Learning Question 1: *What are the contributions of systems thinking approaches and tools to changes in health system outcomes? How do systems thinking approaches affect health system outcomes?*

Implementation Research in Guinea

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HEALTH SYSTEMS STRENGTHENING ACCELERATOR

Context

Guinea has faced a critical shortage of health care workers, with only 7.3 health professionals per 10,000 inhabitants in 2014. This ratio is three times lower than the threshold recommended by WHO, which is of particular concern for the provision of maternal and child health (MCH) services in the country, especially in rural areas where 70% of Guineans live, but where only 30% of the health workforce is found. The lack of health workers further contributes to rural-urban disparities in MCH indicators. In the aftermath of the 2014-2016 Ebola epidemic in West Africa, the Government of Guinea, with support of development partners, made significant commitments and efforts to strengthen the national health system including the improvement of financing, human resources for health, and governance pillars. During this period, the National Community Health Policy (*Politique Nationale de la Santé Communautaire* or PNSC) was adopted in 2017, alongside other decentralization reforms, to improve access and coverage of rural communities to essential health services. In 2018, the PNSC began pilot implementation in 40 convergence communes (municipalities).

There are often significant gaps between the conceptualization and implementation of community health policies, partly due to poor coordination, power differentials and lack of training, and insufficient resources at the local level. These challenges point to issues with decentralization and the transfer of power, skills, and responsibilities to stakeholders at lower levels of the Guinean health system when implementing complex systems changes such as the community health policy. There is a need to better understand the enabling environment and potential barriers to the effective implementation of the PNSC, along with the reality of how key actors in the health system are currently fulfilling their roles, responsibilities, and decision-making power.

With the PNSC rolled out to over half of the country, the Directorate of Community Health and Traditional Medicine (DNSCMT) of Guinea's MoH and its partners recognize that this is an opportune moment to investigate the degree to which actors at decentralized levels of the health system understand and are exercising their new roles and responsibilities for delivering community health services, the alignment of these new responsibilities with available resources and capacities, how these factors affect the institutionalization of community health in the context of decentralization, and whether there is early evidence of expected performance outcomes from local actors' and community health worker (CHW)s' actions in relation to routine MCH indicators. As the PNSC is a complex, cross-cutting policy, it is important to consider any adaptations through a health systems lens, to ensure that any challenges and barriers are considered at all levels of the health system, from the national levels of government to the community level where CHWs are operating. A systems thinking approach also provides this activity a framework for considering the entirety of Guinea's health system, and to understand the complex and multisectoral the enabling environment and potential barriers to the effective implementation of the PNSC.

Activity Description

The Accelerator, in collaboration with the Maferinyah Training and Research Center in Rural Health, the African Center for Excellence at the Gamal Abdel Nasser University, the DNSCMT, and the Harvard T.H. Chan School of Public Health, has designed an implementation research activity that is currently being conducted in Guinea. Using a **decision space approach**, this research explores the rollout of the PNSC in the context of decentralization, and the role of decision space in explaining gaps between the policy's conceptualization and actual implementation through the following two research questions:

1. To what extent do local public actors know their roles and responsibilities under the community health policy? What factors enable or hinder their ability to carry out these roles/responsibilities?
2. To what extent is the planned, integrated provision of services by CHWs to meet population health needs actually being provided at the community level? How well does this provision of services align with the community's perception of alignment with their needs?

The decision space approach involves issues about the decision-making authority and choices that can be made by local officials, and how these interact with institutional capacities and accountability. It provides a useful conceptual framework to explore the rollout of community health programs. This implementation research activity is being conducted in four study regions that were purposefully selected in collaboration with the DNSCMT: Kindia, Mamou, Labé and N'Zérékoré. The study is being conducted across three types of communes: the first that were the pilot program of the PNSC, or the *communes de convergence*. The second is partially functional communes, where decentralization efforts have started with the rollout of the PNSC. The third is non-functional communes, where the PNSC has not yet been implemented. Communes within regions were randomly selected.

Decision space has two components. The first, *de jure* decision space, is the degree of choice that local, decentralized officials are authorized to make as is written in official strategies, policies, or laws. The second element is *de facto* decision space, or the degree of power that local officials wield in practice. In applying this approach, research teams can better understand the gaps between the conceptualization of new policies such as community health programs, and their actual implementation, particularly in the context of decentralization.

