Sierra Leone's Health Workforce Crisis: Drivers of Suboptimal Distribution and Poor Retention of Primary Healthcare Workers in Rural Areas

Vijay Narayan

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Committee:
Gabrielle O'Malley
Grace John-Stewart
Clarke Speed

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Abstract

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Vijay Narayan

Chair of the Supervisory Committee:
Gabrielle O'Malley, Associate Professor
Department of Global Health

Background: Sierra Leone's health outcomes rank among the worst in the world. A major challenge is the shortage of primary healthcare workers (HCWs) in rural areas. HCWs are concentrated in urban areas, and those in rural areas are not retained. This study was undertaken to determine the drivers of distribution, retention, and productivity of rural primary HCWs.

Methods: Interviews were conducted with 90 primary HCWs in the public sector, complemented by key informant discussions and review of national policy documents. HCW interviews included: 1) card sort about HCW priorities, 2) questionnaire, 3) semi-structured discussion, and 4) free-listing of challenges and needs. Sampling for HCW interviews was purposive, emphasizing rural HCWs.

Results: Among 90 HCWs interviewed, 58 were rural and 32 were urban; 71% of rural HCWs were dissatisfied with their jobs, versus 52% of urban HCWs (p=.01). Rural HCWs were more likely to intend to leave their post than urban HCWs (75% vs. 38%, p=.01). Most (87%) rural HCWs intending to leave wanted to continue with the government but move to an urban location. Job dissatisfaction was correlated with intention to leave (Pearson r=0.77). From the HCW perspective, drivers of poor rural job satisfaction fell into 5 categories: 1) HCWs lacked knowledge of policies, entitlements, and procedures, making it difficult to access their employee rights; 2) HCW remuneration was inconsistent; 3) Rural HCWs lacked essential infrastructure— motorbikes, electricity, clean water, and housing quarters; 4) Rural HCWs had not received adequate clinical supervision, personal support, and recognition; 5) System-related gaps, e.g. over-centralization of human resource administration, indirectly fueled job dissatisfaction.

Discussion: Rural HCWs in this study were dissatisfied and wanted to relocate to urban areas because they were ill-equipped to deliver health services and their quality of life was poor. Poor rural job satisfaction fuels negative health outcomes by causing a shortfall of rural HCWs, and reducing their motivation and productivity. This analysis yielded 18 specific recommendations to overcome drivers of poor job satisfaction in Sierra Leone, which may improve distribution, retention, motivation, and productivity of rural HCWs.

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Definitions of Acronyms

CHA: Community Health Assistant
CHC: Community Health Center
CHO: Community Health Officer
CHP: Community Health Post
DHMT: District Health Management Team
DMO: District Medical Officer
FHI: Free Healthcare Initiative
HCW: Healthcare Worker
HR: Human Resources
HRH: Human Resources for Health
PBF: Performance-Based Financing
PHU: Peripheral Health Unit
MCHA: Maternal-Child Health Aide
MCHP: Maternal-Child Health Post
MOHS: Ministry of Health and Sanitation
SECHN: State Enrolled Community Health Nurse
SRN: State Registered Nurse
WHO: World Health Organization

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Background

Sierra Leone's health indicators are staggering. Life expectancy is 48 years of age, ranking last in the world.[1] The country has the world's highest maternal mortality rate (1,100 per 100,000 live births), infant mortality rate (117 per 1,000), and under-5 mortality rate (182 per 1,000).[2] High morbidity and mortality from preventable and treatable diseases drive Sierra Leone's poor health outcomes. Sierra Leone's malaria mortality rate is the third-highest in the world (108 per 100,000).[2] Malaria is responsible for 38% of all under-5 deaths in Sierra Leone, and accounts for 40% of all outpatient morbidity.[3,4] Sierra Leone has the world's highest tuberculosis prevalence (1,304 per 100,000) and mortality rate (143 per 100,000).[5] The country's mortality rates from diarrheal diseases (128.2 per 100,000) and pneumonia (208 per 100,000) rank twelfth-worst and sixth-worst in the world, respectively.[6]

Sierra Leone's brutal civil war (1992 to 2002) shattered its health infrastructure.[7] The government has made strides in rebuilding its health system since hostilities ended twelve years ago, but there remain significant challenges. One of the biggest barriers is the shortage of primary healthcare workers (HCWs) at rural health facilities. Despite 63% of the population residing in rural areas, only 33% of the country's health professionals are working at rural health postings.[8] HCW vacancy and attrition rates are particularly high in rural areas.[9,10] Many HCWs posted to rural areas refuse to go, or leave after a short time, or remain in rural areas but deliver suboptimal services due to low motivation and/or lack of infrastructure.[10]

With insufficient numbers of well-equipped and motivated HCWs in rural areas, Sierra Leone's health system cannot meet the essential health needs of the majority rural population. The health workforce crisis has taken on greater urgency with implementation of the Free Healthcare Initiative (FHI) of 2010, which by providing free health services to mothers and children, has greatly increased the patient load at rural health facilities. Health service demand has further increased due to removal of user fees for HIV, malaria, and tuberculosis treatment. The FHI and other measures aimed at reducing cost barriers to accessing healthcare will not translate into lower morbidity and mortality rates if there are not enough HCWs at rural health facilities.

BACKGROUND

The drivers of mal-distribution, poor rural retention, and suboptimal motivation and productivity of Sierra Leone's rural HCWs are poorly understood. In 2010, the World Health Organization (WHO) produced a set of recommendations to increase retention of HCWs in rural areas. The global recommendations targeted six categories of factors affecting a HCW's decision to stay or leave a rural area: 1) Personal Origin and Values; 2) Family, Community, and Schooling; 3) Financial-Related; 4) Career-Related; 5) Working and Living Conditions; and 6) Bonding or Mandatory Service.[11] Several reviews have explored the causes of mal-distribution and rural attrition in developing countries, examined policies and programs that have been implemented, and recommended strategies to address the problems.[12,13,14,15]

However, in Sierra Leone, little research has been conducted on the health workforce. A review of health workforce challenges using data from 5 countries, including Sierra Leone, was conducted in 2012. The case study on Sierra Leone provided a high-level summary of the country's health workforce challenges, including an acute shortage of nurses and doctors, concentration of most HCWs in urban areas, and HCWs being poorly qualified due to insufficient government expenditure on training.[16] Another survey in two eastern districts of Sierra Leone found that many HCWs were unmotivated because they were not equipped to use their skills and perform their jobs well.[17]

The Ministry of Health and Sanitation (MOHS) has made improving the distribution and retention of HCWs in rural areas a high priority. In the "National Health Sector Strategic Plan for 2011-2015" and "Human Resources for Health (HRH) Strategic Plan for 2012-2016", the government urges research to understand the causes of mal-distribution and rural attrition of HCWs, and calls for the development of innovative solutions.[9,18] This study was undertaken to help meet this pressing government need.

The specific aim of the study was to *identify the barriers to recruiting, retaining, motivating and maximizing the productivity of primary healthcare workers in rural areas of Sierra Leone.* The secondary aim was to develop feasible strategies and initiatives to overcome the identified barriers.

Methods

Study Design

The study was a mixed-methods descriptive survey including 3 components [Figure 1].

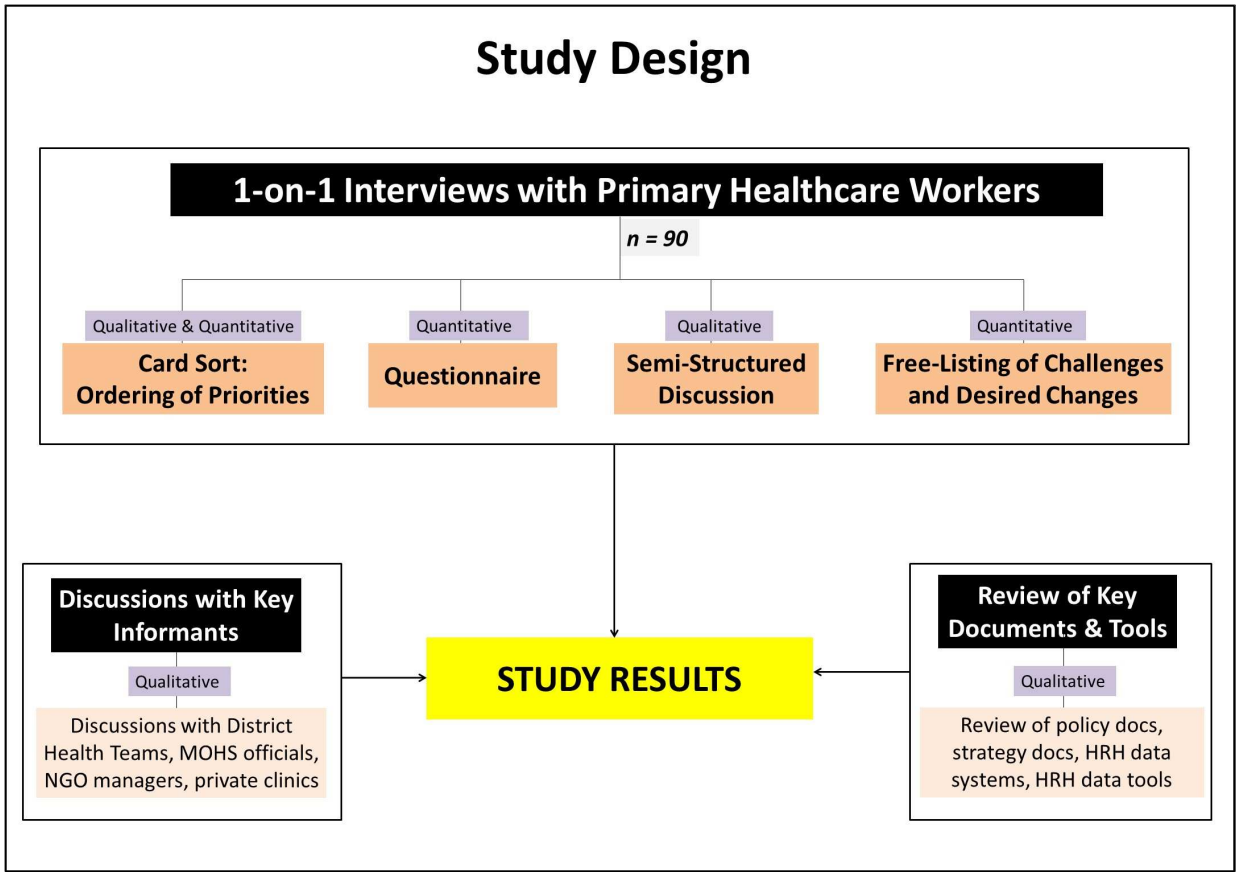

Figure 1: Study Design— Three Components of the Health Workforce Study

The main study component was one-on-one interviews with primary HCWs at public-sector health facilities throughout the country. [**Appendix A** describes Sierra Leone's health system]

The second component was key informants discussions with district health officials, national health officials, managers and field staff from non-governmental organizations (NGOs), staff from mission and private health facilities, and other relevant stakeholders. Whereas the HCW interviews focused on experiences and circumstances of the individual HCW, the key informant discussions shed light on broader, systemic gaps undermining the health workforce, and provided context to the findings from the HCW interviews.

The third component was a review of policy documents and electronic data tools. The document review provided additional context to the findings from the health worker interviews. Reviewed documents included the Civil Service Code of Rules and Regulations, Human Resources for Health Policy, Human Resources for Health Strategic Plan, Essential Healthcare Package, Primary Healthcare Handbook, National Health Training Plan, etc. The review also included the electronic and paper tools used to collect and manage HRH data at district and national level.

Methods in the Health Worker Interviews

One-on-one interviews with HCWs elicited in-depth information about professional and personal experiences, challenges, factors influencing their intentions to stay or leave a health posting, and types of changes that would encourage them to stay at their current posts. The HCW interviews generated both qualitative and quantitative data.

Interview methods included 1) card sort activity, 2) questionnaire, 3) semi-structured discussion, and 4) free-listing of challenges and desired changes. The data collection tool **[Appendix B]** was developed with input from in-country experts and the MOHS, and informed by literature review. After translation into Krio, the data tool was field-tested at 4 facilities, and then revised.

Each interview was conducted at the health facility in a private place in the language that was most comfortable to the HCW (English, Krio, or both). No personal identifiers were documented, and written consent was obtained before the interview. Interviews lasted approximately 1.5 hours and were audio-taped for subsequent transcription and analysis.

Card Sort about Health Worker Priorities

HCWs were given 13 cards pictorially depicting factors that may affect their job satisfaction [Figure 2]. The thirteen cards were: 'salary and financial allowances', 'access to a formal mentor', 'high-quality supportive supervision', 'access to goods and services in the community', 'working in the same region or culture as origin', 'medical equipment and supplies', 'mobility and transport', 'clean water and electricity', 'career development opportunities', 'promotion when deserved', 'good quality

housing', and 'recognition for achievement'. The HCWs were asked to place the cards in order from 1 to 13 based on which factors most affected their desire to stay or leave a health facility. After ordering the cards, HCWs were asked to explain the rationale for their prioritization.

Rank-ordering was 'closed-ended': it did not allow for addition or removal of a card, and no ties were allowed. The closed-ended structure enabled understanding of *relative prioritization* because it required that HCWs consider the importance of each factor in relation to the others, make definitive choices between factors, and articulate why they made their choices. To enable comparison of orderings across all study participants, HCWs were asked to sort the cards to reflect the ordering that would apply to any posting rather than their current circumstances.

