guidance and clarification." (Abuakwa South DHMT member - male)*

4.2.3 Results of the involvement of sub-districts

DHMT members explained that involving and training the sub-districts in the MSI has increased ownership and momentum for the MSI activities across all districts. It was mentioned that sub-districts are now capable of analysing their own problems and develop strategies to address them.

> *"The sub-districts chose their own problems. They also have challenges just like us at the district, so we trained them, and we tasked them to use the problem prioritization matrix to select one and then develop a problem statement, develop problem trees and strategies to address them. They use data as a source of selection for their problem…" (Abuakwa South DHMT member - female)*

A DHMT member reflected that the involvement of sub-districts may lead to improved data quality at that level, and consequently DHMT level. A DHMT member from Abuakwa South observed that the involvement of the sub-districts had the potential to cascade the MSI to lower facility levels.

"Involving the sub-districts was a good step because at the district level the data we use is generated at the sub-district level, that is the source and we [DHMT] have oversight responsibilities and support them in their work. So, the MSI training would make them [sub-districts] see the need for analysing data and using the data for informed decisions at their own level. Now the sub-district would understand the need for generating data" (Abuakwa South DHMT member - male)

The DHMT and sub-districts worked together to analyse problems and develop relevant strategies. By involving the sub-districts in the MSI implementation, the relationship and teamwork between the DHMTs and sub-districts had improved according to several DHMT members. Some DHMT members stated that the sub-districts have enough decision-making space for MSI activities integration into their workplans. A Yilo Krobo DHMT member alluded to the collaboration between themselves, sub-districts and the region to maintain appropriate decision space for the MSI implementation at the sub-district level.

"The MSI approach we are currently undertaking has brought on board the sub-district and all health service delivery levels are participating and thinking through the identified health delivery problems. Now it was not about the DHA alone, the people on the ground also participated. The choice of the problem is done through an understanding by everyone." (Yilo Krobo DHMT member - male)

"There is a lot of room for integration of the MSI into sub-district workplan because the DHA does not control every activity. We are just a liaison between the sub-districts and our regional bosses. So, they have the space to go through their selected activities and implement them." (Yilo Krobo DHMT member - male)

Across the board, DHMT members commended the deliberate effort directed at building the capacity of sub-districts in the MSI approach, to effectively participate in the MSI implementation within their locality. According to the teams, the involvement of all DHMT members and sub-district leaders in the MSI training made it more participatory since it brought all levels of health service delivery in the district on board for the MSI implementation. Meanwhile, a DHMT member from Fanteakwa district reckoned that, given the high staff turnover, the sub-districts' inclusion would bode well for sustainability of the MSI since it guarantees the presence of institutional memory at most times.

"By bringing on board the other DHMT members [who were not part of the main training] and the sub-district leaders who implement on the field, I think everyone would speak from their perspective and level of understanding. It became more participatory when people give diverse suggestions. I really enjoyed it" (Yilo Krobo DHMT member - male)

"We were advocating for all DHMT members to be trained but for the whole sub-district leaders to be trained, I think it was a brilliant idea because now once we put anything on the district health platform regarding the MSI, everybody understands it." (Yilo Krobo DHMT member - male)

"Sub-districts were not trained in the MSI initially but now they are involved. I think it's good because they will help build the system, for example if one person is not around it would not affect the entire programme, everybody will be onboard, so I think it's a good thing." (Fanteakwa DHMT member - male)

DHMT members mentioned that there are no challenges with sub-districts taking charge of the MSI implementation at that level. Some members observed that key human resources needed for the implementation of the MSI activities exist at the sub-district level.

> *"With the first training that we had with the sub-district, we took them through the processes involved in the MSI, how to identify a problem. So after the district's needs assessment, we tasked them to look into their sub-districts and choose a problem they will deal with… in addition to the larger problem that the DHA is tackling." (Yilo Krobo DHMT member - male)*

> *"I don't see any challenges with the sub-district levels implementing the MSI because they are the implementation level. Implementation will be better done there than at the DHMT level. This is because the majority of the human resources, as well as community members and volunteers, are there to support. These are the relevant resources that can help with the implementation of planned programmes." (Yilo Krobo DHMT member - female)*

All DHMTs expressed confidence in their ability and availability of requisite competencies to support the sub-districts. Likewise, RT members from the Regional Health Administration expressed optimism over DHMTs' capacity to effectively support the MSI implementation at the sub-district level.

> *"The DHMT have the capacity to support the sub-districts so if the School of Public Health [CRT] exits we should be okay to support the sub-districts. There's a need to maybe support in terms of resources." (Fanteakwa DHMT member - male)*

> *"It is possible for the DHMTs to manage the MSI process at the sub-district level without the support of CRT since we have been on the programme for some time now. When maybe they finally exit, I'm sure we could continue with it ourselves." (Ayensuano DHMT member - male)*

4.3 Change in MSI cycle timelines

Reflecting on changes to the implementation of MSI cycle 1, some DHMT members observed that the MSI implementation period lasted longer than the stipulated timelines due to disruptions from ad-hoc national programs, inadequate staff and COVID-19.

> *"MSI cycle 1, focusing on antenatal care, took a bit longer than actually planned because you know in Ghana Health Service there are other activities that mostly comes in, when our national programs come like that it means that all other activities come to a halt, we have to finish the national activities before we come back to continue all other activities, so the other competing activities made the cycle to stretch longer." (Ayensuano DHMT member - male)*

> *"When we were on the first cycle, we realized there were other challenges also associated with that first problem, so we decided to tackle all those challenges before we move on to the second cycle." (Ayensuano DHMT member - male)*

> *"The activities identified through the MSI cycle were difficult to implement because of inadequate health staff. COVID-19 also disrupted the cycle because we shifted our human resources to the management of COVID rather than MSI activities like case search of leprosy and Buruli ulcer" (Yilo Krobo DHMT member - female)*

4.4 Scale-up activities

4.4.1 Formation and interactions with National Scale-up Steering Group

NSSG members were drawn from the stakeholder analysis conducted by the CRT in July 2017. Stakeholders with high alignment and interest were considered, namely Deputy Director General, GHS; Eastern Regional Director of Health Service; Director, GHS Human Resource Directorate; Director, GHS Health Research and Development Division; Director, MoH, Policy Planning Monitoring and Evaluation Division; and Deputy Executive Director, Christian Health Association of Ghana. The NSSG was scheduled to meet twice a year. The CRT's main interaction and communication with the NSSG was via phone calls, email and meetings. Updates on the progress of the MSI were sent to the NSSG via email as and when key activities were implemented. With time, the NSSG became inactive due to infrequent meetings as a result of crush programmes resulting in difficulty in fixing meeting dates and times (Aikins, Agyemang, Amon, Wyss, et al., 2019; Aikins et al., 2020; Moses Aikins, Samuel Amon, Kaspar Wyss, et al., 2018).

4.4.2 Formation and interactions with Resource Team

The RT was to play an important role in the implementation and horizontal scale-up of the MSI. The RT was put together by CRT in consultation with NSSG and Regional Health Administration. Based on the project approach, CRT was expected to nominate members of the erstwhile PERFORM project to act as facilitators. Ensuring the right composition of the RT is vital. The RT coordinated the implementation of the horizontal scale-up of the PERFORM2Scale MSI. The RT play key roles during workshops by facilitating various sessions, leading discussions during support visits and following up on DHMTs and updating the CRT regularly. The composition of the RTs has been enlarged over the period to ensure sustained interest and build a critical mass of RTs to aid the horizontal scale-up after the CRT exits. By selecting active members from previous DGs as new members of the RT, they were able to share hands-on experience during workshops and meetings. It also enhances peer-to-peer discussions since other DGs can easily approach any RT member for assistance. The main challenges are their availability, workload and transportation. CRT interactions with the RT were mainly through emails, phone calls and informal face-to-face meetings. Furthermore, a lot of informal exchanges with the RTs via phone call/WhatsApp was established to build a strong relationship with the RTs (Aikins, Agyemang, Amon, Wyss, et al., 2019; Aikins et al., 2020; Moses Aikins, Samuel Amon, Kaspar Wyss, et al., 2018).

4.4.3 Modifications of scale-up plan

The draft PERFORM2Scale scale-up strategy developed by CRT in consultation with RTs was subsequently presented to the NSSG for their input. Modifications were made in four (4) main areas under the scale-up plan. First, strengthening of the scale-up infrastructure was discussed with possible formation of Regional Scale-up Steering Group. Secondly, integration of MSI capacity building into regular DHMT refresher trainings. Thirdly, integration of the PERFORM2Scale MSI into RHA routine support visit activities. Lastly, the MSI reporting period should be aligned with the DHMTs. Other aspects of the strategy, such as stakeholder support, resource needs and operational plans, have been further elaborated. The report is currently in its final draft stage and yet to be validated by the NSSG and other identified stakeholders (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2021).

How do various factors, processes and initiatives facilitate or hinder implementation of the MSI?

Valuable aspects and/or facilitators of the MSI

4.5 Integration and lobbying

As the MSI does not bring additional resources to implement activities, a high number of DHMT members spoke about integrating and lobbying for activities would facilitate the implementation of the MSI. DHMT members highlighted the importance of integrating activities into other already financed activities due to limited resources and competing priorities. With the challenges in timely disbursement of funds from the government of Ghana to support activities, the DHMT is expected to find ways to undertake activities within the district in order to meet their targets. Hence, most participants thought that the integration of activities by relying on other programme funds was vital to the successful implementation of some DHMT activities.

> *"…how to implement activities without finances to be able to integrate our activities into the other activities that we have. For instance, like the yaws and the Buruli ulcer, we were able to execute it without any financial assistance and it was very successful" (Yilo Krobo DHMT member - female)*

> *"…we always wait for funds before we carry out any activities, meanwhile other programmes received funds but we were not integrating. But now, with the support of PERFORM2Scale, most of the activities we do are integration" (Abuakwa South DHMT member - female)*

In order to curb the resource constraints that are chronic to most districts, respondents also stressed the need to frequently lobby for resources from higher levels to do, for example, bottle-neck analysis, and for partner organisations to ensure the availability of adequate resources within the DHMT for district health activities. Participants mentioned that the PERFORM2Scale MSI approach had helped them to improve their lobbying skills. They are able to come up with proposal plans to solicit for help, establish a good rapport with the district assembly, and explore other informal channels, such as discussions during meetings. Although DHMTs previously lobbied for logistics to work with, the commencement of the PERFORM2Scale project compelled members to intensify their lobbying skills to be able to implement their identified strategies. One member mentioned that, although the DHMT does not have control over the recruitment of staff, they were able to lobby for staff from the regional level whenever newly recruited staff were posted to the region.

> *"We needed the things to work with, and because we didn't have money we were just there. So, we were like 'how do we get these things?', but project has started and we needed to make a difference at the end of the project. So, we sat down and we thought of it and decided to go around and see if we can get somebody to give us the things to work with. And I think it worked, we have it, and now we are satisfied with what we did. I will say thanks to MSI; the project has really helped us" (Ayensuano DHMT Member – female)*

> *"We put in our request that we will be needing this number of staff and these are our facilities that we have without midwives. So, for instance, if we have ten facilities without midwives then we put it before the higher levels that if there are recruitments they should look into that for us when they are distributing, the distribution should be done on an equity base for all districts" (Abuakwa South DHMT member - male)*

The MSI strategies are evidence-based. Sharing strong evidence from the MSI implementation ensured that performing DHMTs are recognized by the top hierarchy and are prioritized during resource allocation.

> *"Oh yes, if you are talking about evidence based, it has really helped…. drugs and other logistics such as test kits, we've been able to have a lot, so, I mean we've resolved issues… they (top hierarchy) deal with evidence so it's very important in our work, without evidence they won't mind you" (Yilo Krobo DHMT member - female)*

4.6 Alignment of MSI with existing budget

The feasibility of aligning the existing budget for the MSI to operate within the current resource constrained health sector was reiterated by an RT member, especially the fact that the dire resource situation in the district called for a management strengthening system and solution-oriented approach like the MSI. He reckoned that the acceptance of the MSI by the Regional Health Administration is a positive first step to aligning the MSI at that level. Also, the DHMT aligns its activities with the Ghana Health Service 'year planner' for the year, making it easier to implement the MSIs. Furthermore, the DHMTs rely heavily on their internally-generated fund (IGF) to fund most of their activities, included MSIs.

> *"What makes it interesting is that the Regional Director and Regional Health Administration has embraced the MSI approach because we are in an era where resources are not available…within district's capacity and little internal generated funds (IGF) generate, how are you going to ensure that you achieve your objective, and that is the way to go. That is why I think that the PERFORM2scale should even be scaled up to help the rest of the districts to also have adequate knowledge and skills to know how best they can maximize results out of the little resources that they have." (RT member - female)*

> *"Ghana Health Service have their year planner for the whole country. As a district we merge them with our activities that we deem important that will benefit the community we serve." (RT member/Regional Health Administration Officer - male)*

> *"We approach the District Assembly for support for the MSI, but their problems are many, so they were not able to support, so basically it was the district [IGF] that funds the whole activity" (Ayensuano DHMT member - male)*

Several participants were particularly pleased that the MSI implementation does not foresee additional budget requirements. Participants indicated this will ensure the sustainability of the MSI but that it also contributed to the realization that it is possible to implement a certain strategy without financing. One participant flagged that it helped them to think outside the box:

> *"PERFORM2Scale is very good and particularly it helps you to think outside the box. Mostly we tend to look at money as a challenge to most of our problems, but with PERFORM2Scale you are actually able to plan and work towards the aspect that does not involve money. Because most of the challenges that we face can be solved without money. Even if you need money, you can always write proposals or send out requests to stakeholders for assistance. So all I will say is that PERFORM2Scale on a larger scale is very interesting and it gives you the knowledge as well. And it is also applicable to our personal life as well, so it is very good" (Ayensuano DHMT member - male)*

4.7 MSI enhances district teamwork

One of the other practices that was mentioned by DHMT members as facilitating the MSI implementation was DHMT teamwork. It was flagged as beneficial when the various units of the DHMT collaborate as a team to undertake integrated monitoring and supervisory visits to assess both MSI-related and other district indicators.

> *"I think teamwork did it for us. We liaised with the Reproductive Child Health unit, the Disease Control Unit and the administration where when we are going out to do a monitoring activity we try to integrate everything. So, it was like the team is trying to look at the MSI situation and also other indicators as well. I think teamwork did the trick for the first MSI" (Yilo Krobo DHMT member - male)*

The team also came together during documentation and reporting to ensure there were consistencies across the reports. The narratives provided evidence that strong teamwork ensured that the various units within the DHMT came together to commonly address issues rather than perceiving these problems as unit-based problems. Another participant strongly argued that the PERFORM2Scale MSI is structured in a way which required strong teamwork in order to achieve the required goal.

> *"Now it has even strengthened our teamwork, yes, because you cannot be on PERFORM2Scale without teamwork. You need to come together, work together to achieve a common goal, one person cannot do it alone" (Abuakwa South DHMT member - female)*

Participants also expressed that the MSI has improved teamwork and coordination, especially among the various departments.

> *"Yes, at first we used to work as units. I am the Public Health Nurse and I work in the Public Health Unit. The Disease Control Unit also works differently from us because they are at the disease control unit, hence they identify and solve their own problems as a unit. The same was with nutrition and other units but now because of the MSI we can identify problems from other units and solve them together as a team. At first, a Buruli ulcer issue would have been seen as a disease control unit problem, so myself as the Public Health Nurse would not have bothered with it, but now due to the MSI I see it as a district problem and I play a very good role better than before" (Yilo Krobo DHMT member - female)*

4.8 Leadership and commitment

The structured reflections of DHMTs suggest that the factors critical to ensuring the successful implementation of the MSI included the commitment of the District Health Directors. It is evident that in districts where the managers were actively involved in all the MSI activities, the members tended to be more committed to the successful implementation of the MSI. Without committed leaders, the MSI may lag behind other programmes deemed more important to leadership as is pointed out below.

> *"…looking at our director, like I started saying, from day one she has been in this MSI intervention strategies up till date, anytime we meet as a district she does not even absent herself, at times she will even come and be calling us that we should come that it's time for us to meet… she has time for the PERFORM2Scale activities. At times, we sit down for not less than 5 hours only for PERFORM2Scale activities so I will say that it's not going to be in a halt, it's going to be in progress" (Ayensuano DHMT member - male)*

"…like I'm saying you know in every organization if you get a leader who is always in each of the activities that you want to do, that makes the leader also bring all other members on board. Because our Director was actively involved in the MSI activity, anytime we come she also find ways and means to bring all other members on board so that makes other members also see that what we are doing is something important, and aside the job it will also help in their daily lives so each and every one is actively involved" (Ayensuano DHMT member - male)

One participant stated that the directors were particularly committed and engaged with the PERFORM2Scale MSI due to the successes in addressing problems through the implementation of the strategies.

"Yes, because she has seen that the strategies are really helping the district to gain success stories compared to previous years that we were always in the red section. Now we've jumped to a green which means we're progressing, so you see that that has made her happy" (Ayensuano DHMT member - male)

Although commitment of the district directors was critical to the successful implementation of the MSI, active engagement of all other DHMT members to ensure individual commitment and encouragement of teamwork by the directors was also very important in the sustainability and continuity of the MSI, especially when issues of staff transfers is affecting the composition of the DHMT.

"…the reason is that, you know after we went for the training at the regional capital, anytime we meet, with the help of our Director we call our members that "oh guys, let us all come together, this is what we've gone to learn" … the kind of questions and interactions that take place in each of our meetings…you see that each and every one is actively involved in the activities we undertake" (Ayensuano DHMT member – male)

"All I will say is that it is all about the commitment, especially from the higher level. If you do not have the commitment, it makes the implementation kind of difficult. We also have the issue of transfers in and out of the district, so if all the trained DHMT get transferred out or most of them leave then the remaining ones may not have the capacity or commitment to continue with the MSI or its implementation. But then when it comes to commitment everyone may have their own level of commitment to the programme" (Ayensuano DHMT member - male)

4.9 Ownership and sustainability

DHMT members appreciated the fact that they were able to identify their own problems and to select strategies to address these problems at their own level within their limited resources, without having to wait or rely on resources from the region. Some members also mentioned that the PERFORM2Scale MSI approach has built their analytical skills and that DHMT members are now better equipped to use a systematic approach to identify their district problems and develop solutions to address these problems, which has also resulted in being less dependent on the higher level, such as the MoH and RHA.

"I learnt a lot of things because through the MSI we have been able to handle a lot of our problems at our level. We at the district level have been able to solve some of our issues locally, but not having to wait for the region or national level. Also, we do a lot of things with

less money involved. So, I think personally I have learnt a lot about doing things with less finances available" (Abuakwa South DHMT member - male)

"It really taught us how to identify our problems through the drawing of the problem tree and how to implement activities without finances to be able to integrate our activities into the other activities that we have here, like the yaws and the Buruli ulcer, we were able to execute it without any financial assistance and it was very successful" (Yilo Krobo DHMT member - female)

4.10 Broader application of MSI

After the DHMTs completed their first MSI cycles, they have been able to use the knowledge and skills acquired to address other problem areas of their district planning. Problem identification, analysis and strategy development skills to solve their problems is reported by DHMTs as being applied in most aspects of their activities, ranging from health indicator improvement to community and stakeholder engagement, even during the COVID-19 outbreak.

"For instance, with disease control activities, like the way we handled the ANC activities, we have been able to channel that approach into some of our activities. Now we validate a lot of reports to see where the problem is coming from, either service provision or data collection. We have been able to do that analysis and we have realized that they sometimes they actually do the work but there are a lot of gaps in the data entry aspect. So, we have been able to correct that" (Abuakwa South DHMT member - male)

"I think during this pandemic most of the pregnant women were afraid of visiting our facilities. They were afraid of maybe coming to ANC, but we encouraged our midwives to go to them at their various homes and maybe at their various communities, we integrated most of our activities at the community level. So, in this case, when the midwife goes to community level, they look for ANC clients, people with cough or other symptoms, those with diabetes, hypertension and other NCDs. So, it was all integrated since the pregnant women were afraid to come to us because of the COVID-19, it was very difficult for us but in all these we were able to reach them and we did our part as well." (Ayensuano DHMT member – male)

"…Since the district was trained in the MSI, it has made our supportive supervision much easier and also identifying problems at the district level and sub-district level becomes easier. With the MSI cycle as well, all staff know how everything should go, so implementation becomes much easier. The implementers also understand the process of identifying a problem and how the problem must be solved." (Yilo Krobo DHMT Member - female)

4.11 Appreciation of problem prioritisation matrix

The DHMTs agreed the problem prioritization matrix was an excellent tool that helped them identify which problem should be prioritized and tackled based on availability of resources and other factors, like time involved. The usefulness of this tool and how it helped to make problem selection more unbiased, was reiterated by various DHTMs.

"…normally we have problems, we identify them as problems, but how to go about solving this problem or which one to even work on first may be a problem. But looking at the prioritization matrix it helps you to know which one you can do with the least time, which will need most time, which will involve cost, how the impact will be and then whatever resources that you need to work with is readily available. So, with this matrix it makes it easier to be

able to arrive at which one you are supposed to select first, so the expression was good I will say" (Fanteakwa DHMT member - female)

"With the approach, concerning the problem identification, you know we have the problem prioritization matrix. We have so many problems but with using the problem prioritization matrix you are able to select one that is most pressing, yes. In doing so it will solve other problems too, yes" (Abuakwa South DHMT member - female)

"We have a problem prioritization matrix that we use, so if you pick a challenge or a problem, looking at how long it's going to take you to address those challenges, how much resources will be required and then human resources, so all these things are factored in the tool for you not to be biased in selecting your problem… So, the influence from the directorate is minimal, when it comes to sub-districts selecting their problems and developing strategies to address them, the influence from the directorate is very minimal" (Fanteakwa DHMT member - male)

4.12 Hindrances/Challenges of the MSI

4.12.1 COVID-19

Most DHMTs agreed that COVID-19 had a noticeable impact on all aspects of health services delivery and health indicators at both the district and health facility levels. Although participants' perceptions about the level of disruptions, especially on implementation of MSI activities, varied most reported that immunization services, antenatal care services, supportive supervision, and home visits were some of the key affected areas of health care delivery.