The implementation research study employs a sequential explanatory mixed-methods design including the use of quantitative methods and qualitative methods. The mixed-methods approach will facilitate examination of differences on the same topic while ensuring flexibility. The sequential design was an adaptation made after the initial design of the activity; this adaptation will allow the qualitative data to be used to help explain and further explore findings from the initial quantitative results. This design will explain the contextual factors that enabled or hindered the implementation of the community health policy. The quantitative component, based on a survey questionnaire, assesses decision space among stakeholders and how the policy may be affecting MCH services. Using the quantitative survey findings, we will explore associations between the degree of decision space and the provision of health services, which are measured using secondary routine health service delivery data collected from health centers and from District Health Information System II (DHIS2). The cross-sectional survey with officials (decision-makers) across national, regional, and local levels explores the official (***de jure***) and actual (***de facto***) decision space, institutional capacities, and accountability of decision-makers across various levels of health and political systems in Guinea, including in different types of communes, and local officials' level of knowledge or awareness of their roles and responsibilities. The qualitative component will be based on structured interviews with key informants and focus groups. The focus group discussions (FGDs) will explore further the quantitative findings and hypotheses developed by the research team and provide the opportunity to delve further into explaining unexpected initial findings from the quantitative survey, as well as illuminate new, additional findings. Both quantitative and qualitative respondents include individuals ranging from national level Ministerial departments, to governors and mayors, to health workers and village committees and leaders.

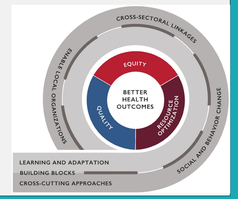
This study has been designed in close collaboration with the DNSCMT of the MoH in Guinea, who is has overseen the design, implementation, and scale up of the PNSC. As community health is cross-cutting and involves cooperation from many different sectors in Guinea, we have also worked with many different agencies and ministerial departments, including the Ministry of Territorial Administration and Decentralization, Ministry for Finance and Budget, the Office of Strategy and Development, the National Agency for Financing Local Authorities, and others. We have also discussed with other key partners in Guinea that work in community health, including UNICEF, the World Bank, the Global Fund, Gavi, the Bill and Melinda Gates Foundation, Catholic Relief Services, Jhpiego and many others, in other to better understand the challenges, barriers, and opportunities that they have identified in their work.

Activity Impact

The DNSCMT has completed a pilot phase of the PNSC rollout and has partially completed implementation in Guinea; it is now scaling up in new regions across the country. This is a key entry point for policy revisions and adaptations. During the pilot phase and initial rollout and scale up, there were lessons learned and key takeaways that have been identified by stakeholders and partners working in the community health field, as well as gaps and challenges that are being explored in this implementation research activity. As this study was designed in close collaboration with the DNSCMT, who oversees the design and implementation of the policy, this study has the potential to inform and shape policy revisions that the DNSCMT will make for iterations of the policy in future rounds of scale up. These findings can improve the rollout of the policy during the revision of the next 5-year community health strategy, contributing to the long terms systems change in Guinea. We anticipate that study findings can be used to redefine and/or clarify roles and responsibilities of actors responsible for community health program, make policy changes to de jure decision space, target capacity-strengthening efforts to build de facto decision space, and highlight bottom-up and top-down accountability issues.

As community health takes a multisectoral approach in Guinea, the PNSC and this study has the potential to improve equity, quality and resource optimization for the health system. Guinea has a significant population living in rural areas that are facing disparities in access to quality healthcare and in health outcomes. The decentralization efforts enacted through the PNSC and the newly recruited CHWs and community relays will allow more people to be connected with the health system and have more points of contact in communities to provide health education and surveillance. There is growing international recognition and consensus that CHWs play a pivotal role in the functioning of health care and public health services in low- and middle-income countries, especially in ensuring coverage of essential health services for underprivileged populations such as those living in rural and remote areas. CHWs are also crucial for enhancing health system resiliency, given their key roles in community mobilization, service provision and community-based surveillance in the context of natural disasters, conflicts, and epidemics.

In addition, findings will contribute to understanding factors that influence the implementation of community health programs in decentralized contexts.
Health sector decentralization reforms, like the PNSC, have the potential to increase responsibilities of local decision-makers and provide opportunities for citizen participation in local health systems management and accountability. Decentralization is, however, a complex, long-term, intervention involving a variety of actors, including actors outside the control of the health sector, with divergent interests and influences. Successful decentralization requires addressing pre-existing contextual norms and practices, including putting in place mechanisms that increase national actors' willingness to provide clear guidance, ensure priority-setting capacity, and stimulate community accountability and meaningful ownership and engagement.

