

# HEALTH WORKER ATTITUDES TOWARD RURAL SERVICE IN LIBERIA:

## Results from Qualitative Research

Ramlatu Attah, Tomas Lievens, Marko Vujcic and Julie Brown-Annan

November 2010





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## Health, Nutrition and Population (HNP) Discussion Paper

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# Health, Nutrition and Population (HNP) Discussion Paper

## Health Worker Attitudes Toward Rural Service in Liberia: *Results from Qualitative Research*

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**Abstract:** In Liberia, the maldistribution of health workers is particularly pronounced as 14 years of civil war exacerbated the concentration of experienced health workers in urban areas. The government has identified this challenge as a priority area for policy intervention.

The objective of this study was to explore the drivers of health workforce choice including job location. It presents the results from preparatory qualitative research that fed into the design of a discrete choice experiment (DCE). The qualitative study interviewed 26 registered nurses, midwives, and physician assistants about their current working conditions, their job location preference, and priority areas for change in working conditions. Content analysis was used to analyze the data.

The study shed light on health worker job preferences and their working conditions, and identified six job attributes that health workers consider to be important when choosing a job. These were pay, transport, availability of medical materials and infrastructure, housing, workload, and further training opportunities. These attributes were chosen because they reflect the frequency to which they were cited during the interviews and the extent to which they were amenable to policy intervention. Associated attribute levels were chosen for each attribute to reflect current work conditions and the levels of change that would be necessary to trigger changes in job choice. The relative weight of each of these attributes in location choice has been quantitatively determined through the follow-up DCE. Although the main aim of this study was to feed into the DCE design, it incidentally throws light on a wider variety of issues with regard to health worker career choice, motivation, and performance.

**Keywords:** Liberia, discrete choice experiment, health work force retention

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# 1. INTRODUCTION

Health workforce–related challenges are increasingly recognized as a bottleneck to achieving better population health outcomes. Many developing countries struggle with shortages of skilled workers, imbalanced geographic distribution, international migration, inappropriate skill mix, and so on. The challenges in a postwar country such as Liberia—where the workforce has been severely affected and the context in which reconstruction is taking place is one of political and economic uncertainty—are particularly severe. The maldistribution of health workers, however, stands out as one of the major challenges, as 14 years of civil war caused the displacement of experienced health workers who in the aftermath of the war have congregated in urban centers, leaving rural areas understaffed.<sup>1</sup> For example, sparsely populated counties such as Grand Kru, River Gee, and River Cess have more health workers than a county like Sinoe, which is comparatively more populated (Ministry of Health and Social Welfare 2007).<sup>2</sup>

Understaffed clinics in rural areas compromise access to health care and the quality of services. In Liberia, where health indicators are among the worst in the world, policy makers have made addressing the geographic maldistribution a policy priority. This is reflected in the Emergency Human Resources for Health Plan (Ministry of Health and Social Welfare 2007), which mentions equitable distribution of health staff as one of its key objectives.

Recent evidence from other African countries points to the possible effectiveness of providing health workers with adequate financial and non-financial incentives to redress the inequitable allocation of health workers. However, the same evidence suggests that the impact of these policy measures is context specific, so that their level and mix must be tailored to address the challenges in each country (Blaauw et al. 2010). Given both the importance of local context in determining effective policy interventions and the urgency of a more equitable distribution of health workers in Liberia, the Ministry of Health and the World Bank are jointly implementing a discrete choice experiment (DCE) to explore the drivers of rural choice behavior of health workers in Liberia in more depth.

A DCE involves asking respondents to choose between hypothetical job alternatives (for example, a job in a rural or urban sector), where each alternative is described by a bundle of attributes (such as equipment at a health facility, or pay). The statistical treatment of responses allows one to determine how respondents trade off job attributes, and therefore to quantify the relative value that health workers place on each job attribute in choosing between job alternatives.

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<sup>1</sup> “Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between urban and rural population is not amenable to a single definition that would be applicable to all countries” (WHO 2010). The distinction we make between rural and urban area in the Liberian context is based on accessibility—rural areas are harder to reach. This definition resonates with local interpretation of what a rural area is.

<sup>2</sup> In Liberia, the health worker density per 10,000 of the population is less than one and three, respectively, for physicians and for nurses and midwives (WHO 2009).

Applied to the issue of rural service, this approach allows policy makers to gain a better understanding of how much of a particular incentive (e.g. wage bonus, housing allowance) is needed to get health workers to accept a job in a rural area. This in turn allows one to compare the cost-effectiveness of different policy alternatives aimed at increasing the uptake of rural service.

The main objective of this qualitative pre-research is to generate the information necessary to design the DCE. Specifically, this study identifies the attributes relevant to Liberian health workers in choosing between, for example, rural and urban jobs, as well as the range of values of these attributes. An example of an attribute is “equipment at health facility” and its value may be “inadequate” and “adequate.” The choice of relevant job attributes is an important phase in the DCE development because it determines the hypothetical job choices offered to the health workers in the DCE and consequently informs policy makers about the effectiveness of policies based on these attributes (only).

To determine the job attributes of importance in Liberia, in-depth interviews were conducted with 26 health workers (registered nurses, midwives, and physician assistants) purposively selected from four counties—Montserrado, Grand Bassa, Margibi, and Grand Cape Mount. The discussion topics included their current working conditions, geographic preference, and priority areas for change in working conditions. Content analysis was used to analyze the data. Six job attributes—pay, transport, availability of materials, housing, workload, and qualifications—were proposed for inclusion in the DCE, based on the frequency with which health workers referred to them during interviews. The attribute levels were set to reflect, on the one hand, the prevailing working conditions and, on the other, the levels that respondents would perceive to be an improvement and that may cause them to review their labor market choices.

Although the main objective of the study was to identify relevant attributes and their respective levels for the DCE design, the study uncovered wider findings that can be used not only to supplement understanding of the quantitative results of the DCE, but also used as background information on the Liberian health workforce.

## 2. METHODOLOGY

This section presents a detailed description of the methodological approach. Specifically, it provides details on: (i) why in-depth interviews were used in preference to other data collection tools; (ii) the selection of interview participants; (iii) the implementation of the interviews; (iv) the transcription procedure; and (v) the approach to data analysis.

### 2.1 JUSTIFICATION FOR USING INDIVIDUAL INTERVIEWS AS A DATA COLLECTION TOOL

One of the first questions to resolve was the most appropriate data collection method for eliciting rural service job attributes and their respective levels. This is important because the validity of a DCE depends on correctly specifying relevant choice attributes. Qualitative in-depth individual interviews were deemed most suitable for several reasons.

First, at the time of the study very little documentation was available about human resources for health in Liberia. It was therefore necessary to collect primary data to gain an understanding of the working conditions of health workers, and how these conditions impact job choices. Such collection is best done with qualitative methods where rich and elaborate discussions with respondents about their job preferences allow us to circumscribe and identify job attributes. An offshoot of using a qualitative approach is that participants' vocabulary in describing job preferences is registered, which is useful to frame the hypothetical job choices of the DCE. For example, Mangham's (2008) study on the preferences of registered public sector nurses in Malawi discovered, in the qualitative phase, that respondents used the term "upgrading" to refer to the opportunity to further one's education. This term was subsequently used in the quantitative phase of the work in Malawi and proved useful to avoid ambiguity in the understanding of attributes.

