



CHAMPS in Practice – Data to Action

Title: Enhancing Healthcare Referral Systems to improve maternal and birth outcomes and reduce under-5 mortality - CHAMPS catchment areas, Sierra Leone, 2023-2024

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Summary

The healthcare referral system in the Child Health and Mortality Prevention Surveillance (CHAMPS) catchment areas, Bombali District, Sierra Leone are inefficient, resulting in delayed and inappropriate care for patients. This case study showcases the implementation and impact of the CHAMPS Data-to-Action project in improving the referral system from peripheral health units (PHUs, primary level of care) to the district hospital (secondary level of care). The Ministry of Health (MoH) at the national level has clear policies (1) (2) on appropriate referrals to different levels of care. However, this policy is poorly implemented. The CHAMPS DeCoDe findings highlighted issues with the referral system such as late referral of patients, reluctance of patients to seek care due to poor customer service at the referral facilities, lack of transportation from the peripheral facilities to the referral facilities, etc. The poor quality of care that patients receive at the referral hospital, despite being made to pay for care that should be free under the free healthcare services initiative (1) (2), has led to low trust in the health system. Our multipronged intervention included training of health care workers (HCWs), intensive clinical mentorship for HCWs and community health workers (CHWs), establishing a referral network between the primary and secondary health care facilities (HCFs), improving documentation, facilitating the referral process, and donation of essential supplies to the pilot facilities. Overall, the number of referrals increased as the nurses were better able to detect critical cases. Patients who were supported were appreciative of the clinical mentors and the entire process. Although patient and facility feedback were not systematically captured during the pilot phase, these will be evaluated in 2024/25

budget cycle and documented in an updated case study.

Background and context

Sierra Leone's healthcare system faces multiple challenges, especially in rural areas. Access to healthcare services is limited, and the quality of care is frequently inadequate. One important concern is the inefficiency of the healthcare referral system, which results in delayed and inappropriate care for patients. This problem is worsened by a lack of financial resources on the part of the patient (delay in seeking care) and poor road and transportation networks in rural areas (delay in getting to care). As such, the Child Health and Mortality Prevention Surveillance (CHAMPS), recommends improving referral systems during labor and delivery for complicated pregnancies to reduce stillbirths and neonatal deaths. The United Nations Inter-Agency Group for Child Mortality (UNIGME) estimates the U5 Mortality in Sierra Leone for 2022 to be 100.8 deaths per 1,000 live births (3). These deaths could have been prevented by minor but fundamental changes to the referral system. CHAMPS data, National Emergency Medical Services (NEMS) (4) and other data (2) have demonstrated the scope of the problem. According to DeCoDe findings, over 70% of deaths enrolled in CHAMPS from February 2019 – December 2022 was preventable. Most (64%) of the Expert panel recommendations centered on improvement to clinical management of cases, access to quality ante-natal care (ANC) services, and prompt health-seeking behavior (Figure 1).

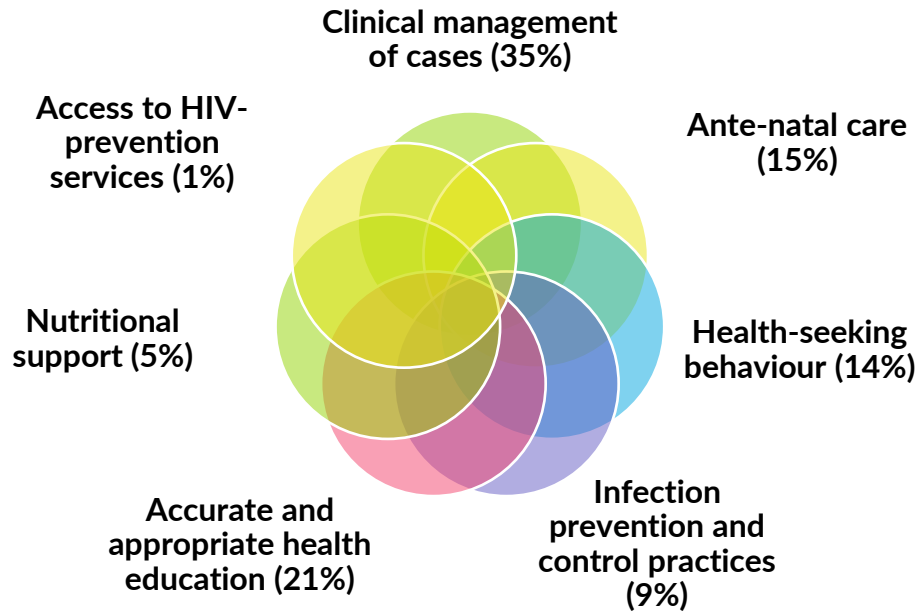


Figure 1. Expert DeCoDe Panel Recommendations: Public Health Improvements (Feb 2019 – Dec 2022).