Figure 2: Methods— Depiction of Card Sort Activity in Health Worker Interview

Questionnaire and Semi-Structured Discussion

Following the card sort exercise, the interviewer administered a questionnaire about the HCW's current working and living conditions, and the policies being implemented on the ground. The questionnaire was divided into seven domains: 1) Job Satisfaction and Future Intentions, 2) Community Integration and Social Acceptance, 3) Work and Organizational Culture, 4) Recognition, Mentorship and Support, 5) Professional and Career Development, 6) Working Conditions and Infrastructure, and 7) Living Conditions and Access to Goods/Services. The questionnaire was comprised of many closed-ended questions, including 30 Likert scale questions adapted from a 2006 study in Uganda by Hagopian et al. and a 2010 study in Kenya conducted by Mullei et al.[19,20]

Following the questionnaire, a guided and semi-structured discussion was held in which the HCW provided a narrative of his/her perspectives, experiences, challenges and needs, and future intentions. In addition to the audio recording, written notes were taken.

Free-Listing of Challenges and Desired Changes

HCWs were asked to "free-list" the most pressing challenges in their current posting, in order of urgency. The HCWs were then asked to "free-list" the things they want the government to do to increase their desire to stay at their current posting, in order of priority. HCWs could list a maximum of 7 challenges and 7 desired changes. The free-lists were documented on the data collection tool.

Sampling and Participant Selection

Sampling Strategy for Health Worker Interviews

'Stratified purposive sampling' was utilized to select primary HCWs for interviews.[21] Sampling was purposive along five strata: 1) Type of Setting, 2) Health Facility Level, 3) Health Worker Cadre, 4) Geographical Region and District, and 5) Supervisory Status. [Table 1] The study sampled HCWs at all health facility levels, and included all cadres involved in primary healthcare. The study achieved regional balance, including all 13 districts and 6-8 chiefdoms within each district.

Purposive Sampling: Strata							
Type of Setting		**Facility Level**		**Cadre**		**Region and District**
Urban		Hospital		State-Registered Nurse (SRN)		All 4 Regions (North, South, East, West)
Peri-Urban		Community Health Center (CHC)		State-Enrolled Community Health Nurse (SECHN)		
Rural		Community Health Post (CHP)		Community Health Officer (CHO)		All 13 districts (Western Area, Pujehun, Bonthe, Kono, Kailahun, Kenema, Bo, Bombali, Port Loko, Kambia, Koinadugu, Tonkolili)
Supervisory Status		Maternal-Child Health Post (MCHP)		Community Health Assistant (CHA)		
Supervisor				Maternal Child Health Aide (MCHA)		
Non-Supervisor						

Table 1: Sampling Strata for HCW Interviews

The dimension of most interest was type of setting (urban versus rural). 'Urban' was defined as health facilities in any of the four cities (Freetown, Bo, Kenema, Makeni). 'Peri-Urban' referred to the facilities in the district headquarter towns, except for the four urban cities. 'Rural' was defined as any facility more than five miles outside of a major town or city. Rural health facilities were oversampled relative to urban facilities because the study's primary focus was the rural workforce. Only 1 HCW was interviewed at any rural facility. No more than 2 HCWs were interviewed at any hospital.

In every district, the most 'hard-to-reach' health facilities were visited, which is one of the study's distinguishing factors. Given that these remote health facilities are so isolated and rarely visited, the voices of these HCWs and the challenges they face are often not captured in national assessments and policy discussions.

Sampling Frame and Sample Size for HCW Interviews

The sampling frame for the health worker interviews included all HCWs of the five designated primary healthcare cadres working at public-sector health facilities (SRN, SECHN, CHO, CHA, MCHA). The inclusion criteria were any HCWs in the sampling frame who provided informed consent. The targeted sample size was 90 HCWs.

Participant Recruitment Procedures for HCW Interviews

The district health management team (DHMT) in each of the 13 districts provided information about health facilities, cadres working at each facility, facilities that were the most hard-to-reach, and how different facilities could be reached (routes, time, natural barriers, terrain). The study investigator then chose the facilities, prioritizing the most hard-to-reach facilities while attaining a balance of cadres and facility levels in the district. Upon reaching each facility, the study was explained to the supervisor, and the HCW was asked if he/she wanted to participate.

Sampling Strategy for Key Informant Discussions and Review of Documents/Tools

Convenience sampling was used for selection of key informants. For the review of key documents and tools, sampling was inclusive of all accessible national documents that were relevant to HRH and delivery of primary healthcare services.

Data Analysis Methods

Qualitative Data: Preparation and Analysis

Audio recordings for the health worker interviews were translated into English and transcribed into Microsoft Word. Atlas.Ti was used to help manage HCW and key informant interview transcripts, reviewed national documents, and photos taken at health facilities.

Content analysis was used to develop primary and axial codes. A preliminary code list was developed based on synthesis of qualitative data. This code list was then modified and refined through 'test-coding' of several transcripts. The analysis brought out key themes to answer the research questions.

Quantitative Data: Entry and Analysis

Quantitative data from card sorts, free-list rankings of challenges and desired interventions, and questionnaires were analyzed using Microsoft Excel and SPSS. Likert rating data was treated as

non-parametric data. Analysis explored correlations between ratings for different Likert statements. Average Likert ratings between different sample strata were compared (e.g. urban versus rural).

Analysis of card sort data produced the mean placement of each factor affecting job satisfaction, and the average distances between the mean placements of each factor.

Free-list data was first aggregated into standardized categories. The frequency of each listed category was then calculated, as well as the percentage breakdown of the 1st challenge, 2nd, etc.

Triangulation of Data Sources

The data analyses from the different methods were synthesized to answer the research questions, an approach known as "methodological triangulation" ("between-method").[22] The ability to triangulate data from several different types of methods strengthened the study and provided a more compelling body of evidence to inform and substantiate the study's recommendations.[23]

Ethical Considerations

Ethical approval for the study was obtained from the Sierra Leone Research and Ethics Committee, as well as the University of Washington Institutional Review Board. No names or personally identifying information were linked to the interviews to ensure confidentiality.

Study Limitations

The study was not able to interview HCWs who had left their posting, or HCWs who were deployed to a post but did not go. The quantitative data is not statistically generalizable to the entire health workforce. The study was not able to determine national retention rates due to lack of data.

Results

Out of 90 interviewed HCWs, 58 were working in rural facilities, and 32 were in urban or peri-urban facilities. The average length of service in the public sector was 9.9 years (range 0.2 to 44.0 years), and average service at the current posting was 2.7 years (range 0.2 to 16.0 years). The average age of interviewed HCWs was 40.1 years (range 25 to 61 years), and 63% were female. Tables 2 and 3 show the characteristics of interviewed HCWs.

Sample Strata Breakdown		
Type of Setting		
	# Health Workers	Percent Contribution
Rural	58	64%
Urban & Peri-Urban	32	36%
TOTAL	90	
Health Facility Level		
Hospital	29	32%
Community Health Center (CHC)	27	30%
Community Health Post (CHP)	20	22%
MCH Post (MCHP)	14	16%
TOTAL	90	
Cadre of Health Worker		
SRN (State-Registered Nurse)	14	16%
SECHN (State-Enrolled Community Nurse)	25	28%
CHO (Community Health Officer)	16	18%
CHA (Community Health Assistant)	10	11%
MCHA (Maternal-Child Health Aide)	25	28%
TOTAL	90	
Region of Sierra Leone		
North	28	31%
South	25	28%
East	23	26%
West (Freetown)	14	16%
TOTAL	90	

Table 2: Sample Strata Data

Participant Characteristics		
Age		
Mean Age	40.1 years	
Median Age	41.0 years	
Gender		
	# Health Workers	Percent Contribution
Female	57	37%
Male	33	63%
TOTAL	90	
Region of Origin		
	# Health Workers	Percent Contribution
Same Region as Born	50	56%
Different Region	40	44%
TOTAL	90	
Professional Work Experience		
0-2 years	5	5%
2-5 years	27	30%
5-10 years	25	28%
11-15 years	14	16%
>15 years	19	21%
TOTAL	90	
Mean # Yrs Working:		9.9 years
Mean # Yrs at Current Post:		2.7 years

Table 3: Participant Characteristics

Intentions of Rural Health Workers to Stay or Leave

Of the 90 interviewed HCWs, 61% reported that they intended to leave their current posting within one year. Rates of intention to leave varied between rural and urban workers (75%, vs 38%, respectively, p=0.01). Most rural workers intended to leave specifically because they preferred the benefits of an urban location. Table 4 shows the type of setting desired by the 52 rural HCWs intending to leave: 87% of rural HCWs intending to leave still desired to stay with the government but move to an urban setting**.** According to one rural HCW, *"I don't have what I need here to work and live well. I want to go to Kenema [City] or Freetown so I can have all that I need."*

Desired Type of Setting for RURAL Health Workers Intending to Leave (N=52)		
	Number	%
Stay with government but move to an urban post	**45**	**87%**
Stay with government but move to a different rural post	**2**	**4%**
Leave to work for an NGO	**4**	**8%**
Leave the country to find other opportunities	**1**	**2%**
Total rural health workers intending to leave current posting	**52**	

Table 4: Specific Intentions among 'Rural Health Workers Wanting to Leave'

Job Satisfaction as a Predictor of "Intention to Stay or Leave"

Job satisfaction among the HCWs was poor. The average rating for the Likert statement "I am satisfied with my job" was 2.8 on a scale of one to five. The average job satisfaction rating was lower for rural HCWs than urban HCWs (2.61 vs. 3.31, p=0.01).

Overall, job satisfaction was correlated with 'intention to stay at current posting' (Pearson r=+0.77, p<0.001). HCWs with poor job satisfaction were more likely to state a desire to leave their posting within one year, compared to those with good job satisfaction (51% vs. 0%, p<.001). However, many of the dissatisfied HCWs noted that if conditions were improved, they would want to stay longer. As one HCW said, *"If only they fix these problems I have explained, then I will be happy to stay here for a long time. But if not, I do not want to stay at all."*

Drivers of Poor Job Satisfaction

This study identified the factors driving poor job satisfaction among rural HCWs, which are divided into the five categories shown in Figure 3. Some of the factors reduced the ability of HCWs to effectively provide health services, which in turn reduced their job satisfaction. Other factors affected job satisfaction directly because they negatively influenced quality of life, livelihood, or access to advancement opportunities. Poor job satisfaction has negative downstream effects on both health workforce outcomes and primary healthcare outcomes.

Figure 3: Drivers of Poor Job Satisfaction among Rural Health Workers

Driver #1: *Health workers lack knowledge of policies, procedures, and entitlements*

Many HCWs possessed inaccurate or no information about key policies, procedures, and entitlements. This has made it difficult for them to access their rights, which negatively affects their welfare and future prospects. Specifically, few HCWs had knowledge of their entitlements as a civil servant, breakdown of the financial allowances provided within the composite salary, policies such as eligibility criteria for career advancement opportunities, and processes required to apply for annual leave or other entitlements. HCWs also lacked awareness of policy and programming changes at national level that may affect their well-being, such as the new Scheme of Service for Promotion. As one HCW commented,

> *"They don't give us any information, so how are we to plan our lives and get the government opportunities? We don't know what to do to get this opportunity, or who to go to for fixing this problem. I don't know why they made this or that decision."*

The gap in knowledge of policies and processes was not limited to the HCWs. Numerous district health officials, national government officials, and non-government stakeholders had incorrect or outdated information about important policies and processes, or were entirely unaware.

Lack of accurate knowledge about policies and procedures contributed to dissatisfaction of HCWs. It prevented many HCWs from benefitting from career advancement opportunities, being absorbed onto the national payroll, receiving paid annual leave, going to the right people to get personal and professional problems resolved, and so on. Lack of proactive and regular communication from the Ministry of Health and Sanitation (MOHS) to HCWs, combined with the inability of HCWs to obtain information on their own, disempowered and frustrated HCWs. It also fostered the sentiment that the government does not care about the welfare of its employees.

Lack of knowledge has prevented HCWs from accessing their employee rights

HCWs are entitled to paid annual vacation leave of one month. However, as shown in Table 5, only 43% of the interviewed HCWs knew about this policy, only 29% knew the steps to apply for it, and consequently only 16% reported ever receiving an annual leave allowance.

Further, only 2% of upcountry workers benefitted from the allowance, compared to 93% of Freetown workers. According to a rural HCW, *"I never even applied for [annual] leave because my family is here and I have nowhere else I would go. But if I had known about the extra month of salary, I would have applied every year. We need that. We have earned that allowance."*

Knowledge of Health Workers: Annual Leave			
Know about Annual Leave AND that it carries extra month of salary		**43%**	**39 out of 90**
	Freetown (Western Area)	100%	14 out of 14
	12 Other Upcountry Districts	33%	25 out of 76
Knows Process for Applying for Annual Leave		**29%**	26 out of 90
	Freetown (Western Area)	93%	13 out of 14
	12 Other Upcountry Districts	16%	13 out of 76
Ever Received "Leave Allowance"		**16%**	**14 out of 90**
	Freetown (Western Area)	93%	13 out of 14
	12 Other Upcountry Districts	2%	1 out of 76

Table 5: Knowledge of 'Annual Leave' Entitlement

Lack of knowledge has been fueling conjecture, speculation, and disenchantment

When HCWs lack information, they make assumptions which are often inaccurate. Uninformed conjecture can lead to disenchantment with the government that may be unwarranted. For example, prior to 2012, the government had a provision called "Study Leave with Pay" which enables HCWs to advance their careers by paying them while they attend school. In 2012, the government stopped the 'Study Leave with Pay' provision. However, the information about halting the policy and the rationale was not effectively communicated to HCWs. Only 9% of HCWs knew about the policy change. One MCH Aide had heard from colleagues that only the MCH Aides were being denied career advancement opportunities. Since the MCH Aide had not received any official information, she and her colleagues interpreted the measure as marginalization of their entire cadre:

> *"Every day, the government sends CHOs, SECHNs, midwives, and other cadres to study. The government never thinks of that for us- we the MCH Aides. I don't know why they don't want us to advance. The government doesn't respect us, even when we do so much of the work."*

The MCH Aide was unhappy that she and her colleagues were being ignored as compared to other cadres. This belief, which stemmed from lack of knowledge and inaccurate assumptions, was the primary reason given by the HCW for her overall job dissatisfaction.

