

Retention of Healthcare Workers One Year After Recruitment and Deployment in Rural Setting: an Experience Post-Ebola in Five Health Districts in Guinea

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Abstract

Introduction

Health workforce reform was undertaken in Guinea in 2016 following the Ebola outbreak to overcome the decades-long shortage and maldistribution of HCWs. This study aims to assess the effects of this programme on local health systems and its influence on HCWs turnover in rural Guinea.

Methods

An exploratory study design using a mixed-method approach was conducted in five rural health districts. Data were collected through a semi-structured questionnaire, in-depth interviews guides and documentary review.

Results

Out of the 611 HCWs officially deployed in the selected districts, 600 (98%) took-up duties. Female HCWs (64%), assistant nurses (39%), nurses (26%) and medical doctors (20%) represented the majority. Findings showed that 69% of HCWs were posted in health centres; the majority of which were medical doctors, nurses and midwives. The deployment has reportedly enhanced quality and timely data reporting. However, challenges were faced by local health authorities in the posting of HCWs including the unfamiliarity of some with primary healthcare delivery, collaboration conflicts between HCWs and the high feminization of the recruitment. One year after their deployment, 31% of the HCWs were absent from their posts. This included 59% of nurses, 29% of medical doctors and 11% of midwives. Main reasons for absenteeism were unknown (51%), continuing training (12%), illness (10%) and maternity leave (9%). Finding showed a confusion of roles and responsibilities between national and local actors in the management of HCWs; which was accentuated by lack of policy documents.

Conclusion

The post-Ebola healthcare workers policy appears to have been successfully positive in the redistribution of HCWs, quality improvement of staffing levels in peripheral healthcare facilities, and the enhancing of district health offices capacities. However, greater attention should be given to the development of policy guidance documents with the full participation of all actors and a clear distinction of their roles and responsibilities for improved implementation and efficacy of this programme.

Context

The situation of skilled healthcare workers (HCWs) in Guinea is characterized, on the one hand, by a “critical shortage”, and on the other hand, a disparity in their distribution between rural and urban settings.[1] For instance, in 2014, before the Ebola outbreak, the density of skilled HCWs in Guinea was estimated at 7.3 per 10,000 inhabitants; meaning that nearly only 8000 HCWs were available to cover 11 million population. This ratio was three times lower compared with the ratio of 23 HCWs per 10,000 inhabitants required by the World Health Organization (WHO) in 2006.[1, 2] In addition, 55% of this personnel worked in the capital Conakry where only 15% of the population lived.[2]

In previous studies, we had tried to understand the contextual factors underlying the shortage of HCWs in Guinea and their low presence in rural areas.[3–5] Results revealed four underlying and interconnected factors. The first factor is the low employment capacity of the state, contrasting with the chronic over-supply of health graduates on the labour market – more than 25000 skilled HCWs trained between 2010–2017.[3, 6] Consequently, many of these health graduates stay in the capital, Conakry where access to (informal) private sector is easier. A relatively low number of them, however, stay in rural health districts, where they have been working for years as informal HCWs (e.g. volunteer or contractual workers) in public health facilities with the prospect of been prioritized by state actors in recruitment processes.[3] These HCWs play a pivotal role in healthcare delivery in rural and underserved health districts, where they make up 68–71% of the overall (formal and informal) workforce.[3] The second factor is related to the sub-notification of HCWs in the country. In fact, despite the role informal HCWs play in the health system, only public HCWs are reported in official payrolls of the workforce.[3, 5] The third factor is linked to the centralized-type of HCWs governance; resulting in their inequitable recruitment and management, and high turnover of public HCWs who are often recruited from the capital, Conakry.[3, 4] In addition, the lack of financial and non-financial incentives for rural practice; the discriminatory management (access to continuous training and administrative position); and high workload of HCWs staying in rural areas do not favour their retention in these settings.[5] Finally, factors acting

outside the health system such as the inadequate living and working conditions in rural settings negatively influence the presence of HCWs.[5]

Nonetheless, in the aftermath of the Ebola outbreak, efforts were made by the Guinean government, with the support of development cooperation initiatives, to strengthen the health system, and to make it resilient to future epidemics, through improved availability and distribution of HCWs.[4, 7] Initiatives that resulted from this reform allowed the recruitment of over 5,000 HCWs between 2016 and 2017 and their majority deployment (95%) in rural health districts in April 2017.[4] In addition, and as recommended by the WHO, exceptional regulatory and financial measures were applied to this new staff in order to increase their motivation for working in their assigned areas and also limit their turnover.[4] These measures include the signing of a five-year contract for rural practice; a 40% increase in their salary; the delocalization, at district level, of the salary payment; the creation of a directorate of human resources for health within the Ministry of Health (MoH) with more responsibilities in this staff supervision.[3, 4] Furthermore, international actors have established a budgetary-support to the post-Ebola HSS reform, but conditional to the achievement of a minimum retention rate of 80% of HCWs in their assigned locations.[4]

Therefore, the main objective of this study is to document the implementation process of this post-Ebola HCW retention policy at local (district) level and assess to what extent this policy would influence the turnover of HCWs in rural Guinea. Three main research objectives have been identified:

1. To analyse the effects of the post-Ebola deployment of public healthcare workers on local health systems and services;
2. To analyse barriers and enablers of the retention of public healthcare workers in rural areas;
3. To assess the turnover of public healthcare workers one year after their deployment.

The relevance of this research resides in its potential for providing information on factors influencing the retention of HCWs in the post-Ebola context in rural Guinea. Such findings would support policy-making and programming and guide the post-Ebola HSS reform.

Methods

Analytical framework

Bilodeau analytical framework in Fig. 1 was adapted to guide the analysis of barriers and enablers of the retention of HCWs in rural Guinea in the post-Ebola context (research objective 2).