Second, individual (as opposed to group) interviews were chosen to allow room for expansion and clarification of the definitions of attributes and to probe deeper into attribute levels. This is important because very little is known about health worker preferences and job circumstances in Liberia. Additionally, it also helps to avoid conceptual overlap between two or more attributes ("inter-attribute correlation"), which would otherwise prevent the accurate estimation of the main effect of a single attribute on the dependent variable (the job choice) in the DCE (Mangham 2008).

Finally, in-depth interviews (rather than group interviews) were chosen because of the logistical challenges in bringing together dispersed respondents. Admittedly, focus group discussions offer the advantage of the participants themselves functioning as an "information quality filter," as highly individual or extreme points of view inevitably provoke disagreement from other participants. That is why in the individual interviews particular attention was paid to challenging the respondents' views, and by triangulating and checking for consistencies across interviews.

## 2.2 PARTICIPANT SELECTION

Given that this study serves as pre-research for the DCE, the sample of respondents was chosen to roughly reflect the population that would be included in the DCE. Two cadres of health workers were included: registered nurses and midwives, and physician assistants. Together these two groups form the bulk of the health workforce in Liberia. Doctors were not included because they are too few to reliably carry out a DCE.

Registered nurses and midwives in this study have been taken to be a homogenous group as they have similar training, labor market opportunities, and workplace conditions. There are two categories of registered nurses in Liberia: “Associate level” nurses who hold a diploma following the successful completion of three years of nursing training; and “BSc level” nurses who hold a full bachelor’s degree following four years of nursing training. Our sample of registered nurses adequately reflected both categories (Table 1).

Our sample of midwives also consisted of two broad categories: traditionally trained midwives who tend to be high school graduates who received a short-term midwifery course, and certified midwives who completed two years of midwifery training. Our sample consisted more of the latter because the Ministry of Health is moving away from its dependence on traditionally trained midwives, because their training does not enable them to deal with medical complications. In the short and medium term, however, traditional midwives will keep on playing an important part in service delivery and were therefore included in the study.

**Table 1: Sample size per cadre**

<b>Cadre</b>	<b>Sample size</b>
Associate-level nurse	4
BSc-level nurses	4
Traditional midwives	3
Certified midwives	4
Physician assistants	11
<b>Total</b>	<b>26</b>

Physician assistants were considered to be a different cadre from nurses and midwives because they assume more responsibility and can work independently at clinics and health centers in rural areas, where they substitute for doctors. Officially, a practicing physician assistant is supposed to be licensed and to have completed physician assistant schooling with a three-year diploma. This was the case for all the physician assistants in our sample.

The initial sample was made up of 30 health workers—15 registered nurses and midwives and 15 physician assistants. Judging from other studies (Blaauw et al. 2010; Lagarde and Blaauw 2009), this seems to be sufficient in providing a range of views and to allow for enough repetition so that attributes and their levels could be assigned. While this target was reached for the registered nurses and midwives, only 11 physician

assistants were actually interviewed. Four physician assistants could not be reached because of the increased time of travel due to the prolonged rainy season, which caused the roads to be washed out. However, since the “saturation point”—consistent views were expressed and triangulated—had largely been reached with 11 interviews and any new data confirmed previous information rather than adding anything new—attributes and their levels can be set confidently on this smaller sample.

As said, the participants were drawn from four counties. The locations were chosen to include both rural and urban areas, but also took into account convenience of access for the research team.

Participants with a specific profile were selected to ensure that the respondents showed sufficient variation over criteria known to impact on labor market choice and that they came from different segments of the Liberian health labor market (more on this below).

To meet the above objectives, a strict and rigorous protocol in participant selection was followed. To start with, the criteria used to select the participants were determined: gender (male or female), location of work (rural or urban), children (with or without), type of facility (clinic, health center, or hospital), and sector of employment (public, nongovernmental organization [NGO], private, or faith-based), and cadre (registered nurse, midwife, or physician assistant). Participants were then selected against the criteria, with care taken to ensure that each profile was dissimilar and that no two people worked in the same facility.

Tables A.1 and A.2 in the appendix provide information on the sample per selection criteria with anticipated numbers of participants in brackets. Overall the selection criteria were well respected, though some selection criteria were more difficult to respect than others. Non-compliance with selection criteria came mainly from the difficulty in identifying respondents without children and also to clearly distinguish between respondents from the public, NGO, private, and faith-based sectors. Table 2 shows summary statistics of participants.

**Table 2: Summary descriptive statistics of participants**

<b>Participant Characteristics</b>	<b>Total</b>
Number of participants	26
Age (mean)	39
Female share	58%
Rural share	50%
Level of care	
Hospital	42%
Health center	23%
Clinic	35%
Sector	
Public	84%
NGO	4%

Private	4%
Faith-based	8%
Duration	
Years in health sector (mean)	10
Years in current facility (mean)	4

## 2.3 IMPLEMENTATION OF IN-DEPTH INTERVIEWS

Prior permission was obtained from the Ministry of Health to conduct the research. At the facility level, especially for non-public sector facilities, hospital administrators and officers-in-charge were generally cautious about members of staff participating in the research. A staff member from the Ministry was available to assure participants and facility heads that the study had been authorized.

For transparency and consistency of results, each interview was guided by a semi-structured interview script. The script was designed drawing on secondary literature, discussion with experts who have undertaken similar work in other countries, and expert interviews with senior Ministry officials in Liberia to gain their perceptions of the employment preferences of health workers and details on the government’s policy priorities. The interviews asked a range of questions about general job preferences and working conditions as a means of identifying attributes and establishing levels. The same interview script was used for registered nurses, midwives, and physician assistants.

While interviews were conducted in English, the script was shared with the local research team to adapt the language and expressions to the local context. Two pilot interviews were held in a hospital in Monrovia. The pilots tested for the interpretation of certain words by respondents, the length of time per interview, and interview conditions the researcher could potentially face such as rain, which could disrupt the recording.

Following the pilot session, some of the questions were rephrased. Words such as “rural,” “equipment,” and “housing” were replaced with local synonyms, namely “hinterland,” “facility,” and “lodging.” The pilot study also drew attention to the two-part remuneration structure of health workers in Liberia consisting of a base salary and top-ups. The term “salary” only refers to the first part. Instead, “pay” refers to the total amount each health worker is expected to take home at the end of the month.

The pilot session helped in the timing of the interview session. It was noticed that respondents in both pilots got restless after 45 minutes of questioning. Subsequent interviews were therefore kept to a maximum of 45 minutes.

The actual interviews took place in a quiet room in the health facility to encourage a private environment, without removing health workers from their working context. This ensured that health workers did not feel intimidated.