Inability to know the breakdown of "composite salary" is disempowering

Health workers only see the money placed in their bank account every month. They do not receive a statement showing if and what amounts of money they are specifically receiving for housing, medical risk, and transport, as well as what is withheld for social security and taxes. A rural HCW with no housing quarters expressed unhappiness that the government was not providing additional funds to compensate for his high rent costs. Since he did not have a disaggregated pay statement, he did not know if the issue to redress was 1) the lack of housing allowance, or 2) the housing allowance is provided but too small, or 3) the housing allowance is sufficient but the 'base salary' is too small. He explained this challenge:

> *"I have never seen my pay breakdown. They just send whole salary amount into my account. How can I know if I get housing allowance? I don't even know 'this is for what', or 'that is for what'. That info has never been given to anybody. So I don't know which [thing] is the problem."*

'Remote station allowances' were supposed to be provided as an incentive to HCWs to work in rural areas. Interviewed HCWs showed evidence of not receiving these allowances for at least one year. However, officials in several districts said the HCWs were receiving the allowances but had no way of knowing because their pay statements were not disaggregated. National-level officials later confirmed that the remote allowances had indeed stopped. This example highlights why aggregated pay statements are so problematic: HCWs have no recourse if they are told they are receiving the allowances, but cannot access the information which would enable them to refute that assertion. This engendered feelings of frustration, helplessness and discontent among the HCWs.

Poor knowledge results from ineffective communication from the government, lack of policy orientation, and inadequate policy documents

Key information from the central government rarely reaches HCWs— especially in outlying districts and remote areas. Currently, communications from national level about policy changes are ad hoc rather than being part of an organized system where information is regularly conveyed between government, districts, and HCWs. Further, there are no tracking mechanisms to ensure that the information has reached its intended recipients. There is also no systematic feedback channel for

HCWs to voice their concerns to the central government. Such a communication channel might have addressed the confusion among HCWs about the ‘study leave with pay’ policy.

New HCWs have not been formally oriented to the MOHS' policies and procedures before deployment (i.e. there is no official ‘Induction’ process). Few HCWs were aware of the Civil Service Code, the document which articulates all policies and entitlements. Even fewer HCWs had obtained a copy of the Civil Service Code since it was expensive and hard to access.

Many of the Civil Service Code's provisions are non-specific or ambiguous. For example, one provision reads that *"civil servants shall receive a medical care allowance to be determined from time to time."*[24] Based on this wording, HCWs do not know if they are being currently being provided with this allowance, and in what amount. There is no MOHS policy document describing how the Civil Service Code’s provisions specifically apply to MOHS staff at the current time. As one HCW opined, *"They need to harmonize the Civil Code with actual policies to make official Ministry of Health policy guidelines."* Failure to provide both the Civil Code and a companion MOHS policy document to all HCWs was a major reason for the knowledge and information gaps.

Driver #2: Health workers are not remunerated in accordance with stated policies

A driver of poor job satisfaction is many health workers *not* being remunerated in accordance with stated or official policies. Three 'remuneration problems' emerged as major causes of dissatisfaction: 1. HCWs are not being absorbed onto the national payroll, 2. HCWs are not being promoted in salary when eligible, and 3. HCWs at rural posts are incurring higher costs of living than urban health workers, but are no longer receiving the financial allowance that helps offset the extra cost of working at a rural post (‘remote station allowance’).

2A. Non-Salaried Health Workers

HCWs are not being absorbed onto the national payroll, despite occupying essential technical positions, having worked for long periods of time without pay, and having made multiple attempts to resolve the issue.

Out of the interviewed HCWs, 14.5% reported having never received salary despite having received their certificate or diploma and having submitted all the requisite government paperwork. For the unpaid workers, the average time working without salary was 23 months up to the date of the interview. Almost all the unpaid staff showed they had a PIN code, which means that they had completed the last step required of them for payroll absorption. The non-salaried health workers were not confined to any particular cadres, regions, or demographic groups. In fact, 7 of the 13 unpaid health workers were the "in-charge" of their facility. Further, the majority of interviewed HCWs receiving salary reported that one or more colleagues at the facility were not on the payroll, including many who had worked for at least 1-2 years. Many of the unpaid HCWs have unsuccessfully attempted to address the problem. One HCW explained her futile attempts:

> *"I was appointed in March 2012 and given a PIN code, but have not been paid. I went to Freetown. They said they had misplaced the file and would call me, but they did not. When I went again this year [in 2013], they said to be patient. I would see the salary next month…I can't go again. You see I am the only [technical] staff here, and if I go, the community has no one."*

With official numbers lacking, the national number of non-salaried HCWs could differ from this study. Nevertheless, the data suggests that staff absorption onto payroll is not limited to just a

few HCWs. According to a health official from one district, *"Many staff in the district were recruited in 2012 but up to now, 15 of them are not paid. We have brought it to the [Government] Establishment so many times, so I don't know why the health workers are not on the payroll."*

The unpaid HCWs endure a daily struggle in making ends meet for themselves and their families. According to a HCW who has not been paid for the past 14 months:

> *"It is hard. From where I was this morning [at a meeting in district town] to reach the health facility, I paid 60,000 Leones [~14 USD] to travel— my own money. Now when I have reached home, my family is there. I have children's school fees, feeding them, and medical fees. Tomorrow there will be airtime costs. No income. How can I be content when I am barely surviving?"*

Not being on the payroll also prevented HCWs from receiving other entitlements for Civil Servants.

The impact of this problem extends far beyond the unpaid HCWs themselves. When some HCWs are on salary whereas others are not, it may create disharmony and reduce productivity of the entire staff team, which compromises quality of care. One HCW described how the plight of unpaid staff influenced morale and teamwork:

> *"Morale is low here because some staff are not on payroll and unhappy. For instance when I called one and asked her to come assist me, you can see the facial expression of the individual, the low energy, the body language. They have worry. It is heart-wrenching for us who are on salary. We cannot work as a good unit."*

Another effect is that unpaid staff were discouraged and didn't do all their work, putting a strain on the other HCWs. *"We are not working well as a group. The two [unpaid staff] grumble and lag with work. Sometimes they must go at 2 pm to find other income, making others do the work."*

Out of 42 interviewed HCWs indicating poor morale at their facility, 48% reported the primary reason as being 'one or more colleagues not being paid a salary'. Poor staff morale was associated both with poor job satisfaction and intention to leave, based on Likert rating data. Overall, 40% of those reporting strong team morale were satisfied with their jobs, compared to only 22% of those reporting poor morale (p=.027). Furthermore, 43% reporting strong team morale intended to leave within 1 year, whereas 66% citing poor morale intended to leave (p=.011).

Further, when asked to free-list their most pressing challenges, 12 *salaried* staff listed their colleagues not being on salary as one of their most pressing challenges. 16 *salaried* staff listed

'absorbing all staff onto the national payroll' as an urgent intervention required to increase their own desire to stay (n=77 salaried staff).

There does not appear to be a single reason for why eligible HCWs are not being absorbed onto the national payroll. Based on key informant discussions, it may be a combination of different factors. There may be bureaucratic and administrative challenges at national level. HCWs may not know the proper procedures. There also may be insufficient financial resources in the Funded Establishment.

2B. Promotion in Salary Grade

Numerous HCWs are not being promoted in salary grade when they have attained the requisite educational qualifications according to the "National Scheme of Service". 12 of the 18 HCWs (67%) who had upgraded their educational qualifications were still being paid at their previous lower salary grade despite 21 months having passed (on average) since they submitted the necessary paperwork. District and national health officials reported this is a pervasive problem. One district official noted that *"there are at least twenty health workers in our district whose salaries have not been upgraded, especially among our nursing cadres."*

HCWs are also due for promotion when they have worked in a position for a specific number of years, but this has not been happening consistently. According to a hospital SRN who qualifies for a promotion: *"I am the in-charge of the hospital ward and worked as a staff nurse for about 7 years now. I am eligible but they won't promote me to [the position of] Ward Sister, which is unfair because others newly coming from school get put above me."*

Not being promoted in salary has a negative effect on job satisfaction: 10 of the 12 non-promoted HCWs indicated dissatisfaction. *"I am discouraged, really. I was thinking that the more experience and education I have, the higher I will go. I gave so much effort to upgrade, but they don't recognize my achievement. It is like the more you learn, the more they neglect you."*

Unsuccessful attempts to rectify the problem have increased their frustration: *"I have been going and coming to Freetown, three times now. Each time they say to check in the bank next month for the higher salary. It has been almost two years without any change."*

Failure to promote HCWs in salary grade has not only reduced job satisfaction and encouraged them to leave, but has also served as a dis-incentive for HCWs to financially invest in education to upgrade their qualifications.

2C. Rural Cost of Living and Remote Station Allowances

The cost of living is much higher for HCWs in rural areas than in urban areas. With funding from the Global Fund, the government provided a 'remote station allowance' as an incentive to rural HCWs. However, the allowance was discontinued in 2012.

The study identified 5 reasons why rural costs are higher. First, prices of essential goods are significantly higher in rural areas: for example, rice costs are 30% higher and fuel prices are 55% higher. Second, the cost of transport is higher: unlike their urban peers, rural HCWs must travel throughout their large catchment area for health campaigns and to address medical emergencies. They must travel frequently to the district headquarter town to attend meetings and trainings, to obtain medical care, or to visit their families. Most rural HCWs must also travel to access desired foods and goods**.** In this study, 86% of rural HCWs reported that they could not access a sufficient market in their community, compared to only 12% of urban/peri-urban HCWs. Without their own motorbikes, rural HCWs must pay for commercial transport. A rural HCW described the impact:

> *"I have spent six months here consecutively, and want to go see my family. But my way out is very difficult. If you ask a motorbike to take you from here to the district [headquarter] town, they charge you 200,000 Leones {~45 USD}. That is almost half my monthly salary…But when I received the remote allowance before, it enabled me to see my family in [the district town], and I even used part of it to travel to Freetown to see my youngest daughter and mother."*

Third, the vast majority of rural HCWs send their children to school in urban areas. As one District Medical Officer (DMO) pointed out, *"Most rural staffs support two homes, which often takes up most of their salary."* Only 15% of the HCWs in rural facilities and 20% of HCWs in peri-urban facilities had their school-age children living with them, in contrast to 80% of the urban HCWs. Fourth, rural HCWs cannot derive income from a second job, unlike HCWs in urban locations. According to one rural health worker, *"If we are in Freetown, we will be doing other jobs and business in addition to this one, but it is not possible here, so they should at least compensate us with the hardship*

allowance." Fifth, rural HCWs bear an opportunity cost because of their inability to simultaneously work and attend school to advance their careers, unlike the many urban HCWs who are benefitting from that option. Finally, a major intangible cost that is rural HCWs usually live in isolated places, far from their family.

Among the 69 HCWs who would be eligible for remote allowance, in free listing, 83% identified a lack of it as one of their top four challenges [Figure 4], and 83% listed 'provision of remote allowances' as one of their top four needs [Figure 5]. Notably, 56% listed it as the first or second intervention that would most increase their desire to stay.

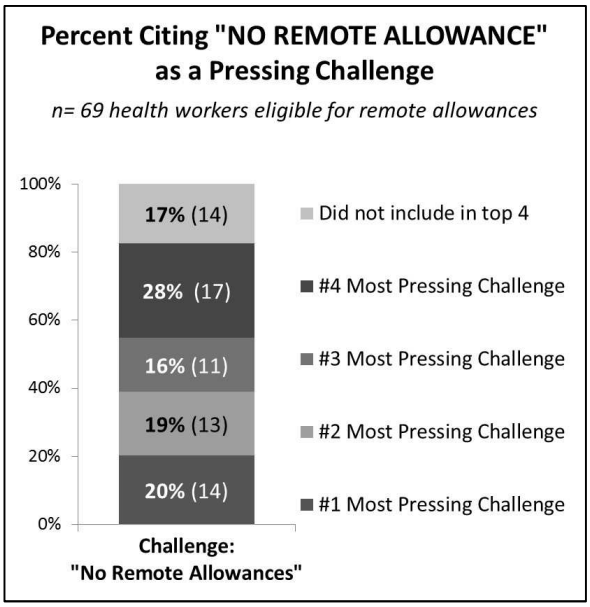

Figure 4: Remote Allowances- Challenges

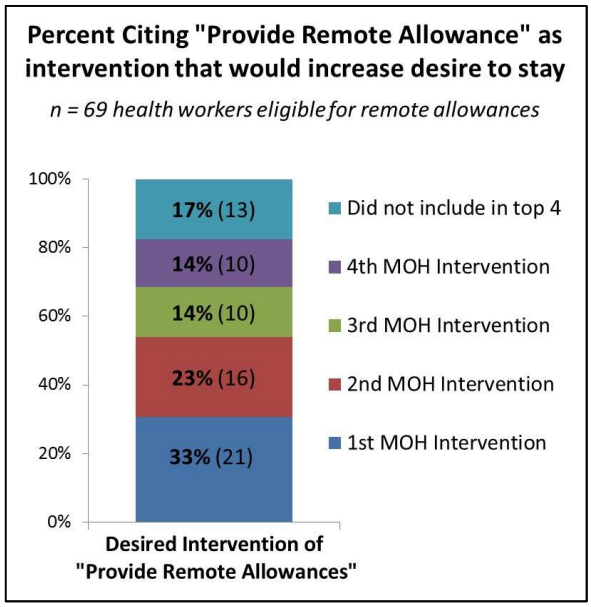

Figure 5: Remote Allowances- Interventions

The remote station allowance is often perceived by government and other stakeholders as solely an incentive. To the contrary, it is vital to compensate for the substantially higher costs associated with living in rural areas of Sierra Leone.