Aims and Objectives

The CHAMPS Data-to-Action project aimed to address these challenges by improving the healthcare referral system in Sierra Leone, specifically in the CHAMPS catchment areas (Bombali Seborra and Bombali Siari chiefdoms). The project's objectives include:

1. Streamlining the referral process to ensure timely and appropriate care for patients.
2. Improving communication between healthcare providers at different levels of health facilities to facilitate efficient referrals.
3. Ensuring that pregnant women and under-five children promptly receive the adequate care they need.
4. Ultimately reducing stillbirths, neonatal, infant, and child deaths through improved healthcare processes.

Intervention

The CHAMPS Data-to-Action project in Sierra Leone involved several key interventions to improve the existing healthcare referral system. These interventions were initiated in January/February 2023 and implemented in partnership with the District Health Management Team (DHMT), the Regional Referral Hospital, and the School of Midwifery, Makeni (SoMM).

Phase 1:

1. Selection of Facilities:

Four (4) peripheral health units (PHUs) in the CHAMPS catchment area of Bombali district were selected:

- a. Manonkoh Community Health Post (CHP) – rural
 - b. Rokonta Community Health Center (CHC) – rural
 - c. Makama Community Health Post (CHP) – peri-urban
 - d. Red Cross Clinic – urban
2. **Baseline Assessment:** A baseline assessment of the process and structure of the existing referral system was conducted in the above facilities and revealed the following:
- a. Lack of knowledge and skills to identify critically ill pregnant women and children.
 - b. Ignorance of the appropriate process for referral to the next level of care.
 - c. Poor communication channels between various levels of care.
 - d. Lack of follow-up of cases to monitor the care received and to provide feedback to referring facilities.
 - e. Lack of essential drugs and supplies such as thermometers, weighing scale, etc. to assess sick patients.

Phase 2 (Figure 2)

Enhancing Healthcare Referral Systems, SL

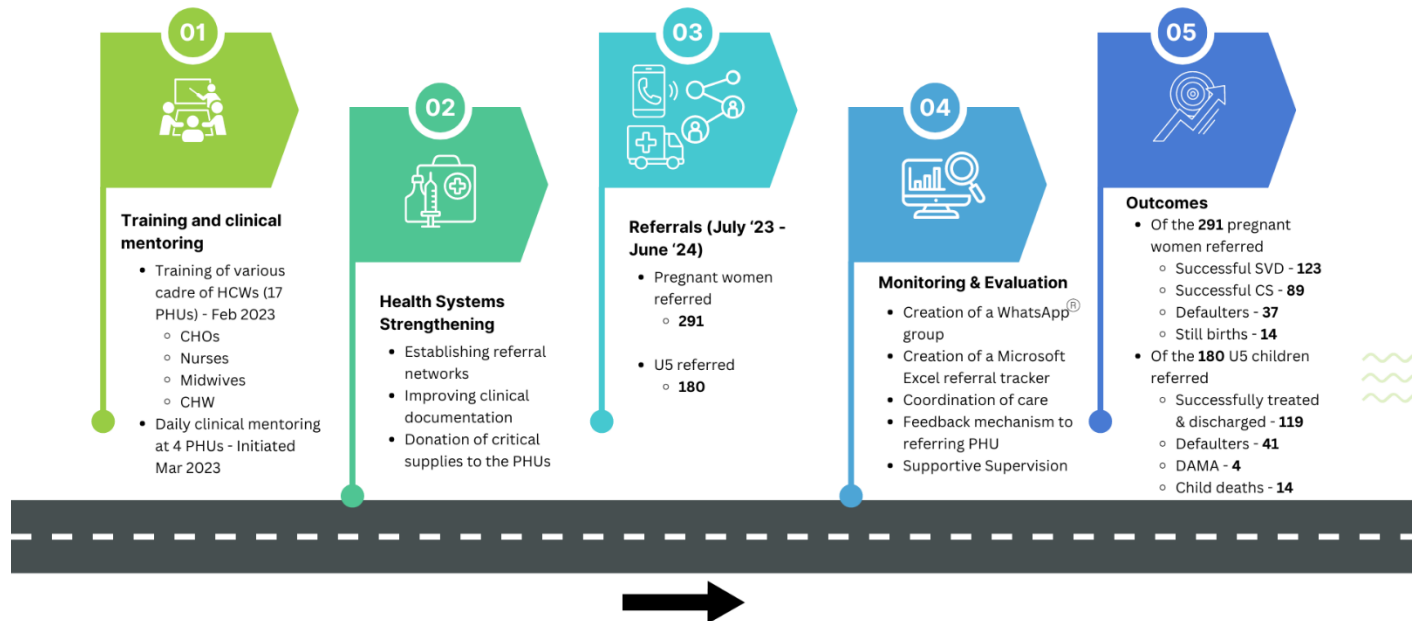


Figure 2. Enhancing healthcare referral systems: processes and outcomes.

