



CHAMPS

Child Health and Mortality
Prevention Surveillance

Data Dissemination Levers: Engaging Partners and Stakeholders to translate CHAMPS data into actionable public health policies and interventions – Two success stories at the CHAMPS SL site.

Case Study July, 2024

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Summary

The Child Health and Mortality Prevention Surveillance (CHAMPS) has provided critical data from Sierra Leone, required to understand drivers and causes of stillbirths and child mortality. Such data is critical to guide financial prioritization, inform on targeted intervention and drive policy change. Sierra Leone launched the Scaling Up Nutrition (SUN) Initiative in October 2012 as a global movement that brings together broad constituencies of stakeholders in a partnership with shared vision to address malnutrition [1] [2]. Although malnutrition was recognized as a major impediment to survival and development of under-five children, there was no country-specific data on malnutrition from Sierra Leone, making it difficult for the Sierra Leone government to allocate resources as well as implement targeted interventions.

Nearly a decade later, in 2021, CHAMPS from Sierra Leone showed that 48% of under-five deaths had malnutrition as an underlying or immediate cause of death. Subsequently, the Vice President's Office lobbied for domestic budget allocation to address malnutrition across all 16 districts. In partnership with the Nutrition Match Window the government was able to provide ready-to-use therapeutic foods (RUTF) to address malnutrition and malnutrition-linked mortality in the country.

Similarly, Sierra Leone is classified as a low HIV-incidence country, with national prevalence of 1.7% [3] hence all the HIV/AIDS control efforts in the country have focused on key populations, leading to high stigma rates in the region. In 2022/23, CHAMPS documented an incidental finding of high proportion of deaths from HIV through the CHAMPS SL Adult malaria study. The 21% HIV prevalence among adult deaths was inconsistent with the population prevalence of 1.7% [4]. In late 2023, CHAMPS alerted relevant Government authorities and partners about these HIV/AIDS data, which led to renewed interest in confirming the population HIV prevalence and a re-evaluation of the country prevention and control strategy.

“ CHAMPS Sierra Leone showed that 48% of under-five deaths had malnutrition as an underlying or immediate cause of death.”

Malnutrition

01 Background and context (Problem)

Globally, child wasting and stunting are among the top 10 risk factors for disease burden amongst children under 5 years of age (U5) [5]. In Sierra Leone, high poverty rate, inflation, poor access to nutritious food were assumed to lead to malnutrition. In school-based pre-enrolment assessments, a high proportion of the under-five children were malnourished and showed poor mental focus. The Scaling Up Nutrition (SUN) Secretariat was launched under the Office of the Vice President (VP) in October 2012 to reduce the impact of malnutrition on child morbidity and mortality. Unfortunately, there was no Sierra Leone specific data on malnutrition related morbidity and mortality to guide this initiative. A decade later, CHAMPS data showed that despite the launch of SUN malnutrition remained a huge problem in Sierra Leone with 48% of child deaths being associated with malnutrition.

02 Data Dissemination (Intervention)

As part of CHAMPS routine data dissemination efforts in 2021, CHAMPS-SL presented findings at the monthly Health NGO (HNGO) Network meeting showing 48% of deaths associated with malnutrition. Following this alarming presentation, the Health Advisor, VP Office focal point, Ms. Katherine Owen, reached out to request more detailed analysis on malnutrition and a one-page document that outlined the potential reduction in mortality if malnutrition was to be addressed (Appendix A, Supplementary materials), providing crucial in-country data required by the SUN secretariat. Subsequently, the SUN secretariat was able to lobby with the Parliament for domestic commitment for the procurement of ready-to-use therapeutic food (RUTF). By July 2023, the Ministry of Finance (MOF) disbursed \$99,000 USD to procure 1,700 cartons of RUTF. In addition, the MOF made a commitment to increase this amount by 5% yearly until the full required amount was met. This was the first time that domestic resources were used to procure such items in Sierra Leone.

Through the Nutrition Match Window[6], UNICEF was able to secure an additional 1,700 cartons. By September 17th, 2023, the commodities arrived on the shores of Sierra Leone and on October 26th, 2023, a ceremony was held to officially hand the cartons from the Government of Sierra Leone to UNICEF for distribution. CHAMPS was invited to participate in this ceremony. The one-pager provided by CHAMPS was used to prepare a summary document that was shared at the occasion (Appendix B, Supplementary materials).

