

NAVIGATING CHALLENGES IN HEALTH SYSTEMS STRENGTHENING: A CLOSER LOOK AT SIERRA LEONE'S JOURNEY TOWARD HEALTHCARE RESILIENCE.

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ABSTRACT

Sierra Leone's healthcare system, reflective of many low-income countries, has encountered formidable challenges, particularly highlighted by its vulnerability during the 2014 Ebola outbreak and COVID-19 pandemic. This article provides an in-depth examination of the diverse efforts required for health systems strengthening (HSS) in such challenging environments. It extensively explores the intricacies of infrastructural inadequacies, the critical shortage of healthcare workers, and the structural, institutional, and systemic vulnerabilities that have historically undermined the efficiency and effectiveness of healthcare delivery in Sierra Leone. Moreover, this article identifies and analyzes the crucial pathway to resilience, necessitating a comprehensive approach that incorporates infrastructure enhancement, workforce development, and systemic reform. Drawing on a rich amalgamation of field reports, scholarly articles, and empirical data, the paper proposes an integrative framework for bolstering Sierra Leone's health system. This framework emphasizes the paramount importance of community engagement, advocating for the active involvement of local communities in health initiatives to ensure cultural relevance and higher efficacy. It also underscores the necessity of integrated multi-sectoral collaboration and coordination with other critical sectors such as education, agriculture, environment, gender, and opportunities to address the broader determinants of health. This comprehensive approach aims to address immediate health needs and lay the groundwork for a resilient, sustainable, and robust healthcare system capable of withstanding future shocks, while meeting the evolving health needs of the Sierra Leonean population.

INTRODUCTION**Background on Sierra Leone's Healthcare System**

Sierra Leone, a country with a population of about 8 million located in the Mano River Union on the West African coast, confronts significant challenges in its quest to establish a resilient healthcare system. This nation, representative of many low-income countries, has continually grappled with the arduous task of healthcare delivery amidst resource constraints.

The healthcare system in Sierra Leone has historically suffered from underfunding and is largely donor-dependent, resulting in inadequate infrastructure and weak supply chain and logistics capabilities. For instance, hospitals and clinics, particularly in rural areas, have experienced a lack of basic supplies and amenities including essential medical equipment, reliable electricity, and a clean water supply.(1) The healthcare workforce in Sierra Leone is sparse and inequitably distributed between rural and urban areas.(2) Rural areas are much more affected by health disparities and inequities caused by a shortage of healthcare workers, inaccessibility, and poor road infrastructure.(3) Despite efforts to improve road infrastructure, access to education, and relevant amenities, a significant proportion of Sierra Leone's population in remote and rural areas remains poor and is severely impacted by social and economic determinants of health. Besides infrastructural and workforce challenges, perennial issues of governance and policy implementation exist, which are being addressed through policy formulations and institutional reforms.

Despite these obstacles, Sierra Leone is committed to healthcare improvement. Post the 2013–2016 Ebola epidemic, major advancements were made in disease surveillance, exemplified by the establishment of a structured Integrated Disease Surveillance and Response (IDSR) system.(4) This initiative, along with consistent monitoring of the International Health Regulations (IHR 2005) capacities, marked a significant step in health systems strengthening. Further, Sierra Leone's response to both the Ebola and COVID-19 crises initiated comprehensive reforms focusing on infrastructure development, workforce augmentation, logistics, supply chain management, and policy improvement. These reforms aim to build a robust, sustainable healthcare system capable of handling future health crises and evolving health needs of the population.(5-7)

Overview of Challenges Faced During Ebola and COVID-19

Sierra Leone, vulnerable to diseases like Viral Hemorrhagic Fevers and Measles, faces increased risks due to population growth, climate change, and its location. The 1990-1993 civil war significantly weakened its healthcare system, exacerbating the challenges posed by infectious diseases and antimicrobial resistance. The 2014-2016 Ebola outbreak and the COVID-19 pandemic revealed profound vulnerabilities in the healthcare system, underscoring the need for systemic improvement and resilience.(6, 8, 9)

Healthcare Resource Strain: Both Ebola and COVID-19 crises heavily strained the

healthcare resources in Sierra Leone.(3, 10, 11) The Ebola outbreak exposed shortages in medical supplies and trained personnel, overwhelming hospitals and health centers. COVID-19 further depleted these resources, highlighting the need for sustainable medical infrastructure.