Driver #3: Rural health workers lack physical infrastructure, preventing them from effectively providing health services and satisfying basic personal needs

The study identified four high-priority infrastructural gaps that decrease the desirability of working at rural health posts: 1) Lack of transport means, 2) Lack of electricity in facility and living quarters, 3) Lack of access to clean drinking water, 4) Poor quality or absence of housing quarters. Combined data from the interview discussions, free-lists, and card sort brought out these gaps.

In the free-listing of immediate challenges, the 4 infrastructural gaps were among the top five challenges [Figure 6]. Similarly, these 4 types of infrastructure were among the top five interventions that would most increase a HCW's willingness to stay [Figure 7].

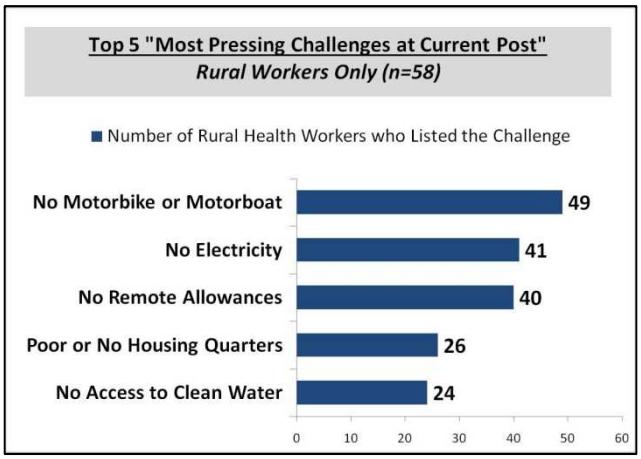

Figure 6: Top 5 Free-Listed Challenges (Rural)

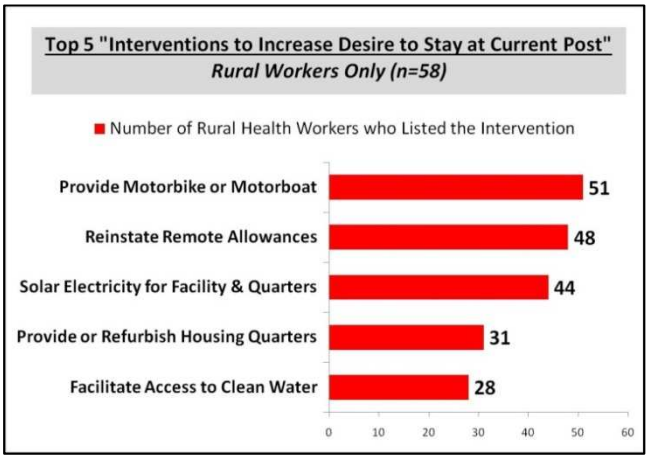

Figure 7: Top 5 Free-Listed Interventions (Rural)

The data from the card sort generally supported the 4 identified infrastructure gaps [Figure 8]. The top 6 factors affecting job satisfaction were: *1) Salary & Allowances, 2) Equipment & Medical Supplies, 3) Mobility, 4) Electricity & Water, 5) Career Development Opportunities, and 6) Housing*.

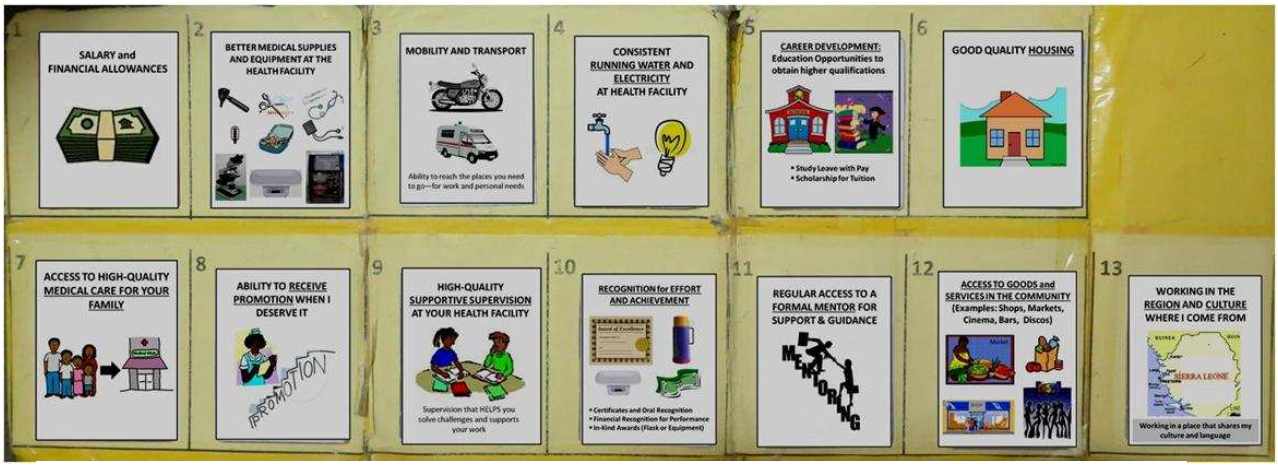

Figure 8: Average ordering of "Factors Affecting Job Satisfaction"

Appendix C provides full analyses of the card sorting, free-list, and questionnaire data.

Several other infrastructure gaps compromised primary healthcare provision and reduced job satisfaction. 34% of the 58 rural HCWs lacked functioning cold-chain vaccine refrigerators. 40% had unusable maternity beds. 66% were unable to access the free phone service to communicate with other facilities and district health teams. 28% lacked a functional blood pressure cuff and/or weighing scales. Many HCWs reporting missing other critical equipment, supplies or medications. There are not enough ambulances to ensure timely referral: on average, it would take 5.7 hours for a patient to reach the nearest hospital and 79% of rural HCWs reported that patients with severe emergencies are not able to reach the referral hospital in time. Other prominent gaps included damaged health facility infrastructure, insufficient space in the health facility, damaged emergency radios, and lack of sanitary toilets. The specific gaps above were frequently included by HCWs in their free-lists, and in the card sort, the factor of "better supplies/equipment" was the second highest priority of HCWs.

While this study focuses on 4 particular infrastructural gaps that were identified as *most* affecting the desirability of rural posts, all of the other infrastructural problems described above must be addressed simultaneously and with great urgency— they are undercutting the entire primary healthcare system, while also constraining and de-motivating the HCWs.

3A. Lack of Transportation Means in Rural Areas

Most of Sierra Leone's rural health facilities are far from the district headquarter town along narrow and rocky roads, and often separated by water. Without a motorbike, HCWs at land-based facilities must hire expensive commercial motorbikes. Without a motorboat, HCWs at water-bound facilities must first locate and pay for a dugout canoe, which can take many hours to reach the mainland; then they must they must find land transport to reach their destination.

Only 13% of the 58 rural facilities had a functional motorbike or motorboat. None of the 9 water-bound facilities had a motorboat. 17 of the 49 land facilities had motorbikes, but only 8 were working. Maintenance service plans and funding for spare parts were absent.

The lack of a motorbike or motorboat at the health facility compromises the ability of rural HCWs to perform their jobs and reduces quality of life. Rural HCWs are expected to travel to every

catchment community for monthly immunization campaigns, and to visit homes of patient defaulters. Without a motorbike, they often walk long distances:

> *"We are straining for outreaches. We walk 5 miles for outreaches. Just imagine our bodies-walking all those miles….You return with your legs all peeled. You go 5 miles, come back 5 miles, that is 10 miles in a day.*"

HCWs at water-bound facilities face even greater challenges: *"We need to be moving to these other nearby islands…we need to reach the children who badly need immunizations and malaria treatment…But without a motorboat we cannot go often, and [the children] suffer for it."*

Rural HCWs also must travel frequently to the district headquarter town for monthly meetings, submission of reports, and trainings. The journey is time-consuming and costly without a vehicle. Many HCWs have additional work responsibilities that require transport— supervision of all lower level facilities in the chiefdom, conducting local disease surveillance activities, training community health workers, and/or other community health activities. According to a rural CHO, *"I walk on my foot to supervise the Community Health Workers and lower health units. I visit them monthly. If there is a motorbike it will be easy for me, but now I must walk for 2 hours, or even 3."*

Rural HCWs need transport to reach markets to purchase food, to visit family, and for many other reasons specific to their facilities and unique circumstances. For example, there were numerous cases where rural HCWs needed to travel to another place to get clean drinking water (15 of 58 rural HCWs), travel to another place to pick up and return cold chain vaccines each week for immunizations (20/58), travel to a distant place to get cellular reception so they can call an ambulance, or transport patients in emergencies when ambulances are unavailable. According to a HCW at a water-bound facility, *"When we have mothers in an emergency, it is difficult because we don't have a boat to take them to the mainland hospital. We can't refer them in time."*

Figure 9 shows that out of 50 rural HCWs lacking a functioning motorbike or motorboat, 94% listed the 'lack of mobility' as one of their four most urgent challenges, with 32% citing it as the most urgent problem. In Figure 10, all 50 without transport listed "Provide Mobility to Rural Facilities" as one of the top four interventions that would increase their desire to stay. Over 50% listed 'provision of mobility' as either their first or second most desired intervention.

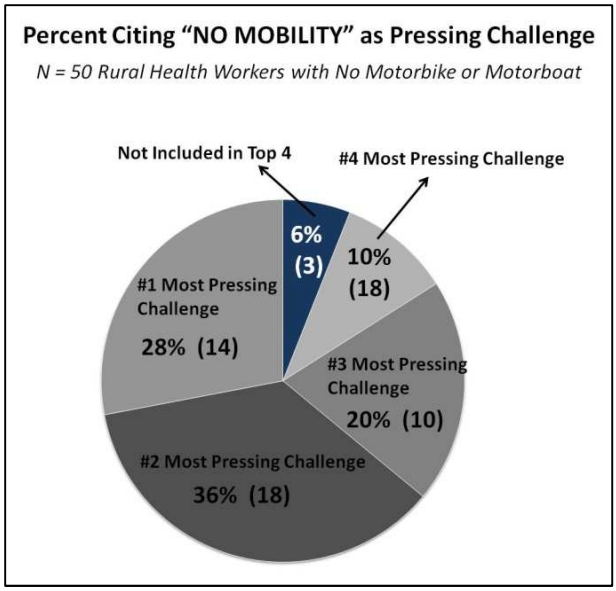

Figure 9: **'No Mobility' as a Challenge**

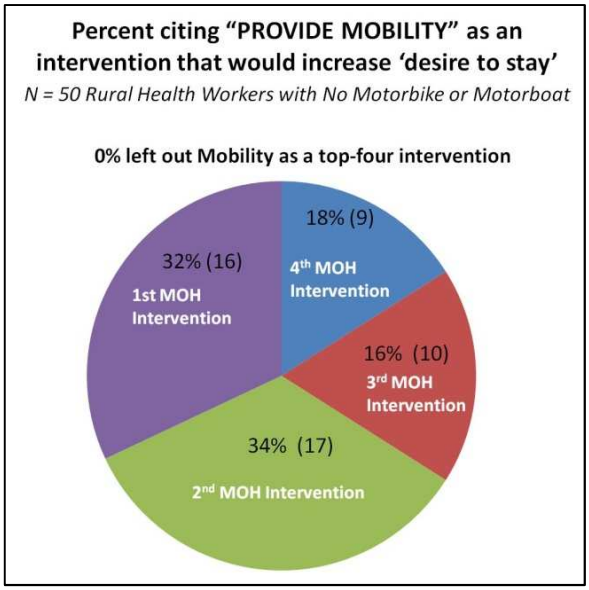

Figure 10: 'Mobility' as a Desired Intervention

3B. Lack of Electricity

Most rural health workers had no access to electricity. They were working and living in darkness, as articulated by one rural health worker:

> *"We are living in darkness, complete darkness. At night everything is black. I get emergency cases and deliveries at night. If I go outside without light, I can get bitten by the snakes we have in this place. Inside, all I have to do is sleep because of no light… What kind of life can I have?"*

Conducting maternal deliveries and other procedures at night without any light has been a strain on HCWs and may compromise the quality of care. As shown in Figure 11, only 36% of rural workers reported having any kind of electricity at their facility.

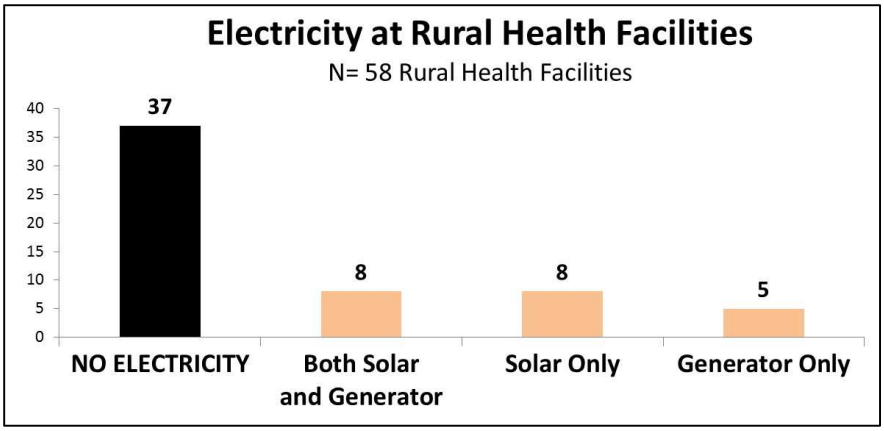

Figure 11: Electricity Coverage among Rural Facilities

Most rural HCWs live in the housing quarters adjacent to the health facility building. Out of 49 rural workers with housing quarters, only 5 had electricity in their homes. Lack of funding for spare parts and maintenance of solar devices and generators was also a persistent problem.