At the beginning of the discussion, participants were informed about the objective of the study and its independent nature was emphasized to avoid perceptions of strong linkage with the Ministry of Health that might generate inhibition or strategic responses. For

similar reasons, it was emphasized that the researcher was not a representative of a donor agency. Participants were invited to be open and honest in their response and to base their contributions on personal experiences or direct observations. With the individuals' consent, the interviews were digitally recorded. No one refused to be recorded. Full confidentiality and anonymity were assured.

The interview was structured around three themes. First, respondents were asked to describe their conditions of employment; levels of job satisfaction; their preferences for working in government, NGO, or private health facilities; and level of facilities. Second, interviewees were asked about their perceptions of working in rural and urban areas. These first two themes proved useful in identifying the job attributes and to establish associated base levels for each attribute. Third, health workers were asked about the aspects of their working conditions that they would want to change in order of priority, which provided the basis for setting desired levels for each job attribute.

English was used during the interviews as it is widely spoken among educated Liberians. Participants filled out an information sheet at the end of each interview to capture respondent characteristics, such as qualifications and number of children.

It was decided with the Ministry that no compensation would be offered for participating in the interview, particularly as no direct outlay was borne by the respondents. However, when interviewees stayed past the normal end of their shift they were generally offered a drive home by the research team.

## **2.4 PROTOCOL FOR TRANSCRIPTION**

Each interview was digitally recorded, generating one audio file which was given a unique file name for future reference. Unique file names are composed of *cadre-date-name of facility*. This also reinforced anonymity and confidentiality.

The files were transcribed by the local research team. Training was given to maintain consistency across transcripts and to strike a balance between efficiency and literal transcription. Each transcript was then checked by the lead researcher to ensure that no valuable text was missing.

## **2.5 ANALYTICAL FRAMEWORK: IDENTIFYING ATTRIBUTES AND ASSIGNING LEVELS**

Content analysis was used to identify attributes and assign attribute levels, in line with previous studies (Mangham 2008; Coast and Horrocks 2007). Attributes and their levels were determined as follows:

1. First, all transcripts were read to identify major themes and subthemes. Codes (referring to themes or attributes) were then written next to the text.
2. The text was then cut and pasted into a matrix in Excel software with a different column for each theme/attribute and a different row for each participant. This matrix approach proved advantageous because cross-comparisons could be made,

without imposing an excessive structure, and it allowed one to clearly see the range of issues and opinions raised. The “filter function” in Excel enabled analysis according to specific respondent characteristics, such as cadre and gender.

3. A separate frequency table was simultaneously developed, which took a tally of attributes across interviews. The main criterion for choosing an attribute was the frequency with which the attribute was discussed (bearing in mind the issue of inter-attribute correlation and the extent to which the attribute was amenable to policy).
4. Six attributes were chosen. A greater number of attributes is likely to increase the cognitive difficulty in completing a DCE; with too many attributes and values respondents tend to base their response on a single attribute or a subset of attributes (Mangham et al. 2009). Each attribute chosen has a clear and unambiguous definition, which is accurately understood by the respondents.
5. Once attributes were established their levels were set. Levels were chosen to reflect the range of situations that respondents experience in their workplace. In this study a maximum of four levels was set per attribute.<sup>3</sup> A base level was set to reflect current working conditions. An additional level, which we term here a “desired level,” was set to represent what respondents consider a reasonable improvement from the base or existing working conditions. Additional levels were introduced in case no single base level could be established.

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<sup>3</sup> There is no strict rule to set the number of attributes and levels for inclusion in a DCE. The greater the number of attributes and levels, the higher the possible job alternatives presented to respondents. For example, six attributes with two levels each will produce 64 ( $2^6$ ) possible job alternatives.

### **3. SUMMARY OF FINDINGS**

The following summary is based on perceptions of health workers and should not be interpreted as factual; nor do the authors necessarily agree with what is presented. Each issue discussed is supported by quotes from different health workers to add meaning to and provide illustration of the issue under discussion.

#### **3.1 CAREER CHOICES IN THE HEALTH PROFESSION**

##### **Reasons for entering the health profession**

Most people reported entering the profession because of the desire to care for and help those who are suffering. Others mentioned the sense of satisfaction that is gained from making a contribution to society. Notably, the certified midwives and trained traditional midwives mentioned their contribution to reducing maternal mortality, while physician assistants and rural nurses made references to low health-outcomes, especially in rural areas, as a motivating factor for joining the profession.

Some health workers also mentioned personal experiences of being ill, of sick relatives, and working with wounded people during the war as motivating factor. Others spoke of encouragement from relatives.

In explaining why they entered the health profession, some health workers also expressed feelings of nationalism. There seemed to be a general feeling of concern and a renewed sense of energy to address the health worker shortage that Liberia currently faces. Unlike, for example, Ghana (Garbarino et al. 2008), where qualitative studies found that some health workers use their jobs as a stepping stone for leaving the country, in Liberia no such sentiments were expressed.<sup>4</sup>

Interestingly, respondents seem to be well aware of the working conditions in the health sector. They reported that, at least for their cadre, they knew about the poor financial prospects. They were aware that the job came with a lot of sacrifices such as always being on call and the necessity of putting at times the job before social relations, and possibly putting one's own life at risk. Altogether, health workers expressed a sense of dedication.

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<sup>4</sup> In a postwar context, a possible explanation to this is that those who would normally have the opportunity to migrate have already done so.

“I entered into the health sector mainly to help our people especially in the rural areas. In Buchanan where I come from, there are not many health workers. I love the field and helping people who are unable.”

**Certified midwife, Grand Cape Mount (rural)**

“You may not be aware, but in this country, there are few people in the area of health and we still need more people. That is what motivated me to join the health sector, so that I can contribute my quota to my nation.”

**Physician assistant, Montserrado (urban)**

"If it were just about the money, I wouldn't be working as a nurse because they pay me very little."

**Registered nurse, Montserrado (rural)**

“I entered the midwifery section to prevent maternal mortality risk, which we say is at a high percentage in Liberia.”

**Certified midwife, Montserrado (rural)**

### Choice of sector of work

Once in the health profession, the ideal working conditions reportedly exist in the non-public sector. It is important to note that generally respondents tended to lump NGOs, private for-profit, and faith-based organizations together—which we term here the *non-public sector*. Health workers’ preference for the non-public sector was based on the perception that jobs have attributes that they felt were absent in the public sector. Table 3 shows how health workers associate different job attributes with the public and non-public sector.

**Table 3: Health workers’ perceptions of public and non-public sector**

<b>Job attribute</b>	<b>Public sector</b>	<b>Non-public sector (private, NGO, faith-based)</b>
Pay	Low, irregular	Better, regular
Equipment	Often inadequate	More often adequate
Workload	Heavy	Lower
In-service training opportunities	Few	More
Job security	Present	Not present

First, health workers preferred the non-public sector because they believed that pay levels were higher and sufficient for a good living. A good living for health workers in Liberia implied being able to meet one’s basic needs, mainly housing and food. The non-public sector had greater regularity of salary payments and increments than the public sector. The amount paid by the non-public sector was considered adequate by many to cover basic cost of living while providing an adequate compensation for workload, as well as

compensating for the investment spent in training to become a health worker. The non-public sector was also associated with greater non-financial benefits, such as health insurance for health workers and their families, and allowances toward children's education or transport.