"COVID-19 actually impacted the MSI implementation, you see when we had our training, we were supposed to start this second cycle earlier, but because of COVID and the lot of work it involved it was actually hampered. That is why we were not having a lot of these trainings… It has really affected us because due to COVID we are not testing more but we had to let our people know that yes, there is COVID, but we also need to screen more and test the people for other disease of public health importance" (Abuakwa South DHMT member - male)

"Home visits were difficult because of the restrictions given to us on what to do during the era of COVID-19. Home visiting was limited to only special home visits alone, but for Buruli ulcer we have to search using volunteers and health workers during home visits…" (Yilo Krobo DHMT member - female)

The disruption in health services was also echoed by one participant who reflected on how COVID-19 changed their way of working and communicating among staff. As a result of the disruptions, staff had to rely on emails, phone calls and other virtual means to communicate among staff.

"For that sometimes we call in and if they have some challenges we discuss it on the phone or email and provide assistance. Sometimes too, if we get the chance, we go to the facilities ourselves to observe what is happening with all the protocols being observed" (Abuakwa South DHMT member - male)

Some participants stated that, although COVID-19 affected their activities, services such as antenatal services were vital, hence they had to undertake those while observing the COVID-19 protocols.

"Yeah, you know COVID-19 affected every other thing in our society but I will say with the MSI, looking at our problems, low ANC coverage, even though it got to a time where

directives were sent from headquarters to us that we should stop all outreach activities… we were still educating mothers who are pregnant or pregnant women to come for their normal antenatal services" (Ayensuano DHMT member - male)

The focus of the DHMTs were entirely shifted to COVID-19, hence resources were concentrated in that area. This affected other health services areas, eg logistics for monitoring and supervision and time for ANC activities.

"…It [COVID-19] really affected the activities because the workload COVID brought to the health service was massive. All our attention was geared towards COVID and how to fight it. Most of our activities went into the background and was replaced by COVID. For example, when we are always out to take COVID samples and check on COVID patients and all that, it takes away time from the MSI activities. Time to follow up on ANC activities was limited, also logistic-wise, when you want to go out for monitoring activities, it is the same limited vehicles that will be used for COVID activities. So vehicles for supportive visits and other things for the MSI would not be available" (Abuakwa South DHMT member - male)

4.12.2 Staff turnover of trained staff

Participants stated that staff turnover sometimes slowed momentum of MSI activities as the remaining staff either turned their focus to entirely new things or slowly picked up from where the trained departed staff left off. In some cases, limited staff availability at DHMT and facility levels tended to increase the work burden on the few remaining staff which affected the quality of health service delivery.

"Most facilities do transfers and most at times we do not get replacements, so the staff remaining at those facilities get an increased workload. When workload increases in that manner the way service provision should be handled, it does not go that way. Sometimes the way we want to handle something at a particular facility, because of the inadequate staff, we are not able to do that thing" (Abuakwa South DHMT member - male)

Other participants also argued that once a new DHMT staff is transferred to the district, the individual is introduced to the MSI. This is to ensure that there are always enough staff available at the DHMT with enough knowledge on the MSI, so that MSI implementation is not really affected by the transfer of staff.

"Not really. Fortunately, the new staff that came in were somehow introduced to the MSI, so they are all aware of what is going on. So there has not been a lot of moving out but there has been a moving in at the DHMT. Most staff have come in, so I think that it has rather increased the activities of the MSI because if one officer is not available, the other is there to handle it" (Abuakwa South DHMT member - male)

What are the effects of the MSI on management strengthening, workforce performance and service delivery?

The effects of the MSI on management strengthening, workforce performance, and service delivery were assessed using a number of tools, including outcome evaluation, HR strategy tools for health workers, the decision space tool, and a management competencies survey.

Table 2: Effects of MSI on work performance and service delivery

District	Cycle	Problem	Broad Strategies	Effect of MSI on work performance and service delivery
Yilo Krobo	1	Low NTDs case detection (Yaws)	1. Community sensitization on yaws 2. Health staff capacity building on NTDs 3. Health staff conducting active and passive case search for yaws 4. Use of volunteers to assist in active case search 5. Quarterly monitoring of health staff	1. Improved knowledge in problem-solving skills in daily activities, including field work 2. Improved teamwork among DHMT members in consensus building, decision making and collaboration 3. Improved capacity managerial activities 4. Increased engagement and lobbying of stakeholders 5. Improved resource management in activity implementation due to cost-neutral nature of MSI 6. Improved service delivery and health coverage in various districts
Yilo Krobo	2	Low NTDs case detection (Buruli ulcer and leprosy)	1. Community sensitization on Buruli ulcer and leprosy 2. Health staff capacity building on NTDs 3. Health staff conducting active and passive case search for Buruli ulcer and leprosy Use of volunteers to assist in active case search5. Quarterly monitoring of health staff	
Fanteakwa	1	Low OPD Attendance	1. Lobby for more health staff to improve numbers in district 2. Develop retention strategy for health staff to curb voluntary transfers 3. Increase monitoring frequency to health facilities 4. Provide staff with job descriptions 5. Regular open appraisals 6. Develop reward criteria for best staff 7. Enforce disciplinary actions 8. Train staff on customer relations	

			9. Use team meetings, trainings and multi-tasking at all levels 10. Strengthen community engagement	
Fanteakwa	2	Low TB case detection	1. Improve TB screening services 2. Collaborate with prayer camps and chemical sellers 3. Community sensitization on TB 4. Monitor and support visits to prayer camps and chemical sellers 5. Improve monitoring and supportive supervision to health facilities 6. Build staff capacity in TB screening 7. Enhance TB clients' contacts screening 8. Institute rewards for staff who detect most cases 9. Integrate TB indicators into appraisal of health staff 10. Action plan with TB activities factored into it	
Suhum	1	Low ANC coverage	1. Orientation and community engagement 2. Training and development 3. Application of rewards system 4. Regular supportive supervision 5. Stakeholder engagement 6. Lab equipment procurement 7. Engagement of private laboratory providers	
Ayensuano	1	Low ANC coverage	1. Community engagement 2. Formation and revitalization of Community Health Management Committees (CHMC) 3. Staff orientation 4. Development and application of reward system 5. Improved supportive supervision 6. Lobby and advocate for resources	

			7. Procurement of basic laboratory equipment 8. Capacity building of health staff on ANC services 9. Community engagement	
Abuakwa South	1	Low ANC Coverage	1. In-service training for health staff on customer care 2. Monthly monitoring and supervision 3. Development and application of reward system 4. Quality service assessment to measure change in staff attitude towards clients 5. Update community register for pregnant women 6. Community engagement via durbars and Community Health Management Committee (CHMC) meetings 7. Mentorship and coaching 8. Outreach programme for ANC services 9. Engagement with Traditional Birth Attendants (TBA), prayer camps and private health facilities 10. Abolition of unapproved ANC charges 11. Community sensitization on ANC approved charges	
Lower Manya Krobo	1	Low Td2+ Coverage	1. Train staff on SOPs and guidelines on Td vaccination 2. Ensure availability of Td vaccines at three hospitals' ANC sites 3. Build capacity of midwife to be able to give Td vaccination 4. Place vaccination post at vantage point at ANC clinics 5. Include Td vaccination in performance appraisal for CHNs and Midwives 6. Reward staff who achieve high Td+ coverage 7. Update community register for pregnant women 8. Home visiting Td vaccination 9. On-site data quality training for CHNs and Midwives	

			10. Supportive supervision 11. Data validation and data verification with feedback 12. Engage the community on the importance of ANC and Td vaccination 13. Media engagement 14. Strengthen home visits 15. Collaborate with other alternative health care providers	

The implementation of the PERFORM2scale MSI occasioned an improvement in the management skills of both DHMT and facility-level staff, as well as service delivery. Individually, DHMT members' capacity in problem analysis and problem solving were enhanced. There was improvement in teamwork among DHMT members, and the members' confidence in tackling district health problems within limited resources increased. The findings show that the MSI has improved organizational practices and process. Thus, now DHMTs effectively and efficiently integrate strategies, and piggyback on other programs with funding to implement workplans. As well as improvements in health outcome indicators in all districts, the quality of care had also been enhanced. The DHMTs expressed confidence in their knowledge and skills acquired from the MSI implementation to continue with the approach without CRT support.

4.13 Findings from the outcome evaluation

Narratives from the outcome evaluation indicated several effects on management and workforce performance of DHMTs at district level. These included individual growth, teamwork, strengthening of management and organizational skills, as well as increased consideration given to gender.

4.13.1 Individual growth

All interviewed DHMT members acknowledged that their problem-solving knowledge has improved. They intimated that they are now well capacitated to identify and analyse problems, write problem statements and develop strategies to achieve desired results. Furthermore, some DHMT members from DG1 and DG2 expressed how beneficial the MSI has been to their fields of work. Another member of District 002 DHMT said that via MSI he has become more receptive to colleagues' opinions on issues.

> *"I am the Health Information Officer so anytime I look at the data I need to find out if there are problems and then find ways to address them. Initially, it was not done. But with all the knowledge on the MSI and the second [MSI] training enhanced my knowledge on how to identify problems and how to work on them. So, I am trying to adopt it personally on how I deal with problems I encounter" (Yilo Krobo DHMT Member - male)*

4.13.2 Improved teamwork

Overall, teamwork within the DHMTs has improved across the board. This has enhanced the individual members' knowledge in some service delivery areas other than their field of work. In addition, enhancement in teamwork has resulted in the delegation of responsibilities and task sharing within some DHMTs. The need for teamwork during MSI implementation was also emphasized by a DHMT member in DG1.

> *"The MSI has helped us in different ways as a team because whether you are an administrator, health promotion officer, nutrition officer we all come together to solve the same problem, so areas that you are not abreast with through the MSI program we've been able to learn a lot from different angles as a team" (Yilo Krobo DHMT Member - male)*

Further, DHMTs from DG1 and DG2 noticed that the DHMT previously worked vertically as individual units, but now there is collaboration across the various units, which is contributing to achieving desired results. A DHMT member from DG2 acknowledged that coordination among departments and units within the District Health Directorate has improved.

> *"There has been improved coordination among departments…For instance, I remember when we were compiling the report for the problem we selected for cycle 1, which was the low ANC*

coverage, we meet as a team and bring all ideas on board with one person typing things down to complete the report. All the staff comes from different units and different perspectives are shared." (Abuakwa South DHMT member - male)

Additionally, the MSI implementation led to consensus building and participatory decision-making in problem-solving, which resulted in an all-inclusive approach to documentation and reporting. Regular meetings enhanced teamwork. Some DHMT members highlighted the synergies associated with teamwork and the disadvantages of unilateralism, whereas other members reflected that the need for collaborative efforts was essential for progress.

"Since the introduction of the MSI management tool, I have now come to realize that you can't do it alone, you need the collaborative efforts of your colleagues. You need their ideas, their suggestions then together we move forward. You can't do it alone." (Abuakwa South DHMT member - female)

"For teamwork, we realize each person has a different point of view and if you plan alone it would flop, so we needed to always bring people on board, get everybody's views and perspectives to reach consensus on issues." (Fanteakwa DHMT member - female)

"Now with the MSI knowledge, we know that you cannot just jump and implement activities and expect an outcome. Once we have a plan, we need to monitor and meet as a team to review progress. So the MSI has helped us." (Abuakwa South DHMT member - female)

Lastly, all DHMT members reckoned that communication has improved through the implementation of the MSI.

"…looking at the level of communication we have on our [WhatsApp] platforms, I would say it is much better because now everyone is involved in communicating the challenges faced in the field." (Yilo Krobo DHMT member - female)

4.13.3 Strengthened management skills

DHMT skills in problem analysis and problem solving improved through the implementation of the MSI. Even though reflection has been part of DHMTs' processes, the teams reckoned that the MSI has brought a great impetus for constant reflection on their progress by reviewing and comparing records.

"At the end of every quarter, we have a meeting and review our reports and compare the results with the previous years. That is usually the reflection that we do as part of the MSI. Previously it was not something that we were doing but the MSI has opened our eyes and minds with regards to problem identification and problem-solving." (Yilo Krobo DHMT member - female)

"It is through the MSI program that I can draw the problem tree and analyse the immediate causes and the root causes of challenges that we are facing as a district." (Yilo Krobo DHMT member - female)

The implementation of the MSI in solving specific health service delivery problems cascaded to solving other managerial issues like data capture and management, reporting, and efficient use of resources. Now DHMTs are carrying out activities that otherwise they would have waited for regional or national support.

"I have learned a lot because through the MSI we have been able to handle a lot of our problems at our level. We at the district level have been able to solve some of our issues locally, by not having to wait for the region or national level. Also, we do a lot of things with less money involved. So, I think I have learned a lot about doing things with limited finances available." (Abuakwa South DHMT member - male)

"Personally, I have adopted the MSI approach in my routine function. For instance, with disease control activities, now we validate a lot of reports to see whether the problem is coming from service provision or data collection. We have been able to do that analysis and we have realized that they sometimes actually do the work but there are a lot of gaps in the data aspect. So we have been able to correct that using the MSI approach." (Abuakwa South DHMT member - male)

The DHMT members reckoned that their perception had always been that they needed additional resources to accomplish objectives. However, the MSI has enlightened them. Thus, they confidently thought that with limited resources, great strides could still be made. A DHMT member in DG2 reflected that the most valuable aspect of the MSI is the ability to work within limited resources and achieve objectives through teamwork.

"The most valuable aspect of the MSI is that as a team, we always need to be able to identify our challenges. Now we can identify our challenges using the MSI and then develop strategies and activities to address them. Even if there are no funds we can still implement some of the activities to address the challenge." (Abuakwa South DHMT member - female)

"The DHMT members have now understood that amidst the limited resources we have, we can still find a way of solving problems in the district and reflect on what we're doing to ensure the activities we are implementing are achieving results." (Yilo Krobo DHMT member - female)

The DHMTs are now confident that they could solve problems that in the past they thought were unsolvable due to a lack of resources. A DHMT member highlighted that even though the idea of problem identification and strategizing was not new, the emphasis on reflection in the MSI empowered them to track progress to accomplish set objectives.

"The MSI opened our eyes a lot. Problems we thought were normal, we realize that we could tackle those problems and achieve results." (Abuakwa South DHMT member - female)

"Even though we previously identified problems and came out with interventions in solving those problems, I think the MSI helps us to be more conscious of our objectives and to religiously follow our strategies to achieve our objectives. Periodically, we reflect on what you have done to check whether we were on track to achieving our overall objective. So, I think the MSI helped to structure what we were previously doing." (Ayensuano DHMT member - male)

The MSI training expanded the views of some DHMT members on the use of data for problem analysis and monitoring problem-solving progress. The DHMTs in DG2 indicated that there has been improvement in the planning, reporting, and supportive supervision. A member further reflected that the team's documentation and use of indices for monitoring progress improved.

"By implementing the MSI approach, we have had a lot of changes in the district, as an individual and a team. In terms of reporting, planning, and strategizing at all levels including sub-district level, and supportive supervision. The MSI approach has helped us to do proper

documentation of our activities and strategies. We have now empowered our sub-district leaders to always monitor activities and document." (Ayensuano DHMT member - male)

The DG2 DHMTs' knowledge in stakeholder mapping and engagement improved, thereby successfully lobbying stakeholders for critical logistics concerning ANC services.

> *"By implementing the MSI relative to improving our ANC coverage, through stakeholder engagement and support, we have been able to acquire basic logistics for examining our pregnant women at the facility level, so we are now getting more pregnant women at the facility compared to the previous years that we weren't implementing MSI." (Ayensuano DHMT member, - male)*

4.13.4 Enhanced organizational practices and processes

Through the MSI, DHMT members acknowledged that they acquired more lobbying skills and understanding of who their key stakeholders are. Engagement with relevant stakeholders for resource mobilization helped improve the skills of DHMT members in forecasting and setting targets. All DHMTs are now able to effectively integrate activities and ride on the back of activities with funding to implement those hampered by resource constraints.

> *"I've learned a lot on the MSI program, for instance, how to integrate other activities and also how to monitor activities to achieve desired outcomes." (Yilo Krobo DHMT member-female)*

> *"We consulted our stakeholders because we needed to procure more urine tests for all the facilities, so the Director consulted the identified stakeholders for help, she even consulted the MP [Member of Parliament] for the district, and the MP assisted us, so we lobby a lot for logistics for the facilities." (Abuakwa South DHMT member - female)*

> *"Because of actively engaging all stakeholders, the skills of our people have improved in terms of developing strategies and targets and focusing on data." (Fanteakwa DHMT member - female)*

All DHMTs recognized the significant role played by the MSI in improving their competence in the effective use of resources through the integration of activities. A DHMT member in DG1 made the following observations:

> *"By using the MSI approach we made better and more efficient use of the DHMT's resources. From what we learned from the MSI training, we do stock-taking monitoring to see how best we can ride on the back of programs with resources… now we have a way of encouraging staff to work even if there is no money, by integrating activities with program activities with funding." (Fanteakwa DHMT member - female)*

Through the cost-neutral MSI implementation, the DHMTs have realized the relevance of integration. Thus, the DHMTs integrated many of the MSI-related activities with programs with readily available funding. However, a DHMT member observed that though funds are needed for certain activities to be executed, many other activities could be carried out with little or no funds. The DHMT integrated different programs, especially during outreach activities, and thus made efficient use of limited available resources.

> *"I think we thought we always needed money to make some things work, for example, monitoring. But after going through the MSI cycle, we realized that we don't need a lot of money to achieve certain objectives." (Fanteakwa DHMT member - male)*

"…we ride on the back of other programs to do what we are supposed to do. For instance, when we go to the sub-district to do something on malaria, we chip in aspects of all the things that we do. So, we don't just go out to the facilities and sub-districts for just one activity, we try to do a bit of everything." (Ayensuano DHMT member - female)

Without having to rely on additional funds, all DHMTs implemented many of the activities they thought required additional resources to undertake within the districts' constrained annual budgets.

"We did a lot of COVID activities - like sensitization, safety protocols, nutrition, etc. - with limited funds and it was because of the knowledge we acquired in the MSI, we were able to handle a lot of things without funds. Previously we would have waited, saying that since we do not have funds we cannot carry them out." (Abuakwa South DHMT member - female)

The DHMTs explored potential resource mobilization avenues beyond the annual budget, to implement their strategies. Meanwhile, the majority of the activities implemented under the MSI were already included in the DHMTs' annual action plans, though limited efforts were made to implement them. However, as recounted by a DHMT member, the MSI enabled better planning within the same DHMT's annual budget, thereby ensuring greater outputs.

"The MSI approach has been helping us to get things done with the little resource that we have… If we don't have the required resources, we explore other opportunities and engage…Now we do a lot of integration. For example, when we are moving to the sub-district level, where we have to move with fuel for supportive supervision, we rather do integrated monitoring such that if we have funds to monitor only HIV activities, we also monitor other activities as well." (Abuakwa South DHMT member - female)

"Our annual action plan and budget did not change much. After we planned for the MSI cycle, we integrated/merge the activities. It did not cause a lot of changes in our budget or our activities. Just that because of the MSI we were able to plan better and implement the activities using the same available budget." (Abuakwa South DHMT member - female)

"The district annual action plan did not cause the MSI cycle to change much because most of the activities we did were things that were already in our action plan. It was not anything new to us. But the only thing was that we were able to plan better. So it was the same budget and same action plans." (Abuakwa South DHMT member - female)

The DHMTs relied on existing structures and processes to ensure better reflection within the MSI. A DHMT member in DG2 noted the following:

"Everyone was involved in the MSI. What we normally do is that every Monday morning we have DHMT meetings. After the meetings, we discuss issues about the MSI. Every quarter as well we, the DHMT, and all the sub-leaders also meet together to have a meeting and we discuss the MSI as well. Also, during our half-year review meetings and the annual review meetings, we discuss the MSI." (Abuakwa South DHMT member - female)

The DHMTs shared experiences from the MSI with colleagues in other districts. Also, the interaction between DHMTs and sub-district levels has improved, as observed by a DHMT member in DG2.

"As we implement the MSI cycle, we interacted with colleagues from other districts, and we can share experiences for them to apply it to their work and get good results to better improve health management in the region… Since the arrival of the MSI, our interaction with

staff at the sub-district level and facility level has improved." (Ayensuano DHMT member - male)

4.13.5 Workforce motivation and performance

According to a DHMT member in DG1, by implementing the health service and human resource strategies within the MSI, sub-districts staff became abreast with some service delivery protocols which served as motivation for improving performances.

> *"Now through the MSI, we have in-chargers, who are now well abreast with the code of ethics and all the protocols of Ghana Health Service. So they check on staff to make sure they are actually at work on time and always present. And we also go on unannounced visits to some facilities." (Fanteakwa DHMT member - female)*

> *"The MSI pushed us to do more which increased our OPD attendance and general performance. And I must say we won the best district in the whole of the Region for 2020." (Fanteakwa DHMT member - female)*

A DHMT member observed that health staff are now highly motivated to put in more effort because they have the requisite knowledge to confidently identify problems and implement health strategies. Additionally, as part of the MSI strategies in some districts, staff motivation was triggered through the acknowledgment of the hard-working individuals via, for example, citation presentations and granting of study leave to the qualified, hard-working staff.