With no electrical outlets at the facility, most rural HCWs must charge their mobile phones in the village center. In more remote places, the HCWs must send their phone to another village and get it back on another day: *"I have to send my phone to another town for charging. Sometimes it will take 2 or 3 days for the phone to come back. Sometimes it takes 1 week."*

Electricity at work and home is a high priority for rural HCWs. Out of the 37 rural HCWs without electricity, 95% listed 'no electricity' as one of their four most pressing challenges, and 92% listed 'provision of electricity' as one of the top four interventions that would increase desire to stay.

Rural HCWs who had received solar devices for light and charging of phones indicated that it was a positive contributor to their quality of life. HCWs preferred solar panels and solar mobile devices rather than generators. District officials and NGO managers cited that it would be more feasible to provide solar devices than generators on a large scale to rural facilities. They noted that generators have been far more costly, break down frequently, and require too much fuel.

3C. Lack of Clean Drinking Water

Among rural HCWs, 47% reported not having clean year-round drinking water in their immediate community. Either the community water source was contaminated, or there was no functioning community water source, or the community water well was not deep enough.

Lack of clean drinking water causes hardship. "*Water is life. But here we are suffering of no water. It is ruining our happiness."* Table 6 shows the sources of drinking water for the 27 workers who lacked clean water in their communities.

Source of Drinking Water for Rural Health Workers without a Clean Water Source		
	Number	%
Travel to another place to purchase water	**16**	**59%**
Treat the water from the contaminated community source	**4**	**15%**
Drink the water from the contaminated community source	**7**	**26%**
Total Rural Health Workers Lacking Year-Round Clean Drinking Water	27	

Table 6: Sources of Drinking Water for Rural Health Workers

Traveling to another community and purchasing 'drinking water packets' has time and financial costs: *"To get drinking water for us for one week, I must go all the way by commercial bike to [next village] and then take a ferry across the river to reach the town. It can cost 75,000 Leones (~17 USD) each way"*. The HCWs who drink the contaminated community water are exposed to serious health risks: *"There is no hand pump and the water well is unprotected. The water is dirty. But I can't afford to get water from elsewhere. It is only that I drink it and hope my immunity can clean it."*

Many rural HCWs linked the drinking of contaminated water to poor health outcomes in their communities. According to one midwife, *"We are finding that more and more children are having diarrhea and vomiting these days. It is because of the water being dirty, but they are drinking it [because] that is all they have."* In addition to increasing morbidity, the lack of clean water can prevent basic sanitation and thus limit HCWs from doing their jobs effectively:

> "*Tonight if I have to do a delivery, where are they expecting me to get water to clean the patient? The only way is for someone to walk to the nearest village Yepadu, which is 1 mile away…Without water, how can I wash my hands for germs and keep the environment clean?"*

3D. Lack of Adequate Housing Quarters

Both urban and rural HCWs cited housing as a challenge. Based on a ratings system used in this study, 58 of the 90 HCWs had either poor or no housing quarters. 80% of them listed provision or refurbishment of housing quarters as one of the top four interventions that would increase their desire to stay.

Among all rural HCWs, 29% did not have any staff quarters at the health facility. In these cases, the community often provided housing, but as explained by a district official, this was inadequate: *"We have so many more staff than housing quarters in the district. Workers are given a shared room in the community that is small and uncomfortable. No clean toilet, poor sanitation, no privacy. They are miserable."* Among the rural HCWs with housing quarters at their facility, 48% resided in quarters which needed substantial rehabilitation. A rural HCW described her plight:

> *"The ceiling is falling down. When the rain comes, the water comes in and the floor is flooded… The floor has potholes. There are damages everywhere. It is not conducive to living. I don't want to stay in this place one more day if I must live in this house."*

In some cases, the rural HCWs lived in rooms within the health facility itself, which gave them little space and privacy, and increased risk of infection from patients. On an ocean island where cholera is endemic and clean water is scarce, a nurse described her situation:

> *"We are sharing rooms with patients with cholera. And we are very worried every minute…We should not be dwelling here, sharing the same place with cholera [infected] people and sharing the same water."*

Among the 29 urban/peri-urban HCWs working at the hospitals, only 34% were living in government housing quarters. Given high rent costs for private accommodation in towns, most urban HCWs could only afford substandard housing.

The HCW composite salary contains a small housing allowance, but according to payroll data, it is a miniscule percentage of typical urban and rural rent costs.[25]

Driver #4: Rural HCWs lack adequate clinical supervision, recognition for their achievements, and professional support networks.

Rural HCWs represent the front line— and often the only line— of primary healthcare in rural communities. They often fight through immense adversity to do their jobs well and maintain a decent quality of life. According to Sierra Leone's rural HCWs, strong clinical supervision, recognition for distinctive achievement, and peer support systems could help them overcome the professional and personal challenges they face. However, clinical supervision, recognition, and peer support networks are inadequate, which has contributed to their overall dissatisfaction.

4A. Inadequate clinical supervision of Community Health Officers (CHOs)

HCWs require routine, robust clinical supervision and mentorship:

> *"Good supervision keeps me on my toes and improves [my] work… It is not always that we are doing the right things. But if we are getting on-the-job training, like when they come to supervise us, we will be able to correct our weaknesses. The patients will benefit."*

However, 49% of rural HCWs indicated that they are receiving suboptimal or poor 'Supportive Supervision'. Among rural HCWs, the average rating for the Likert statement "I receive effective Supportive Supervision from my District" was 3.31.

Rural Community Health Officers (CHOs) have not been receiving adequate *clinical* supervision, mentorship, and capacity building from the District Health Management Team (DHMT). This has a trickle-down effect because CHOs are charged with providing supervision to the HCWs at all the lower level facilities in their chiefdom.

The only member of the DHMT with the *clinical* experience and qualifications necessary to mentor CHOs in clinical case management is the District Medical Officer (DMO), but he does not have the time to conduct supervision visits. As a result, the CHOs often receive supportive supervision visits from other non-clinical DHMT members, such as the Monitoring and Evaluation Officers, Malaria Focal Person, Transport Officer, etc. As one CHO explained:

> *"We have clinical knowledge over what we are doing more than the [DHMT] supervisors who come. These are guys with only public health background, and this is clinical work. When he comes, your knowledge is above him. He cannot supervise you on the clinical aspect."*

Another CHO commented: *"The person they send for the supervision is not able to supervise and teach me in clinical cases. Except for the DMO, the expertise of the DHMT supervisors is in public health and not much clinical. A doctor or very experienced CHO would help improve my patient care."* The lack of adequate clinical support may erode the confidence of CHOs.

Without strong clinical oversight, it is difficult to ensure that CHOs at rural facilities are clinically managing cases correctly. Likewise, without strong on-the-job clinical mentorship, it is difficult to build the clinical capacity of CHOs. Given their roles as clinical supervisors and mentors of lower level HCWs in their chiefdom, it is critical that the CHOs have mastery of their craft.

The DHMTs do not have enough supervisors with sufficient clinical experience to provide high-quality clinical mentorship. The "National Scheme of Service" includes the position of Principal CHO, which requires a Masters Degree plus several years of experience working.[26] However, these posts do not yet exist in practice. The absence of a 'Principal CHO' within each DHMT has been preventing optimal clinical supervision of rural CHOs, and by extension all the other rural HCWs.

4B. Inadequate recognition for achievement and effort

Sierra Leone's HCWs are motivated by competition for awards that recognize their effort and performance. Interviewed HCWs explained that merit-based awards would provide validation for their efforts and inspire them to perform better:

> *"If you give an award to a health worker, you are empowering that person and encouraging her to perform even more for Sierra Leone. It will push everyone else to do more so that they will receive the same [award] in the next opportunity."*

A system that officially recognizes HCWs would tell them that the government is noticing and appreciating their work, which may increase happiness and satisfaction. One CHO noted: *"If we had a way for being recognized by [Ministry of Health] for working 12 hours a day under these hard circumstances, I would be so energized to work even 14 hours."*

Awards were viewed as a means to access and obtain career advancement opportunities, which in of itself is a predictor of job satisfaction and retention. A rural HCW explained: *"If I am*

given an official award for doing something to distinguish [myself], it will help facilitate opportunities. It can open doors for me to get scholarships for studies or a higher position."

The majority of HCWs reported they and their colleagues are *not* being adequately recognized: 76% of interviewed HCWs indicated that they disagree with the Likert statement "I receive recognition from the government for doing good work". One reason is the lack of systems to publicly and officially recognize HCWs for distinctive, exceptional performance. Overall, only 20 HCWs reported participation in a motivating recognition system within the past three years. Recognition was correlated with job satisfaction among interviewed HCWs, based on analysis of Likert rating data: 64% of HCWs reporting access to recognition opportunities had good job satisfaction compared to 28% of those without (p=.044).

Based on key informant discussions, there is no standard government-led awards system that recognizes HCW performance in a way that motivates them. Performance-Based Financing (PBF), which gives HCWs funds every quarter based on evaluation of several quantitative metrics (e.g. number of Partographs), was not considered by interviewed HCWs as a sufficient form of recognition. Likewise, the standard yearly Individual Performance Appraisal System (IPAS) was not considered by HCWs as a mechanism that recognizes instances of exceptional performance.

The current ad hoc award systems are non-recurring and only take place where NGOs are working. All of them lack a mechanism for the commendation to go into the HCWs' personnel record, preventing the achievement from aiding the HCWs in achieving their career aspirations. To improve job satisfaction, HCWs urged the creation of recognition systems to reward performance that is distinctive relative to peers, and link the award to the process for promotion and scholarships:

> *"I would like to be awarded [a] certificate when I perform very well in providing medical care…If that award goes in my [personnel] file, it would make a big difference. In case of any higher posting or scholarships, it will increase my chances to be recommended."*

Lack of funding was frequently cited by key informants as the barrier for the absence or discontinuation of award systems. However, interviewed HCWs indicated that they care about the substance of an award far more than its monetary value. Many HCWs cited that a certificate alone would be motivating enough, especially if it could be placed in their permanent employment record.

4C. Poor support networks among rural health workers

Primary HCWs in rural Sierra Leone are geographically isolated. In addition, many live in poor conditions without clean drinking water and electricity, work with insufficient infrastructure, and manage excessive workloads. To deal with and overcome these challenges, HCWs rely on support from their colleagues. In rural areas, this support only occurs if there is an established network for HCWs to participate in.

HCWs explained that coming together enables them to provide one another with fellowship and camaraderie, emotional support, financial assistance in times of hardship, and clinical advice. It also promotes sharing of information, creates a forum for generation of new ideas, and strengthens their ability to advocate for their needs to the government. Support networks foster unity and companionship, as explained by a rural HCW currently in a group:

> *"We need to come together so that we share ideas together, we talk about our constraints together, we explain confusing things together, and we chat. A support group reduces stresses from our work and takes away the loneliness."*

Most HCW support groups had a communal fund known as 'Osusu'. Thus, support groups provide an organized mechanism for colleagues to give financial assistance to a HCW who is bereaving or ill:

> *"If a colleague has a problem like sickness or needs help with funeral arrangements or a wedding, only a few people may come individually and try to give something. But when there is a support group, it is easy for everyone to contribute and the [colleague] is always taken care of."*

Another health worker highlighted how peer support can improve clinical case management: *"Every day we get new challenging cases. Even if you went through training, when you meet as a team, maybe there is someone else who has experienced that [kind of] patient. We learn from each other."*

Many HCWs are not currently receiving support from their peers through participation in a group or association. Overall, the average rating for the Likert statement "I am involved in a group of health workers which provides me with good support" was only 2.43. Among the 90 HCWs, only 28 were currently participating in and benefitting from an organized 'support group' of their peers. There was a correlation between level of peer support and job satisfaction, based on analysis of Likert

ratings: 64% of those receiving 'good peer support' indicated good job satisfaction, compared to only 27% among those receiving 'poor peer support' (p=.002).

Current rural support networks are generally of two types— cadre associations and chiefdom-level groups. Different cadres of health workers have their own national associations, such as the Sierra Leone Association of Community Health Officers (SLACHO) or Sierra Leone Nurses Association (SLNA). However, these only provide impact to front-line HCWs if the Association has an active branch with regular meetings in their district. Most interviewed HCWs were not active participants because the district branch was not very active.

Chiefdom-level support groups, which comprise all HCWs in the chiefdom, were able to provide more frequent and substantive support to HCWs than the national cadre associations. They were smaller and more intimate, the HCWs already knew each other, and it was more feasible to attend meetings. One HCW described the positive impact of a chiefdom-level support group:

> *"The [support] group was where we met old friends, came together to discuss, and made new friends. We had food and drinks to have a fun time. It was helping us solve our problems and correct our mistakes. Now the group is not there. So we cannot share ideas, we are not thinking we are all doing same job, and new staff [in the chiefdom] are not acclimated to us quickly."*

According to key informants, an active 'support group' in every chiefdom is one of the few ways to provide the support system that rural HCWs critically need to overcome their challenges, gain a respite from isolation and loneliness, and ultimately experience a better quality of life.