Emergency Preparedness and Response: Sierra Leone's response to these outbreaks showed gaps in emergency preparedness.(7, 8, 12-14) The country struggled with resource mobilization and containment measures, often reacting reactively rather than proactively. To address this, the National Public Health Agency was established in 2023 to enhance emergency preparedness and leadership.

Disease Surveillance and Public Health Infrastructure: These outbreaks underscored the need for robust disease surveillance and public health infrastructure.(4) The country suffered from limited diagnostic and laboratory capacities, affecting timely responses to health crises. Despite previous experiences, a comprehensive disease surveillance network and effective case management systems are still lacking.

Impact on Healthcare Workers: Healthcare workers in Sierra Leone faced significant challenges, including the risk of infection, inadequate protection, and high stress.(3, 10, 11, 15) Policies requiring immediate isolation of exposed workers, similar to those during the Ebola outbreak, led to major health facility closures and impacted essential services. Studies reveal that healthcare workers in treatment centers experienced significant fatigue and burnout.

Socio-economic Impact: The socio-economic implications of these health crises were substantial.(9, 16) Economic activities and livelihoods were disrupted, leading to job losses. The associated fear and stigma affected community dynamics, mental health, and led to prolonged school closures, contributing to teenage pregnancies, child abuse, and substance use. Movement restrictions also impacted food security and nutrition.

Resilient Health System Need: These crises highlighted the necessity for a resilient health system in Sierra Leone, capable of withstanding shocks while maintaining essential services.(7) This includes building healthcare infrastructure, workforce training, and emergency preparedness. The Ebola epidemic provided lessons in surveillance and infection control, which were beneficial during the COVID-19 response.(5)

Essential Health Services: Monitoring essential health services offers insights into the resilience of the health system. The ability to maintain services like maternal and child healthcare, immunizations, and treatment for non-communicable diseases is crucial. The deviations from baseline levels of these services during outbreaks indicate the impact on the population's health.

Resource Diversion and Psychological Impact: The diversion of limited public health resources, weak adaptation mechanisms, and the psychological impact of outbreaks have led to reduced demand and supply of health services.(10, 17) Health workers face stigmatization, poor motivation, and resource shortages, further challenging the healthcare system.

In summary, Sierra Leone's experiences with Ebola and COVID-19 underscore the urgent need for a robust, resilient healthcare system. This requires strengthening infrastructure, emergency preparedness, disease surveillance, and maintaining essential health services, all while addressing the challenges faced by healthcare workers and the wider socio-economic impacts of health crises.

SIERRA LEONE'S HEALTH SYSTEM: CHALLENGES AND VULNERABILITIES

Sierra Leone's healthcare system faces challenges from a lack of infrastructure, workforce scarcity, systemic vulnerabilities, and the impact of the Ebola and COVID-19 outbreaks.

Infrastructural Challenges: Despite progress in the last decade, Sierra Leone suffers from inadequate healthcare facilities, particularly in rural areas.(1, 18, 19) Existing facilities often lack essential infrastructure like reliable electricity, clean water, and proper sanitation. There is a shortage of vital medical equipment and an inefficient supply chain for medical supplies, leading to frequent shortages. The healthcare system also faces a significant gap in information and communication technology, hindering patient data management and disease surveillance. Poor road infrastructure and limited transportation exacerbate these challenges, delaying access to healthcare and worsening patient outcomes. Additionally, many healthcare facilities struggle with maintaining their infrastructure due to limited funding and technical expertise.

Workforce Scarcity and Capacity Building: The healthcare system is crippled by a critical

shortage of healthcare professionals, more so in rural and remote areas.(2, 3, 15, 19, 20) This leads to overstretched staff, long patient waiting times, and decreased care quality. There are few medical education and training institutions, and the lack of career development opportunities and inadequate compensation hinder workforce retention. Continuous skill development and training, particularly in specialized medicine areas, are essential. Community Health Workers (CHWs) are crucial in rural areas but often lack formal training and support.

Systematic Vulnerabilities: Governance, financing, and supply chain management are significant systemic vulnerabilities.(6, 16) Implementation gaps in health policies, bureaucratic delays, and limited health administration capacity are major concerns. Healthcare funding is inadequate, and high reliance on international donors and NGOs leads to funding instability. High out-of-pocket costs for patients exacerbate health inequities. The medical supply chain is plagued by infrastructure deficiencies, poor logistics, and regulatory weaknesses, resulting in frequent stockouts and concerns about medical supply quality and safety. Mismanagement, corruption, and leadership challenges directly impact healthcare delivery and outcomes.