> *"…we have some kind of citations to recognize distinguished hardworking staff to motivate them…For staff who are due for study leave and apply to go for further studies, the quota is very limited, so if you are a hardworking person and you want to go on study leave, we recommend you." (Abuakwa South DHMT member - female)*

Changes were observed in staff attitude to work, performance, and service delivery indicators in all districts. For instance, a DHMT in DG2 observed that the MSI contributed to improving their performance ranking within the region, with the district being placed on the fourth position in 2020 in comparison to last position every other year. Also, health facilities that pre-MSI could not provide antenatal care services are now doing so, through the attachment of staff to hospitals for practical hands-on training.

> *"We have observed changes in the performance of health workers because their attitude towards work has improved thereby translating into improving our indicators, particularly antenatal care indicators." (Ayensuano DHMT member - female)*

> *"Through the MSI strategies, our facilities without midwives that were not performing antenatal are now capable of having antenatal clinic… so health care access to antenatal clinic for the pregnant women in every community has improved, and safe within the district." (Abuakwa South DHMT member - female)*

4.13.6 Improved consideration of gender in the management of health workers and service delivery health workers' distribution

All DHMTs observed gender issues in relation to health workers' distribution and involvement in the MSI activities throughout planning and implementation of the MSI. A DHMT member in DG1 recounted the involvement of both genders in yaws case searches, school screening, ANC services,

etc. A DHMT member indicated that during service delivery, specific genders were encouraged to participate in certain specific services, for example, men in ANC.

> *"We considered gender in most of the MSI strategies. Taking community durbar, for instance, where we disseminate information to community members, we make sure that both males and females are well represented… because NTD cases are mostly found in children, and the child may be staying with only one parent, so that parent can help us to detect the cases." (Yilo Krobo DHMT member - female)*

> *"When it comes to screening of the students, we had both male and female nurses on board. So that a male nurse will inspect male students and female nurse will also inspect female students." (Yilo Krobo DHMT member - female)*

> *"We included both sexes because in our work we have males doing part of the work as well as females. Of course, it is a female-dominated area, but we all work together. So, even for service delivery at the sub-district, we also push for male involvement with our clients for ANC. So we are working together with both genders." (Ayensuano DHMT member - female)*

> *"We did consider gender in the MSI. We have for instance situations where the women want to come to the antenatal care but the men will say 'I will not give you transportation fare'. So for every plan, we do we make sure that we have the male involvement." (Abuakwa South DHMT member - female)*

Male staff are often considered for posting to remote areas where the terrain makes it difficult to access communities easily. Consequently, some DHMTs lobbied for the posting of more male staff into their districts, to enable them to have adequate staff providing services in remote areas.

> *"…we lobbied for more males than females because we needed more males in remote areas with limited social amenities. When we send most females to such areas, they get sad and that doesn't motivate them to effectively do the job." (Fanteakwa DHMT member - female)*

> *"…especially in the hard-to-reach areas, health workers have to ride motorbikes, but in this district females do not want to ride motorbikes. So, when we are posting, we normally send males to those hard-to-reach areas where they can reach the remote communities by the use of motorbikes." (Yilo Krobo DHMT member - female)*

A DHMT member recounted the critical reasoning behind having to include males in the training of midwives – which is mainly female-dominated. According to the member, it enabled male staff to effectively offer ANC services whereas the female staff offer delivery. Also, to ensure the effective complementarity of efforts, attempts were made to give equal opportunities to both genders during in-service training, even in single-sex dominated professions, eg females in midwifery.

> *"In Ghana, we have only females practicing as midwives, but we have some male Community Health Nurses [CHNs]. The male CHNs don't conduct delivery but they do ANC. So, when we trained the female midwives, we added some male CHNs, so that when they go for home visits they would know what to look for in pregnant women, how to examine them and refer them to midwives for further examination." (Abuakwa South DHMT member - female)*

> *"…In Ghana, most women are generally not comfortable with men helping them in delivery, especially the Muslim communities. A Muslim will not even allow a male to supervise her delivery. So, we needed to do more education on that. So, we considered both male and*

female and gave equal opportunities to all genders." (Abuakwa South DHMT member - female)

"We engaged both male and female opinion leaders to advocate and sensitize communities to patronize ANC services." (Abuakwa South DHMT member - female)

Through their engagement in the MSI, there was increased gender consideration among DHMTs when developing the different strategies to address the problems in the district. For instance, the DHMTs lobbied for the posting of more male staff into their districts so that adequate services could be provided in remote areas where accessibility is challenging. The involvement of both genders in yaws case searches, school screening, ANC services was also noted by the DHMTs.

4.13.7 Service delivery: Coverage, access and quality

Most interviewed DHMT members stated that not only health outcome indicators in districts had improved but also that quality of care had advanced after the implementation of at least one cycle of the MSI.

"…well it was projected during our annual review, our indicators in regards to TB has improved, with regards to TB treatment success and notification as compared to the previous years without the MSI" (Fanteakwa DHMT member - male)

"…I'm glad to say that we were the best district out of 33 districts and I'm sure this intervention has helped us so well." (Fanteakwa DHMT member - female)

Despite these general achievements reference was also made to a slowing down of the MSI strategies implementation due to a lack of monetary resources or the emergence of COVID-19 which affected some indicators.

"We saw a change, we could not achieve our target outcome but when we started and began visiting the prayer camps we saw a lot of cases (Buruli ulcer/leprosy) there. And we know that if it was not because of COVID-19 we would have found a number of them, at first we did not know we had such cases at the prayer camps until we visited them and saw the cases there. So, when the restrictions (related to COVID-19) came and we were not able to visit them we were not happy about it" (Yilo Krobo DHMT member - female)

One DHMT member favourably compared her current situation with her previous work. She noted that the previous lack of strategy was very evident now that she understood how the MSI strategies contributed to the better identification of leprosy and Buruli ulcer cases within the community. It also became evident that the MSI has helped district managers in prioritizing problems within units or departments at the DHMT.

"So this programme has actually helped us, especially we in the Disease Control Unit. When we started this programme with the ANC coverage our coverage was around 34% to 36%, but after the round one of the MSI our coverage has improved to about 54% in just 2020… it has helped us to prioritize some of the disease control programmes like Expanded Programme on Immunization, we prioritize surveillance… so we did the prioritization and we saw that we had to look at COVID-19 first because with COVID-19 when case fatalities are going up we need to put in more effort as a Disease Control Unit to curb that situation. So, the MSI has actually helped us. All of us in the unit can look at a situation and develop a problem statement, we can develop an objective which is realistic and time bound.

Objectives that we can try to get realistic results. So, it has actually helped us" (Abuakwa South DHMT member - female)

The lack of key health providers, such as doctors, in some of the district facilities was highlighted as a deterrent for community members to use them. Some participants spoke about the competencies of other healthcare providers at the facilities, who are primarily Community Health Workers and other field technicians. It was stated that their services helped in improving quality of care.

> *"Yes, so the quality of care has also improved. I think right now in as much as we don't have enough doctors at the moment but we have enough physician assistants to also attend to some of the minor cases that may come on board. Also, because we also have nutrition officers and other specialists on board, it also helps in improving the quality healthcare" (Fanteakwa DHMT member - female)*

Not all facilities, especially those in the hard-to-reach areas within the district, provided the basic antenatal care services that were needed. In this case, participants from the DHMT noted that due to the some of the PERFORM2Scale MSI strategies identified, some basic laboratory equipment was provided to these facilities. Midwives were also encouraged to provide more outreach services to ensure improved access to health services.

> *"In our district, at first the ANC coverage was very low due to poor access to the facilities, no outreach centre in the hard-to-reach communities, and no provision of laboratory tests unless you come to the hospital. So, at the CHPS centre or the outreach service centre, there were no such things like that, that is the haemoglobin test, the glucose, the urine and other test involved in the ANC. Since they have to come to the hospital for that and for that matter the client was not able to do that so they decided to stay home and during the time for delivery then they will come. So when PERFORM2Scale came, we implemented all these things. So, the facilities without laboratory we gave them test kits so that it can be easy for the client to get access to the laboratory, they will not have to move from far distance or complaining about fare. Also, there were facilities that were not performing antenatal so the midwife would have to move from a place to the outreach centre or CHPS centre to perform antenatal for them too, so that was how we came out with the strategy to implement our antenatal coverage (Abuakwa South DHMT member - female)*

4.14 Management Competency Survey

In order to assess and provide evidence on whether the MSI has led to improvements in perceived management and leadership skills and teamwork, as well as confidence and independence among district health managers, an endline survey was conducted in March 2021, three years after the baseline survey took place with DHMT members in DG1. The survey was completed by district health managers within the PERFORM2Scale districts. Findings include information relating to the district health managers' 1) socio-demographic characteristics, 2) their management experience and training prior to their current position, 3) their perception of available support systems, 4) their general as well as health system-specific management and leadership competencies, 5) their overall management performance, 6) their perception of being part of their DHMT, including their motivation, satisfaction and organizational commitment, as well as 7) management competencies and the effect of the COVID-19 pandemic on MSI implementation (Moses Aikins et al., 2018; Moses Aikins et al., 2021)

The findings are presented according to the component of the questionnaire and aligned with the aims of the study and stratified by baseline and endline. Each presentation of results is followed by a discussion of relevant findings.

4.14.1 Study participant characteristics

At baseline, 32 district health managers participated in the survey while at endline 42 district health managers participated in the survey: 12 from Abuakwa South, 9 from Ayensuno, 12 from Fanteakwa North and 9 from Yilo Krobo. No information is available on the number of participants that might have been involved in both baseline and endline survey.

The socio-demographic characteristics of study participants at baseline and endline are presented in Table 3.

The average age of study participants at baseline was 32.2 years and at endline was 36.4 years. The DHMT presented almost gender equality at the endline (51% males vs 49% females) as opposed to full equality at the baseline.

The average number of years in their current position across the districts at endline was 4.6 years, compared to the higher average of 5.7 years in the baseline. At baseline, Fanteakwa district had the lowest average (3.9 years baseline and 2.4 endline years), while Yilo Krobo (in contrast to the baseline where was rated in second place), has the highest average (7.7 years), followed by Ayensuano (5.9 years) and Abuakwa South (4.1 years).

As in the baseline, the majority of the participants held a bachelor's degree as their highest qualification (47% baseline and 45% endline), followed by a diploma (41% baseline and 36% endline).

While in the baseline the most frequent educational backgrounds were in Public Health, Nursing and Accounting/Finance across all districts, in the endline the third most frequent educational background is Nutrition.

Table 3: Socio-demographic characteristics of study participants at baseline and endline

Characteristics	Baseline				Endline				
	Fanteakwa North (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Sex									
Male	5 (50)	6 (55)	5 (45)	16 (50)	3 (25)	8 (89)	6 (55)	4 (44)	21 (51)
Female	5 (50)	5 (45)	6 (55)	16 (50)	9 (75)	1 (11)	5 (45)	5 (56)	20 (49)
Age									
Mean	35.6 (7.5)	41.6 (10.5)	42 (8.3)	39.9 (9.1)	32.2 (5.3)	37.9 (11.5)	35.9 (9.0)	41.2 (8.0)	36.4 (8.8)
Range	30-54	30-58	33- 57	30-58	27-43	28-58	27-57	28-56	27-58
Years in current position									
Mean	3.94 (5.3)	7.5 (5.3)	5.5 (4.4)	5.7 (5.1)	4.1 (4.2)	5.9 (4.1)	2.4 (3.2)	7.7 (5.2)	4.6 (4.4)
Range	0.3-17	2-20	1-14	0.3-20	1-11	1-13	0.3-10	2-17	0.3-17
Highest qualification									
Certificate	-	-	-	-	1 (8)	-	-	-	1 (2)
Diploma	3 (30)	6 (55)	4 (36)	13 (41)	5 (42)	2 (22)	5 (42)	3 (33)	15 (36)
Bachelor‘s Degree	4 (50)	4 (36)	6 (55)	15 (47)	4 (33)	5 (56)	6 (50)	4 (44)	19 (45)
Master‘s Degree	1 (10)	1 (9)	1 (9)	3 (9)	2 (17)	2 (22)	1 (8)	2 (22)	7 (17)
PhD	1 (10)	-	-	1 (3)	-	-	-	-	-
Educational background*									
Public Health	7 (70)	7 (64)	6 (54)	20 (63)	6 (50)	4 (40)	4 (33)	5 (56)	19 (45)
Medical Doctor	1 (10)	-	-	1 (3)	-	-	-	-	-
Nursing	1 (8)	1 (9)	3 (27)	5 (16)	1 (8)	2(20)	4 (33)	2 (22)	9 (21)
Midwifery	-	-	1 (9)	1 (3)	-	-	1 (8)	1(11)	2 (5)
Accounting/Finance	2 (20)	1 (9)	1 (9)	4 (13)	-	-	1 (8)	1 (11)	2 (5)
HR Management	1 (10)	1 (9)	1 (9)	3(9)	2 (17)	1 (10)	-	-	3 (7)

Characteristics	Baseline				Endline				
	Fanteakwa North (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
Nutrition	1 (10)	1 (9)	1(9)	3 (9)	2 (17)	1 (10)	2 (17)	1 (11)	6 (14)
Other	-	-	-	-	1 (8)	2 (20)	3 (25)	3 (33.3)	9 (21)
District Health Management Team Composition									
Accountant	1 (10)	1 (9)	1 (9)	3 (9)	-	-	1 (9)	1 (11)	2 (5)
Administrator	-	1 (9)	1 (9)	2 (6)	1 (8)	0	1 (9)	1 (11)	3 (7)
Deputy Director of Nursing Services	-	1 (9)	1 (9)	2 (6)	-	-	-	1 (11)	1 (2)
Disease Control Officer	2 (20)	2 (18)	2 (18)	6 (19)	4 (33)	2 (22)	2(18)	2 (22)	10 (24)
District Director of Health Services	1 (10)	1 (9)	1 (9)	3 (9)	1 (8)	1 (11)	1 (9)	1 (11)	4 (9)
Health Information Officer	2 (20)	1 (9)	1 (9)	4 (13)	-	1 (11)	1 (9)	1 (11)	3 (7)
Health Promotion Officer	-	1 (9)	-	1 (3)	1 (8)	1 (11)	1 (9)	1 (11)	4 (9)
Human Resource Officer	1 (10)	-	-	1 (3.1)	1 (8)	1 (11)			2 (5)
Nutrition Officer	1 (10)	1 (9)	1 (9)	3 (9)	2 (17)	1 (11)	2 (18)	1 (11)	6 (14)
Public Health Nurse	1 (10)	-	2 (18)	3 (9)	1 (8)	1 (11)	1 (9)	-	3 (7)
Other	1 (10)	2 (18)	1(9)	3(9)	-	2 (22)	1 (9)	-	3 (7)
Specify other	Acting Supplier Officer	Mental Health Officer, Procurement Manager	Community Health Nurse			Senior staff nurse	Staff nurse		

4.14.2 Previous management experiences and training

Table 4 provides an overview of the district health managers' exposure to management training and experience at baseline and endline.

- A little less than half of district health managers held management experience from other DHAs before being posted in their current positions (44% in both baseline and endline). Fanteakwa North was the district with the highest percentage of the district health managers that had not worked in another DHA before (64% baseline and 73% endline).
- The majority of participants across the three districts had professional management experience prior to their current roles in the DHMTS at both baseline and endline (74% and 77% respectively), while only a small percentage had no experience or less than one experience (26% baseline and 32% endline). The biggest change in management experience was observed in Fanteakwa North where 27% of the participants had more than 5 years of management experience prior to their current DHMT position and 54% had 1-5 years compared to 10% and 60% at the baseline data.
- The proportion of the study respondents that had received formal training in management and leadership slightly decreased from 48% baseline to 44% during the endline. While Fanteakwa North also reported a decrease in receiving formal management training (70% vs 36%), Yilo Krobo experienced an increase of 20%.
- The proportion of study participants that received informal management training increased from 58% to 67% over the past 12 months. While Fanteakwa North registered a slight increase (78% vs 82%), Yilo Krobo recorded a drop of 1% from the baseline.

Table 4: District health managers' exposure to management training and experience

Previous Management Experience	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n=12)	Yilo Krobo (n=9)	Total (n=42)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Worked in another DHMT prior to current position									
Worked	4 (40)	6 (55)	5 (36)	14 (44)	*4 (36)*	*5 (56)*	*3 (27)*	*6 (67)*	*18 (44)*
Not worked	6 (60)	5 (45)	7 (64)	18 (56)	*7 (64)*	*4 (44)*	*9 (73)*	*3 (33)*	*23 (56)*
Professional management experience before entering DHMT position									
No experience	3 (30)	2(20)	2 (18)	7 (23)	*4 (33)*	*2 (25)*	*1 (9)*	*2 (22)*	*9 (22)*
<1 year	-	1 (10)	-	1 (3)	*2 (17)*	*1 (12)*	*1 (9)*	-	*4 (10)*
1-5 years	6 (60)	2 (20)	5 (45)	13 (42)	*4 (33)*	*3 (37)*	*6 (54)*	*5 (56)*	*18 (45)*
>5 years	1 (10)	5 (50)	4 (37)	10 (32)	*2 (17)*	*2 (25)*	*3 (27)*	*2 (22)*	*9 (22)*
Received formal management and leadership training									
Not trained	3 (30)	6 (60)	7 (64)	16 (52)	*8 (67)*	*4 (44)*	*7 (64)*	*4 (44)*	*23 (56)*
Trained	7 (70)	4 (40)	4 (36)	15 (48)	*4 (33)*	*5 (56)*	*4 (36)*	*5 (56)*	*18 (44)*
Received informal management and leadership training									
Not trained	2 (22)	4 (46)	6 (55)	13 (42)	-	*6 (67)*	*2 (18)*	*5 (56)*	*13 (33)*

Previous Management Experience	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n=12)	Yilo Krobo (n=9)	Total (n=42)
Trained	7 (78)	6 (55)	5 (45)	18 (58)	*10 (100)*	*3 (33)*	*9 (82)*	*4 (44)*	*26 (67)*
If yes, the number of days of informal training within the past 12 months									
≥1 day	*1 (14)*	*2 (33)*	*1 (20)*	*4 (22)*	*4 (40)*	-	*3 (33)*	*1 (25)*	*8 (30)*
2-5 days	*3 (43)*	*3 (50)*	*3 (60)*	*9 (50)*	*4 (40)*	*3 (75)*	*5 (56)*	*2 (50)*	*14 (63)*
6-10 days	-	-	*1 (20)*	*1 (6)*	-	-	-	-	-
>10 days	*3 (43)*	*1 (17)*	-	*4 (22)*	*2 (20)*	*1 (25(*	*1(11)*	*1 (25)*	*5 (18)*

4.14.3 Functional management support systems

District health teams are responsible for the operation of health services within their districts. Mechanisms to facilitate the operation and enable district health managers in carrying out their roles and responsibilities should be available and accessible. Table 5 provides an overview of available management support systems and structures.

- In terms of job descriptions, only one participant from Ayensuano mentioned not having received a job description as opposed to baseline where everyone had received their job description. In contrast to the baseline where 87% of the participants reported that their job description was up to date, in the endline 100% of participants reported that their job description was up to date. The number of participants taking additional roles beside those stated in their job description slightly decreased in the endline (66.7% endline vs 73.2% at baseline). In contrast to baseline, no one across the districts reported having additional roles beside those stated in their job descriptions during the endline.

- With regards to access to relevant national and/or regional guidelines (eg on mass vaccination, malaria management, community mobilization), a decrease across the districts was reported. 94% baseline vs 85.3% endline reported that they had access to a moderate/large extent. Furthermore, both Fanteakwa North and Yilo Krobo experienced a decrease in the endline in comparison to the baseline (Fanteakwa 80% vs 45.4% to a large extent and Yilo Krobo 91% vs 44.4% to a large extent).

- Overall, there was a large decrease in the regularity of meetings across the districts from 84.4% in the baseline to 59.5% in the endline. The largest decrease was registered in Fanteakwa (80% to 50%). At endline all the other districts reported having regular meetings to a moderate and large extent, with Yilo Krobo the most (88.9% to a large extent), followed by Ayensuano (55.6% to a large extent) and then Abuakwa South (50%). Also, there was a decrease in accessibility to minutes or recordings of team meetings, with a large decrease in all districts (84% vs 66.7%).

- There were improvements across all districts in perceived receipt of supportive supervision, feedback and mentoring from their supervisors. Overall, 90.5% reported that they received support to a moderate/large extent compared to 85% in the baseline.

- There were mixed results in terms of the availability of adequate funds and logistics to implement planned activities across the three districts. There was a higher proportion of district health managers who reported that they had, to a small extent, adequate funding to carry out their planned activities in the endline in comparison to baseline (73.8% at endline vs 66.7% at baseline), while inadequate logistics and infrastructure increased from 40.5% at baseline to 53% at endline.

- Moreover, study participants were asked whether there were systems in place to help them when completing an assignment within the following areas: 1) Planning and budgeting; 2) Procurement of drugs and other commodities; 3) Data management; 4) Human resource (HR) management, and 5) Community-level structures or groups to enable community involvement. A slight decrease was reported in the endline in the first three domains across the districts. Further, Fanteakwa North registered worsening in 'Procurement of drugs and other commodities' by 13.3% and 'Community-level structures or groups to enable community involvement' by 14%.