This project was launched by the Vice President of Sierra Leone on the 26th of October 2023 where he expressed pride that, for the first time, he was presenting a health commodity to Unicef for distribution (Figures 1 and 2). The RUTFs have been distributed to all 16 districts and the office of the VP has maintained interest in CHAMPS data and now has representation on the CHAMPS Advisory Committee. To date, CHAMPS routinely provides data to the VP's office providing data required to make critical child health policies, decisions and interventions for the country.



Figure 1: At the handover ceremony, from left to right: The Minister of Health, the Vice-President, the Minister of State and the Minister of Finance, Sierra Leone.



Figure 2. The Vice President of Sierra Leone handing over the Government-procured RUTF to the UNICEF Country Representative on October 26, 2023

HIV/AIDS

01 Background and context (Problem)

CHAMPS data has also been instrumental to unmask the hidden HIV pandemic in Sierra Leone. An adult CHAMPS study investigating malaria as a cause of death showed the contrary; less than 1% of adult deaths were due to malaria, while 21% of the adult deaths were found to be from HIV/AIDS with advanced HIV disease including opportunistic infections. This CHAMPS finding raised questions over the accuracy of the national HIV population prevalence estimate of 1.7% and the effectiveness of the current HIV control strategies as implemented through the National AIDS Control Program.

Further, in comparison with another CHAMPS site in Kenya (Kisumu County), the proportion of deaths from HIV/AIDS was the same (Table 1) even though Kisumu’s quoted prevalence was much higher (>10%). The HIV prevalence among young adult death enrolled in this study was also alarmingly high; up to 42% among 30–44-year-olds (Figure 3).

Table 1. Comparison of HIV prevalence in adults deaths enrolled in CHAMPS adult malaria deaths study in Kenya and Sierra Leone catchment findings.

Indicators	Kisumu, Kenya	Bo, Sierra Leone
Catchment prevalence	≈ 10%	≈ 1.7%
% Adult deaths with HIV	22%	21%
% of HIV+ who also have TB	18%	36%
% of TB+ who also have HIV	36%	55%
% Adult deaths from HIV/AIDS	21%	21%

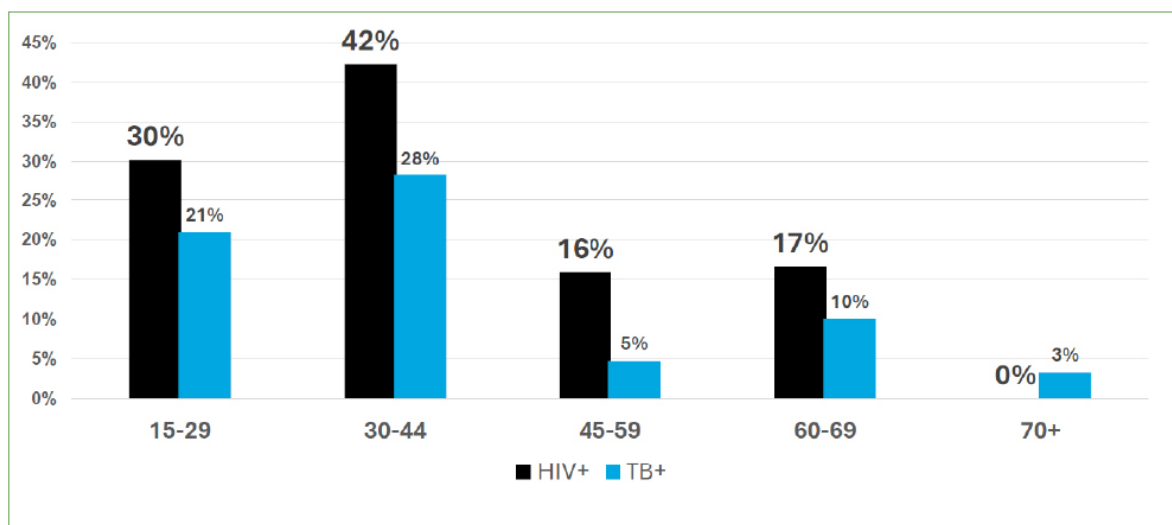


Figure 3. HIV and TB positivity of adults enrolled in the CHAMPS malaria study, by age group.