The model describes the retention of HCWs in rural and remote areas as the result of a three-stage decisional phase: attraction, installation and integration.[8]

- Attraction refers to "a positive attitude regarding the exercise of medicine in rural areas which does not necessarily lead to installation";
- Installation consists of the realization of attraction and the decision to settle and practice in a given area;
- Integration is defined as a result of experiencing living and working conditions in a determined area.

At each decisional phase, various personal or individual, occupational or professional, and contextual or environmental factors influence the experience of HCWs and consequently, their decision to leave, or not, a given location.[8]

Study setting

We selected the regions of Boké, Kindia, Labé, Kankan and N'zérékoré because of their "critical shortages" of HCWs compared with other regions of the country. In each of these five regions, we purposively selected one health district based on differences in health indicators, geographical accessibility, demographic characteristics, and local living conditions (Table 1). Explanatorily, some of the study sites are easily accessible from the capital, Conakry (Boffa and Forecariah), economically attractive (Siguiri), while others are relatively isolated (Mali, Yomou).[9, 10] Therefore, the selection of health districts with different characteristics would help to generate variability in factors affecting the turnover of HCWs in rural Guinea in the post-Ebola context. Overall, 611 HCWs were deployed, by the Ministry of Health (MoH), in the five health districts, by April 2017 (Fig. 2).

Table 1 Background information on study sites socio-economic, demographic, geographic and health system characteristics, Guinea, May 2020.[10]

Characteristics	Forécariah	Boffa	Mali	Siguiri	Yomou
Region of :	Kindia	Boké	Labé	Kankan	N'zérékoré
Regional population size	1 813 979	1 259 075	1 154 296	2 281 221	1 834 758
Sources of income	Illegal diamond mining, trade, agriculture, animal breeding and fishery	Bauxite mining, Agriculture, animal breeding and fishery	Agriculture and animal breeding	Gold mining, agriculture, animal breeding and fishery	Agriculture, animal breeding and fishery
Population under the poverty line	62%	59%	65%	49%	67%
Number of districts administered	5	5	5	5	6
Adult literacy	30%	32%	23%	18%	27%
Health indicators ^{**z,1}					
Immunisation coverage of under 1 year children	12%	17%	8%	36%	35%
Health service utilisation	18	13%	15%	12%	18%
Anaemia in children 6–59 months	75%	69%	71%	78%	76%
Assisted birth delivery	43%	39%	44%	61%	72%
Geo-demographic characteristics					
Distance from the capital, Conakry (Km)	100	146	557	771	1,029
Population density (<i>inhabitants per square km</i>)	62	47	36	61	32
Population in remote zones	91%	96%	98%	80%	93%
Level of isolation	Good	Very good	Very poor	Good	Very poor
Health facilities	1 hospital, 10 health centres, 4 formal private facilities	1 hospital, 8 health centres, no formal private facility	1 hospital, 13 health centres, 2 formal private facilities	1 hospital, 15 health centres, 10 formal private facilities	1 hospital, 7 health centres, 3 formal private facilities

Study design

This was an exploratory study design using a mixed-method (quantitative and qualitative) approach.[11] Because of the research question, priority was given to the qualitative component of the study.

Sampling and recruitment of participants

A stratified purposive sampling technique was used to guide the selection of study participants for the qualitative component of this study.[12] The first stage of this technique consisted of the identification of five sub-groups of study participants: (1) local government officials, (2) local health authorities, (3) community representatives, (4) local health facilities and services managers, (5) healthcare providers (former and new - under the post-Ebola retention programme). Participants were then selected from each of this sub-group in a purposive manner to ensure that the sample was of “maximum variation”, that is, participants were selected as much as possible, according to the heterogeneity of their age, gender, education level, years of experience and professional practices. [13] This sampling technique allowed us to describe and analyse in detail perceptions within and across the sub-groups.

For the quantitative component, HCWs under the post-Ebola retention programme and present at their post, during data collection, were systematically enrolled in this study.

Data collection

Data were collected using a questionnaire, an in-depth interview guide and a documentary analysis.

Two researchers from the National Research and Training Centre (CNFRSR) of Maferinyah, and respectively 10 research focal points and medical graduates (two per health district) conducted 120 in-depth interviews with local government officials (4%), local health authorities (17%), community representatives (10%), health facilities and services managers (27%), and healthcare providers (42%). All interviews were conducted in French.

The research focal points included HCWs under the post-Ebola retention programme with great interest in the study, and holding positions of responsibility: responsible of health human resources, planning, research and training units) at the district level. The medical graduates were selected from the Public Health Department of the University of Conakry and part of the study data were used for their thesis. The pre-test of data collection tools was conducted in health facilities in locations different from study sites.

The documentary review focused on official acts, texts, payroll records and HCWs registries available in the study sites.

Data analysis

Interviews were transcribed and coded manually following a thematic analysis approach.[14] Data were thematically organised and analysed based on the research objectives: (a) perceptions and experiences about the effects of deployment, (b) factors influencing the attraction, installation, and integration of HCWs, (c) underlying factors of the turnover of HCWs, (d) proposed solutions for improving the on-going retention policy.

Data from the questionnaire were entered into a dedicated EpiData database (version 3.1 for entry EpiData Association, Odense, Denmark).

Key variables definition

HCWs turnover was understood as a result of job dissatisfaction, which can be assessed by the absenteeism, intention to quit and the demotivation to stay.[15] As for absenteeism, it was defined as the unavailability of HCWs under the post-Ebola retention programme at their assigned health districts during the data collection period. The terms “medicalization of health centre” was used to defined the posting of a medical doctor at primary health facility.

Results

Based on the study objectives that guided the data analysis, the results are presented below according to the different emerging themes.

Effects of the deployment of HCWs on local health systems

Out of 611 HCWs officially deployed in the selected rural health districts in April 2017, 600 (98%) took-up duties. The distribution characteristics of these HCWs are depicted in **table 2**.

Female HCWs accounted for 64% of them. Assistant-nurses (39%), nurses (26%), medical doctors (20%), and midwives (12%) were the most represented socio-professional categories.