Driver #5: Higher Level Health System Barriers

There are many factors related to the health system as a whole that indirectly contribute to job dissatisfaction among rural HCWs. This study identified four barriers in particular relating to the broader health system: 1) Centralization of human resource management, 2) Lack of a system for determining health worker deployment based on demand for services, 3) Inability of current data systems to produce national retention rates, 4) Lack of a formal "Bonding System" to ensure that the country's most remote posts are filled.

5A. Centralization of Human Resources for Health (HRH) administrative management

Management of health services has been decentralized to the district level over the past several years, with the exception of key elements of human resources management. As a result, upcountry HCWs must go to the MOHS Human Resources for Health (HRH) Directorate in Freetown to address most human resource issues. These include applying for annual vacation leave, applying for paid study leave, attempting to resolve issues like not being absorbed onto the payroll or not being promoted in salary grade, etc. There is no "HRH Officer" within the District Health Management Team (DHMT) who is empowered to address these issues.

The centralized management of human resource issues has several detrimental effects that are contributing to dissatisfaction of HCWs. It is expensive for HCWs to go to Freetown to address each issue. Trips to Freetown take HCWs away from their health facility, which compromises health services. Some rural HCWs reported that they were unable to go even once to Freetown to address their issue because there was no one else to substitute for them. Further, the centralized system places an excessive workload on the small HRH Directorate. The few technical officers must spend time signing Annual Leave Forms and other forms for thousands of HCWs; at the same time they are charged with addressing every HCW's individual administrative issue(s). This overload is likely the main reason why many HCWs' salary-related problems have not been rectified: due to the high volume of queries received by the MOHS HRH Directorate, some HCWs' issues likely get lost, and it takes a longer time before each issue can be addressed.

After dedicating time and financial resources to come to Freetown, the interviewed HCWs became discouraged and frustrated when their issues were not resolved. After a few additional attempts, most HCWs gave up. Several HCWs urged that management of human resources be decentralized. A HCW who has not yet been absorbed onto the national payroll opined, *"Let the government decentralize human resources to each region at least, and they will directly know what constraints we are facing and can fix them more quickly."*

5B. 'Too few here, too many there': health workers are not distributed based on demand for services at each facility

The government does not have a systematic way of knowing how many HCWs of each cadre are needed at each facility based on demand for services. HCWs are currently deployed according to fixed 'staffing ratios'. For example, one particular facility type will always have 3 nurses, 2 clinical officers, 2 nursing aides, etc. As a result of this deployment system, many facilities have either too few or too many HCWs.

Table 7 shows how health workers in this study rated their workload ('too much', 'too little', or 'the correct amount given their time'). Overall, 73% of HCWs expressed that their workload was either too much or too little, whereas 27% indicated that the workload was the correct amount. Among rural HCWs, 17% reported ‘too little workload’ and 59% reported ‘too much workload’.

Workload of Study Participants		
All Health Workers (N=90)		
	Number	Percent
Correct Workload	**24**	**27%**
Too Much or Too Little Workload	**66**	**73%**
Total	90	
Rural Health Workers (N=58)		
	Number	Percent
Correct Workload	**14**	**24%**
Too Much Work	**34**	**59%**
Too Little Work	**10**	**17%**
Total	58	

Table 7: Workload at the Health Facility

Given the shortfall of rural health workers, it is not surprising that many rural HCWs felt over-worked. However, the reporting of an excessively low workload by some rural HCWs suggests that mal-distribution is a facility-to-facility problem, and not just urban versus rural.

Excessively high and low workloads both contributed to poor job satisfaction. According to one of the rural HCWs who reported a low workload, *"There are few patients here but we have too much staff. I am here wasting my abilities, not gaining experience or practicing."* A HCW citing excessive workload explained: *"This is a referral facility and has large catchment. I am the only nurse, and I am on duty 24 hours. We should be having three other staff to handle this volume of patients. It is causing me to burn out."* Mal-distribution also results in poor allocation of limited government resources. Under-utilization (low workload) causes wastage of manpower, whereas over-utilization (excessive workload) can reduce productivity and quality of care.

Continued reliance on outdated and fixed 'staffing ratios' to inform deployment will result in HCWs continuing to report that their workload is unbalanced. "Health workforce optimization analysis" is an approach that numerous countries have successfully used to scientifically determine the optimal number and cadre of HCWs required at each facility based on demand for health services, as measured by service utilization rates at each facility.[27,28] To-date, Sierra Leone has not conducted any kind of “health workforce optimization analysis.”

5C. Data systems are not equipped to estimate national HCW retention rates

In order to improve retention, it is critical to know the actual rates of retention for all the country's HCWs— the percent of HCWs who left their post, and the amount of time working before they left. To improve workforce distribution, it is vital to know the percent of HCWs who did not attend the facilities they were posted to, and average lag times between posting and start of work.

The current HRH data systems are unable to capture retention rates, deployment percentages, and deployment lag times. The information on posting, deployment/registration, transfers, and departures are in databases which are not linked. The MOHS has developed a new Human Resource Information System (HRIS) called "iHRIS", and is in the final stages of inputting all the country's

HCWs who are currently on the payroll. However, the "iHRIS" will also be unable to measure retention rates or deployment lag times.

Knowing the country's HCW deployment and retention challenges is necessary to inform decision-making about the strategies to improve distribution and retention, and to measure the impact of efforts to increase retention. For example, routine analysis of retention data might reveal cadre, regional, geographic or facility factors influencing retention. Without these data, policymakers are left to speculate about retention challenges, and resultant policy decisions are less likely to succeed.

5D. A weak 'Bonding System' enables health workers to refuse deployment to remote posts

Sierra Leone's many *remote* rural health facilities are currently not attractive options to HCWs for the numerous reasons described throughout this study. The 'MOHS Postings Committee' deploys HCWs graduating from pre-service or upgrading training institutions to the needy regions, but the enforcement mechanisms are weak. As a result, HCWs refuse remote rural posts and often find a way to get posted somewhere more desirable to them, therefore increasing mal-distribution. As one MOHS official explained, *"Even more than retention, the biggest challenge is getting new health workers to go to the remote facilities we need them at. They refuse to go. Just this week, two new health workers are refusing to go to [an outlying district]…we will have to find a compromise with them".* An official from that same outlying district articulated the impact of this challenge at the ground level:

> *"At so many facilities, there are fewer staff than we need because people won't come to the far distant parts in the district. When you have one staff at the facility, what happens when he needs to go for a training workshop? The [MOHS] needs to implement a policy so staff must go the place they are posted and must stay there for two years as a condition of employment."*

In contrast to many countries, Sierra Leone does not have a formal and effective "rural bonding" scheme, which would require that newly trained HCWs who received a government scholarship complete a period of obligatory service in remote areas (usually ranging from 1 to 3 years), after which they have the option to leave for a different posting.

For health workers trained within Sierra Leone, the current MOHS posting system acts as a quasi ‘bonding mechanism’ because HCWs don't choose where they are deployed. However, Sierra Leone's posting system is not a true 'Bonding System' because the period of deployment to rural areas is indefinite— HCWs lack the option to leave a rural area after two or three years. A finite compulsory period is one of the key elements of an effective 'Bonding System': the ability of the HCWs to 'opt-out' after the required period of service is their incentive to comply with the compulsory rural service. The hope is that the HCWs will want to continue working in rural areas after the compulsory period elapses. Without a provision for HCWs to opt-out if they want, new graduates are unlikely to want to comply with indefinite posting to remote areas.[29] This may explain why Sierra Leone's HCWs are evading remote postings.

Thailand's bonding system has improved urban-rural workforce distribution, and South Africa's bonding system has reduced patient wait times and enabled more outreaches because of the increased staffing.[30] If Sierra Leone implemented a formal Bonding System for government-sponsored trainees focused on its remote rural posts— whereby HCWs trained with government funds are required to work at remote posts for 2-3 years before having the opportunity to opt-out— it could help alleviate the shortage in the most remote rural areas. An effective 'remote rural' Bonding System may incentivize HCWs to take up their remote rural posting assignments, and ensure that remote areas always have sufficient HCW coverage.

Discussion

The study results showed that many primary HCWs in rural Sierra Leone are dissatisfied with their jobs, and want to relocate to urban facilities because of the better conditions and opportunities associated with living and working in urban areas. We identified the main causes of poor job satisfaction among HCWs, which included poor knowledge about entitlements and policies, not being remunerated in accordance with stated policies, lack of infrastructure at health facilities, inadequate clinical supervision, support, and recognition, and several higher level system issues.

Impact of Poor Job Satisfaction on Health Workforce Outcomes

Poor rural job satisfaction in Sierra Leone ultimately leads to poor rural distribution, retention and productivity—thus, poor job satisfaction is a critical mediating factor [Figure 12].

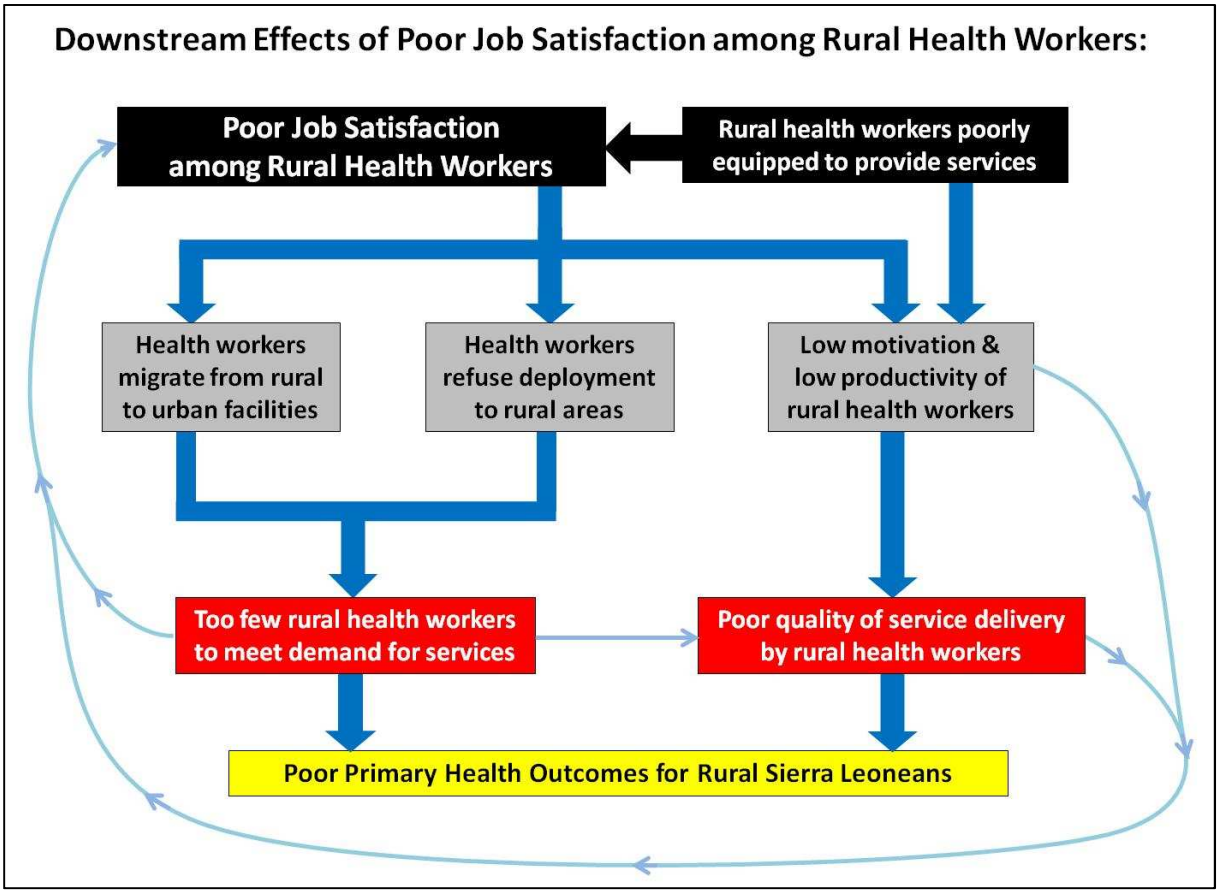

Figure 12: Links between Job Satisfaction and Health Workforce Outcomes

Poor job satisfaction among rural HCWs causes poor rural retention— HCWs migrate to urban areas if they can. Our observation of poor job satisfaction leading to HCW movement from rural to urban areas is consistent with the global literature on workforce retention.[13] Poor job satisfaction also causes newly trained HCWs to refuse deployments to rural areas, exacerbating urban-rural mal-distribution of HCWs and leaving rural centers heavily understaffed.

The combination of rural HCW attrition and inequitable urban-rural distribution results in too few HCWs to meet the demand for health services in rural areas. The shortage of rural HCWs is a major factor contributing to poor primary health outcomes globally.[11,31] The rural HCW shortage further reduces job satisfaction of the HCWs remaining in those remote areas because of the increased workload and increased difficulty in delivering health services, and in turn this leads to an even greater outflow of rural HCWs.[31]

Although most rural HCWs in Sierra Leone were dissatisfied, many had no option other than to stay. These unhappy health workers are likely to have low motivation and productivity.[12,13,32] An unmotivated and unproductive health workforce compromises the quality of health service delivery.[33,34,35,36] Poor quality of service delivery translates to negative healthcare outcomes.[13]

The health workforce problems in rural Sierra Leone stem not just from insufficient numbers of rural HCWs, but also the poor quality of care provided by the dissatisfied and ill-equipped rural HCWs who are remaining at their posts. Fortunately, the government can simultaneously increase rural manpower *and* quality of service delivery by making it more attractive for health workers to deploy to and stay at rural facilities, while creating and maintaining conditions that will motivate them and maximize their productivity. To make rural posts more attractive for HCWs, the government must address the drivers of poor job satisfaction.