Table 5: Functional management support system

Variable	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
Have you been provided with a job description?									
Yes	10 (100%)	11 (100%)	11 (100%)	32 (100%)	12 (100%)	8 (88.9%)	12 (100%)	9 (100 %)	41 (97.6%)
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (11.1%	0 (0.0%)	0 (0.0%)	1 (2.4%)
Is your job description up-to date and accurate in terms of your roles and responsibilities?									
Yes	80%	90.90%	90.90%	28 (87%)	12 (100%)	8 (100%)	12 (100%)	9 (100%)	41 (100%)
No	20%	9.10%	9.10%	4 (13%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Additional responsibilities besides what is stated in job description									
Not at all/Small extent	0%	18%	18%	4 (13%)	8 (66.7%)	7 (87.5%)	9 (75.0%)	6 (66.7%)	30 (73.2%)
To a moderate extent	50%	55%	37%	15 (47%)	4 (33.3%)	1 (12.5%)	3 (25.0%)	3 (33.3%)	11 (26.8%)
To a large extent	50%	27%	46%	13 (41%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Access to relevant national and/or regional guidelines within your work area									
Not at all/Small extent	0%	18%	0%	2 (6%)	3 (25.0%)	0 (0.0)	2 (18.2%)	1 (11.1%)	6 (14.6%)
To a moderate extent	20%	27%	9%	12 (38%)	5 (41.7 %)	3 (33.3%)	4 (36.7%)	4 (44.4%)	16 (39.0%)
To a large extent	80%	55%	91%	18 (56%)	4 (33.3%)	6 (66.7%)	5 (45.4%)	4 (44.4%)	19 (46.34%)

Variable	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
Regular team meetings									
Not at all/To a small extent	0 (0.0%)	0 (0.0%)	0 (0.0%)	0%	0 (0.0 %)	0 (0.0%)	1 (8.3%)	0 (0.0%)	1 (2.4%)
To a moderate extent	20%	18%	9%	5 (15.6%)	6 (50.0%)	4 (44.4%)	5 (41.7 %)	1 (11.1%)	16 (38.1%)
To a large extent	80%	18%	91%	27 (84.4%)	6 (50.0%)	5 (55.6%)	6 (50.0%)	8 (88.9%)	25 (59.5%)
Available records of team meetings									
Not at all/Small extent	10%	0%	9%	2 (6%)	1 (8.3%)	1 (11.1%)	1 (8.3%)	0 (0.0%)	3 (7.2%)
To a moderate extent	0%	18%	9%	3 (9%)	5 (41.7%)	2 (22.2%)	2 (16.7%)	2 (22.2%)	11 (26.2%)
To a large extent	90%	82%	82%	27 (84%)	6 (50.0%)	6 (66.7%)	9 (75.0%)	7 (77.8%)	28 (66.7%)
Supportive supervision, feedback and mentoring from your supervisor									
Not at all/Small extent	30%	18%	0%	5 (16%)	1 (8.3%)	0 (0.0%)	2 (16.7%)	1 (11.1%)	4 (9.5%)
To a moderate extent	30%	46%	36%	12 (38%)	9 (75.0%)	4 (44.4%)	6 (50.0%)	3 (33.3%)	22 (52.4%)
To a large extent	40%	36%	64%	15 (47%)	2 (16.7%)	5 (55.6%)	4 (33.3%)	5 (55.6%)	16 (38.1%)
Adequate funds to carry out planned activities									
Not at all/Small extent	70%	82%	46%	21 (66%)	8 (66.7%)	7 (77.8%)	8 (66.7%)	8 (88.9%)	31 (73.8 %)
To a moderate extent	20%	18%	55%	10 (31%)	3 (25.0%)	2 (22.2%)	4 (33.3%)	0 (0.0%)	9 (21.4%)

Variable	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
To a large extent	10%	0	0	1 (3%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	1 (11.1%)	2 (4.8%)
Adequate logistics and infrastructure to carry out planned activities									
Not at all/Small extent	50%	73%	36%	17 (53%)	3 (25.05)	3 (33.3%)	8 (66.7%)	3 (33.3%)	17 (40.5%)
To a moderate extent	30%	27%	64%	13 (41%)	8 (66.7%)	5 (55.6%)	4 (33.3%)	4 (44.4%)	21 (50.05)
To a large extent	20%	0	0	2 (6%)	1 (8.3%)	1 (11.1%)	0 (0.0%)	2 (22.2%)	4 (9.5%)
Is there a system in place to support you within the following areas?									
Planning and budgeting									
Not at all/Small extent	30%	18%	9%	6 (19%)	2 (16.7%)	2 (25.0%)	4 (33.3%)	0 (0.0%)	8 (19.5%)
To a moderate extent	40%	36%	55%	14 (44%)	6 (50.05)	3 (37.5%)	3 (25.0%)	3 (33.3%)	15 (36.%)
To a large extent	30%	46%	36%	12 (38%)	4 (33.3%)	3 (37.5%)	5 (41.7%)	6 (66.7%)	18 (43.9%)
Procurement of drugs and other commodities									
Not at all/Small extent	14%	0%	20%	3 (12%)	2 (18.2%)	1 (14.3%)	3 (27.3%)	1 (12.5%)	7 (18.9%)
To a moderate extent	57%	56%	20%	11 (42%)	5 (45.4%)	3 (42.9%)	5 (45.4%)	1 (12.5%)	14 (37.8%)
To a large extent	29%	44%	60%	12 (46%)	4 (36.4%)	3 (42.9%)	3 (27.3%)	6 (75.0%)	16 (43.2%)
Data management									
Not at all/Small extent	14%	11%	0%	2 (8%)	1 (9.1%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	2 (5.0%)

Variable	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n= 12)	Yilo Krobo (n=9)	Total (n=42)
To a moderate extent	43%	44%	40%	11 (42%)	7 (63.6%)	0 (0.0%)	7 (58.3%)	3 (33.3%)	17 (42.5 %)
To a large extent	43%	44%	60%	13 (50%)	3 (27.3%)	7 (87.5%)	5 (41.7%)	6 (66.7%)	21 (52.5%)
Human resource management									
Not at all/Small extent	13%	20%	10%	4 (14%)	1 (9.1%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	2 (5.3%)
To a moderate extent	25%	50%	30%	10 (36%)	5 (45.4%)	2 (28.6%)	8 (72.7%)	6 (66.7%)	21 (55.3%)
To a large extent	63%	30%	60%	14 (50%)	5 (45.5%)	4 (57.1%)	3 (27.3%)	3 (33.3%)	15 (39.5%)
Community-level structures or groups that enable community involvement									
Not at all/Small extent	11%	50%	10%	7 (24%)	1 (8.3%)	2 (22.2%)	3 (25.0%)	3 (33.3%)	9 (21.4%)
To a moderate extent	78%	30%	50%	15 (52%)	7 (58.3%)	4 (44.4%)	6 (50.0%)	3 (33.3%)	20 (47.6%)
To a large extent	11%	20%	40%	7 (24%)	4 (33.3%)	3 (33.3%)	3 (25.0%)	3 (33.3%)	13 (30.9%)

4.14.4 Management and leadership competencies

Study participants were asked to provide an overall rating of their management and leadership competencies. Figures 3, 4 and 5 demonstrate the overall, male and female managers' rating of competencies during the endline.

Across the districts, there was an increase in the participants' rating of their competencies as 'good', from 75% in the baseline to 90.5% in the endline. However, a decline was registered in the rating of their competencies as 'excellent' from 21.9% to 2.4%.

Overall, the male participants' rating of their competencies as 'good' increased from 75% in baseline to 85.7% in endline, while the rating as 'excellent' decreased from 25% to 4.8%. Fanteakwa North and Yilo Krobo registered the maximal rating as 'good', followed by Ayensuano and Abuakwa South.

For women, despite the increase registered in rating their competencies as 'good' (from 75% to 95%), there was a decrease in rating their competencies as 'excellent' from 18.8% to 0%. All the districts have reported a maximal rating for their competencies as 'good', except Fanteakwa, which reported the same rating as in baseline (20% fair and 80% good).

4.14.5 Endline findings

Figure 3: Ratings of management and leadership competencies of health managers (Overall, n=41)

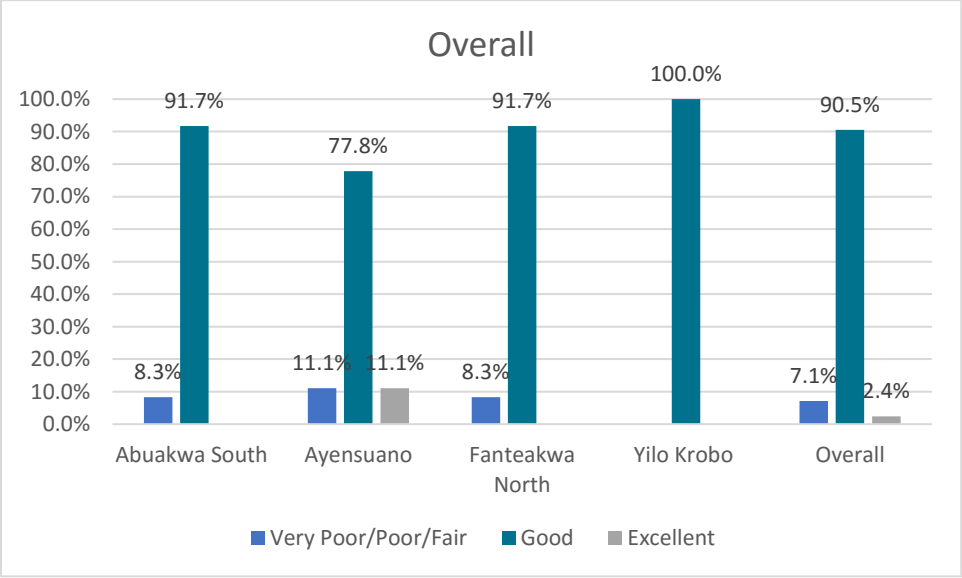


Figure 4: Ratings of management and leadership competencies by male health managers (n=21)

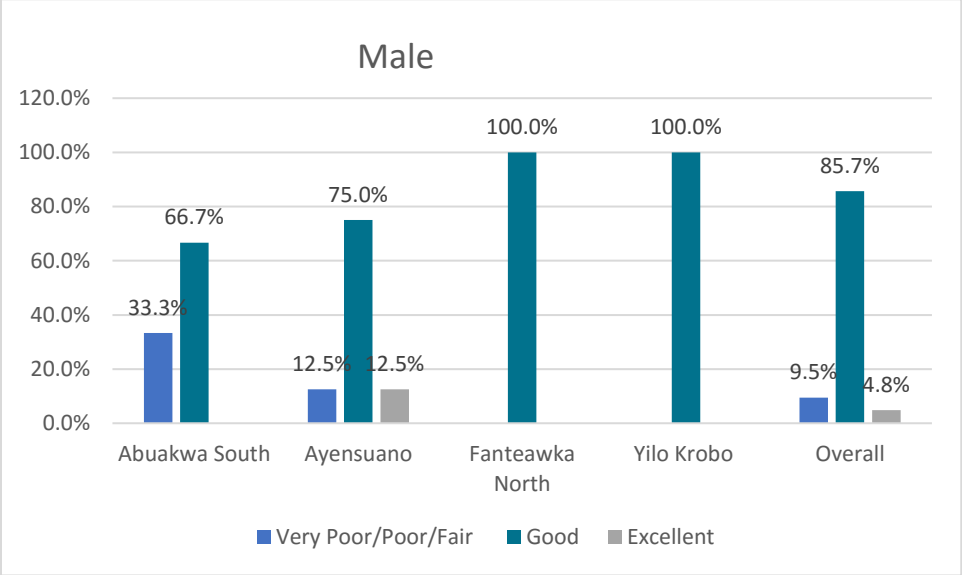
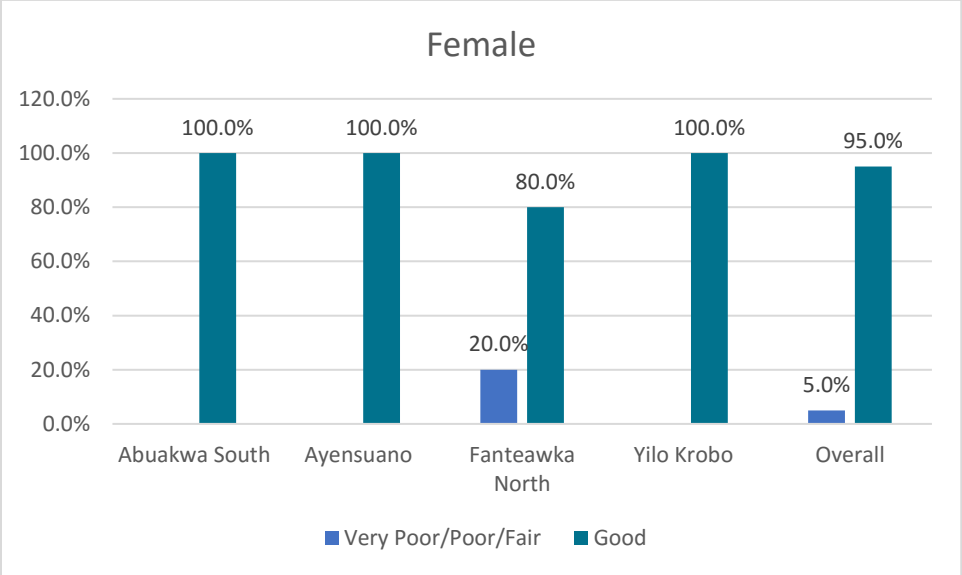


Figure 5: Rating of management and leadership competencies by female managers (n=20)



4.14.6 General management and leadership competencies

Study participants were asked to assess their general management and leadership competencies, including their interpersonal skills, leadership skills, conflict-handling skills, as well as time-planning skills. Mean scores for the sum scales are reported in Table 6 categorized by baseline versus endline.

- Overall, district health managers did not register improvement in any of the domains assessed compared to the baseline. Except the domain 'leadership skills', which maintained the same rating as in baseline, all the other domains registered a slight decrease of a range from 0.1-0.4, with 'time-planning skills' being the lowest-rated domain (4.3). However, across the districts, fairly high ratings were reported.

- Fanteakwa North district showed the biggest improvement from the baseline in all the domains: interpersonal skills (4.5 vs 4.7), leadership skills (4.6 vs 4.9), conflict-handling (4.5 vs 4.6) and time-planning skills (4.2 vs 4.5). Yilo Krobo maintained the same high scores as in baseline for the interpersonal skills and leadership skills domains (4.7) and recorded an increase of 0.2 in the two other domains in comparison to the baseline.
- Abuakwa South is the district which registered the lowest rates in their general and management competencies in the endline (ranging from 4.0-4.3) compared to the other districts which registered scores within the range of 4.3-4.9.

Table 6: General management and leadership competencies

Competency	Baseline				Endline				
	Fanteakwa (n=10)	Suhum (n=11)	Yilo Krobo (n=11)	Total (n=32)	Abuakwa South (n=12)	Ayensuano (n=9)	Fanteakwa North (n=12)	Yilo Krobo (n=9)	Total (n=42)
Interpersonal skills	4.5 (0.6)	4.8 (0.3)	4.7 (0.5)	4.7 (0.5)	4.3 (0.9)	4.9 (0.2)	4.7 (0.4)	4.7 (0.5)	4.6 (0.6)
Leadership skills	4.6 (0.4)	4.7 (0.4)	4.7 (0.4)	4.6 (0.4)	4.3 (0.9)	4.5 (0.5)	4.9 (0.2)	4.7 (0.4)	4.6 (0.4)
Conflict-handling skills	4.5 (0.8)	4.5 (0.5)	4.4 (0.9)	4.5 (0.8)	4.1 (0.9)	4.6 (0.5)	4.6 (0.5)	4.6 (0.5)	4.4 (0.7)
Time-planning skills	4.2 (0.7)	4.4 (0.5)	4.4 (0.6)	4.4 (0.6)	4.0 (0.8)	4.3 (0.5)	4.5 (0.4)	4.6 (0.4)	4.3 (0.6)

4.14.7 Specific health system management skills and competencies

In Table 7, the perception of the district health managers concerning specific health system management skills is presented. The competencies assessed included: 1) oversight and coordination (22 items); 2) human resource management (10 items); 3) resource management (4 items); 4) information management (3 items); 5) leadership skills (5 items); and 6) service delivery and community involvement (3 items).

- Overall, across the districts an increase of a range of 0.1-0.3 in the ratings of all the above-mentioned competencies was registered, except for 'information management' and 'service delivery and community involvement' which registered a decrease of 0.1 in comparison to baseline. Further, two items within 'oversight and coordination' reported a decrease of 0.1 (situational analysis) and consistency to baseline rates (reporting).
- District health managers in Fanteakwa North and Yilo Krobo showed great improvement from the baseline from a range of 0.1 to0.6 and 0.1 to 0.4 respectively. However, both demonstrated worsening in two different domains; Fanteakwa in situational analysis (4.5 vs 4.1) and information management (4.7 vs 4.6), while Yilo Krobo in information management (4.8 vs 4.6) and service delivery (4.5 vs 4.2).
- Yilo Krobo appeared to be the leading district in terms of its confidence in most of the domains except for the information management and service delivery. In these two domains health districts managers from Ayensuano appeared to be the most confident as they recorded the highest rates across the districts (4.9 and 4.6 respectively). In fact, Ayensuano reported the highest rates also in problem analysis (4.6) and reporting (4.8).
- Further, Yilo Krobo demonstrated the maximal confidence in human resource management and resource management domains, scoring a 5.0 for both.
- District health managers in Abuakwa South recorded the lowest rates across the districts in all the domains, ranging from 4.4 to 4.5.

Table 7: Specific health system management skills and competencies

Competency	Baseline				Endline				
	Fanteakwa	Suhum	Yilo Krobo	Total	Abuakwa South	Ayensuano	Fanteakwa North	Yilo Krobo	Total
	n (SD)	n (SD)	n (SD)		n (SD)	n (SD)	n (SD)		
Oversight and coordination	10	11	11	32	12	9	12	8	41
Situational analysis[1]	4.5 (0.5)	4.4 (0.5)	4.5 (0.6)	4.5 (0.5)	4.3 (0.8)	4.5 (0.5)	4.1 (0.5)	4.7 (0.7)	4.4 (0.7)
Problem analysis[2]	4.4 (0.5)	4.4 (0.5)	4.4 (0.6)	4.4 (0.5)	4.5 (0.8)	4.6 (0.5)	4.5 (0.5)	4.5 (0.7)	4.5 (0.6)
Planning[3]	3.9 (0.8)	4.0 (0.7)	4.2 (0.8)	4.1 (0.8)	4.4 (0.7)	4.4 (0.5)	4.5 (0.5)	4.5 (0.6)	4.4 (0.6)
Implementation and monitoring[4]	4.3 (0.7)	4.2 (0.6)	4.4 (0.7)	4.3 (0.6)	4.2 (0.7)	4.5 (0.5)	4.4 (0.6)	4.6 (0.4)	4.4 (0.6)
Reporting[5]	4.5 (0.7)	4.5 (0.5)	4.7 (0.5)	4.6 (0.5)	4.3 (0.6)	4.8 (0.5)	4.5 (0.5)	4.8 (0.4)	4.6 (0.5)
Human resource management[6]	10	11	11	32	12	9	12	9	42
Mean (SD)	4.2 (1.0)	4.5 (0.9)	4.6 (1.1)	4.4 (0.9)	4.2 (1.5)	4.1 (1.6)	4.6 (1.1)	5.0 (0.5)	4.5 (1.3)
Resource management[7]	10	11	11	32	12	9	12	9	42
Mean (SD)	4.1 (1.0)	4.7 (0.8)	4.7 (0.6)	4.4 (0.9)	3.9 (1.5)	4.4 (1.3)	4.6 (1.1)	5.0 (0.6)	4.5 (1.2)
Financial management[8]	10	11	11	32	12	8	12	9	41
Mean (SD)	3.9 (1.5)	4.8 (0.8)	4.4 (1.2)	3.9 (1.0)	3.4 (1.3)	4.2 (0.7)	4.5 (1.1)	4.5 (1.1)	4.1 (1.2)
Information management[9]	*10*	*11*	*11*	29	12	9	12	9	42

Competency	Baseline				Endline				
	Fanteakwa	Suhum	Yilo Krobo	Total	Abuakwa South	Ayensuano	Fanteakwa North	Yilo Krobo	Total
	n (SD)	n (SD)	n (SD)		n (SD)	n (SD)	n (SD)		
Mean (SD)	4.7 (0.6)	4.7 (0.6)	4.8 (0.5)	4.6 (0.5)	4.1 (0.7)	4.9 (0.6)	4.6 (0.6)	4.6 (0.5)	4.5 (0.7)
Service delivery & community involvement[10]	10	11	11	32	12	9	12	9	42
Mean (SD)	4.5 (0.7)	4.5 (0.5)	4.5 (0.7)	4.4 (0.6)	3.9 (0.6)	4.6 (0.7)	4.6 (0.6)	4.2 (0.7)	4.3 (0.7)

4.14.8 Being part of the District Health Management Team

District health managers were asked to assess their working environment by responding to questions regarding 1) teamwork, 2) job motivation, 3) job satisfaction and 4) organizational commitment. A sum-score was calculated for each of the domains, and the mean of this is presented in Table 8 by baseline vs endline.