Overall, HCWs were mostly posted in health centres (69%) and district hospitals (26%). Moreover, 42% of medical doctors (49 out of 118), 71% of nurses and 76% of midwives were assigned to health centres.

Two main themes emerged from the interviews with participants when asked about the potential effects of the deployment of HCWs.

First, respondents stated that the EVD outbreak led to “job-abandonment” of many unemployed HCWs because of the fear of contracting the disease or the take-up of employment offers in epidemic control programmes, especially with international organizations. As such, according to them, the deployment of HCWs helped to fill this gap and improved staffing levels.

Second, according to participants, the deployment allowed the staffing of managerial positions with qualified HCWs owning several competencies, for example in computer processing, teaching and care delivery. This according to participants, resulted in better care organization through the sharing of task and workload among the staff but also in timely reporting of completed and good quality data.

... we have fully staffed, for the first time, our organic framework Today many technical problems with our computers, or the making of patients' consultations notebooks are solved on the spot by this personnel ... Now, the units of statistics, planning and training are held by medical doctors across the country ... it helps to the rapid [timely] reporting of completed and good quality data ... (IDI# 28 local health authority)

However, four challenges were reportedly faced by local health authorities, and health facilities and services managers during the posting process of HCWs.

First, participants reported that many HCWs were unfamiliar with delivery of primary healthcare in rural settings. This, according to participants, were due to the fact that few had experience and acquaintance with medical practice or were rather accustomed to the delivery of care in hospitals and urban settings. Some local health managers reportedly organized intensive on-sites trainings, for HCWs, on the functioning of primary healthcare facilities, especially immunization, maternal and primary curative care.

Second, the high proportion of female HCWs was another reported challenge as many were pregnant or breastfeeding at the time of the deployment. This pushed local health authorities to predominantly (re) assign female HCWs to urban or easy-to-access rural health facilities and as to compensate for it, unemployed HCWs (mainly males) were reallocated to rural and hard-to-reach areas with some incentive packages (e.g. allocation of 10-20% of healthcare facilities monthly income).

Third, some local unemployed HCW left public health facilities as a result of their frustration for not been recruited.

... We have work for several years here but the district health director never manages to recruit us as public servants ... We [eight of us] decided to create our private cabinet... we see over 300 patients per month [more than most health centres in the locality do] and the income we generate daily [from patients] is used to buy food and eat together... Patients prefer coming to us because of the trust we built with them over the years we were working in the public health facilities... (IDI# 11 health provider)

Fourth, participants reported collaboration conflicts between new and former HCWs. These were mainly sustained, according to participants, by the perceived unequal treatment of HCWs vis-a-vis appointment at positions of responsibility which were in favour of new HCWs. This impacted healthcare organization and functioning in some health districts, especially in the conduction of health services monitoring and evaluation activities.

To address collaboration conflicts, some local health authorities carried out a complete reshuffle of management positions in the frontline health facilities including sending former HCWs, especially health services managers, to places unfamiliar to them.

Finally, it emerged from interviews that HCWs were posted in local health facilities without a proper task description. According to respondents, this resulted in less accountability of HCWs and reportedly accentuated collaboration conflicts between them, as quoted below.

... it is the traditional birth attendant and assistant-nurses who have been delivering births here and that has not changed even with our presence [after our assigning] ... But it is difficult to do anything in this situation because no written document distinguishes the roles of an assistant-nurses, a nurse or a midwife... We have been parachuted here without any documentation on our roles and responsibilities and this limits us in our work and the claiming of our rights... (IDI# 6 health provider)

Barriers and enablers of the retention of health workers

This section on the barriers and enablers of HCWs retention follows the elements of attraction, installation and integration, according to Bilodeau analytical framework.

Attraction factors

Overall, respectively 85% and 68% of the new HCWs reported that they were well received by local health authorities and the local communities during the take-up of duties (Figure 2).

From the interviews, three main reasons emerged as factors attracting HCWs in rural Guinea in the post-Ebola context.

First, the desire to become a public servant was an important attraction factor for rural practice. For some participants, the advantage related to the status of public servant is that it provides a lifetime guarantee and requires fewer constraints and working time as usually required by the private sector. For some other HCWs, it offers an opportunity to become independent from the family or the spouse after several years of dependency and its related-financial implications in, for instance, supporting education and living expenditures.

... Public servant status gives a lifetime guarantee... You can still be paid even when you are sick or retired... working in the private sector represents a risk even though it pays well... (IDI#12 health provider)

Second, working in rural areas was perceived by HCWs as an opportunity to continue practising medicine and learning from another context. For some HCWs interviewed, especially nurses and midwives, health facilities in rural areas are less staffed compared with urban settings, and in that sense, offer unique learning opportunities. For instance, some nurses and midwives reported that working in rural areas provides more responsibility and help to acquire knowledge which is only dedicated to medical doctors in urban places.

... As a nurse, practising in rural areas gives a lot of learning opportunities... Here I have been taught how to examine a patient including using a stethoscope but in the national hospital I worked before, I could only inject patients or ensure their nursing ... (IDI#38 health provider)

Third, some HCWs stated that they were attracted by rural practice because of their vocation to help disadvantaged population like those living in rural areas. They justified this by their involvement in humanitarian projects in rural areas, be it their actual assigned zone or not. For this group of HCWs, they are interested working anywhere if the need arises.

Installation factors

The role of local health authorities and community representatives were repeatedly mentioned by HCWs as a favouring factor for their installation, particularly in rural areas. In some places, the facilitation of accommodation acquisition, the donation of food and cooking utensils to HCWs and provision of means of transport (administrative and personal) was reported.

However, difficulties were reported by some HCWs during their installation. These were related to lack of housing especially in urban and mining areas, the working atmosphere, and local living conditions (roads, food, etc.).

First, participants reported the difficulty in obtaining houses.

It was reported that HCWs stayed in health facilities for a while before getting an accommodation. Because of this, some HCWs temporarily left their assigned post. These participants highlighted that they were afraid of contracting nosocomial infections while they also had financial difficulties in bearing the costs of housing. They suggested that the state give installation bonuses to facilitate HCWs installation process in rural areas.