Respondents also expressed preference for working in the non-public sector because facilities tend to be better equipped, with a more regular supply of drugs and other medical resources.

There was also the general perception that non-public sector facilities were better staffed with qualified health personnel, which tended to reduce workload. The assumption was that because pay levels are better, they tend to attract more qualified staff. Consequently, non-public sector facilities were in a position to run shifts, and health workers are often compensated for overtime.

Finally, opportunities for in-service training or “workshops” are perceived to be higher in the non-public sector. The provision of case-based training enables staff to refresh their skills, which many respondents valued. The sector also, it was felt, provides an opportunity to learn from expatriate doctors, which helps to keep health workers abreast of new developments.

Despite the shortcomings described above, most respondents argued that from a long-term perspective the public sector offered greater job security and continuity; there was a general perception that international NGOs especially were unstable and could easily pull out of the country.

Similarly, respondents appreciated the opportunity offered by the public sector for further education and specialization abroad, although there were several references to the lack of transparency and unequal access to these training opportunities in the public sector. Some respondents, particularly older ones, are loyal to the public sector.

“When I look at what the government is doing to me, I will say you should work for private sector or international organization—an NGO that pays well. When holidays are coming, they give their workers a bonus or package, and if you want salary advancement you can get it at the same time. There you are entitled to your leave. Your family is entitled to free medical services and they run shifts....”

**Registered nurse, Montserrado (rural)**

“I will work for the government because the government is more sustainable. If you work for an NGO, one day they may leave, but government will always be around.”

**Registered nurse, Grand Bassa (rural)**

### Choice over type of facility

Opinions regarding preferences over working at different levels of facilities—hospitals, health centers, and clinics—fell into two categories. Health workers who valued the opportunity of learning from others generally preferred hospitals. For them, hospitals provide an opportunity to learn from doctors and from colleagues. Hospitals also present a variety of cases because of referrals. On the other hand, some health workers value the process of learning by doing and consequently the greater responsibility that a clinic brings. Having fewer doctors at the clinic level means that health workers can encounter a large number of cases alone, which they consider an advantage.

“To work in the hospital is OK because there you find doctors and you will learn from them; and there are physician assistants and you can learn them too.”

**Registered nurse, Montserrado (rural)**

“I will advise this person to work in the clinic. At the clinic you make critical decisions about patients based on your experience. The focus of training is on you. At the clinic, you are the consultant. You have more responsibilities, you supervise everything, make reports, and monitor drugs and supplies.”

**Registered nurse, Grand Bassa (rural)**

### 3.2 IDENTIFYING JOB ATTRIBUTES RELEVANT TO JOB CHOICE

In describing their working conditions, health workers referred to a range of job attributes, which we summarize below, in the order of frequency with which they were mentioned, starting with the most frequently discussed.

#### Total take-home pay

Remuneration practice for health workers in Liberia is fairly complex. Those on the government payroll receive a standard amount different for each cadre paid out in local currency. Those not on government payroll, referred to as “volunteer workers,” are paid an “incentive,” mostly out of donor funds managed at facility level. It is common practice to give those on the government payroll a top up so that they receive a total pay that is similar to that of the volunteers.

When respondents were asked about the aspects of their jobs they did not enjoy the issue of pay was mentioned in every single interview. The health workers raised three main issues related to pay: contractual problems, amount of pay, and regularity of pay.

Many health workers, irrespective of cadre and geographic location, complained about not being on the government pay roll. Typically, health workers recognized the benefits of working for the government, such as greater job security and the advantage of receiving social security benefits, which are associated with a standard public sector contract. Also, pay for health workers in Liberia is based on salary scales that do not take

into account additional qualification level and years of experience.<sup>5</sup> For instance, a BSc-registered nurse with five years' experience earns the same amount as a diploma-registered nurse with three years' experience. Generally, this situation tends to trigger feelings of resentment, particularly among BSc-registered nurses. They explain how the current pay structure acts as a disincentive for wanting to pursue further education.

Most health workers, especially those in the public sector, are dissatisfied with the total amount they receive at the end of the month. They comment that current pay levels allow very little room to save. Generally they feel that pay is too low given the cost of living, their workload, and the amount spent obtaining professional qualifications—expressed especially by those who self-financed their studies at private training institutions. Notably, physician assistants were concerned about the high pay differentials between themselves and doctors, believing doctors earn about five times as much as they do. Physician assistants also felt that what they receive is not commensurate with their workload and level of responsibility.

Most health workers commented that they find it difficult to keep household expenses within their pay and so supplemented their incomes in a variety of ways. Married female health workers tend to rely on their spouse's income. Many physician assistants and male nurses owned and/or managed drug stores alongside their job. Other means of supplementing income include engaging in petty trade and subsistence farming. Health workers occasionally have to borrow from informal money lenders to make ends meet.

However, the opportunity to supplement income partly depends on workload: health workers' high workloads (see more below) mean that it is difficult to run supplementary activities themselves and often have to subcontract other people. Although references were made to being able to supplement incomes through "moonlighting" (dual practice, i.e. public sector workers also practicing in the non-public sector, which is especially prevalent in urban areas), none of the respondents in our sample admitted to engaging in dual practice (in our view, perhaps because it is not allowed or that the workload does not allow dual practice without significant levels of absenteeism).

Finally, respondents complained about the irregularity of salary payments. Most respondents reported an interval of several months between payments. This was particularly an issue for rural health workers because money is carried in cash from Monrovia to county offices and road conditions tend to delay the process.

When asked what changes they would like to be made to their working environment and conditions of service, pay was always mentioned. Changes to the amount (especially), composition, and frequency of pay were the reforms ranked most highly by the majority of respondents. Salary seems to be the root of all problems. It seemed that respondents believed that once salary issues were solved, all their problems would be solved. For example, higher salaries would attract more health workers, reducing workload.

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<sup>5</sup> Pay scales are typically based on the minimum required qualification per cadre.

“The salary structure for the BSc nurses and the Associate degree nurses are all the same in Liberia. It doesn’t make me feel fine. It doesn’t show any difference.”

**Registered nurse, Margibi (urban)**

“I take home US\$ 213 every month. I am not happy but it is what the government says they should give us. It is not enough. This is the only amount so I cannot save. At the end nothing is left after paying rent and feeding the family.”

**Physician assistant, Grand Cape Mount (rural)**

“I did my nursing training at Cuttington University. Over there you pay US\$ 2,000 a semester. Now just to graduate, you come and sit here and they pay you US\$ 163 and it’s not even regular per month. Sometimes two, three months will pass before they come and pay you for a month.”

**Registered nurse, Margibi (urban)**

“I take home 6,510 Liberian dollars (LD) from the government and US\$ 60 from incentives which are not regular. I have three children and extended family to cater for and the price of rice is LD 2,000 plus. My children don’t have two meals a day. Yes I supplement my income. I send my children to sell things at school.”