- Overall, an increase was registered only for job satisfaction across the districts (3.5 vs 3.8). A slight decrease of 0.3 was registered in all other domains: teamwork (4.3 vs 4.0), job motivation (3.8 vs 3.5) and organizational commitment (4.3 vs 4.0).
- Ayensuano has registered the highest rates in teamwork (4.1), job motivation (3.7) and job satisfaction (4.2), while in organizational commitment district health managers of Fanteakwa North seemed to be the ones who were most confident (4.1).
- As in the baseline, the job motivation among district health managers in Yilo Krobo is not very high (3.3), hence recording the lowest rate among the districts.
- District health managers in Abuakwa South did not rate any of the domains above 3.8.

Table 8: District health administration work environment

Construct	Baseline					Endline				
	Questions	Fanteakwa	Suhum	Yilo Krobo	Overall mean score (1-5)	Abuakwa South	Ayensuano	Fanteakwa North	Yilo Krobo	Overall mean score (1-5)
Teamwork	*Sum score*	4.2	4.4	4.3	4.3	3.8 (0.7)	4.1 (0.6)	4.0 (0.5)	4.1 (0.6)	4.0 (0.6)
	1. I really feel that I belong to a team	4.5	4.5	4.5	4.5	4.1 (1.2)	4.3 (0.9)	4.3 (0.6)	4.6 (0.7)	4.3 (0.9)
	2. I look forward to being with the members of the DHMT each day	4.2	4.5	4.4	4.4	4.2 (1.2)	4.6 (0.7)	4.3 (0.6)	4.6 (0.7)	4.4 (0.8)
	3. There is a lot of support and encouragement within the DHMT	4.1	4.3	4.4	4.3	3.8 (1.0)	4.2 (0.8)	3.4 (1.0)	4.1 (0.6)	3.9 (0.9)
	4. It is very difficult to settle problems within the DHMT (*R)	4.5	4.4	3.9	4.3	3.3 (1.3)	3.6 (1.2)	3.9 (0.9)	3.7 (1.0)	3.6 (1.1)
	5. The people I work with cooperate to get the job done	4.2	4.5	4.5	4.4	3.7 (1.2)	4.3 (0.7)	4.0 (0.6)	4.1 (0.6)	4.0 (0.8)
	6. Team members keep their thoughts to themselves, rather than risk speaking out (*R)	3.8	4.1	4.1	4	3.4 (0.9)	3.3 (0.9)	3.9 (0.9)	3.6 (1.2)	3.5 (1.0)
	7. I often work in groups as part of my job	3.9	4.4	4.5	4.3	4.0 (0.6)	4.3 (0.5)	4.0 (0.6)	4.1 (0.3)	4.1 (0.5)

Construct	Baseline					Endline				
	Questions	Fanteakwa	Suhum	Yilo Krobo	Overall mean score (1-5)	Abuakwa South	Ayensuano	Fanteakwa North	Yilo Krobo	Overall mean score (1-5)
Job motivation	*Sum score*	4	3.9	3.3	3.8	3.5 (0.6)	3.7 (0.8)	3.5 (0.6)	3.3 (0.8)	3.5 (0.7)
	12. These days, I feel motivated to work as hard as I can	3.8	3.8	4	3.9	3.9 (0.7)	4.3 (0.7)	3.6 (1.0)	4.2 (0.8)	4.0 (0.8)
	13. I only do this job so that I get paid at the end of the month **(*R)**	4.4	4.4	3.8	4.2	4.0 (0.7)	4.0 (1.5)	3.8 (1.2)	3.7 (1.2)	3.9 (1.1)
	14. I do this job as it provides long-term security for me (*R)	3.8	3.5	2.2	3.2	2.7 (1.0)	2.9 (1.4)	3.2 (0.6)	2.1 (0.6)	2.7 (1.0)
Job satisfaction	*Sum score*	3.5	3.5	3.6	3.5	3.7 (0.6)	4.2 (0.5)	3.7 (0.6)	4.0 (0.8)	3.8 (0.7)
	15. In general, I am satisfied with my job	4.1	4.4	4	4.2	3.9 (0.5)	4.3 (0.5)	3.9 (0.7)	4.4 (0.5)	4.1 (0.6)
	16. I think there are many other jobs which are more interesting than mine **(*R)**	3.2	2.4	3.5	3	3.5 (0.9)	3.9 (0.8)	3.3 (1.1)	3.0 (1.4)	3.4 (1.1)
	17. My current job fulfills the expectations I had before I started it	3.5	4.3	3.8	3.9	3.2 (0.9)	4.2 (0.7)	3.4 (1.0)	4.2 (0.7)	3.7 (0.9)

Construct	Baseline					Endline				
	Questions	Fanteakwa	Suhum	Yilo Krobo	Overall mean score (1-5)	Abuakwa South	Ayensuano	Fanteakwa North	Yilo Krobo	Overall mean score (1-5)
	18. I would like to get another job because I am not satisfied **(*R)**	3.6	4.2	4.2	4	3.7 (0.8)	3.9 (0.9)	3.7 (1.1)	3.7 (1.2)	3.7 (1.0)
	19. My current job is pleasant	3.9	4.3	4.2	4.1	3.8 (0.9)	4.2 (0.7)	3.9 (0.5)	4.2 (0.7)	4.0 (0.7)
	20. I think my current job is interesting and fascinating	3.8	3.9	4.1	3.9	3.8 (1.0)	4.4 (0.5)	3.8 (0.6)	4.2 (0.7)	4.0 (0.8)
Organizational commitment	*Sum score*	4	4.5	4.3	4.3	3.7 (0.5)	4.0 (0.8)	4.1 (0.8)	4.0 (1.0)	4.0 (0.8)
	21. I am considering leaving this DHMT **(*R)**	3.6	4.5	4.1	4.1	3.6 (1.0)	3.9 (1.2)	3.7 (1.1)	3.8 (1.1)	3.7 (1.1)
	22. Deciding to work for this District Health Administration was a definite mistake on my part **(*R)**	4.4	4.5	4.5	4.5	4.0 (0.8)	4.3 (0.7)	4.6 (0.7)	4.4 (1.0)	4.3 (0.8)
	23. There is not too much to be gained by sticking with this District Health Administration indefinitely **(*R)**	3.9	4.3	4.4	4.2	3.6 (0.5)	3.9 (1.0)	4.0 (0.8)	3.9 (1.2)	3.8 (0.9)

4.14.9 Management competencies and COVID-19

Given the current pandemic the DHMT members were asked some questions regarding their management competencies in relation to COVID-19. The rates are presented in Table 9.

- Overall, the district health managers across the districts reported to be quite confident in their management competencies in relation to COVID-19.
- District health managers in Ayensuano reported to be the most confident on their competencies (4.2), followed by managers in Abuakwa South and Yilo Krobo (4.1) and lastly Fanteakwa (4.0).
- Overall, all the components under management competencies related to COVID-19 were rated the same (4.1)

Table 9: Management competencies and COVID-19

Management competencies and COVID-19	Endline				
	Abuakwa South (n=12)	Ayensuano (n=9)	Fantweakwa (n=11)	Yilo Krobo (n=9)	Total (n=41)
	4.1 (0.6)	4.2 (0.8)	4.0 (0.7)	4.1 (0.8)	4.1 (0.7)
Through implementation of the MSI in my district I felt more confident analyzing problems relating to COVID-19	4.1 (0.7)	4.2 (0.8)	3.9 (0.7)	4.1 (9.3)	4.1 (0.7)
I felt more confident to plan for the COVID-19 pandemic due to competencies acquired from implementing the MSI	4.1 (0.8)	4.1 (1.0)	4.0 (0.8)	4.2 (0.8)	4.1 (0.8)
I used skills acquired from the implementation of the MSI to observe and reflect on COVID-19 management activities	4.2 (0.7)	4.2 (0.8)	4.0 (0.8)	4.1 (0.9)	4.1 (0.8)

4.15 Intermediate conclusions

Findings throughout this section show similarities in self-perceived management capacities after the implementation of the PERFORM2Scale MSI across DG1 districts, with small improvements from baseline in some areas. Further, certain domains, such as information management, service delivery and situational analysis, are still in need of improvement as they indicated decreases in comparison to the baseline. Thus, there is still a need to qualitatively understand the domains that were poorly

rated compared to baseline among the DG1 districts. In addition, these findings show that there is still room for improvement across all the domains in the DG2 districts. DG2 districts have undertaken only one full MSI cycle which could explain the lower registered rates found among them. Nevertheless, the overall rating of self-perceived management capacities across the districts remains positively high.

4.16 Findings from the health worker survey

A health worker survey was conducted at baseline and endline to measure health workers' perceptions of management and supervision at the district and health facility, as well as in other areas including teamwork, safety climate, and job satisfaction. One of the assumptions in the PERFORM2Scale theory of change was that the effects of the MSI would trickle down to the health workers at the facilities who were not part of the core MSI/DHT implementation team.

Table 10 presents the results of the health workers' perception scores. Across all scales the endline rating were slightly higher than the baseline rating. The table shows improvement in the health workers' perceptions in all the areas: teamwork climate, supportive supervision, district management, management at the health facility, and job satisfaction at the endline compared to the baseline. Questions on organizational commitment were left out of the questionnaire in the endline and so no data were generated on this item.

Table 10: Outcomes - Perceptions of health workers

Outcome measure (composite scale scores)	Baseline		Endline		Diff ES (eta)/Hedge's g
	N	Mean	N	Mean	
Organisational commitment	**287**	**3.6**	-	-	-
Teamwork climate	285	3.8	230	4.1	0.404
Supportive supervision	285	3.9	230	4	0.119
Safety climate	285	3.7	230	3.9	0.322
Management at facility	239	3.7	218	3.9	0.365
Management at district	177	3.6	219	3.8	0.353
Job satisfaction	177	3.4	230	3.7	0.476

Notes: 'Diff' is the average difference between baseline and endline groups, 'ES' is the effect size of the estimated impact. Key: Hedge's d value =0.2 (blue), and 0.5 (yellow) are considered to be small, medium, and large effect sizes.

Table 11 presents outcome measures based on the matched sample of health workers in the baseline with similar health workers in the endline using propensity scores. Table 11 shows positive improvements in the perceptions of health workers in all the domains. However, except for teamwork climate, the improvement in perception is not significantly large as it is less than 10%. For example, the 'management practices at district level' scale indicates improvement in perceptions of 0.9% increase compared to the baseline scores.

Table 11: Health workers' perceptions (outcomes) based on propensity score match

Outcome measures (composite scale scores)	Number of observations matched	Baseline average score	Endline average score	Absolute difference	Relative difference	T-stat
Teamwork climate	141	3.7	4.1	0.393	10.6%	2.61
Supportive supervision	141	3.8	4	0.254	6.7%	1.62
Safety climate	142	3.7	3.9	0.238	6.4%	2.05
Management at facility	136	3.6	3.9	0.268	7.4%	2.53
Management at district	134	3.8	3.9	0.034	0.9%	0.22
Job satisfaction	141	3.5	3.7	0.211	6.0%	1.66

Table 12 provides the district-specific analysis comparing the baseline and endline scores of different scales. Based on effective size analysis, overall in Yilo Krobo district, the intervention had a small effect on health workers' perceptions on the different scales, while in Fanteakwa district the MSI had a moderate effect on three scales, namely teamwork climate, management practices at facility and job satisfaction (ES>0.2). Further, in Suhum district, the MSI intervention had a large effect on teamwork climate and management practices at facility scale (ES>0.5) and a moderate effect on the rest of the scales (ES>02).

Table 12: Perceptions of health workers by district comparing the baseline and endline

Outcome measure (composite scale scores)	Baseline		Endline		Diff ES (eta)/Hedge's g
	N	Mean	N	Mean	
Fanteakwa District					
Teamwork climate	78	3.9	71	4.1	0.399
Supportive supervision	78	3.9	71	3.9	0.062
Safety climate	78	3.7	71	3.8	0.116
Management at facility	64	3.7	66	3.8	0.233
Management at district	78	3.6	67	3.7	0.101
Job satisfaction	78	3.5	71	3.7	0.402
Suhum district					
Teamwork climate	99	3.6	79	4.2	0.848
Supportive supervision	98	3.7	79	4.0	0.376
Safety climate	98	3.6	79	4.0	0.762
Management at facility	77	3.6	76	3.9	0.805
Management at district	99	3.6	79	4.0	0.737
Job satisfaction	99	3.4	78	3.7	0.498
Yilo Krobo district					
Teamwork climate	108	4.0	80	3.9	-0.109
Supportive supervision	109	4.0	80	4.0	-0.066
Safety climate	109	3.8	80	3.9	0.162
Management at facility	98	3.8	76	3.8	0.147
Management at district	-	-	73	3.8	-

Outcome measure (composite scale scores)	Baseline		Endline		Diff ES (eta)/Hedge's g
	N	Mean	N	Mean	
Job satisfaction	-	-	81	3.7	-

Key: Hedge's d value =0.2 (blue), 0.5 (yellow), and 0.8 (green) are considered to be small, medium, and large effect sizes

What are the costs of the MSI?

The costs of the MSI can be seen in the following table and diagram. These show the costs for the MSI by major cost item and also in relation to the scale-up costs and the cycle total (Hanlon et al., 2021).

Pending the completion of the cost data collection for the remaining two cycles (DG1 cycle 2 and DG2 cycle 2), on average the MSI makes up more than 90% of the cycle costs. Of these costs, personnel costs and per diems make up about 85-90% of the MSI costs.

If the MSI is considered to represent the start-up costs in any district and the scale-up costs to be the running costs, then it would seem that once the MSI has been completed the costs of continuing the MSI would be minimal for a district. This would suggest good sustainability of the intervention over the medium-term. This will need to be confirmed when the remaining costs data for the open cycles are available.

It can be noted in Ghana, that all cycles in progress faced a 3-month coronavirus stop in implementation, which also delayed the start of others. It needs to be seen, in comparison to the remaining cycles in Ghana and in comparison to the other two countries in the study, how the coronavirus pandemic affected the implementation of the cycles (Hanlon et al., 2021).

How is the MSI scale-up strategy implemented?

4.17 Horizontal scale-up

As outlined earlier, the MSI is horizontally scaled up by extending its geographic reach; beginning in three neighbouring districts (DG1) before being started in a second district group (DG2). This has resulted in the MSI being implemented in nine districts at the time of writing (July 2021). By data collection (April 2021), DG1 had gone through two action research cycles and was about to start a third. DG2 went through one cycle and was about to start its second, while DG3 had just started its first.

Table 13: Horizontal scale-up - number of districts

District Group	Implementation stage			Planned but not supported by project	# districts	# MSI cycles	Total cycles
Project Year	PY2 (April 18 – Jan 19)	PY3 (Feb 19 – Nov 19)	PY4 (Dec 19 – Sept 20)	PY5 (Oct 20 – July 21)			
DG 1	MSI 1	MSI 2	MSI 2 cont'd	MSI 2 cont'd	3	6	6
DG 2		MSI 1	MSI 1 cont'd	MSI 2	3	6	6
DG 3				MSI 1	3	3	3
DG 4							
Totals					9	15	15

4.18 Vertical scale-up

Based on the interviews with the RT, NSSG and CRT it became clear that the horizontal scale-up is going well in Ghana but that the vertical scale-up is clearly more challenging and needs more attention to ensure the sustainability of the horizontal scale-up.

4.19 Spontaneous scale-up

CRT members noted that DHMT members not involved in the MSI have contacted the CRT or RT to ask to become involved. However, this has not yet led to any additional districts participating in the MSI. In order to facilitate spontaneous scale-up, the CRT members and regional RT member discussed developing an MSI package which could be left with the region and which DHMTs might independently use.

> *"We have also had a discussion with the regional Research Officer that we would like to leave a package at the region, that once we are away, if a district wants to implement this MSI, they only have to contact the region, and the region will give them the package that details all they have to do, even without us being around" (CRT)*

4.20 NSSG composition and formation

. The membership of the NSSG was determined following a stakeholder analysis. Stakeholders with high alignment with and interest in the project were considered for nomination. Even though Christian Health Association of Ghana (CHAG) had low interest in the project, it was strategically included in the nomination list due to the crucial complementary role it plays in Ghana's health system. Nomination letters were sent to six identified individual stakeholders from the Ministry of Health, Ghana Health Service, Regional Health Administrations and Christian Health Association of Ghana. All nominated NSSG members accepted the invitation to be part of the team.

4.21 RT Composition and formation

According to the CRT and RT members, the selection of the focal persons/RT members has been done by the DHMTs themselves and the district director. CRT members explained that the approach for the selection of RT members in DG1 was different to the approach in DG2. The initial idea was to have one focal person in the DHMT and one RT member in the DHMT, with the focal person responsible for the activities within the DHMT and sub-district and the RT member part of continuous implementation in other districts from, for example, DG2 and DG3. In DG1, this approach

has been taken but because of tensions and focal persons feeling side-lined by the selection of RT members, this approach has changed. In the DG2 districts, the focal person is now also the RT member.

> *"In DG1, what we did was that we did not select the focal person as RT for DG2, and then we realized that it became an issue because the focal persons realized that they were more involved, so if anyone was to be selected as an RT, it should be them. (….) In DG2 we decided to select the focal persons as RT so that we do not have ourselves in this same situation again. And comparing it to DG1, I think it was the best decision we made of selecting focal persons to still be the RT at the same time. I think it was able to manage some of these, I do not know if I could say jealousy". (CRT)*

The RT members mentioned that other DHMT members, such as the district directors, do not have any problems with the fact that RT members are taken away for MSI activities. Key to this was that other DHMT members participated in the MSI as well and that the district directors were involved in the selection of the RT members.

Both the RT and CRT members flagged the added value of combining district actors with a regional actor in the RT because it helps to align between the region and the district.

> *"…so it is very important that we have that mix of regional staff and district staff in the RT. The focal person who acts as an RT in the region also acts as a liaison between the districts and the region and even the CRT. And also, since districts take directives from the region, it is very important that they have somebody on the MSI at the district level for the RTs, otherwise district RTs may make their case, but it may not be understood at the regional level as to what they want to embark on" (RT - male*)

In addition, it was mentioned by the CRT members that the involvement of a regional actor as RT member has actually contributed to a better relationship between the district and regional directorate: when the district actors need something from the regional director (also unrelated to the MSI) they can route it through the regional RT member.

> *"Using someone from the region as an RT has made the DHMT use that person as a stepping-stone to address their MSI and any other issues they face. Now they have a representative from the regional director who is coming to them directly and hearing from them first-hand the issues they face, rather than them having to go through the processes of sending their issues through to the regional directorate" (CRT).*

According to both the CRT and the RT members, mixing the district-level and regional-level actors in the RT does not result in power dynamics but strong collaboration was observed. CRT and RT actors mentioned that the regional-level actor has previously worked in districts, so they see each other more as colleagues. CRT members mentioned that this would have been different if someone from national level had taken part. At the same time, it was mentioned by a CRT member that involvement of the regional level in the RT gives some "weight" to the project.

> *"Whenever you have region being involved in programmes like this it gives it more currency, so having someone from region who was one of them before, and now the region has bought into the project, and now the person has been nominated to be part of the RT has given some sort of weight to the whole project, and has injected some enthusiasm and morale into the district to be committed to whatever is being done" (CRT)*

4.22 Future of the RT

Both RT and CRT members mentioned that the RT is now able to facilitate MSI workshops on their own. The RT mentioned that they feel comfortable to continue the work without support from the CRT using the skills and competencies that they have developed.

> *"Per the capacity they have already given us, and they have also been able to train all the DHMT staff, including the sub-district staff, we will be able to implement without the CRT support. Even for us in Lower Manya, we have started with our MSI cycle 2, and we have developed the strategies and they are to be reviewed by all DHMT members so that we can fully start the implementation. So far, when we met as a DHMT and we were drawing the plan, the CRT were not involved, so they have given us a lot of skills that we are able to perform at the various district without their involvement" (RT - female)*

CRT members explained that the re-training of the DHMT and the sub-district (see 4.22) was described as an opportunity for the CRT to see whether the RTs could lead the MSI training, and this was experienced by the CRT as positive.

One of the RT members mentioned that in future, the commitment of the district director is important for the RTs to take their role. When the district director is committed (along with the rest of the DHMT members), the district RT members follow the directives from the district director to take the role as RT member. Another RT member flagged that to be able to really implement the horizontal scale-up there is a need to increase the number of RT members. At the moment, there is one RT member per district, and it was thought to be challenging to implement the MSI across the whole region, underlining the need to add three new RT members with each new district group. One RT member wondered whether the CRT might continue at least visiting once a year to motivate them.

During the interviews the RT members requested certificates for their work as RT members, so that they are able to show that they have knowledge and experience in action research. This was confirmed by the CRT. One of the regional RT members also asked to be involved in the development of papers.

> *"In my area as the Research Coordinator, if you would assist us in publishing a paper on the roles of RTs in the MSI, so that others internationally will also know what Ghana has done in terms of using the RT system in supporting such a wonderful project" (RT - male)*

4.23 Adaptations of the MSI

Over the course of the project, several adaptations have been made to respond to challenges that arose. First, the CRT members shared that when DG1 moved from the first to the second MSI cycle, the CRT and RT had planned to visit the district to start planning, but that COVID-19 made those visits impossible. COVID-19 also resulted in decreased attention from the DHMT members, while the CRT and RT were slightly diverted because they had started working in DG2. When visiting DG1 during their second MSI cycle in June 2020, it became clear that due to those issues and staff turnover of DHMT members, there was a need for additional MSI training in DG1 and DG2 to be re-start the second MSI cycle. This request for refresher training came from the RT and the DHMTs.