Second, some HCWs reported collaboration conflicts with former workforce in their assigned positions. This, according to them, exist because the former staff considered them a threat to their position of responsibility. The role of HCWs parents was crucial, at this stage, for motivating them not to leave their posts.

... It was not easy to work with them... It was not easy at all... I went back to Conakry and informed my parents ... they are the ones who encouraged me to come back to my post... My mother told me, it is a public service, not someone's property, you cannot leave your job

because of someone attitude towards you ... (IDI#34 health provider)

Other attitudes were also adopted by HCWs to cope with this situation; the most important of which were the exclusive focus on the provision of care (financial management left to the former staff), and the avoidance of calling oneself a civil servant.

Third, with regards to living conditions, we quote below a HCW.

... I was assigned to Mixi [fictitious name] ... Cars only go there once a week... when I arrived in the village [place of deployment], I cried and I said to myself why did the state do this to me? ... my first 2 nights here, I didn't sleep at all... I took it as a punishment from the state... (IDI#12 health provider)

Integration factors

Up to 69% of HCWs surveyed were not satisfied with their living conditions. However, respectively, 62% and 74% were satisfied with their salary conditions, professional situation, and 85% felt secure at work (Figure 3).

Poor living conditions, low salaries and limited learning environment were mainly identified as factors impeding the integration of HCWs in rural areas. With regards to living conditions, the difficulties of accessing schools for children, electricity, potable water, internet and decent housing were considered major obstacles.

... Here is an island, there is no potable water... the water of the wells is salty; we have to buy the packets of water in town [sub-district located 15km away] ... (IDI#17 health provider)

Issues such as difficulties for children to readapt to the new situation of the family, the fragile health status of a family member, inaccessibility of the currently assigned zone were also reported. From some married female HCWs point of views, staying far away from ones' husband and family is not well perceived in Guinean context.

"...Being married and staying away from your husband for months is not well perceived by society... people often downgrade you... They think you are in extramarital relationships with your colleagues or managers or that you have no sense of social value... If you have a jealous husband or an annoying family-in-law, they will always ask you to choose between your work and your family... (IDI#42 health provider)

Salaries were a major concern for many participants but with a different effect depending on individual characteristics. For HCWs with many people to care of (including their children) and previous exposure to private practice (including working with international organizations before their recruitment), the major concern was the insufficiency of salaries along with the lack of alternative sources of income in rural areas to cover actual expectations and needs of the family.

In some study sites, local health facilities managers were allocating financial bonuses to HCWs to compensate for low salaries. This included the sharing of 10-20% of the healthcare facilities monthly income to HCWs as motivational bonuses. Exceptionally, in some mining zones, health facilities managers authorised HCWs to sell their medicines during night-shifts, but under the supervision of a regulatory committee which control drugs quality and sale prices.

For HCWs posted in rural and hard-to-reach areas, the lack of financial compensation for geographic distances and difficult living and working conditions were reported as factors inhibiting their integration. For example, some HCWs complained that current salary payment method was creating inequality at the disadvantages of HCWs posted in hard-to reach areas compared to their peers working at district level. HCWs posted in hard-to-reach settings have to pay part of their salaries as transportation fees for accessing them at the district health office – salaries are paid, by cash, at the district health office– while their colleagues staying in urban areas are not exposed to such extra expenses.

Other elements inhibiting the integration of HCWs was the under-utilisation of health services by communities in rural areas. According to participants, the population in remote areas utilise health services once a week and exceptionally during three months of the raining season – which corresponds to high malaria transmission period. Many midwives also supported that birth deliveries are attended in communities, by traditional birth attendants, and only a few of them are referred to them at the stage of complications.

Turnover of healthcare workers

Absenteeism

413 (69%) were present at their assigned posts 12 months later. This represented a 31% absenteeism rate among recently deployed HCWs (Fig.5).

The sociodemographic characteristics of the health workers present in their post 12 months after their deployment are presented in table 3. Absenteeism rates were more pronounced among female HCWs (33%), medical doctors (47%), nurses (31%) and midwives (29%).

Reported reasons for absenteeism

Figure 6 depicts the reasons for absenteeism of new HCWs. The reason for absenteeism from work was unknown/non-justifiable in 51% of cases meaning that these HCWs left their posts without prior request and authorization of their supervisors. Continuing training (12%), illness (10%), maternity leave (9%) and redeployment to another health district (7%) were the other most common reasons for absenteeism.

None of the above reasons was documented at local levels and interviews revealed an underlying factor: patronage attitudes of health system actors both at the central and local levels.

First, actors from the central and regional levels of the MoH were reportedly influencing decision-making processes regarding the management of some HCWs. For instance, participants reported that training leaves and redeployment acts were exclusively delivered by the central administration of the MoH and without prior consultation of local health authorities. Also, according to participants, some decision-makers from the central and regional levels were involved in leaves requests concerning their relatives, especially in district surrounding the capital Conakry.

... More than 80% of the health personnel affected in Coyah, Boffa, Kindia and Forecariah were women... And most of them have their husband working in different ministries and departments in Conakry... What can a health centre or a district health manager do when, for instance, a national director asks him to allow his wife joining him in Conakry for whatever reason? " (ID# 8 local health manager)

Second, at district level, maternity and annual leaves were allocated by local health authorities without proper coordination with community representatives, the local administrative authorities and sometimes, local health facilities and services managers. Because of this, according to participants, some HCWs are exceptionally paid through money transfer platforms and thus, exempted from the regulatory (coercion) mechanisms currently in place such as requirements for physical presence before accessing salary.

Third, at facility level, the two above factors were influencing the attitudes of local health facilities and services managers towards absentees. Some of them pay no attention to management issues of the new HCWs either by the fear of receiving blame from supervisors (at the district, regional or central level), or for not favouring "double standard" in the management of the personnel.