**Certified midwife, Montserrado (urban)**

## **Transport**

The issue of transport came up in nearly all interviews. For health workers in Monrovia, their main concern was about the cost of travel from their homes to the facility in which they worked. Often having low salary levels meant that the most convenient means of travel was not affordable. Some respondents who worked in the hospital had the benefit of a hospital bus, but complained about overcrowding, and of it being infrequent.

For respondents outside Monrovia, their comment was mainly about accessibility given the deplorable road conditions. For them, transportation was important for (i) travelling to urban areas and for outreach programs in nearby rural areas; (ii) patients’ access to facilities in cases of emergencies; and (iii) commuting to work (though this was not a major issue, as most people tend to live in walking distance of their facility when they live outside Monrovia). When asked about the desired level of change, respondents wanted to see road improvement (i.e. graded or paved) and the provision of minibuses and motorcycles for use by the health facility.

“Now we don’t have anything to use to go to the catchment areas. Nothing like motorcycles to help. Sometimes people from the Ministry come for information from other areas, but I can’t give it because the areas are far and I can’t walk there.”

**Physician assistant, Grand Cape Mount (rural)**

“We have no access to transportation to take patients quickly to Monrovia. If I have a labor case that I need to transfer, the patient has to pay for their own transportation.”

**Certified midwife, Montserrado (rural)**

“If you want to have a good health facility you have to put in time. You cannot run a health facility according to government official working time of 8am–4pm and have a health worker getting to work at 10am because of transportation... Transportation is one of the difficult problems for us to get to work on time... I live in Freeport, and from here to Freeport by taxi I pay LD 15 to and fro.”

**Physician assistant, Montserrado (urban)**

### **Equipment, drugs, and infrastructure**

The lack of medical resources was also nearly always raised when respondents described their working conditions. Although policy makers interviewed at the onset of the study spoke positively about the levels of medical resources in health facilities, most health workers suggested a lack of hospital equipment, drug supply, and infrastructure. The term “facilities” was frequently used by respondents to refer to a wide range of hospital equipment.

Generally, health workers complained about the lack of very basic medical supplies such as gloves, syringes, and drips. Midwives commented on the lack of tools required to do deliveries, which in their view often led to medical complications. They also commented on the lack of equipment to carry out HIV/AIDS tests on pregnant women. Physician assistants complained about the lack of more sophisticated equipment such as oxygen tanks, X-rays, and suction pumps, reflecting their level of responsibility in dealing with more complex cases.

All cadres of health workers commented on the shortage of drugs. They complained that drugs were rarely replenished on time (three to four months of supply interval was usually mentioned) and highlighted the impact this had on service delivery. The bad roads often meant that delays were encountered in the drug supply chain between National Drugs Services and the health facility.

Reference was also made to inadequate hospital infrastructure including beds, chairs, storage closets, and so on. Some health workers mentioned the requirements in terms of renovation and expansion of health facilities. This was particularly common among those who worked in lower-tiered facilities such as clinics and health centers.

The lack of medical resources meant that health workers had to improvise, often putting their own health at risk. There was a general recognition that working with inadequate

resources compromised quality of care but also impacted negatively on the satisfaction and the motivation of health workers themselves.

Health workers nearly always listed improving “facilities,” the drug supply chain, and the hospital infrastructure as a priority area of reform.

“Most of the instruments that we need to work with are lacking. For delivery we should have gloves because of the stigma of HIV/AIDS. We don’t have ambu bags and suction machines. Sometimes we deliver babies and they are out of breath; we have to do mouth to mouth resuscitation.”

**Registered nurse, Montserrado (rural)**

“When you go for supervision in a village, you will hear people complaining that they don’t have chairs, shelves and those rats and roaches have eaten the drugs ....”

**Registered nurse, Margibi (urban)**

“Sometimes we can run out of drugs for a long time. Like right now, we are out of the malaria drugs, and we had our last malaria drugs in June.”

**Certified midwife, Montserrado (rural)**

## **Housing**

Housing came out as an important job attribute, particularly for health workers in rural areas. Nearly all health workers lived in privately rented accommodation, which they considered inadequate, but it was what they could afford on current pay levels. Rent varied according to location, and health workers in Monrovia were paying the most. Typically, urban areas were perceived to have slightly better housing conditions than rural areas, where “better” implies at least zinc housing or plastered “dirt-to-dirt” housing (dirt-to-dirt is usually unplastered mud) with basic amenities. A (very) few health workers lived in government-provided accommodation, although it was considered substandard and needed renovation work.

In terms of what changes health workers would like the government to make, they were unanimous in their desire that the government should provide health workers with quarters. Their ideal quarters were apartments—separate for each family, plastered dirt-to-dirt—at the very minimum with an indoor toilet and bathroom facility and kitchen.

“In Monrovia, I live in a building that is concrete but this building is not well equipped. This is because the money I am making is not enough to complete the building. I have not completed my sewage and ceiling. And to construct the sewage and ceiling is costly”.....

**Physician assistant, Montserrado (urban)**

“We want apartments..... Because you and I can’t live in the same room, we need privacy. We need to build nurses homes where you have apartments with bathrooms, sitting room, kitchen, everything, with screens, and protective shields, iron doors with iron gates. Because at this time in Liberia, armed robbery is high and we need safety.”

**Certified midwife, Montserrado (rural)**

### **Workload and hours worked**

Most health workers complained about the workload being too heavy. Typically, health workers worked much more than they are required to, with no additional compensation given for the extra hours worked, at least for public sector health workers. Hours worked are driven by high volumes of patients per worker, as health workers try to attend all patients allocated to them. Respondents felt that the heavy workload compromised the quality of care as less time was spent on each patient.

Workload varies with location and level of facility. Rural health workers report “always being on call.” Respondents also mentioned low numbers of health workers in hospitals, which causes problems because the referral system increased the number of patients in hospitals.

Most people explained that the heavy workload was a result of the shortage of qualified health workers, which increased the ratio of patients to health workers. Some pointed to how the introduction of the Basic Package of Health Services with its promise of free health service brought additional work.

Reducing the workload was frequently cited as a priority area for change, and the training of more staff was cited as a possible means of addressing this problem. Health workers believed that higher pay would attract people to the health sector generally.

“Sometimes I see perhaps 75–100 people a day. It is a lot of work. You may not be doing well...sometimes after you see the first 25–30 people, you are already tired.”

**Registered nurse, Margibi (urban)**

### **Opportunity for further training**

There was a general thirst for obtaining further training and qualifications among all cadres of health workers, but especially among physician assistants. The term used by the health workers to refer to the opportunity to obtain further qualifications was “to advance” or just “training.” The desire to obtain further training was not directly linked to

higher pay levels (as discussed earlier, pay levels for health workers in Liberia are not linked to qualifications), but rather linked to career progression.

Typically, physician assistants go through a three-year training program, after which they receive a diploma. Although they assume higher levels of responsibility and are considered professionally to be above registered nurses, they do not obtain a BSc qualification. There is therefore no route to career progression for a physician assistant in Liberia, and many expressed frustration about this.