Impact of Ebola and COVID-19: The Ebola outbreak and the COVID-19 pandemic severely tested the healthcare system.(6, 8, 21-23) Both crises overwhelmed healthcare facilities, with Ebola having a particularly severe impact. The focus on managing these outbreaks diverted resources from other essential health services, exacerbating care challenges for chronic diseases and routine health services.

Healthcare workers faced significant risks, with many contracting Ebola, leading to workforce reduction and psychological impacts like stress, burnout, and trauma. Public mistrust in the health system increased, fueled by misinformation and fear. Patients and survivors of these diseases faced stigmatization, affecting their social integration and mental health. These outbreaks also strained the economy, diverting resources to crisis management and disproportionately affecting vulnerable populations.

PATHWAYS TO RESILIENCE

Community Engagement and Multi-sectoral Collaboration are essential in enhancing Sierra Leone's healthcare system resilience, focusing on empowerment, education, and integrating health with other sectors.

Community Engagement: Empowerment and Education: Strengthening Sierra Leone's healthcare system relies heavily on active community engagement.(12, 14) Involving local leaders and community groups in health initiatives builds trust and enhances communication. Including community members in healthcare planning ensures culturally appropriate and accepted strategies. Implementing health education programs boosts health literacy, enabling informed health decisions. Customizing health messages to the local context and language increases reach and understanding. Training community members in identifying and reporting health issues enhances disease surveillance and early detection. Education about preventive health behaviors, like sanitation and vaccination, is

crucial. Strengthening Community Health Workers (CHWs) and integrating them into the formal healthcare system expands healthcare reach, especially in rural areas.

Multi-sectoral Collaboration: Integrating Health with Other Sectors: Building a resilient healthcare system in Sierra Leone requires a multi-sectoral approach. The One Health approach, integrating health with other key sectors, addresses broader health determinants. Sierra Leone's One Health Platform, launched in 2017, currently focuses on zoonotic disease preparedness and response. A more robust integrated multi-sectoral approach is proposed for overall health systems strengthening.

- **Education Sector Collaboration:** Partnering with the education sector for school-based health programs, including screenings and vaccinations, and integrating health education into curriculums, enhances health literacy from a young age.
- **Infrastructure and Transportation Sector Cooperation:** Collaborating with infrastructure and transportation sectors improves access to healthcare facilities, especially in remote areas. Developing reliable emergency medical services requires coordinated infrastructure and transportation planning.
- **Agriculture Sector Partnership:** Working with the agriculture sector bolsters nutrition programs, addressing malnutrition and encouraging sustainable practices. This

improves food security, food safety, and disease prevention, benefiting health and well-being.

- Water, Sanitation, and Hygiene (WASH) Initiatives: Joint initiatives in WASH are critical in preventing waterborne diseases. This involves developing clean water systems and appropriate sanitation facilities, focusing on underserved communities.
- Technology Sector Engagement: Collaborating with the technology sector promotes digital health solutions like telemedicine and electronic health records. Technology enhances healthcare delivery, data management, and patient engagement.
- Financial Sector Engagement: Partnering with the financial sector is key in developing sustainable health financing models. Economic growth and stability, linked to health outcomes, are vital for the healthcare system's long-term resilience.

CASE STUDIES AND SUCCESS STORIES

This section highlights several key interventions in Sierra Leone that have demonstrated success, offering valuable insights into effective health system strengthening strategies within the country's unique context.

During the Ebola outbreak, the traditional top-down approach initially faltered. A shift to a community-based approach marked a turning point in the crisis management.(14, 24) Local communities were engaged in surveillance, contact tracing, and

social mobilization. This approach empowered communities, built trust, and significantly improved the detection and containment of the virus. The intervention led to a more effective response to the Ebola outbreak, demonstrating the importance of community engagement in managing health crises.

Sierra Leone has historically faced high maternal and child mortality rates. Initiatives like the Free Health Care Initiative (FHCI)(18) were launched, providing free essential healthcare services to pregnant women, lactating mothers, and children under five. These programs led to increased access to healthcare for mothers and children, improved antenatal care coverage, and a reduction in child mortality rates.