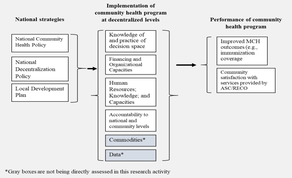


Evidence

This research activity is still in process, so we cannot yet speak to the impact on the health system. The impact of the PNSC implementation, which is the focus of what we are exploring in this activity, will be measured through our dependent variables, which include the degree of decision space, capacity, and level of accountability, which will be collected through our quantitative survey, and the MCH outcomes, which will be collected through DHIS2 and health facility data.

The theory of change outlined to the right describes how we expect the PNSC and associated decentralization reforms in Guinea to improve community health in Guinea, including MCH outcomes (immunization coverage for mother and child, antenatal care coverage and institutional delivery), and community satisfaction with services provided by ASC and RECO. Our studying is looking across three types of communes. We expect that the PNSC and decentralization strategies will achieve improved community health program performance by improving decision space, capacities, and accountability.

Figure 1. Theory of Change



*Gray boxes are not being directly assessed in this research activity

Improvements in decision space, capacities, and accountability can be measured via increased knowledge and practice of decision space, increased financial and organizational capacities, increased qualified and trained human resources, increased knowledge and capacities of stakeholders, and improved accountability. Other important factors for these policies and strategies to be successful in their impact on the performance of community health programs include the availability of commodities and the availability of reliable, quality data, although this research study will not be assessing these two factors.

The quantitative data was collected in a total of 27 communes, with 522 survey respondents across four regions. Early results suggest that CHWs have high level of knowledge about their roles, regardless of the type of commune. Early results suggest that CHWs have high level of knowledge about their roles and believe they have increased healthcare access, but insufficient funding is a major challenge. A few key preliminary findings include:

- Participants' level of knowledge of the PNSC and decentralization policy was low; awareness of the policy was 18% in implementing communes and 26% in non-implementing communes and not statistically different.
- CHW knowledge about their own roles was high overall, regardless of the type of commune. Among fully, partially, and non-implementing communes, the following proportions were aware that carrying out prenatal consultations were among their responsibilities: 90% [CI95%: 76-96]; 87% [CI95%: 76-93];and 80% [CI95%: 69-88] respectively.
- The main obstacles that CHWs identified in carrying out their activities were lack of funding at 34% [CI95%: 21-50]; 44% [CI95%: 32-57]; and 32% [CI95%: 22-44] among fully, partially, and non-implementing communes, respectively.

Preliminary results from the quantitative survey indicate that there is no clear relationship between policy implementation and health indicators. Using an interrupted time series design, there is no clear pattern of improvement in health indicators before the implementation of the policy as compared to after, using the communes where the policy has not yet been implemented as a control group and taking into account the timing of COVID-19 epidemic in Guinea.

These findings need to be explored more fully before any policy adaptations are made. The qualitative arm of this study will be designed around the unexpected findings from the quantitative data collection, so we will have a change to explore these questions.

Facilitators

The success of the long-term impacts of this activity is determined in large part by the cooperation and support of the DNSCMT and the Ministry of Health in Guinea, along with other technical and financial partners supporting community health. They have been instrumental partners in the conception and design of this activity. The research division of the MoH worked closely with the Accelerator team to explore their health research priorities, and partners collaborated with the Accelerator team to identify challenges they have faced in their own community health programs. As the DNSCMT oversees the implementation of the PNSC, their investment in this activity is the key to long-term success and impact, as they are able to adjust the way the policy is design and is implemented currently and in future iterations.

As community health in Guinea involves many different agencies, ministries, partners, and local actors, the DNSCMT has convened a Multisectoral Platform that arranges meetings on a regular basis among key partners. The Accelerator was able to benefit from these established connections and coordination, using these relationships as an entry point for scoping and formative research in the design phase of this activity. In addition, the Accelerator worked with colleagues at the Maferinyah Training and Research Center in Rural Health in Guinea. These colleagues are not only strong in their knowledge and expertise in research methodologies, but they are also familiar with the health system and its challenges and have a strong working relationship with the Ministry of Health and its research division.

Another facilitating factor for this activity was the co-creation work carried out under a separate Accelerator activity in Guinea. This activity convened a diverse group of stakeholders implicated in community health to explore the challenges and co-develop an action plan of solutions for the challenges in three aspects of community health in Guinea: sustainable financing, decentralized roles and responsibilities, and the research and learning agenda. The discussion and findings from these co-creation sessions have informed the design of this activity. In addition, as these activities fall under the same project, we are able to continue to build and strengthen relationships with stakeholders– many of whom are implementing the PNSC, which will increase the likelihood of uptake of adaptations of the policy based on findings.