02 Data Dissemination (Intervention)

Due to the sensitivity of the HIV data and considering the multiple key stakeholders involved in HIV control, CHAMPS-SL undertook a structured approach to share the above mentioned HIV results with key stakeholders including (in that order):

1. The Chief Medical Officer (CMO), Ministry of Health.
2. The Director of Disease Prevention and Control (the Directorate responsible for HIV, TB and Malaria), Ministry of Health.
3. The Director for Policy, Planning and Information.
4. The Centers for Disease Control and Prevention (CDC) – Country Office SL (who later shared this data with the United States (US) ambassador).
5. The Joint United Nations Programme on HIV/AIDS (UNAIDS).
6. The National AIDS Control Program (NACP).
7. The National AIDS Secretariat (NAS).
8. The Network of HIV Positives in Sierra Leone (NETHIPS).
9. Key partners working in the HIV space, including the Health Non-governmental Organizations (HNGO) Network, Care International and AIDS Healthcare Foundation (AHF).

These results were well received, leading to strategic conversations including all key stakeholders to create a roadmap towards understanding the burden of HIV in Sierra Leone and addressing gaps in HIV diagnosis and care. One of the strategic goals was to increase HIV diagnosis and viral load testing in the country. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) run by the CDC in Sierra Leone arranged a visit to the CHAMPS lab at Makeni to explore the laboratory capacity for HIV viral load testing. Specific actions from that visit included:

1. Mobilize funds to support Population-based HIV Impact Assessment (PHIA). Using CHAMPS HIV data the US-CDC SL office was able to advocate for an additional \$8 million USD from PEPFAR to conduct PHIA in Sierra Leone. Supplementary materials (Appendix C),
2. HIV viral load testing was reinitiated in the country to enable assessment and improvement of the HIV cascade of care in-country. Both viral load and CD4 testing had been suspended for more than one year. The CHAMPS lab in Makeni became the regional reference center for viral load testing.
3. There are ongoing conversations with the Global Fund on further improvements of the cascade of care, as well as opportunities to expand control efforts beyond key populations.
4. The Ministry of Health is working with NETHIPS and CHAMPS to prepare a policy brief to address non-disclosure laws and the high HIV stigma persistent in Sierra Leone.

Drivers of successful knowledge translation

CHAMPS-SL has adopted a four-step approach for stakeholder engagement to facilitate timely dissemination of surveillance data in a relevant and actionable manner across several key audiences to promote uptake and translation into policy and practice. We applied these four steps for the malnutrition and HIV findings (Figure 4)

1. Data visibility
2. Data ownership
3. Data use
4. Data for policy, planning and practice



“

Data alone does not change lives, but when shared with purpose and placed in the right hands, it becomes the power to transform policy, strengthen systems, and save lives.”

– Adapted from CHAMPS data dissemination insights



Lessons learned

1. High-level Government support could lead to accelerated success.
2. Mutual trust and respect are vital for sustainable impact.
3. Ensure your data and findings are water-tight and include data triangulation whenever possible.
4. Do not underestimate the impact of informal out-of-office engagements.
5. Finally, patience is your key asset - data translation takes time.