Low immunization rates were a significant public health concern, leading to outbreaks of vaccine-preventable diseases. With support from international partners, Sierra Leone implemented extensive immunization campaigns, including the introduction of new vaccines into the national schedule. These campaigns significantly improved immunization coverage, contributing to the reduction of disease prevalence and child mortality.

Weak health information systems were a barrier to effective healthcare delivery and planning. Efforts were made to strengthen health information systems, including the development of electronic health records and improved data collection methods Enhanced health information systems have improved data availability and quality, aiding in better healthcare planning and resource allocation.

The shortage and uneven distribution of skilled healthcare workers was a critical challenge. Programs focusing on training,

capacity building, and the redistribution of healthcare workers were implemented, along with incentives for working in rural areas. These efforts have led to a more skilled and better-distributed healthcare workforce, enhancing the quality and reach of healthcare services.

Lessons Learned and Applicable Strategies

The analysis of successful health interventions in Sierra Leone offers invaluable lessons and strategies for strengthening health systems. This section consolidates these insights into practical strategies to inform health policy and practice.

Active community participation is key to achieving more effective and sustainable health outcomes. Involving community members in planning, decision-making, and implementation is crucial to the acceptance and success of health initiatives. The recommended strategy involves developing community engagement frameworks that incorporate local leaders, healthcare workers, and community members throughout all stages of health program design and execution.

Customizing health interventions to align with the specific cultural, economic, and social contexts of communities ensures greater success. This involves conducting comprehensive community assessments to understand local needs and preferences, thereby enabling the customization of health programs to suit these requirements.

Establishing a robust primary healthcare system is fundamental for effective health service delivery, particularly in settings with limited resources. The strategy here emphasizes prioritizing the enhancement of primary healthcare, with a focus on improving

accessibility, workforce development, and integrating essential services like maternal and child health, nutrition, and disease prevention.

Utilizing technology can markedly improve healthcare delivery, particularly in addressing challenges related to distance and limited resources. The strategy calls for investments in digital solutions like electronic health records and mobile health applications to boost access, efficiency, and the overall quality of healthcare services.

Recognizing that health is affected by a range of factors beyond the healthcare sector alone, a multi-sectoral approach is necessary. The strategy involves developing collaborative frameworks that include sectors such as education, agriculture, water and sanitation, and finance, aiming to tackle the broader determinants of health.

The sustainability of healthcare systems hinges on stable financing. The strategy here is to explore diverse financing models, including health insurance schemes, public-private partnerships, and community-based funding initiatives, to ensure the system's continuity and resilience.

Developing a skilled and motivated healthcare workforce is crucial for delivering quality health services. This strategy involves investing in ongoing training, providing fair remuneration, and offering career development opportunities for healthcare workers, including community health workers.

Focusing on preventive healthcare and health promotion is a cost-effective approach to reducing the disease burden. The strategy includes implementing comprehensive health education and promotion programs that emphasize preventive measures such as

vaccination, hygiene, and adopting healthy lifestyles.

DISCUSSION

A. Synthesis of Findings

This section synthesizes the key findings from the analysis of Sierra Leone's health system, drawing together insights from the various aspects explored in the paper.

A major challenge is the lack of adequate healthcare infrastructure and resources, including facilities, medical equipment, and essential medicines. The scarcity of trained healthcare personnel and the need for continuous training and capacity building are significant issues. Governance, financing, and supply chain management have been identified as systemic weaknesses impacting the efficiency and effectiveness of the health system.

The Ebola and COVID-19 crises have worsened the existing fragilities in the health system, stretching resources thin and highlighting the need for robust emergency preparedness and response mechanisms. These crises have also had profound socio-economic and psychological effects, affecting both healthcare workers and the general population.

Community-based interventions, particularly during the Ebola outbreak, have proven successful, emphasizing the importance of community involvement in health initiatives. Comparative analysis with other low-income countries reveals shared challenges and successful strategies, particularly in community health worker programs, disease surveillance, and maternal and child health initiatives.

The necessity of integrating health with other sectors and leveraging international partnerships for comprehensive health system strengthening has been underscored. The analysis suggests that sustainable development in healthcare requires a multifaceted approach, including infrastructure investment, workforce development, and sustainable financing.