Also, several RT and CRT members mentioned that they have started to implement the MSI at sub-district level. Retraining in all DG1 and DG2 districts took place in February and March 2021 and sub-district members were involved in all the DGs trained. One actor from the sub-district participated in the refresher training on the MSI, after which they were expected to share it with the other

members of the sub-district team. The idea is that each sub-district identifies its own problem and follows the rest of the cycle, with support from the DHMTs. At the time of data collection (April 2021), the sub-districts had identified their problems and were developing their work plans. Follow-up visits from DHMT members were about to take place. It was during the discussions about re-training that the DHMT members suggested also involving them in the training as most often they are the ones implementing the activities. It was decided that the involvement of the sub-districts in the training will contribute to easier buy-in and will facilitate the implementation of the MSI activities. The decision to involve the sub-district as well in the MSI was seen by the RT as a collaborative decision by the CRT, RT and the district director.

4.24 Wider stakeholder engagement: Involvement of stakeholders

4.24.1 District Assembly

The District Assembly, which represents the highest political and government agency in the district, was often indirectly involved in the MSI implementation in some districts. DHMT members from some districts in both DGs explained that the District Assembly supported the MSI implementation with equipment and logistics. In other districts it was reported that the Assembly was not involved in the MSI implementation in any way. The Assembly did not support the DHMTs financially in the MSI implementation, however, all DHMTs said that they have lobbied for funding and logistics for the MSI implementation. DHMT members mentioned that the lobbying activities were often not successful because District Assemblies would have insufficient financial resources. A DHMT member from Yilo Krobo observed that they may not have lobbied enough for support for the MSI compared to COVID-19.

> *"The District Assembly support us with respect to logistics… they helped us to acquire BP apparatus for our CHOs and bags for home visits. The Assembly also gave us some infrared non-contact thermometers. The BP apparatus and home visit bags were specific supports be for the MSI activities." (Abuakwa South DHMT member - male)*

> *"It would have been better if District Assembly had been involved in the MSI but unfortunately they are not helping… Usually they will tell you that they do not have the money." (Ayensuano DHMT member - male)*

> *"The District Assembly is a stakeholder with a lot of opportunities... Maybe we have not engaged them enough because for other activities like COVID where they have been involved but for the MSI activities I am not too sure they have had any involvement" (Yilo Krobo DHMT member - male)*

The District Assembly participated in regular DHMT meetings to review the MSI implementation. An officer at the Regional Health Administration thought that the involvement of key stakeholders, like the District Assembly, is crucial for a successful implementation of the MSI.

> *"We review our key activities annually, which includes the MSI, and see how best we've been able to perform… during such meetings the District Assembly is also involved." (Regional Health Administration Officer - male)*

> *"We had the opportunity to review our performance with the Municipal Assembly… we took them through the MSI and they really appreciated it very well, in fact they had wanted to support us with couch for physical examination, BP apparatus and weighing scales to carry*

out some of the activities, but now all monies are allocated to COVID activities." (Abuakwa South DHMT member - female)

Aside the District Assembly as an institution playing a role in the implementation of the MSI, individual members of the Assembly (called Assemblymen) also directly supported the strategies' implementation. For instance, the Assemblymen were used in yaws case detection and notification in Yilo Krobo. They worked closely with the communities, for example, in community-based MSI interventions like durbars they act as a bridge between the DHMTs and the communities for smooth implementation.

"We lobby for funding from them [ie Assemblymen] but we do not usually get any. They assist us in getting the people when we organize the community durbars and doing sensitization in their area" (Yilo Krobo DHMT member - female)

"Normally with the Assembly, they have a plan that they support us with, for the MSI it was durbars… they participate in identifying our problem and their support is not so direct as in working with our staff, but it comes with as a link between us and the community members" (Fanteakwa DHMT member -, female)

4.24.2 Partners

To what extent partners were involved in the MSI implementation rather than in scale-up varied across the different districts. Fanteakwa DHMT members explained that they chose a problem area that aligned with some NGOs' areas of focus, which resulted in improved support from this NGO in the implementation of MSI activities. A RT member from the Regional Health Administration noted the immense financial contribution of an NGO to the MSI activities implementation in Suhum. In Abuakwa South, the NGOs offered direct logistical support for the implementation of MSI activities, with respect to training and TB case detection.

"For our second MSI we partnered with an NGO that was working on TB. They were involved in the TB screening. World Vision also supported… they normally do community sensitization on TB and screening for TB. The aim is to improve on low TB case detection which is in line with the same problem we chose." (Fanteakwa DHMT member - female)

"If you consider Suhum district, there's this NGO called JOICFP that have been of immense support to them in trying to achieve some of their targets" (RT member/Regional Health Administration Officer - male)

"The NGOs support the activities of the MSI. We did a training for the health staff and community volunteers and they supported us with feeding, transportation and other things. They also gave us motivation for the TB case detection by volunteers and support us to do supportive supervision and other things." (Abuakwa South DHMT member - male)

The DHMT members explained that partners were also involved in their review meetings where the MSI was also discussed. In addition, most of the DHMT members stated that they lobbied NGOs for support for the MSI activities. For example, the Ayensuano DHMT successfully lobbied an NGO for logistics and laboratory equipment as part of their MSI strategies, which improved the service delivery area chosen under the MSI. Also in Abuakwa South, an NGO supported the training of volunteers for TB case search and screening.

"The stakeholders took part in our review meetings. With the second cycle of the MSI, our Director of Health Services had an advocacy meeting with the local NGOs and we presented

our MSI strategies to them and they saw that our district was not doing well so they agreed to come on board. They supported us to train our volunteers on how to screen for TB." (Abuakwa South DHMT member - male)

"Looking at our problem in relation to the low ANC coverage, when we realized that was due to basic laboratory equipment, we contacted the NGO called Project-Cure for support" (Ayensuano DHMT member - male)

4.24.3 Community involvement in the MSI

All DHMTs made efforts to involve all relevant stakeholders within their districts to mobilize the required resources for the implementation of their strategies. Different stakeholders are targeted for different support. Other key stakeholder involved in the MSI were from the communities that the DHMTs serve. The Community Health Committee (CHC), already established in almost every community in the districts, were involved in the MSI implementation in some districts, and supported the DHMTs by providing them with basic equipment. In Abuakwa South district, the CHC donated medical equipment, such as BP apparatus and weighing scales. Likewise, the Member of Parliament, who is the highest elected political official for the district, supported the DHMT with equipment relevant to the MSI implementation. These stakeholders acknowledged by the DHMTs included the Opinion Leader and Ghana Educational Service.

"The Community Health Committee members donated some weighing scales and BP apparatus to us… Also the Member of Parliament (MP) for the area donated some beds for examination for us" (Abuakwa South DHMT member - female)

"Our plan is to organize staff durbars and educate the community. Then engage the opinion leaders and other stakeholders like the Ghana Education Service. We involve the Ghana Education Service a lot in our activities." (Abuakwa South DHMT member - female)

How do various factors, processes and initiatives facilitate or hinder implementation of the scale-up of the MSI?

Multiple factors that can facilitate the MSI scale-up were discussed by study respondents. Some of the themes that emerged were: inclusive stakeholder engagement at all levels; regular supportive site visits of district management teams to gain the commitment of managers to promote their contextual understanding; maintain flexibility and ability to adapt the intervention to evolving contexts; defining key process and outcome measures alongside effective monitoring and evaluation systems to document and measure progress; alignment of MSI activities with priorities of the national health system and partner organizations by utilizing existing processes and structures to promote ownership. In the following sections we discuss the key facilitating and hindering factors to scale-up the MSI.

4.25 Gaining approval from the Director General of the GHS

All three NSSG members stated the importance of presenting the MSI during a GHS Directors' meeting. If the GHS Director General agrees with the idea of scaling it up, he will push it to a specific division that will then be responsible for the scale-up of the MSI. The division, Policy, Planning,

Monitoring and Evaluation (PPME), of which one of the NSSG members is the director, will be involved in how to structure the scale-up approach. If additional funding is needed for training of the DHMTs on MSI, it needs to go through the Ministry of Health, but if it is not necessary and/or the GHS has the money, the Ministry of Health only needs to be informed.

> *"So, it has to go through these steps first, then we either have to lobby either Ministry of Health or any other donor partner for support. But right now, we have not included it in our budget and planning purposes for 2021 so it will be difficult to get funding for it from the government of Ghana money. But if we put it in our plans and budget it will most likely be funded" (NSSG member - female).*

4.26 Involvement of Policy Planning and Monitoring Division of GHS

The Director of PPME division could facilitate a dialogue with the regional directors to individually convince them to scale-up the MSI. It was mentioned that this will take more time but the Director of PPME can do those visits on behalf of the Director General. The Division of PPME does not have available funds in 2021 but it is possible to budget for it for 2022. Another option is that through lobbying activities donors and partners can step in to provide support, which requires the development of a concept note and, when donors are interested, a full proposal.

The Director for PPME was noted to be among the stakeholders that has decision-making authority about budgets/financing because planning and budgeting falls under the division. However, it is important for the PPME Director to convince the Director of Finance and the Director General to invest in the scale-up of the MSI. When convinced, they together would have to present to the parliament house, including the health committee, to get parliamentary approval. This NSSG member felt confident that they have the necessary data evidence of success of the MSI to convince those actors, and within the NSSG they have discussed the need to document the costing as well.

When discussing these options with the CRT members, it was agreed that there is a need to disseminate at the national level, but it was also felt that evidence is needed to do this.

> *"Everything is possible in Ghana; I am saying this because if it were a tangible thing, like MSI was building structures in Ghana, they would have scaled it up immediately. But this is very intangible that is why we need to show the evidence" (CRT)*

4.27 Including the MSI into the training/school curricula

The NSSG members reiterated the possibility of integrating the MSI into a training/school curricula. According to them, including the MSI in the curricula can contribute to people coming out of school with a problem-solving attitude.

> *"With them [CRT] being a university, they may find a way to make it an added course or a short course, or something that can be plugged into the School of Public Health activities, because in the end the School of Public Health trains a lot of our managers. So, in the end I believe it would be very good to start with them" (NSSG member - female)*

For the CRT to change the curricula, it does not need to pass through the Ministry of Health or GHS for permission, but it is the school that needs to bring in people to create, draft and standardize the curricula. During a previous consortium workshop, exploratory discussions took place around including the MSI in training/school curricula.

4.28 Formation of Regional Scale-up Steering Group (RSSG)

Another potential strategy for the scale-up was described by the CRT members and entailed the use of a Regional Scale-up Steering Group (RSSG) next to a National Scale-up Steering Group. CRT members noted that the NSSGs' regional-level team members are usually more committed than those at national level. It was therefore suggested to set up a Regional Scale-up Steering Group, which would include champions from the region and the regional director as their buy-in has been strong. This strategy could be adopted for several reasons. First, as a means to enable institutionalization through, for example, presentations that regional-level actors from the RSSG will make to the national level. Furthermore, actors from the regional level will move to top positions at national level and through this the vertical scale-up might fall in place. The RSSG can also be used as a means to sustain the MSI in one region, through which it will hopefully move on to other regions. It was mentioned by the CRT members that the Regional Director has the authority to decide to continue with MSI implementation, even after the project has ended.

> *"If we have, for example, a district director or a regional program officer or director, who is actively part of the RSSG who has implemented an MSI program that has yielded good results, promoted to national or another region, it becomes easier for this person to also set up a team and continue with implementing the MSI process in that region or position. (….) In one example, we have the former district director of Abuakwa South, who we started working with but was later transferred to another district, constantly calling up to follow-up if we can also come to his district and take them through the MSI process. He has started doing something there himself, but he is hoping that we come through and take them though the training of the MSI properly. So, if we have committed directors like this, who are really into it and have seen the tangible benefits of the MSI, it becomes easier to scale-up the MSI to other districts or regions" (CRT)*

Available finances for continuous implementation of the MSI will be a challenge for the regional level, but with the integration of the MSI into the daily (funded) activities of the regional level this challenge can be solved. To integrate the MSI into the regional level activities, the MSI workshops have been repackaged. It comprises one day (as tested during the MSI refresher training) and instead of combining the different districts into a single training session as happens during the MSI, the training takes place in one district, in a conference room with one DHMT, which reduces costs and makes it more likely to find financial means. It was mentioned by the CRT that the tasks of the RT will be integrated in the activities of the regional level, such as standard monitoring activities, and that resources will be coming from the regional level's own resources and internally-generated funds. In DG 3, the CRT involvement of regional-level actors (such the unit heads of TB programs, maternal and child health programs and health information), in workshops and support visits has strengthened interest in the MSI. Through the set-up of this RSSG, the CRT is also envisioning improving the chances of spontaneous scale-up. CRT members have started discussing this strategy with the Regional Director, especially about how the RSSG will look like and how champions will be brought on board, but more concrete plans have not yet been made.

4.29 Resource Team (RT) composition and functioning

Furthermore, the different backgrounds of the RT members - such as public health, nursing, disease control, information management - facilitated the implementation and horizontal scale-up of the MSI. This notwithstanding, specific reference was made to the benefits of the RT having training, monitoring and supervision skills. Several RT members mentioned that it is beneficial that all RT members are also district-level officers, which facilitates sharing.

"We are all officers and have friends from other districts. Once the person sees you as their colleague, the tendency of them sharing their challenges and problems with you is very high because the person sees you as part of them" (RT member - male)

Overall, the CRT and the RT members have shared very positive experiences with regards to the functioning of the RT. The CRT reported that the RT members can be seen as one of the key successes within the scale-up processes. It was mentioned that they are very knowledgeable about the MSI scale-up and that they are clearly taking on the role of championing the horizontal scale-up of the MSI. The RT members include people with the capacity to implement the scale-up of the MSI because they have the skills and knowledge, developed through support from the CRT, to implement the MSI in other districts and sub-districts.

"The trainings we have had with them [CRT], the visits that they have paid to us and a lot of activities that we have also carried out. These have all made us more confident […]. Now we can take people through the MSI cycle, how to prioritize your problems, the matrix used to prioritize your problems, and we can also share our experiences with them that we were able to yield results without any external resources" (RT member - female)

During data collection in 2019, concerns were raised by the CRT about the level of engagement/availability of the RTs. This was however not an issue during the second round of data collection. The RT members mentioned no specific challenges with regards to availability of the RT. A solution to the concerns was facilitated by the involvement of Regional Health Administration in the MSI scale-up and frequent interactions during MSI workshops and CRT-RT routine meetings. It was discussed that the availability of the RT members is assured because the Regional Director wrote to the different District Directors to "release" the RTs from other activities in the district to participate in the MSI activities. This has been confirmed by one of the NSSG members who has previously been the regional director.

4.30 National Scale-up Steering Group (NSSG) functioning

CRT engagement and involvement of NSSG in the MSI scale-up facilitated the expansion at the initial stages of the intervention. Over the period prior to COVID-19, the NSSG attended regular meetings, participated in some MSI scale-up workshops as well as the Consortium Workshop in Ghana, where two members contributed to a panel discussion on the scale-up implementation in Ghana. However, the major hindrance to continuous, effective NSSG functioning has been membership turnover. This has been due to retirements (those NSSG members were asked to continue working on the group) and transfers (one of the active members was transferred from the regional to national level), compounded by heavy work schedules brought about by COVID-19.

Several NSSG and CRT members reflected that it would actually have been important to involve the NSSG more during workshops in the districts to acquire an understanding of how strengthening DHMT capacities looks so that this knowledge can be used to steer the scale-up process.

"Maybe that is the point that is missing, maybe if they had come down to visit the DHMT during the problem analysis and strategy development, to see how they come up with solutions and analyse situations, would have given them more appreciation of the process and advocate for the scale-up" (CRT)

The different CRT members mentioned that, so far, the horizontal scale-up process has been quite successful but that the vertical scale-up has been challenging. It was mentioned that this is mostly linked to challenges with interactions with the NSSG and their involvement/commitment.

> *"To some extent, we cannot blame them [NSSG] because you can see that they are really interested in the MSI, but for whatever reason when you call for a meeting you will have only two of them showing up. You realize that in your interaction with them they would say it is a really worthwhile approach but when it comes to them making the effort to get this institutionalized that is where we have a problem" (CRT)*

Over the course of the project, the NSSG has moved from an active steering body to a more inactive one, and in 2020 no NSSG meeting took place. There have been several unanswered attempts from the CRT to set up meetings for the NSSG. Engagement with the NSSG members is now limited to sharing updates about the projects via email.

> *"There have even been instances where we have personally gone to [NSSGs offices] to invite them face-to-face for the meeting. But when it gets to a few days to the date they themselves have set for the meeting, you would realize that we would start receiving calls or messages that they have other engagements and may have to travel and they cannot make it. So, in the end only one person will show up and it becomes impossible to hold the meeting with just one person" (CRT).*

> *"People on the NSSG are very busy people, so maybe the School of Public Health team will float a notice that they want to schedule a meeting on this date, but later you would see a lot of people sending in their apologies that they would not be available. I remember, even before I moved to headquarters level, that they sometimes had to push meetings further down the line because they did not have enough NSSG members to form a quorum. That would be one of the challenges for them, because all these people are in very influential positions and have very busy schedules" (NSSG member - female).*

NSSG membership is based on position and not related to specific individuals. Therefore, when the previous actors retired or were moved away, the new persons taking that position were invited to join the NSSG. However, lack of NSSG meetings led to limited knowledge about and involvement in PERFORM2Scale for new members. In addition, the NSSG members explained that when two of the NSSG people retired that they have not had the chance to brief their replacement on the PERFORM2SCALE/NSSG because of the COVID-19 outbreak. COVID-19 also made meeting more challenging, and it was mentioned by the CRT that the different (new) NSSG members were extremely busy with the COVID-19 response, which made meeting each other even more difficult.

> *"We are not supposed to take the front role of the NSSG. They started with us by drawing the plan to do the scale-up and then later they stopped honouring our meetings - that is the problem. They have to champion it as the NSSG, we, as the CRT cannot champion it at that level. We are willing to support them, provide what they need and facilitate a meeting and all that, but they have to draw up the plans to disseminate and to scale-up. And they have to be available to do that, and it is their availability that has been a problem till date" (CRT).*

When the NSSG was still active the members felt that it included the right people and that the different members were committed (this is confirmed by data from 2019).

> *"So, even though the ultimate decision maker is going to be the Director General supported by the Deputy who is also a member of the NSSG, the rest of the people are also people who can influence the decision and guide the way it will be taken" (NSSG member - female)*

The Director of Human Resource was not able to join meetings but was briefed afterwards about what was happening during the meetings. The NSSG members reiterated the importance of forming

a bigger core group of people that are interested in the MSI scale-up process. For example, getting Regional Directors from other potential regions to join certain NSSG meetings. It may not be necessary to be members of the NSSG, but it might be good to involve those people in NSSG meetings. For the rest of the project, CRT members noted that it is necessary to reflect about how to reconstitute the NSSG and to think around how to sustain the functioning of the NSSG.

> *"We need to look for other important stakeholders who will be active, but not necessarily because they are influential but have the MSI at heart and are committed to it so that we can restructure our NSSG. We also have to package the stories to show evidence of what we have been able to achieve to be able to convince people as well" (CRT)*

4.31 The role of the CRT

Both NSSG and RT said they have good relationships with the CRT. RT members reported having good and smooth communication with the CRT and expressed the opinion that there is an equal relationship between the RT and CRT, with shared decision-making.

> *"I quite remember when we agreed to train the sub-district staff, they were of the view that we select some of the district staff and we all meet at a central point. But after some deliberations and ideas from the RT, it was suggested that we do an on-site training where a lot of the sub-districts will be represented including the DHMT. When we suggested it, they wholly accepted it and that was the way we went. So, there is that agreement that whenever there is an issue, we all jaw-jaw and when we reach the neutral ground we settle on that" (RT member - male)*

4.32 Convinced stakeholders

When discussing whether all necessary stakeholders for the scale-up of the MSI are convinced of the value of the intervention, a clear distinction can be made between actors within the Eastern Region being convinced (where the MSI is implemented) and the national-level stakeholders being convinced.

4.32.1 Within the Eastern Region

Gaining the buy-in of the Regional Director of Health Services in the earlier part of the MSI scale-up facilitated horizontal scale-up at that level. The Regional Health Administration was supportive of CRT in gaining RTs' and DHMTs' commitment for the scale-up. RT, NSSG and CRT participants highlighted that DHMTs are strongly convinced of the value of the MSI. Some CRT and the NSSG members shared the view that this was most clearly expressed by the requests from other districts to join in the MSI.

> *"You know, the MSI empowered districts to find their own solutions to their own problems, and this was a good thing. Because most of the time these districts or communities or facilities would always be looking forward to the next higher levels to come and solve their problems for them. But the MSI empowers you to still look for solutions in the space you are working in, and there is a lot of evidence to show that no matter how pressed you think you are, or no matter how hard up you think you are, there are always solutions all about you. So, the evidence was clear to the other districts, and they were also happy that they were brought on board gradually" (NSSG member - male)*

> *"My interest is in the fact that, all the districts after they had heard about the MSI, after it had been disseminated at their Regional Annual Meeting, were willing to join and were*

fighting for a position as to whether they were near the implementing districts or not. They are always asking, 'when are you coming to my district, when are you coming to improve our performance with the MSI as well', so I was very happy that the whole region has bought into the idea" (CRT)

In all the districts, the District Assembly is aware/convinced of the MSI. Two RT members from two different districts have given a presentation to the District Assembly (and the Municipal Chief Executive) and expressed the opinion that they are convinced about and supportive of the MSI activities. However, two other RT members stated that in their districts, communication is taking place about health-related issues but that the DHMTs have not specifically discussed the MSI.

At regional level, RT members noted that during the district annual review meetings, ideas and results concerning the project have been presented and discussed which convinced regional stakeholders. It was highlighted that the Regional Director was recently changed, but that he is fully aware of the MSI and is present during activities and/or gives permission for the MSI activities to take place, which indicates that he is convinced as well.