... we have visitors here not health workers... they come to visit us at the end of the month to benefit their salaries and go back to Conakry... we can't blame them because they make the effort to come at the end of the month unlike others who left months ago, and in full view of all... (ID# 65 local health facility manager)

Intention to quit the next 12 months

Overall, only 18% of HCWs present at assigned post 12 months after deployment expressed their intention to quit their position in the next 12 months (Figure 7). Private health sector and government health facilities in other locations of the country were commonly cited as their potential destination.

We identified six main factors underlying the intention to stay for the next 12 months. Some of the factors are inter-related: the sense of engagement with the state, the fear of losing the job, deployment in a preferential zone, support and cooperation of the spouse, and the holding of a position of responsibility.

For instance, some participants reported the fear of losing their job as a reason for staying at their current position. For participants of this group, they would have been more motivated to work if they were deployed in their preferential district.

I was indeed ready to come in the rural zone but I would prefer to be deployed to Kissidougou [another rural district, 601 km far from Conakry, the capital] where my Mother stays or to Siguiri where two of my Brothers live... But I had to come if not I would have lost my job... (IDI#52 health provider)

Similarly, the local salary payment serves as a coercive measure constraining health personnel to work in the deployed zones.

... Now we have a means of pressure on them [health workers] which is the salary... Several of them [health workers] had left their posts for unknown reasons and since they were prevented from receiving their salary, they have returned... At the moment, there is even a woman who had joined her husband and stayed there for more than 4 months; her salary is being frozen. Once back, she will have to stay at her post for at least 60 days before she has access to her entire salary... (IDI#89 local health authorities)

Also, the agreement and support of the family especially the spouse was also reportedly an influencing factor for taking up services. Many of these participants were married women and stated that the encouragement and support of their spouses in "family re-organization" was crucial in this process.

My husband was cooperative... he supported me and encouraged me to take up my functions here... the only challenges we faced was how to reorganise our family to the actual situation... We agreed that I came with our last born and took the two others to my sister... She is a teacher and would take care of them as her own... (IDI#21 health provider)

Discussion

In this section, a three-way discussion of the findings is undertaken, following the study objectives. First, the effects of the deployment of HCWs in terms of need-based distribution and relevance to the needs of the local health systems. Second, the analysis of the post-Ebola retention policy and finally, absenteeism of HCWs one year after their deployment.

Effects of the deployment of HCWs

Our finding on the distribution of HCWs shows that some of the initial objectives of the post-Ebola HCWs reform were achieved. First, more than two-thirds of the workforce were assigned to primary healthcare delivery facilities, predominantly located in rural and underserved settings where the majority of Guinean population stays and where healthcare delivery capacities were previously substantially limited because of a "critical shortage" of HCWs.[3,16] A plausible explanation of this finding could be the decentralization of the HCWs posting functions to local district health authorities. Indeed, before the Ebola outbreak, HCWs were directly posted by the central administration of the MoH without prior consultation with, and need-based assessment of the local health system authorities. [17] In 2011 for instance, 53% of the 1,240 HCWs recruited were directly posted, by the MoH, in health facilities located urban areas; contributing to the accentuation of the geographical maldistribution of HCWs between rural and urban areas. Other studies have described the impact of decentralization of HCWs functions, including the posting, on ensuring a responsive distribution of HCWs. [18,19]

Second, the data show that primary health facilities were mostly staffed by formal skilled HCWs. A valuable component of this was the medicalization of almost nine out of ten health centres in the study sites. Evidence sustains that the medicalization of health centres expands the range of health problems to be addressed at primary level, increases the quality of service provide, and restores credibility to the health system.[20] Further investigation is needed to explore whether the "quality improvement" in staffing levels of primary health facilities reported in this study would lead to improved access and quality of care in rural Guinea in the context of lack of financial protection in access and utilization of healthcare services.

However, results revealed several challenges local health authorities and services managers faced to reorganize the health services and retain some HCWs in public care delivery following the posting of the new workforce. One of the challenges found and emphasized by local stakeholders was the gender imbalance with many deployed female HCWs, alongside their perceived challenges to cope with living and working conditions in rural areas. Previous studies in Niger, Ethiopia and Rwanda have shown that female HCWs are less inclined to work in rural areas compared with their counterparts.[21,22] Local health authorities readapted to this situation by (re) allocating many female HCWs, especially pregnant and breastfeeding women, in urban and easy-to-access rural areas. This was likely

done to facilitate their mobility as cultural norms pertaining to most West African countries support that married female HCWs are expected to follow their husbands.[22] Nonetheless, in the Guinean context, and as shown in this study, female HCWs exclusively make up 100% of midwives and an overwhelming majority of nurses specialities (assistant-nurses and nurses); the main provider of maternal and child care.[2] This finding puts a spotlight on the need for rethinking the recruitment and deployment strategies of the workforce in Guinea to optimize their effects and (future) impact on the local health system and population health. This is all the more necessary as the medical sector is increasingly becoming, economically, less attractive to the male gender.[23,24] Creating a favourable environment for female HCWs, through the testing of strategies, such as the rural pipeline suggested by the WHO – which consist of training HCWs locally, recruiting, maintaining and providing them with the necessary support needed for the fulfilment of their roles but within their usual environment – would increase their ability and motivation to work in rural settings.[22,25–27] In Burkina Faso, for example, the regionalization of the recruitment of socio-professional categories dominated by females HCWs like nurses, midwives, and auxiliary midwives was proven effective in retaining HCWs in rural areas and correcting uneven distribution of HCWs in some regions.[28] Besides, evidence sustains that if placed in favourable conditions, female HCWs are likely to provide quality care, comply to guidelines, write fewer prescriptions and refer cases more often compared with their male peers.[29]

Local stakeholders faced difficulties in managing the former HCWs, especially volunteers and contractual workers, to make them adhere to the posting of the new workforce. Reasons for this included their frustration for not being recruited and the loss of positions of responsibility; resulting in job abandonment in the public sector and collaborative conflicts among HCWs. This is of particular concern given the role of volunteers and contractual workers in Guinean health system.[3] Several strategies were adopted by local health authorities to mitigate these “unintended” effects of the posting of HCWs including the transfer of volunteers and contractual workers in peripheral health facilities and incentivising them with financial bonuses generated through their activities. In the context of lack of social security, poor supervision and management of HCWs in Guinea, such strategy may expose the rural population to higher informal out-of-pocket payment incompatible with their economic status and the initial objectives of the post-Ebola health system reform [3,16,30].