Physician assistants wanted the government to grant BSc level for physician assistant training. They also mentioned that they would value the opportunity to specialize and to receive international training. They felt scholarships places should in the first place be given to those who have undertaken some years of rural service. The traditionally trained midwives would also value the opportunity to “advance” to certificate level, while the certified midwives in turn also wanted their training to be increased to BSc level. However, it seemed that the registered nurses, particularly those in the urban areas, had every opportunity to further their education to BSc or masters level, at least in Liberia. The general feeling was that increasing the number of scholarship placements offered by the government would be seen as an improvement in this regard.

“I would like to encourage the minister to improve the physician assistant school system and grant it a BSc level. They should not train only nurses and doctors. Physician assistants are willing to go into the rural areas so we need to be empowered, not weakened. They should try to improve the roads, send more equipment, and decentralize the physician assistant training.”

**Physician assistant, Montserrado (urban)**

“Sometimes there should be some scholarships for physician assistants. You will be able to improve yourself and specialize in something.”

**Physician assistant, Montserrado (urban)**

“We want to get our license like the midwives, we want certificates.”

**Traditionally trained midwife, Montserrado (rural)**

### **In-service training**

All cadres of health workers were generally very positive about the level of in-service training offered to them. They found the government’s policy to be positive. For example, at the time of the fieldwork, a five-day workshop had been organized in Grand Bassa County and a similar event had been organized in Monrovia the week before. Most health workers had attended some form of case-based training in the previous six months. The health workers valued the opportunity to refresh their skills and keep abreast with new developments in the medical field.

However, the health workers were generally unaware of the selection process for training and workshops. They were hesitant to comment on the transparency. Although not a

priority area for reform, most health workers would welcome more opportunities for more regular in-service training.

“Training will improve your work. You will learn new things .....

**Physician assistant, Montserrado (urban)**

“I go to workshops because I want to be able to defend my credibility. I go there to build up my skills. I have at the back of my mind that I will not remain as a physician assistant forever...”

**Physician assistant, Montserrado (urban)**

### **Promotion and grading structure**

Though an issue seldom mentioned, those who did mention promotion expressed frustration over the fact that the health system has no grading structure. Health workers commented on the lack of reward for higher levels of experience and higher levels of qualifications. Essentially, BSc nurses are considered the same grade as new diploma graduates. This lack of promotion acts as a disincentive for obtaining further education. Promotion for most health workers was associated with higher pay levels and greater levels of management responsibility.

### **Risk and vulnerability**

Some health workers, particularly midwives, were concerned about the exposure to risk, particularly to HIV/AIDS. Risk came about as a result of the lack of “facilities” such as gloves and laboratories. They gave several examples of occasions where they treated patients, aware of the possibility of contracting infections. They also explained that the low salary levels certainly did not warrant taking such risk.

## **3.3 HEALTH WORKER CHOICE OF JOB LOCATION: URBAN OR RURAL**

In Liberia, rural facilities are characterized by the absence of skilled and qualified health personnel. In recent years, the Ministry of Health has attempted to address this issue in several ways, including paying financial bonuses in rural areas and developing a housing strategy for rural area facilities. The reality though is that there are still features of working in rural areas which make rural areas a second choice for new graduates and existing health workers alike.

Health workers pointed to a wide range of positive aspects of rural service. Working in rural areas offered the opportunity to gain a wider experience in a relatively short space of time. This can be explained by several factors: (i) the lack of equipment in rural facilities requires a lot of improvisation; (ii) the absence of senior professionals allows junior staff to take up jobs they would otherwise not be allowed to do in better staffed urban facilities. For example, physician assistants stand in as “doctors,” ensuring that patient conditions are stabilized before they are referred to hospitals in urban centers; and (iii) the presence of a multitude of diseases and longer travel distances means patients

tend to delay care seeking and often present with complications. All these factors encourage on-the-job learning, which health workers find valuable.

Health workers also acknowledged the need for qualified personnel in rural areas because of low health-outcomes. For most health workers therefore, particularly for physician assistants, rural service offered the opportunity to honor their commitment and dedication to their profession.

Some health workers mentioned that the cost of living in rural areas tended to be low. Rents, for example, tended to be cheaper, and when in-kind contributions from community members were added, health workers could save on their incomes. However, the lower cost of housing was easily offset by the higher transport costs of visiting relatives left behind in urban areas.

Although health workers mentioned these positive aspects, the disadvantages of working in rural areas generally outweighed the benefits, and most health workers preferred to work in urban areas, providing some explanation for the current maldistribution of health workers. They pointed to the following disadvantages.

First, even if basic pay levels in urban and rural areas are the same and the living costs in rural areas lower, health workers believed that rural jobs offered on balance fewer opportunities for saving. This was because more senior health workers especially left their children to attend school in urban centers because of the lack of quality schooling in rural areas, limited employment opportunities for partners of female health workers in rural areas, and the high transport costs. Moreover, rural areas offered less opportunity to supplement incomes. Low population density means that business is slow—unlike Monrovia, where health workers could engage in activities like “home service,” or running drug stores and “table markets,” for example.

Housing in rural areas was often deemed to be substandard and lacking basic amenities. Houses in rural areas are usually unplastered dirt-to-dirt, with no plastered flooring, a thatched roof, an outside pit latrine, and no electricity.

Infrastructure in rural areas was considered inadequate. Road conditions (dirt and unpaved) were regarded as deplorable, which hindered access to catchment areas, supplies of medication and salary payments, and access to facilities in emergencies. Means of communication—Internet and mobile phone coverage—were also lacking. Mobile phones were seen as necessary to maintain contact with the family, but more important, for reaching health workers who were off duty in case of emergencies.

Health workers also commented on the lack of social life. Rural areas provide far less opportunities to socially interact. It seemed that one could not enjoy certain general pleasures in life such as night clubs, video clubs, and so on.

Health facilities tend to lack basic medical supplies such as equipment and drug supplies. Drug supply particularly was an issue. It was suggested that poor road conditions slowed down drug supplies. The lack of laboratory facilities was also mentioned, which implied that treatment was often “symptom based,” which compromised service delivery quality.

The workload in rural areas is also often higher because of the limited staff and most rural health workers mentioned “always being on call.” The workload was also often higher because of the intensity of outreach activities.

Finally, rural areas offered less opportunity to obtain further training because of the absence of education institutions and often less information about further training opportunities.

When health workers were asked to identify the various job attributes that would attract and retain them in rural areas, increasing pay levels was, by a considerable amount, top. However, health workers also mentioned the following: (i) improvement in transport conditions, particularly road conditions and means of transport (provision of facility buses or motor bikes, (ii) provision of nurses’ quarters—plastered dirt-to-dirt with basic amenities, (iii) increase in medical supplies, (iv) building schools, especially to high school grade level, (v) decentralizing institutions for further education into rural areas, and (vi) decreasing the workload in rural facilities.

“I recommend that someone considering where to work in the health sector go to the hinterland to help other people. Because in the hinterland people are suffering. There are lots of diseases. ....”

**Registered nurse, Montserrado (urban)**

“I will prefer the rural area because you will have more experience. You will have cases beyond your reach and the doctor on call will explain to you and you will learn a lot.”