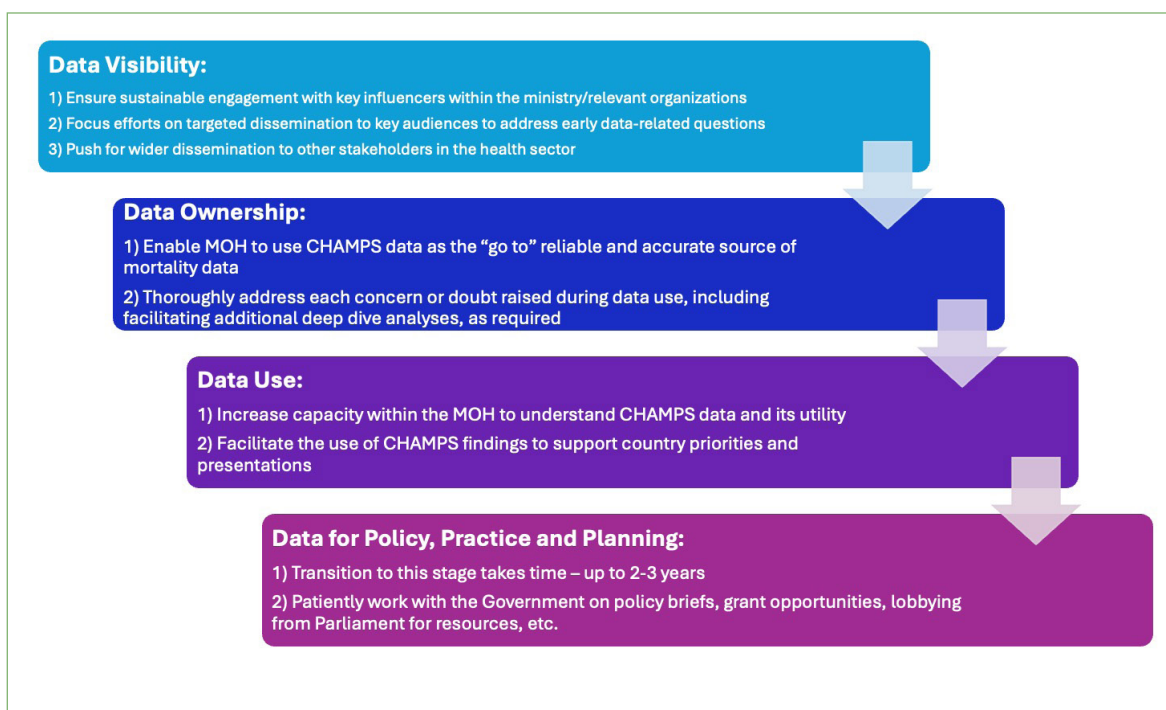


Figure 4. Data dissemination levers: Steps from data to action.

References

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2. Scaling Up Nutrition (SUN) Movement Multi-Partner Trust Fund (MPTF), “<https://mptf.undp.org/>,” [Online]. Available: https://mptf.undp.org/sites/default/files/documents/20000/sun-sierra_leone-prodoc.pdf. [Accessed 26 July 2024].
3. Statistics Sierra Leone (Stats SL) and ICF, “Sierra Leone Demographic and Health Survey 2019,” Stats SL and ICF, Freetown, Sierra Leone and Rockville, Maryland, USA, 2020.
4. Global AIDS Monitoring, “Country progress report - Sierra Leone,” 2020.
5. Institute of Health Metrics and Evaluation (IHME), “Global Burden of Disease 2021: Findings from the GBD 2021 Study,” IHME, Seattle, Washington, 2024.
6. Child Nutrition Fund, “The Match Window,” [Online]. Available: <https://www.childnutritionfund.org/match-window>. [Accessed 26 July 2024].
7. US President’s Emergency Plan for AIDS Relief (PEPFAR), “West African Regional Operational Plan (ROP) 2020 Strategic Direction Summary,” March 30, 2020.

Supplementary material

Appendix A. One-pager developed by CHAMPS



MINISTRY OF HEALTH AND SANITATION
THE REPUBLIC OF SIERRA LEONE



Briefing Note to the SUN Team (Scaling Up Nutrition), VP Office, SL (31.01.2022)

Background:

The Child Health and Mortality Prevention Surveillance (CHAMPS) Network aims to determine and track the causes of under-five mortality and stillbirths through epidemiologic surveillance. This includes reporting within 24 hours, taking of samples and use of advanced laboratory testing and diagnostics. CHAMPS currently operates across a network of international sites in eight (8) countries in Africa and Asia. Funded by the Bill and Melinda Gates Foundation, with Programme Office at the Emory University and with technical support by the US-CDC.

Research methodology:

The Minimal Invasive Tissue Sampling (MITS) procedure used by CHAMPS allows the extraction of tissue specimens and body fluids from a pre-defined set of organs without the need to open the body. It is therefore more acceptable than complete diagnostic autopsies. Data collected from CHAMPS sites will help reduce child deaths in Sierra Leone by providing detailed evidence on the causes of death to influence policies of the MOHS, funders and stakeholders.