4.32.2 National level

The national-level stakeholders relevant for the scale-up are not yet fully convinced. RT members stated that the evidence that has been gathered by the implementing district has not been shared with those stakeholders to support the need of scaling-up up to other districts. In addition, it was flagged by them that there has not been a national forum where the achievements / evidence / success stories of the project have been presented.

"We have all agreed that we have gathered enough evidence to support the scale-up of the MSI in other districts but then we still have a few more steps to go, like what we have just discussed, to talk to the major stakeholders involved with the scaling up of the MSI" (RT member - male).

From the period of when the NSSG was still active, national-level stakeholders were convinced of the value of the MSI but convincing the Director General requires more attention. The Director General would make the final decision about the scale-up and then ask the Director PPME to formulate a policy. The Minster of Health can be seen as a key decision maker for scale-up, hence it is important to inform him about the MSI as well. This requires evidence of success which the CRT is putting together for presentation at a national dissemination meeting, to be attended by key stakeholders including the Minister.

In 2019, when discussing the need to get political stakeholders on board, the NSSG members mentioned that the health sector in Ghana is not very politicized and mainly led by technocrats, except for the ministers at regional and national levels, as well as District Chief Executives at district level who are politicians. Therefore, the NSSG members did not feel a very high need to involve these political stakeholders.

4.33 Actions/opportunities

The NSSG and CRT actors emphasized the importance of dissemination at national level to make sure those national-level actors will be convinced. Several opportunities were identified by the NSSG members where PERFORM2SCALE could be presented, and through those presentations the Director General can be reached. First, it was discussed that one of the NSSG members (the previous regional Director and member of the NSSG) has become the director of the PPME of GHS and she could

discuss this with the Director General. Furthermore, the annual review meetings at the end of the year were seen as an important opportunity to share with the Director General.

> *"They have these annual review meetings at the end of the year. In the first quarter of the subsequent year, so let say the first three months or four months of this year, they have a meeting in which all the regional directors are brought together to come and review what they have done over the past year. Typically, at that meeting work like the PERFORM2SCALE will be shared over there, so if that meeting did happen I assume that it has been shared. And I do not know, usually there is a slot for innovations, best practices. So, my presumption is that it will be shared on that fora and that will ignite the process, if they have not done a stand-alone dissemination" (NSSG member - male).*

Furthermore, the periodic dissemination fora from the research directorate were identified as an opportunity where PERFORM2SCALE can present their findings. The Health Summit has also been identified as an opportunity to present, where not only the GHS is present but also other actors such as the MoH and all the agencies such as the Teaching Hospital and regulatory authorities. The CRT approached NSSG members to get a slot on the presentation list for the Annual Health Summit in 2020, which unfortunately was cancelled due to COVID-19.

> *"He got back to me and said that it would be impossible since there are other competing issues they would also like to discuss there because the story of only Yilo Krobo yaws cases detection was not enough to convince them to do that, and also there was no space for us as well. So, that is why I was reflecting that we do not have a success story to tell as a whole, to really convince people about it" (CRT).*

The NSSG highlighted the need to explore different opportunities to see how actors at national level can be informed and convinced of the MSI. However, those opportunities are yet to be discussed further. Because of COVID-19, bigger meetings have not taken place for a while, but since the beginning of 2021 those meetings have started again. Nevertheless, PERFORM2SCALE has not been presented during one of those meetings due to a lack of a slot resulting from the NSSG being inactive.

> *"Most of these meetings have been held, all the sixteen regions have had their annual performance reviews, these are meetings at which you can disseminate information, and I did not see that any of it had been done at the regional level. Also, at the headquarters level, we have held our headquarters review meeting, we have had directors' meeting and senior managers' meeting and it was not mentioned, so it is a lost opportunity that has just gone past. Now the last meeting to be held now will be the Health Summit, so that is why I am saying maybe because an NSSG meeting was not held in the recent past that is why it has just slipped by, although it would have been a fine opportunity to slot it in. So, we would have to wait for future meetings still to happen within the year. There are still opportunities to share it across the board". (NSSG member - female)*

CRT members noted that it would be important that District Directors who are already involved in the MSI present during national level events, such as the Health Summit, but also flagged the importance of clearly synthesizing the evidence. One of the challenges is that the MSI is part of routine things that we do as health services, so it is difficult to make clear what exactly PERFORM2SCALE is doing and to sell it to other stakeholders.

> *"I was just thinking that maybe we could try to synthesize the evidence needed to convince the national stakeholders... we could have a manual, but I was thinking we could have a*

report on what has worked, what did not work well, and what still needed strengthening, what to do and all those things. A sort of small document that could be used to scale-up this one nationally into other districts. And also have a package of what exactly we want to be transferred, because maybe it is not everything we want to be transferred. So, we could have some of the lessons we want to document for the other districts in other regions to learn from to be disseminated, if everything else stands" (CRT)

4.34 Political and financial support

As previously discussed, due to a lack of clear vertical scale-up approach/strategy, limited activities have taken place to involve the relevant national-level stakeholders, which has resulted in a lack of political and financial support. However, in some districts the scale implementation was boosted by support from the District Assembly, the highest political authority at that level.

4.35 Champions

The challenges with regards to the functioning of the NSSG have also affected the presence of champions actively advocating for the scale-up of the MSI. Some NSSG members indicated their willingness to formally or informally advocate or champion the MSI, but that at the moment are unsure of their status as NSSG members after retiring. One of the NSSG members, who was previously the Regional Director and now Director PPME, was identified by the CRT and several NSSG members as a person that could potentially play a big role in championing the scale-up of the MSI.

At the district level, the DHMT members (some also part of the RT) are champions of the MSI. The previous Regional Director and the new Regional Director were also identified as champion. These champions are advocating for the scale-up of the MSI at small scale, mostly through advocacy focused on sharing experiences of the MSI. A more formalized/strategic approach to advocacy/champions is absent.

"So yes, I agree that we have people who are champions at their various levels for the MSI, but as to how we would put their roles as champions in a strategic way is what we should consider. For the people we have identified them but as to the skills and how they can champion for a successful scale-up is what, maybe we are lacking. (…) We may see ourselves as champions, but we may not have the adequate skills to actually go into the scale-up, when it comes to scale-up issues" (RT member - male).

4.36 Monitoring

Due to the lack of NSSG meetings and the absence of a scale-up strategy, monitoring of the scale-up was challenging. However, monitoring of the horizontal scale-up in the region and districts by CRT and RT took place. During monitoring visits to the region, they measure and track progress on the specific MSI indicators as well as horizontal scale-up processes. Through those visits, an understanding is created about which strategies are effective for the scaling up of the MSI to other districts. After meetings or visits, the CRT and RT sit together to reflect about how things went and whether changes need to be made to the scale-up process. With regards to the activities of the RT, there exists an action plan developed jointly by CRT and RT for monitoring the horizontal scale-up.

Conclusion

Although vertical scale-up of the MSI has been challenging, horizontal scale-up has been largely successful within the timeframe of the project, with DHMTs reporting evidence of the strategy being fit for purpose. In all districts, both individual and team management competencies were developed

in problem solving which translated into an improvement in service delivery. The benefits of the skills acquired by district managers in the MSI strategy for problem solving had rebound effects on other areas of health service delivery, eg planning, communication and use of data. In other words, the DHMT planning skills were strengthened, and teams tooled to effectively and efficiently use resources through the integration of activities. Although the flexibility offered by the MSI approach presented opportunities that allowed for the MSI scale-up, several contextual factors limited the realization of bigger effects. They included: high staff turnover leading to weak institutional memory, competing priorities, containment measures due to the COVID-19 pandemic leading to reduced possibility for collaborative working and exchanging, or resource limitations not allowing the implement the full scale of plans.

The myriad of competing priorities, dynamic political environments, and shifting national funding priorities within the scarcely-resourced health sector may affect the progress made toward the MSI scale-up and its sustainability. Decision making and priority setting within the health sector is influenced by range of dynamics, including political aspects. Consequently, the NSSG and the national champion potentially play an important role by using their political influence to prioritize the scaling up of the MSI in this highly resource-constrained setting for its sustainability. This was evident in the scaling up of *Project Five Alive project*, where strong relationships built with stakeholders proved invaluable for acceptance at local levels, for scale-up and sustainability. Also, this acceptability and institutional embedding was achieved regardless of the health sector's high staff turnover and high vacancy rates.

DHMTs', RTs' and NSSGs' commitment to and ownership of the MSI scale-up processes appear to be particularly critical for sustaining the achievements, yet potentially challenging as they simultaneously face competing interests and priorities with other initiatives, priorities and challenges coupled to a low autonomy over budget and expenditure at district level, lack of effective monitoring and evaluation systems, and lack of logistics and infrastructure. However, the nationwide pathways to horizontal and vertical scale-up of the MSI need to be both robust and flexible enough to withstand, and respond to, rapid changes within the health system and be part of the solution for strengthening performance and helping it to respond positively to challenges.

Meanwhile, having a clear MSI scale-up strategy plan, which spells out specific processes and activities to be undertaken, is crucial for a sustainable horizontal and vertical scale-up. Furthermore, successful implementation and sustainability of the MSI require an inclusive approach by way of: collaborations with communities, the private sector and donors; stakeholder engagement at all levels; regular supportive site visits; and maintaining flexibility and ability so that the MSI might align to new contexts and emerging priorities of the national health system and partner organizations.

What are the costs of the scale-up?

4.37 Costs of scale-up of the MSI

This is to provide a comprehensive estimate of the cost of the MSI and the MSI scale-up.
An Excel-based data collection tool allowed for tracking of data on resource quantities and unit costs in areas such as personnel, transport, materials and supplies, rental of workshop sites etc. It was

integrated into the MSI scale-up tracking tool of the process evaluation. Data was collected by the CRT and includes costing data from 2018 up to end of August 2021.

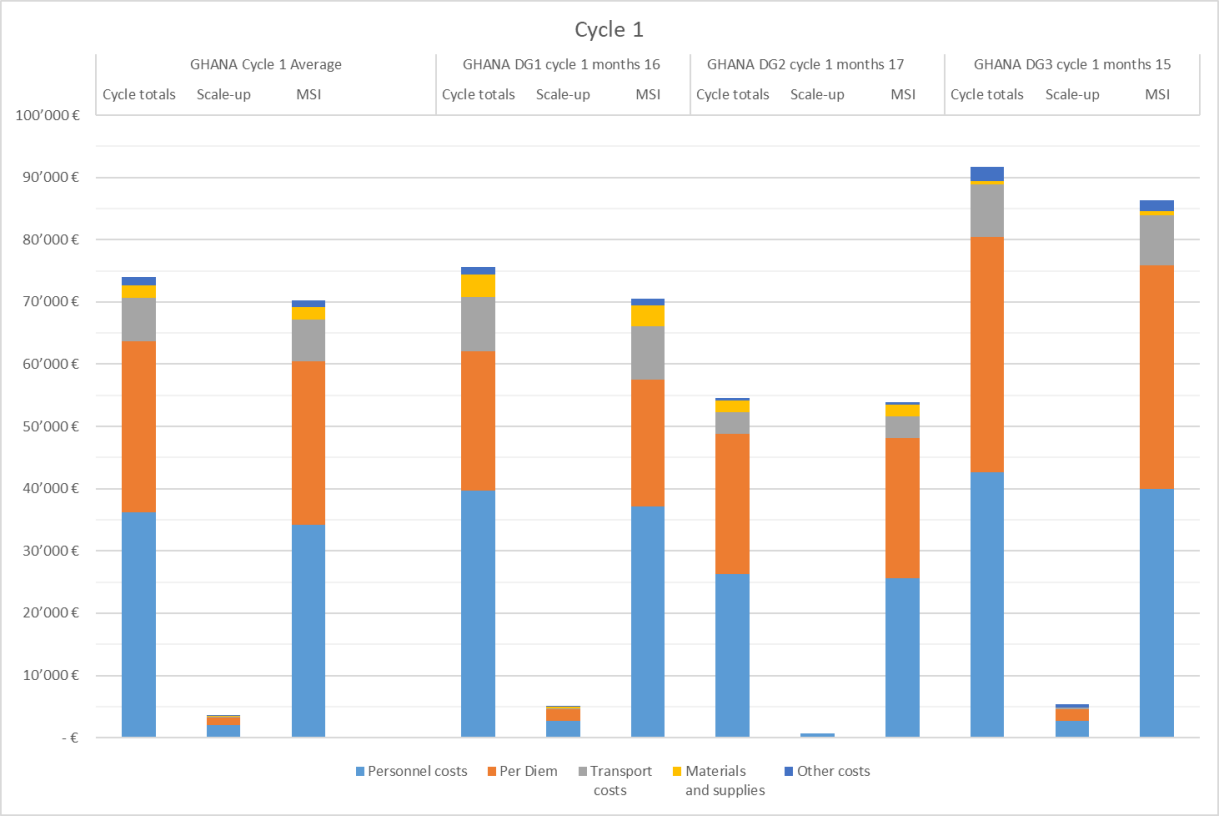
To date, the complete cost data for three intervention cycles (DG1 cycle 1, DG2 cycle1 and DG3 cycle1) have been collected. Second cycles for DG1 and DG2 are expected to be completed by the end of 2021, with the corresponding costing data. These cycles will be added to the analysis when ready.

Analysis: Here we show the cost data for each cycle, as well as the average of all three for comparison.

Figure 6: Costing Scale-up tracking

		Personnel costs	Per Diem	Transport costs	Materials and supplies	Other costs	Total	Total %
GHANA Cycle 1 Average	Cycle totals	36'225 €	27'515 €	6'880 €	2'022 €	1'316 €	73'957 €	100%
	%	49%	37%	9%	3%	2%	100%	
	Scale-up	1'994 €	1'254 €	178 €	77 €	177 €	3'680 €	5%
	%	54%	34%	5%	2%	5%	100%	
	MSI	34'230 €	26'261 €	6'702 €	1'945 €	1'139 €	70'278 €	95%
	%	49%	37%	10%	3%	2%	100%	
GHANA DG1 cycle 1 months 16	Cycle totals	39'752 €	22'322 €	8'727 €	3'561 €	1'280 €	75'643 €	100%
	%	53%	30%	12%	5%	2%	100%	
	Scale-up	2'636 €	1'936 €	153 €	230 €	109 €	5'064 €	7%
	%	52%	38%	3%	5%	2%	100%	
	MSI	37'116 €	20'386 €	8'574 €	3'331 €	1'171 €	70'579 €	93%
	%	53%	29%	12%	5%	2%	100%	
GHANA DG2 cycle 1 months 17	Cycle totals	26'322 €	22'445 €	3'464 €	1'906 €	378 €	54'515 €	100%
	%	48%	41%	6%	3%	1%	100%	
	Scale-up	653 €	- €	- €	- €	- €	653 €	1%
	%	100%	0%	0%	0%	0%	100%	
	MSI	25'669 €	22'445 €	3'464 €	1'906 €	378 €	53'862 €	99%
	%	48%	42%	6%	4%	1%	100%	
GHANA DG3 cycle 1 months 15	Cycle totals	42'599 €	37'778 €	8'449 €	598 €	2'289 €	91'713 €	100%
	%	46%	41%	9%	1%	2%	100%	
	Scale-up	2'693 €	1'826 €	382 €	- €	421 €	5'321 €	6%
	%	51%	34%	7%	0%	8%	100%	
	MSI	39'906 €	35'952 €	8'068 €	598 €	1'868 €	86'392 €	94%
	%	46%	42%	9%	1%	2%	100%	

Figure 7: Cost Tracking for Ghana Cycle 1



Pending the completion of the cost data collection for the remaining two cycles (DG1 cycle 2 and DG2 cycle 2), the scale-up costs on average were less than 10% of the cycle costs. Of these costs, personnel costs and per diems make up about 85-90% of the scale-up costs.

We can conclude, pending complete costing data from all cycles, that the intervention costs are on average about €75,000 per cycle. Given that each DG group comprises three districts, each cycle costs about €25,000 per district. This is likely to compare favourably to other management strengthening interventions in the public health sectors in Africa.

The bulk of expenditures relate to direct staffing costs (48%) and per diems (37%). All other expenditure categories are small.

The intervention was originally conceived to last about 8-9 months per complete cycle, but the experience showed that each cycle took about twice the foreseen time to implement. There may be potential to reduce costs if implementation could be shortened to the originally conceived period.

What are the outcomes/ effects of scaling up the MSI?

4.38 What are the collective effects of MSI (multiple cycles) on management competence, workforce performance and service delivery?

To date, the MSI has been implemented in nine districts in the Eastern region: District Group 1 (Yilo Krobo, Suhum, and Fanteakwa), District Group 2 (Lower Manya Krobo, Ayensuano, and Abuakwa South) and District Group 3 (Nsawam-Adoagyiri, Atiwa, and Akuapim South). The district groups have been added in a phased manner and so has the roll out of (moving on to) MSI cycles. DG 1 has implemented its first cycle and is currently on the second, DG2 has implemented one cycle and is about to start the second, and DG 3 has just started its first cycle. Collective effects on management competence, workforce performance and service delivery were expected from these multiple cycles of the MSI.

4.38.1 Management competence

1. District management teams increased their capacities and competencies in problem analyzing and planning as well as conception and implementation of specific strategies tackling the identified problem.
2. The MSI has strengthened teamwork across the board. The enhanced teamwork has resulted in consensus building, decision making and collaboration among the DHMTs.
3. The DHMTs were appreciative of their participation in the MSI workshops and the skills obtained throughout time. Over the course of the cycles, the DHMTs felt confident to continue applying the MSI approach without the CRT's support and possibly pass the knowledge to other colleagues.
4. The DHMTs learnt to be innovative/creative with no added resources. Integration of activities with other funded programs became a common practice.
5. DHMTs' knowledge in stakeholder mapping and engagement improved overtime.

4.38.2 Workforce performance

1. Strengthened management competencies resulted in changes in staff attitude to work, performance and service delivery indicators across the districts.
2. As part of the MSI strategies, DHMTs triggered staff motivation via citation, presentations and granting study leave.

4.38.3 Service delivery

1. The MSI strengthened the DHMTs' approach to addressing service delivery challenges in their respective districts.
2. After the implementation of at least one MSI cycle, an improvement on the health outcome indicators in the districts, as well as the quality of care, was noted by the DHMTs.

4.39 Has the MSI been embedded in DHMTs' way of working?

The MSI process is being adapted and applied in routine aspects of the DHMT and their health workers' daily activities. After the DHMTs completed their MSI cycles, they have been able to use the knowledge and skills acquired in other health system issues apart from the selected PERFORM2Scale problems. The DHMTs' problem identification, analytic and strategy development skills developed to solve these problems are being used in all aspects of their activities, from health indicator improvement to community and stakeholder engagement, even during the COVID-19 outbreak.

"For instance, with disease control activities, like the way we handled the ANC activities, we have been able to channel that approach into some of our activities. Now we validate a lot of reports to see whether the problem is coming from, either service provision or data collection. We have been able to do that analysis and we have realized that they sometimes they actually do the work but there are a lot of gaps in the data entry aspect. So we have been able to correct that" (Abuakwa South DHMT member - male)

To enable the embedment of the MSI approach, the DHMTs chose activities that were already part of the annual action plan, and for which limited efforts were previously taken to implement. Several DHMTs referenced that the MSI enabled better planning within the same DHMTs' annual budgets, thereby ensuring greater outputs. Additionally, the DHTMs explored potential resource mobilization avenues beyond the annual budget to implement their strategies. They further used integration and the combining of activities within the district as a common practice to make better use of existing but limited resources.

4.40 Are other sectors interested in using MSI?

No strong evidence is shown of other sectors being interested in using the MSI. However, several DHMTs from DG1 and DG2 reported that their presentations of progress during annual review meetings aroused interest from stakeholders at national level. Furthermore, a high-level interest in the MSI approach has been expressed by the non-participant districts.

4.41 To what extent, if any, has scale-up been institutionalised?

In Ghana the horizontal scale-up is going well with three district groups and nine districts having implemented the MSI approach, but the vertical scale-up appears to be more challenging.
The RT played a substantial role in the horizontal scale-up (the implementation of the MSI) and over the course of the project the RT members have become responsible and taken the lead in the facilitation of the workshops and monitoring visits.

On the other hand, vertical scale-up needs more attention to ensure the sustainability of the horizontal scale-up. There were no concrete plans for integrating or institutionalizing the MSI in a policy document, budget, curriculum or guidelines. In addition, the exact composition of the NSSG is unclear.

4.42 What are the plans for sustaining future scale-up after the end of the project?

All the members from the RT, NSSG and CRT interviewed mentioned that there is not yet a clearly defined strategy for vertical scale-up, which has formed a clear barrier to the scale-up of the MSI. However, several suggestions or opportunities were shared by the different participants about how to vertically scale-up the MSI in the future:

4.42.1 Through approval from the Director General and action of the PPME department

The MSI would be presented to the Ghana Health Service (GHS) Directors' meeting. If the GHS Director General agrees with the idea of scaling it up, he will push it to a specific division that will then be responsible for the scale-up of the MSI. Another approach would consist of the PPME division facilitating a dialogue with the regional directors to individually convince them to scale-up the MSI. The division of PPME could allocate budget for MSI activities. Another

option would be to lobby donors and partners to support. This would require the development of a concept notes and proposals.

4.42.2 Including the MSI into the training/school curricula

Integrating the MSI into a training/school curriculum could be one way of ensuring sustainability. This would create the required critical mass of people equipped with problem-solving attitude.