Analysis of the post-Ebola retention policy

Following Bilodeau framework, we analysed that HCWs are strongly motivated to practice in rural settings during their recruitment but, however, this motivation is reversed along their deployment, installation and integration phases. Reasons for this include the mismatch between personal choices and actual places of deployment, professional dissatisfaction, and inadequate living conditions.

Findings show that HCWs attraction in rural Guinea is strongly affected by the desire to become a public servant and the learning possibilities that rural areas offer. These findings concur with others conducted in rural Senegal and Niger.[31,32] This motivation, in our context, stems from the labour market features which is characterized by a chronic oversupply and underemployment of HCWs alongside difficult learning possibilities in urban health facilities – as a consequence of high staffing levels of healthcare facilities – especially in the capital Conakry.

Shortly after their recruitment, participants indicated that factors such as the deployment in non-preferential locations, and for married women, challenges for family reorganization and the opposition of spouse contributed to their discomfort for joining their assigned locations. Nevertheless, this seems not to affect services take-up which was as higher as 98%.

Overall, barriers for HCWs installation and integration in the current study seem to be multifaceted and related to the structural (housing, electricity, potable water and schools for children), organizational (salary levels and payment methods, difficult learning environment, and inadequate supportive management), socio-cultural (poor health seeking behaviour leading to under-utilisation of health services and demotivation to stay in assigned locations) environments in which the local health operate as well as personal characteristics of the workforce (gender, living standards, rural background). In response to these barriers, various “coping strategies” and mechanisms were undertaken by the workforce (seeking advices and focusing on healthcare provision in order to avoid conflict of collaboration with former HCWs), local health authorities (internal rotation, reorganization of services taking into account social endeavours of HCWs) and communities (provision of food and housing) to support the staff and facilitate its installation and integration. Despite the positives discussed above, this post-Ebola HCWs retention programme tends to privilege the “one size fits all” approach in the installation and integration phases of HCWs. This approach consists of considering salary only sufficient for motivating and retaining the workforce in rural areas. Indeed, the on-going retention programme in Guinea excluded financial (hardship allowances), non-financial (training and career development prospects) incentives allocation as core components of the successes of several rural retention policies in Western

Africa and beyond [25]. For instance, financial compensation for geographical distances, living and working conditions for health professional working in rural Niger improved their availability and retention between 2005-2008 [33]. In Mali, meanwhile, the programme for the medicalization of rural health areas retained, for four years, medical doctors because of its training package [20,34]. The provision of housing and children scholarships encouraged health professionals to stay in rural Kenya and Zambia [35].

Absenteeism of health workers

Evidence from previous studies in Guinea have shown an absenteeism rate of ~43% among public HCWs, and the underlying factors for this included low salary – pushing them to a dual practice phenomenon only possible in urban areas –, the centralized management of HCWs including salary payment.[3,16] However, despite the delocalization of salary payment and the 40% increase in the salary level of the workforce in the post-Ebola context, national supervision conducted in November 2017 (seven months after deployment) by the MoH, in our study sites, showed 20% absenteeism rate among HCWs.[36] This is relatively lower compared with the 31% absence rate observed in our study. The unofficial and unannounced characters of our data collection, as opposed to national supervision, could explain this difference in absenteeism rates. Other authors have previously reported higher absence rates in five developing countries including Uganda, Bangladesh, and Peru during unannounced visits compared with announced ones.[37]

Our finding, however, revealed the poor monitoring and accountability of HCWs which might have led them to adopt a “leave but stay tuned” strategy. This strategy consists of leaving one's post without a valuable reason and joining as soon as a national mission is announced, especially in the districts surrounding the Capital. Indeed, our finding showed that up to 51% of absenteeism observed was of non-justifiable reasons meanwhile, such reason of absenteeism was not reported during the national supervision.

Underlying causes for absenteeism pointed out by participants included the lack of transparency and effective coordination in decision-making processes for leaves allocation. HCWs absenteeism is known to compromise health system effectiveness and (quality) healthcare services delivery, and led to important economic losses, particularly in under-resourced health systems, where salaries are a substantial part of the health budget – in Guinea, 80% of the budget allocated to health goes to HCWs salaries.[4,38] To mitigate these, the implementation of regulatory mechanisms had been proven effective in many countries. These measures vary from the carrots (e.g.: providing learning opportunities or financial rewards for good attendance) to the sticks (e.g.: attendance policies, documenting the process for absence review, defining disciplinary procedures for absence, monitoring, audit, and dismissal or forced retirement) methods.[38–41] In the weeks following the national supervision of November 2017, 92 HCWs were dismissed nationwide from the public services as a result of, among others, their absence at their assigned posts (42%), being non-healthcare professional (32%). These 92 people were replaced, in the public health workforce payroll, by other HCWs. However, until today (July 2020), we are not aware of any other national supervision undertaken by the MoH. This infrequent national supervision of HCWs – plausibility due to financial constraints – raises the need for empowering local authorities, including actors outside the health sector such as community representatives, in the management of the HCWs in Guinea.