**Certified midwife, Grand Cape Mount (rural)**

“Most people do not want to go to the hinterland because there is no money to encourage them. Look at Maryland where there is a shortage of qualified staff, you pay like US\$ 100 for transportation. If you make this amount, it is just for transportation. If you say you are coming back to see your family, what would you bring for them? So, if you want people to go to the rural areas, you must encourage them to go with higher pay.”

**Registered nurse, Montserrado (rural)**

“Sometimes you go there (rural areas), and you find physician assistants, but supplies run out. It takes perhaps a month to get supplies. Sometimes you are left with two or three tablets, when you complain they say “manage with what you have.” Sometimes somebody comes burning and fainting and you give them half a paracetamol and keep the other half. I don’t know how you can manage with that kind of medicine.”

**Physician assistant, Montserrado (urban)**

“In an urban area you will have access to lots of things. Maybe, you will be working and improving your education at the same time..... for me now, I want to do a masters, and I can’t be here [in a rural area] and do that.”

**Registered nurse, Montserrado (rural)**

“The government needs to build colleges in the various counties for people who cannot go to the urban areas. It will bring a lot of professional people.”

**Registered nurse, Grand Bassa (rural)**

## 4. IDENTIFYING JOB ATTRIBUTES AND JOB ATTRIBUTE LEVELS

The choice of attributes for inclusion in the DCE was guided by three principles. First, the frequency with which respondents mentioned an attribute. The rationale for this is that the most valued and important attributes to health workers would naturally crop up more often and therefore warrant inclusion into the DCE. Second, ensuring that attributes were independent of each other to avoid inter-attribute correlation. For example, it would be inappropriate to include both “lack of gloves” and “on-the-job-risk” since they partially express the same concern. Third, amenability to policy interventions and falling within present government capacity to implement them.

The levels assigned to each attribute reflect the range of working conditions that health workers faced and the changes they would like to see. A base level was assigned to represent the existing situation of the attribute in question. A desired level was set to represent what respondents considered an acceptable improvement on that attribute. Additional levels were introduced where no single base level or desired level could be established.

Given that physician assistants assume a greater degree of responsibility and because their training and career path follow a different trajectory from that of nurses and midwives, job attributes and their levels are determined separately for nurses and midwives and for physician assistants.

### 4.1 NURSES AND MIDWIVES

During the interviews with nurses and midwives, five job attributes—pay, transport, availability of material (medical) resources, housing, and workload—were quoted most often. These attributes have therefore been chosen for inclusion in the DCE. Table 4 shows the frequency with which each attribute was mentioned in all 15 interviews.

**Table 4: Attribute frequency: Nurses and midwives (n=15)**

Frequency	Salary	Transport	Availability of material resources	Housing	Workload
Frequency with which attribute was mentioned in all 15 interviews	15	14	13	9	8

Pay was mentioned in every interview, and is therefore the most important job attribute to registered nurses and midwives. The information collected from the interviewees on their current pay and desired pay level (Table 5) together with supplementary information on pay scales from the Ministry of Health was used as a guide to set levels. Registered nurses receive on average a total pay of US\$ 163. The traditional trained midwives and certified midwives receive on average around US\$ 120 and US\$ 143, respectively. We therefore suggest setting the base level for pay at US\$ 150 to capture the base level of all three categories of health workers in this cadre. The other levels are suggested to be set at US\$ 350, US\$ 500, and US\$ 650, which represent on the one hand a reasonable amount

that nurses and midwives said they would see as an acceptable increase from the current base salary and on the other hand the amount that would attract or keep them in rural areas.

**Table 5: Base and desired pay levels per interviewee**

Respondent number	Base level	Desired level at current location	Desired levels if in rural
1	120	500	600
2	-	350	350
3	143	300	300
4	120	350	400
5	163	350	350
6	163	500	700
7	163	500	500
8	163	500	600
9	125	350	450
10	80	350	350
11	213	550	550
12	213	450	450
13	163	450	350
14	143	350	350
15	157	500	650

The nurses and midwives also frequently discussed the issue of transportation which related to different realities such as getting oneself to work, travel to urban centers (where the respondent was based outside Monrovia) and outreach programs and emergency patient transfer. However, the issue of transportation was frequently discussed in relation to “means of transportation.” Therefore from the interviews two levels have been set, namely “own transport” and “transport provided by facility.” When transport is provided by the facility, it would cover all of the areas described above.

The attribute “material resources” encompasses three things: medical supplies (referred to as “facilities” by the health workers), drug supplies, and hospital infrastructure. Nurses and midwives frequently mentioned the inadequacy and/or shortage of medical supplies such as syringes and drips, drugs such as anti-malarial tablets, and hospital infrastructure such as beds. However, the lack of supplies was the most pressing issue and is what most health workers identified with. Nurses and midwives indicated that the unavailability of material resources can compromise the quality of care, but also their own health, frequently mentioning risk to HIV infection. Two levels have been assigned to this attribute: “usually unavailable” and “usually available.”

During the interviews, housing also came up frequently; moreover, housing is currently being considered by the Ministry of Health as an element of a rural retention package. Two levels have been assigned to housing: “no housing provided” and “nurse quarters provided.” “No housing” represents the base scenario for most nurses and midwives in Liberia. When asked what a reasonable improvement would be to their housing situation, nurses were unanimous in responding that they would like the government to provide

nurse quarters. Nurses did not consider housing allowance because of the lack of a housing rental market in rural areas.

The majority of nurses also commented on their workload being too high. They attributed heavy workload to a shortage of skilled personnel and a few health workers referred to the introduction of the Basic Package of Health Services as a driver of the higher workload. Nurses and midwives painted a picture of high patient to nurse ratios, which often led to working outside their regular working hours. They are also not compensated for additional hours, which they generally find unreasonable. rural nurses and midwives especially report to “always being on call.” Two levels have therefore been assigned to workload: “heavy” and “light.” “Heavy” implies a high patient per nurse ratio, with barely enough time to see patients and always being on call. “Light” is taken to mean a moderate number of patients per nurse, enough time to see patients, and working one additional paid-for hour per day.

The attributes and their levels for nurses and midwives, as proposed for use in the DCE, are shown in Table 6.

**Table 6: Attributes and Levels for DCE: Nurses and midwives**

Attribute	Attribute levels			
	US\$ 150	US\$ 350	US\$ 500	US\$ 650
Total pay				
Transportation (means of transport)	Own transport	Facility-provided transport (buses and motor cycles)		
Availability of material resources ("facilities," drug supply, and hospital infrastructure like beds)	Usually unavailable	Usually available		
Housing	No housing provided (pays own rent)	Nurses quarters provided (self-contained apartment)		
Workload	Heavy (high patient per nurse, barely enough time to see patients, always on call)	Light (moderate number of patient per nurse. enough time to see patients, works an extra paid-for hour per day)		

## 4.2 PHYSICIAN ASSISTANTS

Six key attributes were frequently discussed by physician assistants—pay, transport, availability of material resources, housing, workload, and qualifications—and these have accordingly been chosen for inclusion in the DCE. These are the same as for the nurses, apart from qualifications. Table 7 shows the frequency with which each attribute was mentioned in all 11 interviews with physician assistants.