The proposed policy recommendations offer a strategic direction for addressing the identified challenges and leveraging opportunities for building a more resilient health system in Sierra Leone.

B. Implications for Health Policy and Practice in Sierra Leone

The findings of this study have several critical implications for health policy and practice in Sierra Leone. These implications can guide future actions and reforms to enhance the effectiveness and resilience of the country's healthcare system. The study underscores the need for healthcare to be a top priority in the national agenda, requiring increased government investment and commitment to healthcare reforms. Given the infrastructure challenges, there is an imperative for strategic investments in healthcare facilities and resources, ensuring equitable distribution across urban and rural areas. Policies must focus on expanding and retaining the healthcare workforce through improved training, fair and performance-based compensation and promotion, research leadership and career development opportunities. Strengthening primary healthcare services is crucial for improving access to care and reducing the burden on secondary and tertiary health facilities. Health

policy should be integrated with broader socio-economic development goals, recognizing the interdependence between health and sectors like education, agriculture, and infrastructure. Policies and practices need to be community-centric, involving local communities in health decision-making and program implementation to ensure cultural relevance and higher efficacy.

The importance of developing resilient health systems capable of withstanding future health crises, such as pandemics or natural disasters, is paramount.

There is a need for innovative and sustainable health financing models to reduce dependency on external funding and ensure the long-term viability of the health system. Incorporating technology in healthcare practices, including digital health records and telemedicine, can enhance service delivery and data-driven decision-making. Continued engagement with international partners is crucial for accessing global health expertise, funding, and resources. Policies should be grounded in evidence, requiring ongoing research, data analysis, and monitoring to inform effective health strategies.

C. Recommendations for Future Research

The findings of this study open several avenues for future research, which are vital for continuing the momentum of health system strengthening in Sierra Leone. These recommendations aim to fill gaps in knowledge and provide direction for future studies. Future research should focus on evaluating the effectiveness of recently implemented health policies and interventions in Sierra Leone. This would provide critical feedback for policy

refinement and development. Longitudinal studies are needed to understand the long-term resilience of Sierra Leone's health system, especially in the face of ongoing and future health crises. Research assessing the impact of community engagement and empowerment strategies on health outcomes would provide valuable insights into the efficacy of these approaches. Research is needed to explore effective strategies for health workforce development, training, and retention, particularly in rural and underserved areas. Investigating sustainable health financing models that can be implemented in Sierra Leone is crucial, particularly to reduce dependency on external funding. Studies on the integration of technology in healthcare delivery, including telemedicine and digital health records, and their impact on health outcomes in Sierra Leone would be beneficial. Research understanding the broader social determinants of health in Sierra Leone and how they can be addressed through multi-sectoral policies and interventions is needed. Evaluating the impact of international partnerships and collaborations on Sierra Leone's healthcare system would provide insights into best practices and areas for improvement. There is a need for research into the state of mental health and psychosocial support services in Sierra Leone, particularly in the aftermath of health crises like Ebola and COVID-19.

CONCLUSION

The study of Sierra Leone's healthcare system has yielded several key findings that are essential for understanding the current state and the pathways to its strengthening. This conclusion summarizes these critical insights.

The health system faces significant infrastructural challenges, including inadequate healthcare facilities and a scarcity of medical supplies and equipment. There is a pronounced shortage of healthcare workforce, coupled with issues in training and retention, particularly in rural areas. Systemic vulnerabilities, such as governance issues, inadequate financing, and inefficient supply chains, greatly affect the healthcare system's efficiency and effectiveness.

The Ebola outbreak and COVID-19 pandemic have exposed and exacerbated the fragility of Sierra Leone's health system, highlighting the need for robust emergency preparedness and response capabilities. These crises have had broad socio-economic and psychological impacts, affecting healthcare delivery and the overall wellbeing of the population.

Community engagement, particularly during the Ebola crisis, has been a key factor in successful health interventions.

Multi-sectoral collaboration, community engagement, and international partnerships have been identified as crucial pathways for resilience and sustainable development of the healthcare system.

The study suggests comprehensive policy recommendations, including investment in healthcare infrastructure, workforce development, primary healthcare enhancement, sustainable financing, and improved health system governance.

These findings have significant implications for health policy and practice, underscoring the need for a holistic approach to health system strengthening that addresses both immediate needs and long-term sustainability..

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