Recommendations to Improve Health Workforce Outcomes

This study has generated 18 actionable recommendations to improve health workforce distribution, retention, and productivity in Sierra Leone [Table 8]. The recommendations address the drivers of poor rural job satisfaction.

Recommendations to Improve Job Satisfaction and HRH Outcomes			
Category 1: Proactively communicate accurate information to health workers		Category 2: Remunerate health workers in accordance with stated policies	
1A	Provide a formal **"Monthly HRH Update"** from the government to the health workers	2A	**Absorb all health workers onto the national payroll**
1B	Provide **Full Pay Statements** Disaggregating all Allowances and Withholdings	2B	**Promote all eligible health workers to the correct salary grade**
1C	Provide **"Induction" and the Civil Service Code** to all new and current health workers	2C	Provide **"Remote Station Allowances"** to all rural health workers
1D	Create a **"MOHS HRH Policies, Procedures, and Regulations"** document (companion document to the Civil Service Code)		
Category 3: Provide physical infrastructure to rural facilities so they can satisfy basic personal needs and provide effective health services		Category 4: Improve quality of clinical supervision and peer support, and provide adequate recognition for achievement	
3A	Provide a **motorbike or motorboat** to each rural health facility	4A	Post **"Principal Community Health Officers" in each district** to clinically supervise CHOs
3B	Provide **solar electricity** to rural health facilities, including housing quarters	4B	Ensure that all health workers have access to **formal peer support groups** at chiefdom level
3C	Ensure that all health workers have year-round and **clean drinking water**	4C	**Create a standard and competitive "awards system"** that recognizes health workers for outstanding and distinctive performance
3D	**Construct and repair staff housing quarters**, and increase the "rent allowance"		
Category 5: Strengthen higher level systems that can improve job satisfaction and retention			
5A	Decentralize all Human Resource Management to the District Level by **posting " HRH Officers" in each district** and empowering them to manage the problems of individual health workers		
5B	Undertake a 'Health Workforce Optimization Project" to **determine staffing needs based on the demand for services** at each facility		
5C	**Revise the MOHS human resource data systems** to enable routine measurement and analysis of national retention dates and deployment lag times		
5D	**Design and implement a formal "Remote Rural Bonding System"** for health workers trained in Sierra Leone using government funds		

Table 8: Study Recommendations

The recommendations range from addressing underlying 'system' challenges *(e.g. improving systems for regular communication of accurate policy information)* to the provision of certain

infrastructure *(e.g. motorbikes, solar electricity, water)*. Many of the recommended interventions would simultaneously improve both health worker job satisfaction and capacity to deliver health services. Cost is always an important consideration: while some recommendations require substantial up-front financial investment and ongoing running costs, most recommendations are low cost, including many of the ones with the highest impact potential.

Numerous recommended interventions have been implemented at some health facilities by NGOs, donors, and/or government— including provision of motorbikes, electricity, and better housing. However, provision of infrastructure to health facilities is currently ad hoc and uncoordinated, dependent on external funds, and implemented only where NGOs are conducting projects related to primary healthcare. Often, they only last until the NGO's project concludes. As a result, facility coverage is low, and most of the infrastructure breaks down after the NGO's project expires. If the government establishes provision of infrastructure— such as electricity and motorbikes— at every facility as a national health priority, it would be easier to mobilize resources for nationwide facility coverage, as well as ensure that the resources currently being spent produce sustained impact.

To maximize the utility of this study's findings and recommendations, the MOHS should task a technical working group (e.g. a sub-committee of the national HRH Technical Working Group) with reviewing the study findings, prioritizing recommendations, and identifying how the study can best inform policies and activities to improve workforce distribution and retention. For example, some recommendations could be incorporated into activities within the 'MOHS HRH Strategic Plan'.

Conclusion

Sierra Leone's recent Ebola outbreak in 2014 spiraled out of control in part because the country's fragile health system broke down. Shortages of health workers in rural areas and widespread attrition made it almost impossible to slow the spread of Ebola, let alone continue the provision of primary healthcare services to the population.

Workforce-related factors that have been chronically eroding primary healthcare in Sierra Leone contributed to poor control of the Ebola epidemic. For example, poor systems for communication of information from the government to health workers, failure to provide promised remuneration such as risk allowances in the early phase, lack of essential infrastructure and support systems, and over-centralized human resource administration all contributed. The failure of the health system to manage and contain the Ebola epidemic in its early stages underscores the urgent need to focus effort and resources on improving the foundation of the healthcare system, starting with the health workforce and primary healthcare service delivery.

Investment to improve Sierra Leone's health workforce not only improves health workforce outcomes, but can scale the impact of government and donor financial expenditure on health. For example, payment of health worker salaries, purchase of health commodities, implementation of immunization and malaria prevention campaigns, and other health expenditures will have greater impact with a well-distributed and well-equipped workforce.

The health workforce is the underpinning of the health system, and it must be strengthened if Sierra Leone's national primary healthcare outcomes are to improve.

APPENDIX A: Sierra Leone's Health System

Administrative Districts and Demographics

The total population of Sierra Leone is an estimated 6,092,075.[37] The country is divided into 13 administrative districts [Figure 13]. Each district contains 13-15 chiefdoms, which are the administrative subdivisions. Public health facilities provide 70% of the services in the country, while private and mission facilities provide the remaining 30%.[8]

Figure 13: Map of Sierra Leone's Districts

Health Facility Levels

Sierra Leone's public health system is comprised of five facility levels, as shown in Figure 14. Health facilities are also classified as either a Hospital or a Peripheral Health Unit (PHU). According to 2011 data, Sierra Leone has 1,047 health facilities, with most at the lower levels.[38]

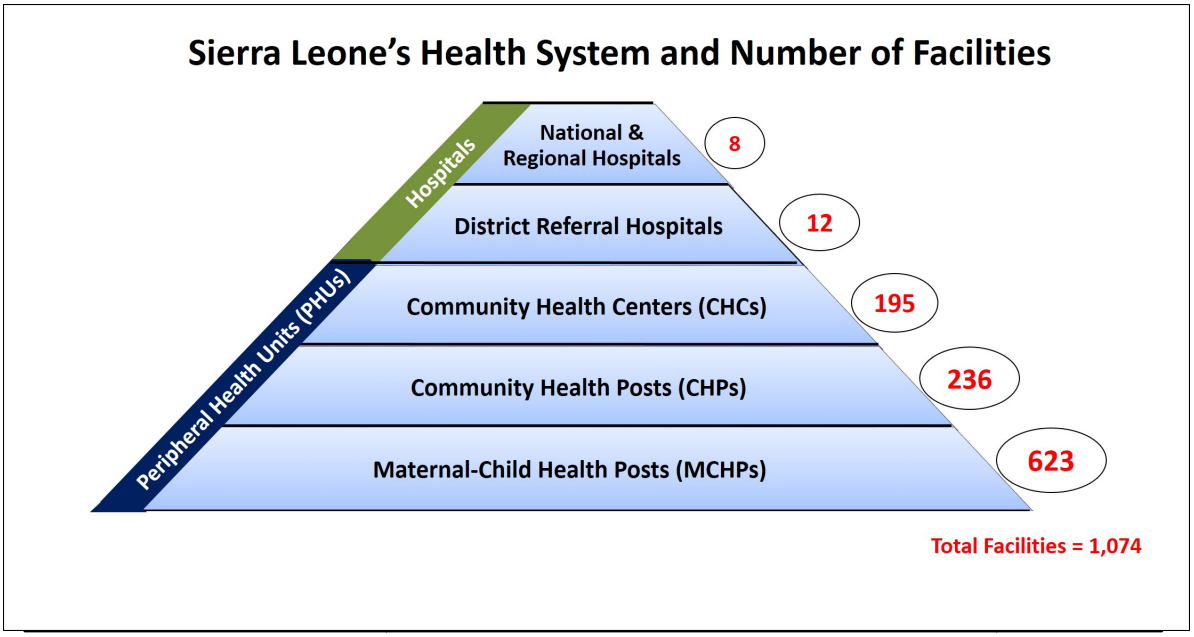

Figure 14: Sierra Leone's Health System

The two national referral hospitals offering tertiary care are located in Freetown, making it difficult for patients in outlying districts to access needed care for complex medical issues. Each of the upcountry 12 districts has one District Referral Hospital, which provides secondary healthcare for the entire district, as well as primary healthcare services for its immediate catchment. Each district has many PHUs which provide the primary care, thus serving as the entry point to the health system for the majority rural population.[39] In order of decreasing level, the PHUs consist of Community Health Centers (CHCs), Community Health Posts (CHPs), and Maternal Child Health Posts (MCHPs). The PHUs refer complex cases to the District Referral Hospital.

Cadres of Primary Healthcare Workers in Sierra Leone

Primary healthcare is provided by Maternal-Child Health Aides (MCHAs), Community Health Assistants (CHAs), State-Enrolled Community Health Nurses (SECHNs), Community Health Officers (CHOs), Nursing Aides (NAs), and State-Registered Nurses (SRNs). A PHU is classified based on the services it provides, which depends on the specific mix of cadres working at the facility.

The primary healthcare system is managed by the District Health Management Team (DHMT), which is led by the District Medical Officer (DMO).[39]

APPENDIX B: Questionnaire Data Tool

Participant Code Number: _____-_____ **Date of Interview: _____/ _____/ ____**

Interviewer Name(s): _____

Part 1: Cart Sort Activity

Instructions: We would like to start with an activity. Here are several cards. Each one has a different thing that might affect a health worker's satisfaction with his or her job. Can you organize the cards in order of which things are most important to your job satisfaction as a health worker? Described another way, can you put them in the order of which things most affect whether you would want to stay or leave a health facility?

Record the Order of Cards

1

2

3

4

5

6

7

8

9

10

11

12

13

Part 2: Likert Questionnaire

PART 1: CURRENT JOB SATISFACTION: **The following questions are about your job satisfaction and working conditions <u>at your current post</u>. Please circle the number that best fits your level of agreement with each statement, using a 5-point scale.**

5 =strongly agree 4=agree 3=neither agree or disagree 2=disagree 1=strongly disagree

#	**To what extent do you agree with the following statements?**	5 = Strongly Agree	4 = Somewhat Agree	3 = Neither Agree or Disagree	2 = Somewhat Disagree	1 = Strongly disagree
1	I am satisfied with my job.	5	4	3	2	1
2	Based on my job satisfaction, I would like to stay at this posting for more than 1 year	5	4	3	2	1
	COMMUNITY INTEGRATION & SOCIAL ACCEPTANCE					
3	I am well respected and appreciated by members of the community where I live	5	4	3	2	1
4	I can speak the same language as the community where I live	5	4	3	2	1
5	Members of this community understand my culture. and I understand the culture of this community	5	4	3	2	1
6	I feel lonely living in this community	5	4	3	2	1
7	I participate regularly in social activities in the community	5	4	3	2	1
8	I have been disrespected or treated badly by patients, their family, or community members	5	4	3	2	1
	WORK and ORGANIZATIONAL CULTURE	**5 = Strongly Agree**	**4 = Somewhat Agree**	**3= Neither Agree or Disagree**	**2 = Somewhat Disagree**	**1 = Strongly disagree**
9	The staff at the workplace are usually happy and have good morale	5	4	3	2	1
10	Colleagues and supervisors respect my opinion at work	5	4	3	2	1
11	I feel supported by my supervisor. He/she treats me well. He/she is available when I need help.	5	4	3	2	1
	RECOGNITION, SUPPORT, and MENTORSHIP	**5 = Strongly Agree**	**4 = Somewhat Agree**	**3= Neither Agree or Disagree**	**2 = Somewhat Disagree**	**1 = Strongly disagree**
12	I receive recognition from my district or the Ministry of Health for doing good work	5	4	3	2	1

13	I am involved in a group of fellow health workers who *regularly* provide support to each other	5	4	3	2	1
14	I have a mentor who supports me with professional and/or personal guidance, and I can readily reach him/her whenever I am facing challenges	5	4	3	2	1
15	I receive effective supportive supervision from my District or the Ministry of Health	5	4	3	2	1
	PROFESSIONAL and CAREER DEVELOPMENT	**5 = Strongly Agree**	**4 = Somewhat Agree**	**3= Neither Agree or Disagree**	**2 = Somewhat Disagree**	**1 = Strongly disagree**
16	I receive enough in-service training opportunities, to refresh and learn new skills	5	4	3	2	1
17	There are opportunities for career advancement and promotion, and I am able to use them.	5	4	3	2	1
	WORKING CONDITIONS	**5 = Strongly Agree**	**4 = Somewhat Agree**	**3= Neither Agree or Disagree**	**2 = Somewhat Disagree**	**1 = Strongly disagree**
18	The workload is too much for me.	5	4	3	2	1
19	The workload is too little for me	5	4	3	2	1
20	When I request leave, I am granted the request and provided with 'leave allowance'	5	4	3	2	1
21	I have the supplies, equipment, and drugs I need to do my job well and safely	5	4	3	2	1
22	At work, I consistently have clean water and electricity	5	4	3	2	1
	LIVING CONDITIONS and ACCESS TO GOODS/SERVICES	**5 = Strongly Agree**	**4 = Somewhat Agree**	**3= Neither Agree or Disagree**	**2 = Somewhat Disagree**	**1 = Strongly disagree**
23	At home, I consistently have clean water and electricity	5	4	3	2	1
24	I have access to good quality housing	5	4	3	2	1
25	I have access to good schooling for my children in the community where I live	5	4	3	2	1
26	I can access services that I want in the community, such as grocery shops, markets, bars, cinemas, discos, and/or other things.	5	4	3	2	1
27	I have access to good quality and free medical care for me and family members	5	4	3	2	1
28	I have the ability to travel to places I need to go within the district, both for work and personally	5	4	3	2	1

Questions about Future Intentions

#	Question	Indicate one answer
29	How long do you intend to stay at this health facility, based on your job satisfaction?	1= I would leave this post as soon as possible. 2= I would leave this post less than 1 year from now. 3= I would leave this post 1 to 3 years from now. 4= I would leave this post 3 to 5 years from now. 5= I plan to stay in this job indefinitely 6= Not Applied – I have arranged to go for further studies soon
30	What is the reason for your answer to the previous question?	
31	Which of the following statements best apply to you?	1= I do not want to leave this posting soon 2= I would stay with the Ministry of Health but would change to a different location (place or region) 3= I would move to a private or NGO facility/clinic 4= I would move to a job out of the health sector 5= I would move to a job outside of Sierra Leone

Part 3: Free-Listing of Challenges and Desired Changes

What are the biggest challenges that you face in this job, in order of urgency?