Furthermore, it appeared that no policy and guidelines existed to support the post-Ebola retention policy in Guinea. Although this was not the focus of our study, it emerged as important during the research. The lack of policy and guidelines on the on-going programme has led to some confusions of roles and responsibilities between central and local stakeholders in the decision-making processes regarding the management of HCWs. For example, there existed no clear principle guiding and documenting the redeployment and allocation of training leaves by central administration. This may undermine the earlier positive effects generated by this policy. However, a national policy of HCWs development was elaborated in July 2019 with the aim at “ensuring, by 2024, the availability in adequate quantity and quality, in all professional and technical positions, of well-motivated HCWs who are individually and collectively committed to performing their duties in a decent work environment”[42]. A further step to this policy development would be the elaboration of a strategic plan for the development of HCWs in the post-Ebola context including a comprehensive detail of the on-going programme for meeting the needs of HCWs in rural Guinea. A clear distinction of roles and responsibilities of central and local actors (in and outside the health sector) need to be ensured to avoid incoherent decision-making in the management of HCWs (e.g: leaves allocation). Moreover, the development of guidelines on primary healthcare (immunization, maternal and child health, nutrition, healthy lifestyle etc.) is needed to support management capacities of local health services managers. Finally, the development of job descriptions of HCWs need to be done in order to alleviate or minimize the underlying factors and effects of collaboration conflicts between professionals.

Study limitations

This study has some limitations. First, the analytical framework used to guide this research is on the retention of HCWs, and not necessarily for evaluation of the implementation process of HCWs retention policy. Additionally, no baseline data were collected at the beginning of the deployment to include all HCWs who took up duties. If done, this would have allowed a comparison between baseline data and data collected one-year after. This fact might have led to the underestimation of certain findings such as the intention to quit, dissatisfaction with the professional situation. Explicatively, it is likely that HCWs present on the study sites during data collection were more satisfied with their living and professional situation and therefore, less inclined to quit their job compared with those absents. Second, the subjective reporting of reasons of absenteeism could constitute an information bias. Indeed, in the absence of administrative documents justifying the absenteeism of HCWs, health facilities and services managers were the main sources of information for this study variable. Third, this study took place in a moment where HCWs turnover is a sensitive issue for both local and national actors. It is, therefore, possible that some HCWs were contacted by their managers or colleagues to temporarily re-join their positions during the data collection period. This may have led to an underestimation of the absenteeism rate reported in this study. Another limitation, not the least, is inter-coding biases which should have been addressed by having two or more people coding the interviews separately and agreeing on findings upon team consultation. Because of time constraint, only one interviewer could code the interviews. Finally, as quotes were translated from French to English, possible bias related to language interpreting might be associated with findings.

This study's strength resides in its mixed-method design (qualitative and quantitative) and the diversity of the data collection tools and study participants allowed triangulation.[43] The data were collected by a research team familiar with qualitative research methods and the local context. Besides, this research covered five rural health districts with different socio-demographic, geographical and economic characteristics. Therefore, the transferability of findings to nationwide relevance for Guinea should be possible.

Conclusion

This study is the first to document the implementation process of the post-Ebola healthcare workers retention policy in rural Guinea. This programme appears to have been successfully positive and met some of its initial goals of the redistribution of healthcare workers and the quality improvement of staffing levels (e.g. the medicalization of health centres) in peripheral healthcare facilities, and the enhancing of district health offices' capacities (e.g. timely reporting of data). The delocalization of salary payment has relatively empowered local health authorities in the management of healthcare workers, and salaries serve as an instrument for the regulation of health workers' absenteeism. As the results show, however, the effects of this programme could be improved by prioritizing local recruitment and deployment of healthcare workers and developing strategies to mitigate HCWs absenteeism. More attention should be given to the development of policy and guiding documents with the full participation of all actors (including local stakeholders) and a clear share of their roles and responsibilities for improved implementation and efficacy of this programme.

Declarations

Ethics approval and consent to participate

The Ethical approval of this study was granted by the National Ethics Committee in Health Research of Guinea (CNER) in October 2017 (*number: 076/CNERS/17*). Study objectives were depicted to all participants, and verbal consent obtained before interviews. The anonymity of the participants interviewed was maintained throughout the research process.

Consent for publication

All participants have provided consent for the results to be published. Findings were disseminated to local stakeholders across the study sites in October and November 2020 in Guinea.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on reasonable request.

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Competing interests

The authors declare that they have no competing interests.

Authors' contributions

DK, AD, RvdP and WVD conceived and designed the study and received feedback from AHB, AK and AMD. DK ensured data acquisition, analysis and interpretation. DK drafted the manuscript with inputs from RvdP, AD, WVDP, AHB and WVD. All the authors have given final approval for the version to be published.

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Tables

Table 1: Background information on study sites socio-economic, demographic, geographic and health system characteristics, Guinea, May 2020.[10]

Characteristics	Forécariah	Boffa	Mali	Siguiri	Yomou
Region of :	Kindia	Boké	Labé	Kankan	N'zérékoré
Regional population size	1 813 979	1 259 075	1 154 296	2 281 221	1 834 758
Sources of income	Illegal diamond mining, trade, agriculture, animal breeding and fishery	Bauxite mining, Agriculture, animal breeding and fishery	Agriculture and animal breeding	Gold mining, agriculture, animal breeding and fishery	Agriculture, animal breeding and fishery
Population under the poverty line	62%	59%	65%	49%	67%
Number of districts administered	5	5	5	5	6
Adult literacy	30%	32%	23%	18%	27%
Health indicators**[1]					
Immunisation coverage of under 1 year children	12%	17%	8%	36%	35%
Health service utilisation	18	13%	15%	12%	18%
Anaemia in children 6-59 months	75%	69%	71%	78%	76%
Assisted birth delivery	43%	39%	44%	61%	72%
Geo-demographic characteristics					
Distance from the capital, Conakry (Km)	100	146	557	771	1,029
Population density (<i>inhabitants per square km</i>)	62	47	36	61	32
Population in remote zones	91%	96%	98%	80%	93%
Level of isolation	Good	Very good	Very poor	Good	Very poor
Health facilities	1 hospital, 10 health centres, 4 formal private facilities	1 hospital, 8 health centres, no formal private facility	1 hospital, 13 health centres, 2 formal private facilities	1 hospital, 15 health centres, 10 formal private facilities	1 hospital, 7 health centres, 3 formal private facilities