The decision space approach we are using has been used in other contexts, including on a study on improving health system performance in a decentralized health system in Pakistan. We were able to review the questionnaires and protocol of this study and adapt their approach to fit the context and setting of community health in Guinea.

Challenges

The Accelerator faced challenges with timing of the design and execution of this activity. The origin of these challenges were varied, and included:

- The Accelerator used a collaborative design process, involving many different stakeholders, and therefore required organization around the demanding schedules of the DNSCMT and partners
- There was a coup in Guinea in September 2021, creating temporary insecurity, a transition period, and significant changes in government personnel and points of contact including government personnel that were targeted for participation in the survey. we worked to inform new leadership of the study to get their ownership and buy in.

There are also several challenges in terms of limitations of this study. These limitations, along with mitigating measures, are outlined below.

- **Quality of routine data:** The quality of routine data from health centers and from the DHIS2 often has difficulties with timely, precise, and reliable data. We are triangulating the data from different sources available at the health facility including logbooks, facility medical records, and health cards to check data quality and consistency.
- **Potential confounds or omitted variable bias**: We will try to control for some potential confounders by including covariates described above (health indicators, population size, etc.) by collecting these data up to 12 months prior to the policy rollout to account for pre-existing differences using interrupted time series analysis. However, there is still the potential for omitted variable bias in driving observed differences.
- **Social desirability bias**: Participants in the quantitative or qualitative data collection components may be influenced to give responses that they perceive to be desired by the research team contributing to social desirability bias. This will be mitigated to the extent possible through the informed consent process (making it clear that participation does not impact any ongoing support received for program implementation and that participation is completely voluntary) and by in-depth training of data collectors to avoid asking leading questions and to pay attention to body language, facial expressions, etc.
- **Potential inaccessibility of study sites due to COVID-19, Ebola, and other safety concerns**: In the current context of the COVID-19 and other ongoing epidemics, access to all targeted stakeholders and study sites may be constrained. This will be mitigated as much as possible by secondary document review and virtual interviews when in person data collection is not feasible. Access to sites during the quantitative data collection phase was not an issue and will be monitored during the qualitative data collection phase.
- **External generalizability to regions not included in the study**: The outcomes of the community health program may not be generalizable to all health facilities and services in Guinea, which means that the external validity of the results may be limited. To mitigate this concern, the four implementation research regions have been selected in consultation with the DNSCMT/MoH to reflect maximum variation in health profiles, sociodemographic status, and policy implementation.

Lessons Learned

In preparation for and in the design of this activity, we learned important lessons at both the implementation side and from the research side. From the implementation side, we learned about the complexity involved in the design and implementation of a policy rollout, particularly in a complex and multisectoral setting like community health. While the design of the policy is critical, it is equally important to give equal focus to the strategy and approach of implementation of the policy. Policy implementation can be significantly affected by external factors such as human resources, financial resources, technical assistance, supervision and support, and many other factors. We also learned that there are often challenges with the dissemination of national level plans; the gap in transfer of knowledge of and capacities around roles and responsibilities can have a significant impact on the success of the policy rollout.

In terms of the design of our study, one lesson learned even in the early stages of this activity is that it is important to design or adapt methodology to control for the impact of COVID and other external confounding factors. In our study, we would anticipate there being an increase in decision space and health outcomes as the policy is implemented, with likely a drop in these indicators once the COVID-19 pandemic began, and human resources for health and other commodities were limited.

From the research side, we learned the importance of a collaborative approach. As a policy in community health implicates many actors from different sectors and across different levels of the health system, it is critical to ensure that multiple voices are heard and that their priorities are being addressed in order to ensure buy-in. As part of this collaborative approach, we learned that particularly when implicating multiple different partners, it is important to factor in a longer timeline than anticipated, as there are many competing initiatives and demands that create scheduling challenges. In addition, it is important to consider the context in which the research is being carried out, to anticipate potential roadblocks, such as an outbreak or political instability, and be able to rapidly develop alternate plans. We also learned the critical importance of the co-creation approach, as despite challenges caused by the sudden and unexpected change in government along with multiple disease outbreaks, key stakeholders and technical and financial partners have continued supporting the policy and research process. Regardless of unexpected change, successful coordination and communication among these partners provides more opportunities for collaboration and improvement to the health system.

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