Digital Monitoring and Health Service Provision in Sierra Leone

Sector(s): Health, Political Economy and Governance

Sample: 300 Primary Healthcare Units (PHUs)

Initiative(s): Governance Initiative (GI)

Target group: Health care providers Rural population Families and households

Outcome of interest: Social service delivery Health outcomes

Intervention type: Technology

Partner organization(s): Sierra Leone Ministry of Health and Sanitation, Nestbuilders International

In many countries, rural populations access social services through decentralized systems that hire community-based workers with high monitoring needs, leaving little time for supervisors to perform other essential functions. Researchers are evaluating the impact of a phone-based e-monitoring app and organizational structure on frontline worker performance and service delivery in Sierra Leone.

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Many governments around the world use decentralized delivery of social services to reach poor rural populations. For example, community-based health workers (CHWs) are regularly hired to provide health services in rural areas, often acquiring their skills on the job. Monitoring these frontline workers, who vary in experience levels and are spread across large areas, can take up much of supervisors' capacity or reduce monitoring. Low levels of monitoring can result in insufficient effort and absenteeism among CHWs, given limited training and advising from their supervisors. However, in resource-constrained settings, hiring additional supervisors to sufficiently monitor frontline workers may not be feasible or may require hiring fewer frontline workers due to budget constraints. Remote monitoring technology (e-monitoring) may improve supervision and free up time for supervisors to complete other activities, like training CHWs. More evidence is needed to understand the impact of e-monitoring or changing the ratio of supervisors to frontline workers on the performance of supervisors and on service delivery.

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Sierra Leone's Ministry of Health and Sanitation established a Community Health Worker Program in 2017 to provide hard-to-reach areas with basic health services, including pre- and post-natal care for mothers and early childhood care. In 2020, Sierra Leone's maternal mortality ratio (number of maternal deaths per 100,000 live births) was 443,[1] compared to the global average of 223.[2]

Supervisors usually monitor seven to ten CHWs over multiple villages, grouped into a Peripheral Health Unit (PHU). Supervisors generally monitor CHWs' performance by contacting households throughout the area to check if they received CHW visits. Past research has found that the amount of training and monitoring supervisors provide in this context is insufficient for CHWs to perform their essential health work.



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Researchers will partner with the Ministry of Health and Sanitation to conduct a randomized evaluation to test the impact of e-monitoring on the quantity and quality of services provided, the allocation of CHWs and supervisors' time, CHW and supervisor performance, and community health outcomes.

Researchers will also evaluate the impact of increased in-person supervision and whether the effects of digital monitoring are different for organizations with larger ratios of workers to supervisors.

To identify the impacts of e-monitoring and whether they change with worker-to-supervisor ratios, researchers will randomly assign 300 PHUs to participate in one of four groups for a period of fourteen months:

- Higher worker-to-supervisor ratio and traditional monitoring (75 PHUs): Units in this group will include one supervisor and ten CHWs. They will continue using the existing in-person monitoring system and will not have access to the e-monitoring app.
- Lower worker-to-supervisor ratio and traditional monitoring (75 PHUs): Units in this group will include two supervisors and eight CHWs. They will continue using the existing in-person monitoring system.
- Higher worker-to-supervisor ratio and e-monitoring (75 PHUs): Units in this group will include one supervisor and ten CHWs. All supervisors and CHWs will have an e-monitoring app developed by Community Health Access and Finance Africa installed on a provided smartphone. The app uses GPS to track CHWs' physical locations while working and allows CHWs to record their health service provision digitally.

- Lower worker-to-supervisor ratio and e-monitoring (75 PHUs): Units in this group will include two supervisors and eight CHWs. All supervisors and CHWs will have the e-monitoring app installed.

The study will include rural areas across Sierra Leone.

To measure the outcomes of interest, researchers plan to ask all CHWs and supervisors to self-report time allocation at the beginning of the program and the end. Researchers will also ask CHWs about the number and quality of trainings provided by their supervisors. These survey results will be complemented by interviews on time allocation and monitoring quality with all CHWs. At the end of the program, researchers plan to also survey 9,000 randomly selected households across the study PHUs on the health service quality they received during the program and their health status. Lastly, researchers will leverage administrative data collected through the app, such as daily number of CHW reports. Across all outcomes of interest, they will study how impacts of the various versions of the program might differ for women and men.

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Research ongoing; results forthcoming.

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1. UNFPA. n.d. “World Population Dashboard Sierra Leone.” Accessed September 28, 2023. https://www.unfpa.org/data/world-population/SL

2. UNICEF. n.d. “Maternal mortality declined by 34 per cent between 2000 and 2020.” Accessed September 28, 2023. https://data.unicef.org/topic/maternal-health/maternal-mortality/