4.42.3 Regional Scale-up Steering Group (RSSG)

Another potential strategy for the scale-up would be the use of a RSSG (next to a national scale-up steering group), which would include champions from the region and the regional director. The set-up of an RSSG is suggested for several reasons. First, it would enable institutionalization through presentations that regional level actors from the RSSG would make to the national level. Furthermore, as actors from the regional level often move to top positions at national level, this might help in the vertical scale-up. The RSSG could also be used to sustain the MSI in one region, through which it would (hopefully) move on to other regions. The CRT members mentioned that the Regional Director has the authority to decide to continue with implementation of the scale-up in other districts, even after the project has ended.

4.43 How has MSI been applied to addressing problems of COVID-19?

Little evidence was reported about applying the MSI to address problems of COVID-19. In the context of COVID-19, a DHMT from DG1 reported applying the MSI for contact tracing and sample tracking.

> *"…But we realized that people were not willing to disclose their contacts. So we came together as a team and with the knowledge of situational analysis, we were able to find the root causes of that problem... So through that it came up that it's because of stigma and then people do not have enough knowledge on COVID-19 because it's a new disease. So we came up with a strategy to do sensitization of the client itself who has become positive…So when we started that they understood us, and people were not reluctant showing us their contacts anymore. And when we get to the household too, we give education to the contacts. We tell them the reason why we are doing that and the complications of getting COVID-19 and consequences of not disclosing your contacts. So, I think it has really helped. We don't have that challenge anymore of finding it difficult to get contacts of positive COVID-19 patients, and we did all these because of the knowledge we gathered from the MSI that is the situational analysis and strategies development. So it has really helped. (Yilo Krobo DHMT member - female)*

The DHMT also referenced the slowing down of the MSI strategies' implementation due to the emergence of COVID-19.

4.44 Intermediate conclusions

Overall, the MSI approach is highly appreciated and has improved DHMTs' managerial capacity. Among other things, the MSI enlightened the DHMTs to the idea that some problems can be solved with limited resources, and that the implementation of the MSI requires innovative integration of human, technological and financial resources. However, lack of finances presents an obstacle in the MSI's future sustainability. Other important aspects required for the sustainability and continuity of the MSI and its scale-up are the development of a specific advocacy strategy, committed and well-

functioning NSSG and RT as well as political commitment. Currently in Ghana, there is no clarity either on a defined strategy for the vertical scale-up nor on the NSSG composition.

5. Discussion

The mixed methodology, combining different methods, eg semi-structured interviews, reflective focus group discussions or a DHMT self-administered questionnaire, provided evidence on the political and economic situation in Ghana, MSI scale-up implementation, effects of the MSI scale-up, facilitators or barriers to MSI scale-up implementation, as well as recommendations for the MSI scale-up strategy.

5.1 Political and economic structures influence on scale-up of the MSI

Ghana one of the larger countries in Africa and is politically and administratively organized into sixteen regions and 216 districts. Local assemblies function as political decision-making bodies but have little control and executing power over health budgets, as expenditure of resources is largely administered by the national level with an important earmarking to priority health programs, such as the national malaria control program. The analysis thus showed that while formally decentralization policy devolves decision-making power to the local authorities, in practice, much power and decisions remain at national level. Consequently, DHMTs do not hold the authority for human resource management. Furthermore, political interference in policy implementation was emphasized by study respondents, and multiple interviewees stressed the need to address political interests through lobbying and political stakeholder engagement to achieve successful policy implementation (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Economically, Ghana is considered relatively stable and is therefore comparatively interesting for investors, including those with an interest in the health sector. However, financial resources devoted to health and health sector development remain limited: the GDP spend for health was standing at 3.5% in 2018 and the government's budget allocation to health stands at 6.5% (contrasting with the Abuja target of at least 15%). Limited funding and resources devoted to the health system negatively affect resources available for interventions like the MSI or scale-up. Similarly, despite human resource development for health being a stated priority, HR strengthening, the MSI and scale-up compete with multiple other health sector priorities. To overcome resource constraints, collaborations with private partners, such JOICFP and donors, were identified as a promising strategy (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

Key positions in the health sector (eg Minister of Health, Director General of Ghana Health Service, Director for National Health Insurance, etc.) are political appointments. Their decisions are strongly influenced by the interest to safeguard their positions and winning forthcoming elections. So they tend to be interested in visible "hardware" investments, such as buildings or equipment rather than "soft- and human-ware" such as capacity building or the systems and processes which enable stronger managers and institutions, and ultimately better quality of services.

The loyalty of health managers primarily seems to focus on service delivery and patient safety. The politically-driven health sector suggests that the overall PERFORM2scale principle of using an evidence-based approach for priority setting, including systematic problem identification and needs analysis, is not a shared and well-accepted concept among stakeholders within the health system.

Decision-making within the health sector is usually done in a top-down approach via the Director General of Health and the Minister of Health. Advocacy and influence in decision making at regional or district level for the MSI institutionalization therefore requires a top-down approach as well.

Development and donor agencies (eg The Global Fund, Gavi, the UK Foreign, Commonwealth & Development Office (FCDO - formerly DFID) and UNICEF among others) influence to a high extent how their resources are allocated, and thus take part in steering decisions on national health priorities and policies. This external support assists health management strengthening initiatives only in a limited way and primarily focuses on specific disease control or vaccination. Health management strengthening thus relies in an important way on the funding of the local and central government. Alliances and awareness raising at the level of key partners and stakeholder engagement on the importance of management strengthening DHMTs is thus important (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2018).

5.2 Stakeholders and relations between stakeholders, and their influence on the scale-up of the MSI

The DHMTs are responsible for overseeing the operations of the health services within their districts and were the main focus of PERFORM2Scale. Previous management strengthening interventions and scaling-up had taken place within the health sector, yet none put strengthening the managerial capacity at the district level as the focus of its ambitions. It showed that the DHMTs' commitment and ownership of the MSI appeared particularly critical, yet potentially challenging to obtain as they simultaneously face competing projects and multiple challenges, such as high staff attrition, low autonomy over budgets and expenditure, lack of effective monitoring and evaluation systems, lack of logistics and infrastructure, and unclear decision-making powers.

Nevertheless, multiple factors that can facilitate the MSI scale-up were discussed by study respondents. The themes that emerged were: inclusive stakeholder engagement at all levels; regular supportive site visits of district management teams to gain the commitment of the managers and to promote their understanding; maintaining flexibility and the ability to adapt the intervention to evolving contexts; defining key process and outcome measures alongside effective monitoring and evaluation documentation and measuring progress; alignment of MSI activities with the priorities of the national health system and partner organizations by utilizing existing processes and structures to promote ownership (Agyemang et al., 2021; Aikins, Agyemang, Amon, Dieleman, et al., 2019).

5.3 Scaling-up health interventions in a decentralized system

Historical factors influence the scale-up of the MSI. Since the early 1990s, the health system in Ghana has been decentralized, whereby the MoH and GHS oversee the health sector and steer its development, while the regional and district health management teams are responsible for the operation of health services at their respective levels. This shapes how the MSI has to be conceived and tailored to the specific country context.

About authority lines, the Regional Health Administration members report to GHS Headquarters, MoH Headquarters, and the Regional Director of Health Services at the same time. This indicates that the Regional Health Administrations not only play an essential role within the health sector but for a successful MSI scale-up need to be considered as an important stakeholder for scaling-up specific interventions.

Concerning financial flows, hierarchy structures, and accountability mechanisms, competing lines exist within the decentralized health system. National political agendas at the District Assemblies are

prominent, with the district or municipal chief executives serving as representatives of the government. This representation of the national political agenda is perceived to be not only interfering but sometimes even distorting of the districts' health work plans. This is exemplified by the fact that local authorities have little control over health budgets and expenditure, with resources largely being committed and executed at the national level, or being earmarked to specific health programmes, which do not necessarily align to districts' priorities.

In addition, health policies are developed at the national level, so far with little involvement from the region or district level or communities. Evidence that district level project and/or programme implementation experiences relating to primary health care has led to health policy development is scarce. This fact can potentially influence the sustainability as well as the horizontal and vertical scaling-up of the MSI.

5.4 MSI implementation and factors facilitating/hindering MSI implementation

Problems selected by the districts for the MSI focused on services delivery. The root causes of the identified problems could generally be related to management issues.

Whereas districts in DG1 went through two cycles of MSI implementation, those in DG2 went through one cycle. The disparity in the number of cycles between DG1 and DG2 was a result of the method adopted for the scale-up of the MSI, which was done on an incremental basis. The findings revealed that as DHMT members carry out more MSI cycles, their skills and commitment to the application of the MSI tools improved. Plausibly, due to the hands-on and participatory approach of the MSI, the cognitive abilities of DHMTs regarding the use of MSI for problem-solving improved over time, thereby boosting their confidence for better and continual use. More generally, the institutional embedment of the MSI is favoured by continued efforts over time.

To make the MSI fit better into the Ghana context throughout the project implementation, some adaptations were made to the MSI. Firstly, the MSI strategy originally focused on district level management staff, i.e. DHMTs as co-researchers, actively executing the MSI with support from CRT and RTs. However, it become apparent that the sub-district level is crucial for the delivery of primary healthcare. MSI training, jointly organised and facilitated by RTs, RHA, DHMTs and CRT for the sub-district level, developed skills problem analysis and strategy development at that level. This was typically highly welcomed by DHMTs due to the management role played by the sub-district. The MSI has witnessed a renewed momentum across all districts since the involvement of the sub-district level.

However, given the high staff turnover in the health sector, there is the need for continuous training of staff. Staff attrition leading to a loss of the institutional memory has been the bane of many projects. Hence, measures that ensure the transfer of knowledge and skills, as well as the institutional embedment of the MSI, have to be considered. This may include building a critical mass of RTs and champions, both at the regional and district levels, to ensure a smooth transfer of knowledge on MSI to newly-posted staff. As important is the embedding of the MSI into the routine processes at district and sub-district levels, e.g. in the frame of the annual elaboration of district workplans.

The high staff turnover effect were difficult to overcome as DHMTs have narrow decision space for human resource management, ie, staff postings, recruitment and transfers. This makes it very difficult to retain a critical mass of DHMT members for the MSI implementation and sustainability (Agyemang et al., 2021; Aikins, Agyemang, Amon, Dieleman, et al., 2019).

Regarding the COVID-19 pandemic, the challenges that often emerge from global pandemics are always difficult to deal with, especially in resource-constrained settings like Ghana. Indeed, contextual and global occurrences – eg clash programmes, COVID-19 pandemic, etc. – disrupted the MSI implementation, thereby necessitating an adaptation to the timelines for the MSI cycles. For instance, the COVID-19 pandemic gravely affected the MSI implementation by further constraining scarce DHMT resources and immensely increasing DHMTs' workloads. Also, all DHMTs suspended their MSI strategies because of MoH/GHS suspension of most health services (eg OPD, outreach programmes etc) (Agyemang et al., 2021).

Several factors facilitated or hindered the MSI implementation. Fundamental to any successful intervention is capacity development to equip participants with the requisite skills on specific tools and processes underlying an intervention. One critical success factor for the MSI is the MSI training for DHMTs and sub-districts. On the other hand, for the MSI to succeed there is a need to align the MSI strategies with existing DHMTs annual workplan cycles. All DHMTs selected their MSI HR/HS problems from their workplans. This ensures alignment of processes but, as importantly, of commitment and ownership of the MSI as it gets embedded in the routine activities. Furthermore, the MSI strategy of participatory decision making and consensus building promoted teamwork and fostered team spirit.

The findings further showed that strong and engaged leadership and commitment are critical. This is particularly important due to the high competing priorities and interests at the district level. The District Directors of Health Services were proactive in planning and the execution thereof of the MSI activities. This could be due to the involvement of the DHMTs' superior level, ie RHA in the MSI implementation.

The cost-neutral approach of the MSI was seen as a potential threat to successful MSI implementation. Deliberate efforts by the CRT towards managing expectations of participants paid off. Thus, DHMTs were enlightened on the fact that over-reliance on external support impedes progress and problems could be solved within their limited resources. This greatly stimulated ownership, which is an important ingredient for a sustained MSI implementation.

The key factor that affects the MSI implementation is financial constraints at the district level due to delays in the disbursement of the government of Ghana funds. Dealing with this challenge requires innovation on the part of DHMTs to ensure the smooth implementation of the cost-neutral MSI. The DHMT largely dealt with the situation through aligning the MSI to other initiatives with funding. Integration of MSI activities into other programmes, therefore, became crucial for the successful implementation. This phenomenon, according to most participants, helped strengthen their planning and lobbying abilities.

5.5 Effects of the MSI on management strengthening, workforce performance and service delivery

The MSI contributed to an improvement in the management competences at district and health service delivery level. DHMT members' capacity in problem analysis and problem solving has been enhanced. The DHMTs ascribed this to the hands-on and practical approach, well-tailored to their working environment. It is seen as an approach which is markedly different from the traditional way of management strengthening. The improvement in teamwork among DHMT members is seen as a key result of the participatory and consensus building approach of the MSI. The improved teamwork and its synergistic benefits increased DHMT members' confidence in tackling district health problems jointly (Agyemang et al., 2021).

Problems which have been on the backburner for a long period are being addressed through the MSI approach. The findings revealed that the MSI has contributed to an improvement in organizational practices and processes. By this, DHMTs have now become somewhat better managers of their limited resources through effective integration of workplan activities and efficient use of programs' funds. Given the elaborate accounts by the participants of increases in problem solving skills, the DHMTs appear confident in their ability to apply the competencies acquired from the MSI in tackling district problems without CRT support.

Comparison of endline and baseline findings of the survey on 'District Health Managers' Self-Assessed Management Capacity' suggest that selected improvements have occurred in different domains. It has to be noted that ratings of management's skills were already high at baseline so that a further increase of management skills was difficult. Further, the findings may be influenced by high staff turnover, especially in DG1. Overall, the DHMTs across the districts have been more exposed to informal management training, but less to formal training in comparison to baseline. The informal trainings were frequently initiated by vertical disease programs and focused on strengthening specific capacities among the district health managers, eg relating to malaria case management or vaccine management, rather than on strengthening the district health managers' core managerial and leadership skills, such as planning, financial management, supervision, etc. Furthermore, formal management trainings are often need-driven and focus on special technical areas of service delivery, and funded by national level, ie Ghana Health Service and Ministry of Health. The DHMTs have limited control over formal trainings (which have a longer duration), but ride on the back of vertical programmes to undertake in-service or informal trainings.

Improvements were observed in the management competencies and skills domain. Overall, an increase of 24.5% was registered in participants' rating as having 'good' competencies and skills. Higher ratings in management competencies and skills were observed among women compared to men at endline. This could be the effect of the proactive involvement of females in the MSI implementation as well as the emphasise of PERFORM2Scale on gender dimensions.

Taking a close look at each of the district groups, DG1 recorded better improvements with regards to management skills and competencies than DG2. This could be attributed to the duration of their exposure to the MSI, consequently suggesting that improvement in management competence has an association with the magnitude and duration of MSI exposure. Overall, the MSI had a small and moderate effect on health workers' perceptions of organizational commitment, teamwork climate, safety climate, supportive supervision, management at district, management at a health facility, and job satisfaction. Much bigger effects would have been realized but for the dire contextual hindrances cited elsewhere in this report.

5.6 MSI scale-up strategy implementation

Successes with the MSI scale-up in Ghana indicate a mixed picture. Whereas the horizontal scale-up of the MSI has been largely successful with expansion to nine districts, the vertical scale-up has shown to be more challenging and therefore required more attention of the NSSG.

The success with the horizontal MSI scale-up is evident in the potential for spontaneous expansion which stems from other non-intervention districts aspiring to use the MSI strategy, having witnessed evidence of success. The achievement realized with the horizontal MSI scale-up can largely be attributed to the involvement of the RHA and the dedication of the RTs to the scale-up strategy. Moreover, the RT membership is composed of lower-level staff from the regional and district levels

with enormous contextual knowledge. This stimulates ownership of the strategy due to the eagerness to improve their odds at the regional and district levels. The strong relationship that existed between the DHMTs and RHA also fostered a strong bond for successful horizontal scale-up. During the interviews, participants mentioned that the support visits undertaken jointly by the CRTs and RTs were essential, especially for strengthening RT capacity concerning the horizontal scale-up of the MSI.

Regarding the vertical scale-up, it is expected to be spearheaded by the NSSG. In Ghana, one of the strong points for successful MSI scale-up is a committed and well-functioning NSSG. Even though the stakeholders constituting the NSSG was based on the findings of a stakeholder analysis, and thus stakeholders with high alignment and interest were included in this group, their contribution to the scale-up strategy to ensure institutionalization of the MSI has been limited. This could be because the NSSG is composed of highly influential persons, mainly from MoH and GHS, having a range of competing priorities which negatively affect their dedication to the vertical scale-up strategy. Further, the interviews indicated that retirement of certain NSSG members has affected the functioning of the NSSG. It was also indicated that the MOH hosts mainly administrators and thus its technical capacity is limited. Changes are in the pipeline, which may result in some technical staff being hired at the MoH. The above warrants the identification of key persons in the last three months of the project to ensure that key actors are engaged to steer the scale-up strategy.

At the time of writing this report, the CRT and NSSG have jointly developed a draft scale-up strategy that outlasts PERFORM2Scale. As the project is to come to an end by December 2021, CRT is planning to have the strategy finalized, with a specific focus and realistic targets on what actions need to be taken for ensuring sustainability of MSI and scale-up beyond the project end. The scale-up strategy will include the activities, outputs and outcomes to ensure vertical (and horizontal) scale-up and to define the different roles and responsibilities. Moreover, the inclusion of a specific advocacy strategy may help to map relevant target groups for communication and develop effective messages. It could be helpful to discuss with existing MSI champions what they need for the advocacy of the scale-up (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2021).

Overall, key stakeholders, especially NSSG and RT members, are convinced of the utility of MSI. It is, however, not yet clear how this will lead to political commitment and to financial support for the MSI. This could be because of the absence of a long-term scale-up strategy, although several participants also believed that presently the MOH is not sufficiently involved in and convinced about the MSI. However, for institutionally embedding the MSI, the MoH was identified as the final decision-maker. So, to institutionalize the MSI, it is important that future advocacy strategies target the MoH. Furthermore, as the pressures associated with the COVID-19 pandemic subside somewhat, the CRT is making plans to consult with MoH and GHS to advocate for the incorporation of the MSI into their Programme of Work (POW) (Moses Aikins, SA Agyemang, Samuel Amon, Patricia Akweongo, et al., 2021).

As part of the advocacy strategy, presentations on the positive outcomes of the MSI are to be given by NSSG, CRT and RT at national fora (eg Annual Health Summit, Directors' Meeting, Annual Health Performance Review Meeting, etc.). Key actors within the Ghana health sector will be present during these meetings to capture the available evidence. It might, for example, be more effective for NSSG members to give the presentation during the General Health Summit than the CRT, given their political weight in the health sector. However, the presence of DHMT members as champions from the implementing districts is important as well, as they can testify how the MSI works, and they can

enthuse others by sharing their experiences. For these activities, it is important to have well-documented evidence about the MSI to convince the Minister of Health and other key actors.

6. Conclusion

Although vertical scale-up of the MSI has been challenging, horizontal scale-up has been largely successful within the timeframe of the project, with DHMTs reporting evidence of the strategy being fit for purpose. In all districts, both individual and team management competencies were developed in problem solving which translated into an improvement in service delivery. The benefits of the problem-solving skills acquired by district managers had rebound effects on other areas of health service delivery, eg planning, communication and use of data. In other words, the DHMTs' planning skills were strengthened, and teams tooled to effectively and efficiently use resources through the integration of activities. Although the flexibility offered by MSI approach presented opportunities that allowed for the MSI scale-up, several contextual factors restrained the realization of bigger effects. They included: high staff turnover leading to a weak institutional memory, competing priorities, containment measures due to the COVID-19 pandemic leading to reduced possibility for collaboratively working and exchanging, and resource limitations not allowing the implementation of the full range of plans.

The myriad of competing priorities, dynamic political environments, and shifting national funding priorities within the scarcely-resourced health sector may affect the progress made toward the MSI scale-up and its sustainability. The decision making and priority setting within the health sector is influenced by range of dynamics, including political aspects. Consequently, the NSSG and the national champion potentially play an important role by using their political influence to prioritize the scaling up of the MSI in this highly resource constrained setting for its sustainability. This was evident for example in the scaling up of *Project Five Alive project*, where strong relationships built with stakeholders proved invaluable for acceptance at local levels, for scale-up and sustainability. Also, the MSI's acceptability among staff, as well as embedding it institutional embedment will help counter the health sector's high staff turnover and high vacancy rates.

DHMTs', RTs' and NSSG's commitment and ownership of the MSI scale-up processes appears to be particularly critical for sustaining the achievements, yet potentially challenging as they simultaneously face competing demands from other initiatives, priorities and challenges, coupled with little autonomy over budget and expenditure at district level, lack of effective monitoring and evaluation systems, and lack of logistics and infrastructure. However, the pathways to horizontal and vertical scale-up of the MSI nationwide need to be both robust and flexible enough to withstand, and respond to, rapid changes within the health system and be part of the solution for strengthening performance and helping it to respond positively to challenges.

Meanwhile, having a clear MSI scale-up strategy plan which spells out specific processes and activities to be undertaken, is crucial for a sustainable horizontal and vertical scale-up. Furthermore, successful implementation and sustainability of the MSI importantly require an inclusive approach by way of: collaborations with communities, the private sector and donors; stakeholder engagement at all levels; regular supportive site visits; and maintaining the flexibility, ability and alignment of intervention to new contexts and priorities of the national health system and partner organizations.

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