HCW = Health care workers; PHU = Peripheral health units; CHO = Community health officer; CHW = Community health workers; SVD = Spontaneous vaginal delivery; CS = Cesarean section; DAMA = Discharged against medical advice.

- 1. Training and daily clinical mentoring:** The trainings were conducted in February 2023 at the School of Midwifery by master/certified trainers who were supported by CHAMPS. Health care workers from all 17 PHUs in the catchment area were trained on several topics based on the needs assessment (Table 1). Following the didactic and practical trainings, daily clinical mentoring by two clinical mentors (Figure 3) began in March 2023 and focused on the same training topics.
- 2. Health Systems Strengthening:** This involved
 - a. Establishing referral networks between primary and secondary facilities.
 - b. Improving clinical documentation to ensure that all relevant information was recorded in the referral form.
 - c. Donation of critical supplies to the PHU and hospital (Table 1). Donations were made following the needs assessment to enable the HCWs manage simple cases effectively, detect critically ill cases and make timely and appropriate referrals.
- 3. Referrals:** These occurred from all 17 PHUs including the 4 pilot facilities. In the absence of ambulances, the CHAMPS project supported patient transfers from

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pilot PHUs to the referral hospital whenever possible; other patients used motorbikes as a means of transportation to the referral hospital.

4. **Monitoring and Evaluation:** This involved
 - a. Creation of a WhatsApp® (5) group which included the HCWs and key stakeholders from referring facility, the receiving hospital, and CHAMPS (i.e. nurses, doctors, CHOs, hospital leadership and clinical mentors), to enhance communication and facilitate the referral process.
 - b. Creation of a Microsoft Excel (6) referral tracker to track the progress of referrals and their status or outcomes, including timelines for resolution at different stages. All data in this spreadsheet are analyzed periodically by the implementation team.
 - c. Coordination of care by clinical mentors
 - d. Provision of feedback to the referring PHU on the outcome of the cases referred.
 - e. Supportive supervision for the clinical staff at the PHUs so that the learnings from each intervention are retained.
5. **Outcomes:** Some of the resultant outcomes for referred patients from all 17 PHUs (4 pilot PHUs and the remaining 13 PHUs) from July 2023 to June 2024 are depicted in Figure 2 above.

Table 1. Trainings conducted and supplies donated to the Pilot PHUs

Activity	Deliverables	Makeni	Comments
Training Facility- based staff	Number of Hospitals	1	
	Number of PHUs	17	
	Number of healthcare workers	122	Trainings for HCW covered the following topics: <ul style="list-style-type: none"> • Preconception Care • Respectful Care • Antenatal Care, Labour & Delivery • Helping Babies Breathe • Care of the Critically-ill Child

Activity	Deliverables	Makeni	Comments
			<ul style="list-style-type: none"> • Recognition and management of Malnutrition • Record Keeping
	Number of CHWs	18	Trainings for CHWs covered the following topics: <ul style="list-style-type: none"> • Household Visit • Assessment of the Critically-ill Child • Notification of pregnancies within the community for subsequent follow-up • Identification of Malnourished Children • Facilitation of Referral, Reporting and Health Education
Daily clinical mentoring	Number of pilot PHUs	4	
	Number of HCWs	20	Same topics as above
	Number of CHWs	16	Same topics as above
Essential Items (for 1 hospital and 4 PHUs)	Delivery kits	4	
	Sphygmomanometers	24	
	Stethoscopes	12	
	Pulse Oximeters	4	
	Adult weighing scale	10	
	Pediatric weighing scale	1	
	Thermometers	8	
	Glucometers (and test strips)	5	
	Urine test kits	6000	
Mentorship through quarterly supportive	Pilot PHUs	4	
	Non-pilot PHUs	13	

Activity	Deliverables	Makeni	Comments
supervision			



Figure 3. Clinical mentoring in a pilot PHU (L) and community (R).

Impact of interventions

The CHAMPS Data-to-Action project had a significant impact on the healthcare referral system in our catchment area in Makeni. The project led to:

- **Increased efficiency:** The referral process became more streamlined, ensuring that patients received timely care. The national referral guidelines were provided to each PHU and CHW as a job aid and future reference

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- **Improved communication:** Healthcare providers reported improved communication between health facilities at different levels of care, leading to better coordination of care for patients. An example is the feedback from the receiving secondary health facility (HCW at MRH); the referring maternal and child health post (MCHP) had identified malpresentation and promptly referred the pregnant woman for higher level of care (Box 1).