Project status:

Between 2018 and Nov. 2021, CHAMPS-SL has:

- Received approx. 2,400 unique notifications of stillbirths and under-five deaths
- Completed MITS sampling on approx. 380 stillbirths and under-five deaths
- Determined the cause of death for approx. 300 deaths
- Provided family feedback to approx. 270 deceased families

Key Findings:

- A surprise finding has been the high contribution of malnutrition to child mortality in Sierra Leone
 - Malnutrition contributed to nearly 50% of all deaths during the review period
 - Scaling up adequate nutrition to all Sierra Leoneans could significantly reduce U5 mortality
- Other significant causes of death include birth complications, sepsis, pneumonia and malaria

Current Impact:

- High resolution mortality surveillance in a challenging setting, building on local structures and human resources (staffing, training, capacity building)
- Functional world class laboratory in Makeni, Bombali District
- New site started in Bo District (Southern region) in 2021

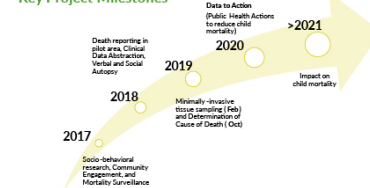
For more information: CHAMPS Site Lead and Co-Director

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Core Implementing Partners in Sierra Leone



Key Project Milestones



Malnutrition in the Causal Pathway of DeCoDe'd U5 Deaths in Sierra Leone

Case Type	n	Malnutrition as Underlying Cause	Malnutrition in Causal Chain	Total in Causal Chain	% in Causal Chain
Children (12 mo. to <60 mo.)	76	24	11	35	46%
Infants (28 days to <12 mo.)	45	19	4	23	51%
Total	121	43	15	58	48%

For cases where malnutrition was the underlying cause, the leading comorbid conditions are as listed below

	n	%		n	%
Anaemia	29	29%	Bronchopneumonia	4	4%
Sepsis	20	20%	Sickle cell disease	1	1%
Malaria	19	19%	Meningitis	1	1%
Pneumonia	11	11%	Viral bronchitis		
Gastroenteritis	9	9%			

Appendix B. Summary document shared at the October 26th 2023 occasion.



RUTF Supplies Procured by Government of Sierra Leone through the Nutrition Match Window

October 2023



Food insecurity & malnutrition in Sierra Leone

78% of Sierra Leone’s population is food insecure and one in five households (20%) are severely food insecure. Both the number of households with a ‘poor’ Food Consumption Score, and the number that adopted emergency coping strategies have increased from the same time last yearⁱ. **Food insecurity is one of the main causes of suboptimal infant and young child feeding which leads to malnutrition.** It is estimated that almost half of all underlying deaths among under-fives globally are linked to malnutrition. This link was also evident from the child autopsies conducted in Sierra Leone as part of the CHAMPSⁱⁱ program in 2021/2022 where the **leading underlying cause of death was found to be malnutrition.** Addressing and eradicating malnutrition in Sierra Leone will significantly lower infant mortality rates.

The vital need for life-saving Ready-to-Use Therapeutic Food (RUTF)

In Sierra Leone 26.2% of children under-five are stunted, 11% are underweight, 5.2% are acutely malnourished (wasted) and of these, 1.4% are *severely* wasted. This translates to an annual caseload of **approximately 63,000 children who are at high risk of death because of their nutritional status**ⁱⁱⁱ **An acutely malnourished child is up to 11 times more likely than a well-nourished child to die** of common childhood illnesses^{iv}. RUTF is an energy-dense, micronutrient paste that can save children who are wasted.

Forging the way: a sustainable Government-led approach to RUTF financing

Until now, RUTF has predominantly been procured, stored, and distributed by UNICEF with funding from various donors including Irish Aid, FCDO, Japan, Canada, and UNICEF. The **financing of nutrition supplies has been adhoc with overall uncertainty regarding the levels of funding that will be available** to cover the needs in the longer term.