1)

2)

3)

4)

5)

6)

7)

What specific changes would make you want to stay at this current post longer? What would be the 1st thing, 2nd thing, 3rd thing, 4th thing, etc?

1)

2)

3)

4)

5)

6)

7)

APPENDIX C: Complete Data Analysis

1. Card Sort Ranking Data

Rank (based on average position)	Name of "Factor"	Average Position of the Factor	Numerical Distance between Consecutive Cards (Mean)
#1	**Salary and Financial Allowances**	**2.29**	
			1.56
#2	**Medical Equipment and Supplies**	**3.84**	
			1.08
#3	**Mobility: Bikes, Boats, Ambulances**	**4.92**	
			0.24
#4	**Clean Water and Electricity**	**5.17**	
			0.37
#5	**Career Development Opportunities**	**5.53**	
			0.29
#6	**Housing**	**5.82**	
			0.40
#7	**Free & High Quality Medical Care**	**6.22**	
			1.90
#8	**Promotion When Deserved**	**8.12**	
			0.12
#9	**High-Quality Supportive Supervision**	**8.23**	
			1.10
#10	**Recognition**	**9.33**	
			0.66
#11	**Access to Mentor**	**9.99**	
			0.38
#12	**Access to Goods/Services in Community**	**10.37**	
			0.46
#13	**Working in same region where born**	**10.82**	

Table 9: Card Sort Ranking— Data Analysis

APPENDIX C

2. Questionnaire: Likert Statement Ratings

RATINGS: 5=Strongly Agree 4= Somewhat Agree
3= Neither Disagree or Agree 2= Somewhat Disagree 1=Strongly Disagree

#	QUESTION	OVERALL MEAN (n=90)		'Rural'Mean (n=58)	'Urban &Peri-Urban'Mean (n= 32)	p value
1	I am satisfied with my job	**2.80**		**2.67**	**3.03**	**.014**
2	Based on my job satisfaction, I would like to stay at this posting for more than 1 year	**2.92**		**2.84**	**3.06**	**.011**
3	I am well respected and appreciated by members of the community where I live	**4.39**		**4.45**	**4.28**	**.210**
4	I can speak the same language as the community where I live	**3.99**		**3.84**	**4.25**	**.087**
5	Members of this community understand my culture. I understand the culture of this community	**4.37**		**4.36**	**4.38**	**.464**
6	I feel lonely living in this community	**2.07**		**2.12**	**1.97**	**.149**
7	I participate regularly in social activities in the community	**3.54**		**3.78**	**3.13**	**.040**
8	I have been disrespected or treated badly by patients, their family, or community members	**1.94**		**1.72**	**2.34**	**.041**
9	The staff at the workplace are usually happy and have good morale	**3.77**		**3.79**	**3.72**	**.337**
10	Colleagues/supervisors respect my opinion at work	**4.63**		**4.71**	**4.50**	**.131**
11	I feel supported by my supervisor. He/she treats me well. He/she is available when I need help.	**4.18**		**4.19**	**4.16**	**.295**
12	I receive recognition from my district or the Ministry of Health for doing good work	**1.87**		**1.98**	**1.66**	**.123**
13	I am involved in a group of fellow health workers who regularly provide support to each other	**2.43**		**2.47**	**2.38**	**.397**
14	I have a mentor who supports me with professional and/or personal guidance	**2.77**		**2.38**	**3.47**	**.009**
15	I receive effective Supportive Supervision from my District or the Ministry of Health	**2.98**		**3.34**	**2.31**	**.001**
16	I receive enough in-service training opportunities, to refresh and learn new skills	**4.04**		**4.41**	**3.38**	**.004**
17	There are opportunities for career advancement and promotion, and I am able to use them.	**1.70**		**1.55**	**1.97**	**.069**
18	The workload is too much for me.	**3.77**		**3.71**	**3.88**	**.348**
19	The workload is too little for me	**2.07**		**2.09**	**2.03**	**.436**
20	When I request leave, I am granted the request and provided with 'leave allowance'	**1.39**		**1.26**	**1.63**	**.076**
21	I have the supplies, equipment, and drugs I need to do my job well and safely	**3.12**		**3.29**	**2.81**	**.052**
22	At work, I have clean water and electricity	**2.37**		**1.90**	**3.22**	**<.0001**
23	At home, I have clean water and electricity	**1.71**		**1.45**	**2.19**	**.015**
24	I have access to good quality housing	**2.37**		**2.29**	**2.50**	**.220**
25	I have access to good schooling for my children in the community where I live	**2.32**		**1.66**	**3.53**	**<.0001**
26	I can access services that I want in the community, such as markets, bars, or cinemas	**2.54**		**1.53**	**4.38**	**<.0001**
27	I have access to good quality and free medical care for me and family members	**1.42**		**1.60**	**1.09**	**.090**
28	I have the ability to travel to places I need to go within the district, both for work and personally	**2.39**		**1.62**	**3.78**	**<.0001**

Table 10: Likert Statement Ratings— Data Analysis

3. Free-Listing of Challenges and Desired Changes

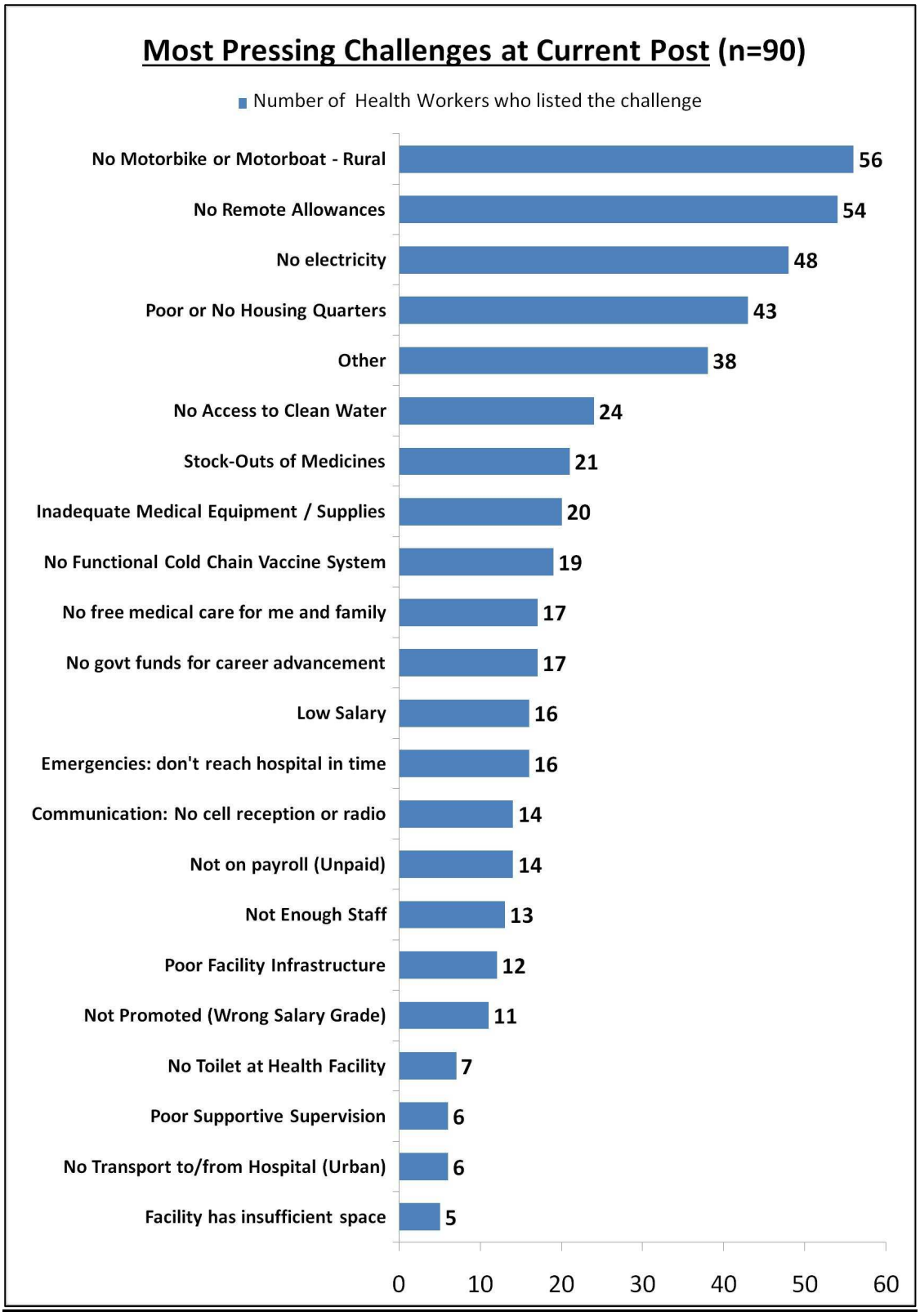

Figure 15: Free-Listing of Proximate Challenges

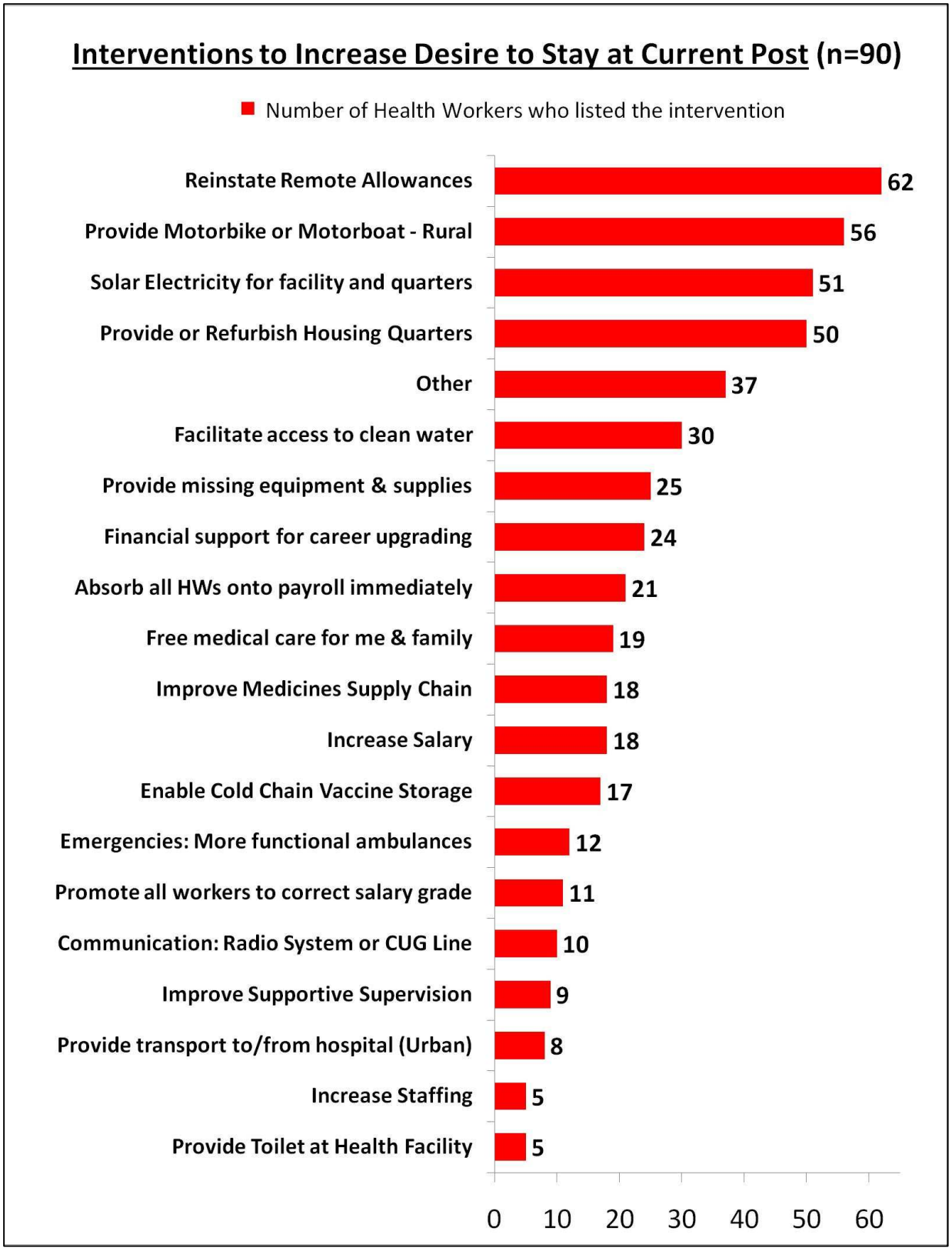

Figure 16: Free-Listing of Interventions that would Increase Desire to Stay

Note: The above charts exclude items listed < 3 times. The "other" category refers to listed items which did fit into any common grouping of at least 3.

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