Box 1. *“Hello! Thank you so much Tonko Clinic, for referring this case, because there are so many questions I wanted to ask, but I do believe that the questions I want to ask are in the referral note, like the gravity, the fetal heart rate, the contraction, and the parity. I am so happy that you referred this case because you know it is a malpresentation, most of the time the after-coming head is the problem/complication or even fracture of the legs...”*

Box 2. *“I want to appreciate the support provided by facilitating referral and good management at the hospital that have resulted in safe delivery with a good outcome for me and my baby. This would not have happened if it had not been for your effort especially when I don’t have money to pay for services even when it is free health care. God will continue to bless your work.”*

- **Better patient outcomes:** Patients who were referred through the program reported higher levels of satisfaction with the care received and reportedly better health outcomes. One of the ANC patients who was supported by CHAMPS mentors expressed her satisfaction as shown (Box 2).

- **Enhanced healthcare infrastructure:** The CHAMPS program has helped to strengthen healthcare infrastructure in our catchment area PHUs. Specifically, the

program has supported the restructuring of the facilities to improve infection prevention and control, provided basic medical equipment and collaborated with other partners to renovate service delivery areas, thereby improving overall access to quality health care for patients.

If scaled up to other health facilities, it is anticipated that these types of improvements will lead to more effective and efficient patient treatment in Bombali District, Northern Sierra Leone, ultimately improving maternal and child health outcomes in the region. In 2024, the referral support was expanded to all 17 PHUs within the CHAMPS catchment area. Due to capacity and budget constraints, the rigorous daily clinical mentorship piece is yet to be scaled up beyond the four pilot PHUs, as it requires more CHAMPS staff to implement.

These findings have been shared with the Ministry of Health and other implementing partners in various meetings and conferences through presentations. There has been overwhelming positive feedback and a desire to replicate these types of impact across the

country. High-level conversations are ongoing with key health development partners on the next steps to scale up to all chiefdoms in Bombali, as well as to the other 15 districts.

Lessons learned.

The referral intervention undertaken by the CHAMPS Data-to-Action project provided valuable lessons for future interventions aimed at improving healthcare referral systems.

Some key lessons learned include:

- The importance of community engagement and involvement in the design and implementation of interventions to ensure that they meet the needs of the local population.
- The importance of training and capacity building for healthcare providers to ensure that they are equipped to implement and sustain improvements in the referral system. Among other things, we learned that mentoring was a critical success factor, as usual pre-service and in-service training models rarely involve supportive supervision and handholding within lower-level health facilities.
- Poor transport network and unavailability of ambulances resulted in the CHAMPS project supporting patient transfers across facilities or patients using motorbikes as a means of transportation. The National Emergency Medical Service (NEMS) has reported several challenges namely, lack of funding to run the ambulances (provision of fuel, maintenance of the vehicles in good working condition, maintenance and support of the communication process) and pay workers' salaries. These challenges have impacted the system negatively. Addressing this limitation would result in better access to secondary healthcare facilities.
- Coordination of care by CHAMPS mentors, including assessment of the referral outcomes at the secondary health facility, was well-appreciated by the patients and ensured that the receiving health facility was more conscientious in ensuring proper management of referred cases. ***What you don't inspect, you shouldn't expect.***
- The need for strong leadership and coordination at all levels of the healthcare system to ensure that interventions are implemented effectively and that resources are allocated appropriately.
- The need to capture patient and health care facility feedback at the point of service. We failed to do this effectively during the implementation of this intervention. We plan to improve on this going forward.

Recommendations:

Based on the findings of this case study, several recommendations can be made for future interventions aimed at improving healthcare *referral* systems in Sierra Leone. These include:

- Continued investment in training and capacity-building through mentorship for healthcare providers to ensure that they can promptly assess and identify cases that need referral, as well as effectively implement and sustain improvements in the



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referral system.

- Strengthening of referral networks between healthcare facilities to ensure that patients are referred to the appropriate level of care promptly and are properly managed, with a feedback loop whenever possible.
- Sustained efforts to improve the quality of care and availability of medical supplies at the receiving health facilities will greatly improve outcomes at these facilities.
- Continued monitoring and evaluation of the referral system to track progress over time and identify areas needing improvement.
- Greater involvement of the community in the design and implementation of interventions to ensure that they meet the needs of the local population and that the processes are accepted by the community.
- A scale up of this type of intervention to all health facilities in Sierra Leone as the poor referral system is a common limitation across various districts, including the capital city of Freetown.

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