In 2021 the **Ministry of Health (MoH) in collaboration with the National Medical Supplies Agency (NMSA) put forward a strong argument for national budgetary allocation for RUTF** to the Ministry of Finance (MoF). **Political support from the Vice President and the Parliamentary Committee ahead of the official budget hearings was pivotal** and provided the advocacy needed to secure the resource allocation. The Scaling Up Nutrition (SUN) Secretariat convened multi-stakeholder partner meetings hosted by the Vice President. The Nutrition Caucus of Parliament was instrumental in approving the budget once presented to Parliament.

As a result of the successful lobbying, the **2022 budget included allocation for RUTF for the first time ever.** With committed domestic funding for RUTF, **Government of Sierra Leone with support from UNICEF successfully applied for the Nutrition Match Window (NMW),** a catalytic dollar-for-dollar matching mechanism that aims to incentivize, increase, and prioritize the allocation of global and domestic resources for essential nutrition services and supplies.

What is the Nutrition Match Window?

The NMW is one of the three pillars of the Child Nutrition Fund, a UNICEF-led initiative with the support of UK Government, Children’s Investment Fund Foundation, and the Bill and Melinda Gates Foundation which allows national governments to double their investment in essential supplies for the prevention, detection, and treatment of child wasting.

Despite some challenges, **in July 2023 \$99,000 was disbursed by the MoF to UNICEF for the procurement of 1,700 cartons of RUTF.** This was **consequently matched by the NMW with an additional 1,700 cartons.** The commodities arrived in Sierra Leone on 17th September 2023 and will be distributed nationwide, contributing an estimated 5% of the 2023 annual RUTF supply need. **Sierra Leone is one of a few countries in Africa to allocate domestic funding specifically for RUTF, and one of only 8 countries in Africa that have successfully leveraged the NMW to double their supply.**

Appendix C. Letter of Appreciation from CDC Country Office to the CHAMPS SL PI



U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

June 26, 2024

CDC Country Office — Sierra Leone
Embassy of the United States of America
South Ridge — Hill Station
Freetown, Sierra Leone

Dear Dr. Ikechukwu Ogbuanu (Ike),

On behalf of U.S. CDC Sierra Leone, thank you for the outstanding partnership you, your team, and CHAMPS have extended to us. Your drive to identify the most impactful health issues to Sierra Leoneans and then seek evidenced-based solutions in concert with MoH and partners is a key reason for Sierra Leone's reprioritization to identify her true HIV prevalence and has driven U.S.G. PEPFAR to provide additional resources to look beyond key populations as our epidemiologic profile evolves.

The data provided in our recent CHAMPS Advisory Committee Meeting showing HIV test positivity among child deaths in 2 districts were sobering. Following that with the head-to-head comparison of % adult deaths from HIV/AIDS across 2 CHAMPS sites in Kisumu, Kenya and Bo, Sierra Leone where both reported 21% (while Sierra Leone's reported prevalence is 1.4%) has elicited a call to action.

U.S. CDC-Sierra Leone office utilized CHAMPS findings in combination with small studies conducted by the National AIDS Control Program and reviews of program data to successfully advocate for an additional \$8M USD from PEPFAR. Funding will be used to conduct sub-national PHIAs to gain a better understanding of the HIV epidemic in Sierra Leone.

The entire HIV community appreciates the excellent technical and logistical support and coordination from CHAMPS to ensure the installation of the Roche COBAS 5800 in the Makeni lab was possible. This instrument will improve turn around time for viral load and early infant diagnosis. As part of the USG negotiated all-inclusive reagent rental agreement, we see the promise of sustainability as well as improved clinical outcomes as we seek to surpass the 3-95's reaching instead for 98-98-98.

From HIV, malaria, malnutrition, AMR, CHAMPS' commitment to action and identifying best strategies to respond to unaddressed child mortality from these key issues, pushes all of us to do better to improve health for all Sierra Leoneans.

To you and your entire team, many, many thanks for your partnership, technical rigor, coordination, and dedication to identifying and preventing causes of under-5 mortality and stillbirths in Sierra Leone.


Best regards,



Dr. Daphne B. Moffett

CAPT, U.S. Public Health Service
CDC Country Director, Sierra Leone



 Child Health and Mortality
Prevention Surveillance (CHAMPS)

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Child Health And Mortality Prevention Surveillance

The CHAMPS network uses innovative approaches to generate and share knowledge that improves understanding and prevention of child mortality.