**Table 7: Attribute frequency: Physician assistants (n=11)**

Frequency	Salary	Availability of material resources	Housing	Transport	Workload	Qualifications
Frequency with which attribute was mentioned in all 11 interviews	11	9	8	7	7	7

Pay was mentioned in every interview with the physician assistants. They commented that the amount they receive is not in line with their levels of responsibility and their workload. They made frequent references to the pay differential with medical doctors. Information collected during the interviews (Table 8) and documentation obtained from the Ministry of Health have been used to guide setting the pay levels. US\$ 188 represents the average total pay that a physician assistant in Liberia should be receiving, although at the time of the interviews most physician assistants received less. Four levels have been suggested for pay: US\$ 200, US\$ 375, US\$ 550, and US\$ 725. These levels capture the variation in current pay levels and also reflect how much physician assistants would consider a reasonable improvement and attract them to the rural areas.

**Table 8: Base and desired pay level per interviewee**

Respondent number	Base level	Desired level at current location	Desired level if in rural area
1	213	500	500
2	110	275	500
3	202	355	475
4	120	600	700
5	327	700	-
6	340	500	600
7	490	490	980
8	100	500	500
9	188	300	300
10	213	350	350
11	213	400	400

Transportation was also frequently discussed during the interviews with the physician assistants. Physician assistants gave a reasonable consistent picture of the issues they had with respect to the road conditions and what their desired level of change would be. Like the nurses and midwives, concerns related to transportation was multifaceted, including issues relating to getting to work, transportation to urban areas, and transportation for use by the facility for outreach purposes and for emergency transfer of patients. From the

interviews, two levels have therefore been set: “own transport” and “facility-provided transport.”

Similar to the interviews with nurses and midwives, the availability of material resources—“facilities” or equipment, drug supply, and hospital infrastructure—was a strong theme in the interviews with the physician assistants. They gave many examples of inadequate levels of material resources. They mentioned the inadequacy of more specialized equipment such as oxygen tanks and X-rays. They also seem to be more affected by the irregular supply and shortage of drugs. Two levels have been assigned to this attribute: “usually available” and “usually unavailable.”

Particularly in rural areas where physician assistants are supposed to serve, the availability of “decent” housing is an important issue (see discussion above). Two levels have been assigned to housing, “no housing provided” and “physician assistant quarters provided.” “No housing provided” represents the current situation for most physician assistants, often having to rent mud houses from the community which generally lack basic amenities. A desired level representing what the physician assistants consider an improvement are physician assistants’ quarters in the form of self-contained apartments, which are a superior level of housing than what can normally be found on the housing (rental) market in rural areas.

Like the registered nurses and midwives, physician assistants spoke of a high patient to physician assistant ratio, which meant less time per patient. Many physician assistants in rural areas also referred to being always on call. Physician assistants would like to see an increase in skilled personnel at facility level to reduce their workload. Similar to the nurses and midwives, two levels have been assigned for the attribute “workload”, “heavy” and “light,” defined in the same way as for nurses and midwives.

Most physician assistants during the interviews expressed that they would value the opportunity to “advance themselves.” Currently, the physician assistant program stops at diploma level and there is no apparent route to career progression. Most physician assistants would welcome the opportunity to obtain qualification to BSc level, for example. Physician assistants also mentioned they would value the opportunity to specialize and to receive international training. To support “advancing themselves,” physician assistants would appreciate government support in the form of scholarships. Physician assistants felt that it was reasonable to give priority scholarship places to those who have undertaken some years of rural service. The choice of attribute level therefore refers to the length of time before one is offered the opportunity to further studies. We set two levels for the attribute “opportunity for further training”: “after two years of rural service” and “after four years of rural service.”

The attributes and their levels for physician assistants, as proposed for use in the DCE, are shown in Table 9.

**Table 9: Attributes and levels for DCE: Physician assistants**

Attribute	Attribute levels			
	US\$ 200	US\$ 375	US\$ 550	US\$ 725
Total pay				
Transportation (means of transportation)	Own transport	Facility-provided transport (e.g. buses and motor cycles)		
Availability of material resources (“facilities,” drug supply, and hospital infrastructure like beds)	Usually available	Usually unavailable		
Housing	No housing provided (pays own rent)	Nurses quarters provided (Self-contained apartment)		
Workload	Heavy (high patient per physician assistant, barely enough time to see patients, always on call)	Light (Moderate number of patient per physician assistant. Enough time to see patients, works an extra paid-for hour per day)		
Opportunity for further training	After 2 years of rural service	After 4 years of rural service		

## 5. CONCLUSION

Using a qualitative methodology, this study has identified a set of job attributes with associated values of importance to registered nurses, midwives, and physician assistants in Liberia when choosing a job. The attributes were selected based on the frequency with which they were cited during the interviews. For each attribute the levels were assigned to reflect current conditions and the perceived level of change that respondents would see as an acceptable improvement.

Five attributes with associated levels were chosen for nurses and midwives for inclusion in the DCE. For physician assistants six attributes were chosen. For the nurses and midwives, the proposed attributes were pay, transport, availability of material resources, housing and workload. Physician assistants' attributes were the same with "opportunity for further training" as an additional attribute that was important only to them.

This study has shed light on health workers' working conditions, their preferences for geographic location, and priority areas for change. Generally, health workers seemed unhappy with their pay. They also expressed dissatisfaction with other issues such as availability of material resources, the workload, and transport. Although the study has been carried out to inform the design of a DCE, we believe that it contains information about human resources for health in Liberia that can be useful beyond the DCE design.



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## APPENDIX TABLES

**Table A.1: Participant selection criteria for nurses and midwives**

Dimension	Values			
Gender	Male	Female		
	4 (4)	11 (11)		
Children	With	Without		
	14 (8)	1 (7)		
Age	Under 30	30–50	50 and over	
	1 (7)	11 (7)	3 (1)	
Facility	Hospital	Health Centre	Clinics	
	6 (6)	3 (6)	6 (3)	
Location	Urban	Rural		
	6 (7)	9 (8)		
Cadre	Registered Nurse	Mid Wife		
	8 (10)	7 (5)		
Sector	Public	Faith-based	Private	NGO
	14 (9)	1 (3)	0 (2)	0 (1)

Note: The values in the brackets represent targeted subsample size per selection criteria determined as part of the sampling strategy.

**Table A.2: Participant selection criteria for physician assistants**

Dimension	Value			
Gender	Male	Female		
	7 (11)	4 (4)		
Children	With	Without		
	9 (8)	2 (7)		
Age	Under 30	30–50	50 and over	
	3 (7)	6 (7)	2 (1)	
Facility	Hospital	Health Centre	Clinics	
	5 (6)	3 (6)	3 (3)	
Location	Urban	Rural		
	7 (7)	4 (8)		
Sector	Public	Faith-based	Private	NGO
	8 (9)	1 (3)	1 (2)	1 (1)

Note: The values in the brackets represent targeted subsample size per selection criteria determined as part of the sampling strategy.







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