Table 2: Distribution of health workers who took-up duties in the five selected rural health districts, N=600

Variables	Medical doctors	Nurses	Midwives	Assistant- nurses	Other cadres ^[2]	Total Number (%)
Levels of health facilities						
District health office	25	2	-	-	1	28 (5)
District hospital	44	43	17	39	14	157 (26)
Health centres ^[3]	49	111	53	193	9	415 (69)
Gender						
Female	43	88	70	173	12	386 (64)
Male	75	68	-	59	12	214 (36)

Table 3: Profile of health workers present at their assigned posts 12 months after deployment, (N=413)

Variables	Before 1 year	After 1 year
	Number (%)	Number (%)
Age (years)	-	
≥ 39		378 (91)
< 40		38 (9)
Mean [SD]		33 [4]
Gender		
Female	386 (64)	259 (63)
Male	214 (36)	154 (37)
Marital status	-	
Married / In couple		359 (87)
Single		46 (11)
Widowed		5 (1)
Divorced		3 (1)
Socio-professional cadres		
Assistant-nurses	232 (39)	169 (41)
nurses	156 (26)	108 (26)
Medical doctors	118 (20)	63 (15)
Midwives	70 (12)	50 (12)
Other cadres ^[4]	24 (4)	23 (6)
Usual residence corresponds to assignment district	-	
Yes		139 (34)
No		279 (66)
Actual assignment district meets expectations	-	
Yes		213 (52)
No		200 (48)
Preference district of assignment, n=200	-	
Another district within the region of current assignment		116 (58)
Conakry		70 (35)
Another district outside the region of current assignment		14 (7)
Recent history of redeployment	-	
Yes		12 (3)
No		401 (97)
Occupation of the spouse, n=359	-	
Civil servant / employed		169 (47)
unemployed		73 (21)
Workmen		66 (18)
Trader / seller		51 (14)

Stay with the spouse, n=359	-
Yes	157 (44)
No	202 (56)
Number of people in charge	-
≤ 5	141 (34)
> 5	242 (66)
Mean [SD]	7 [4]

Figures

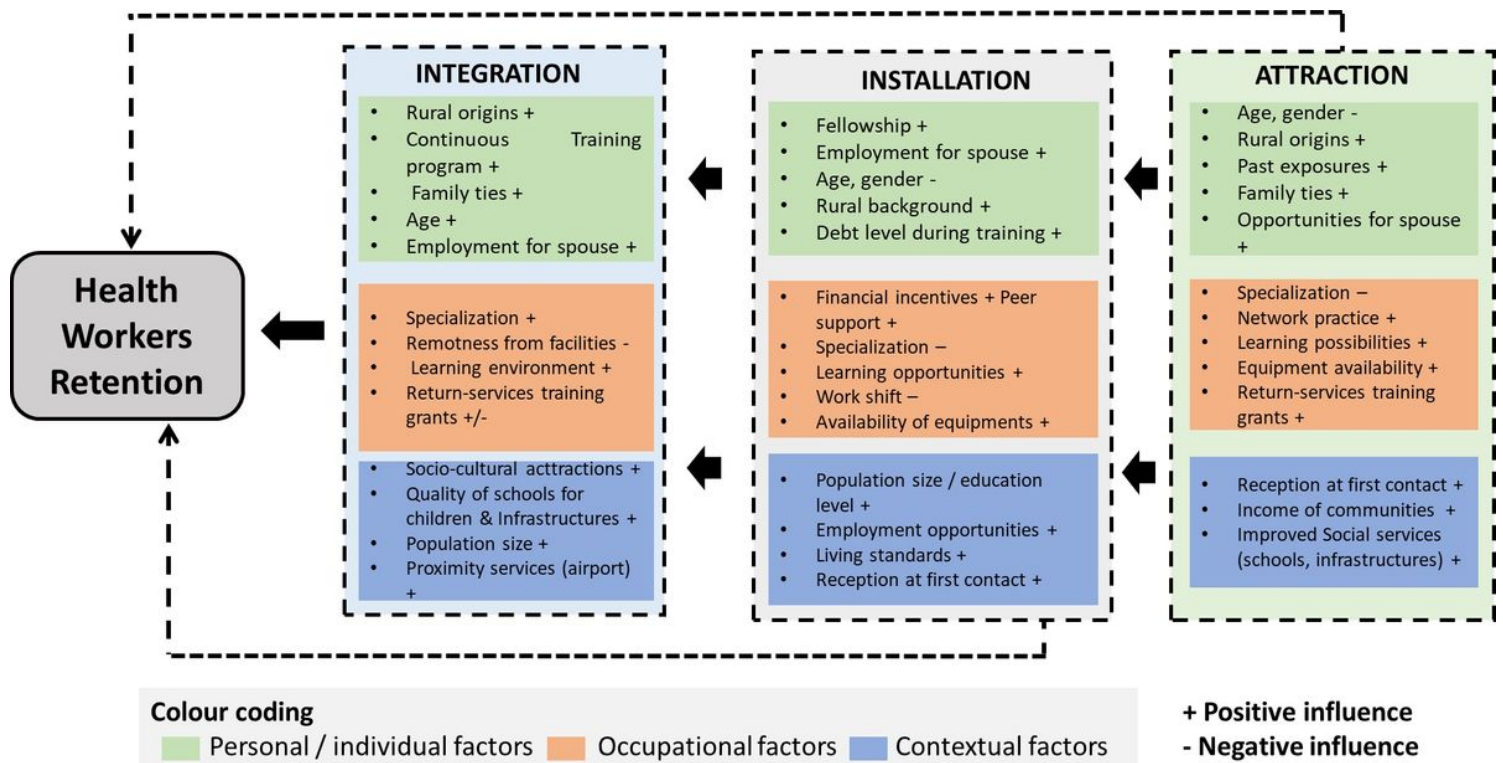


Figure 1

Adapted from Bilodeau' analytical framework of the main factors determining health workers attraction, installation and integration in remote areas

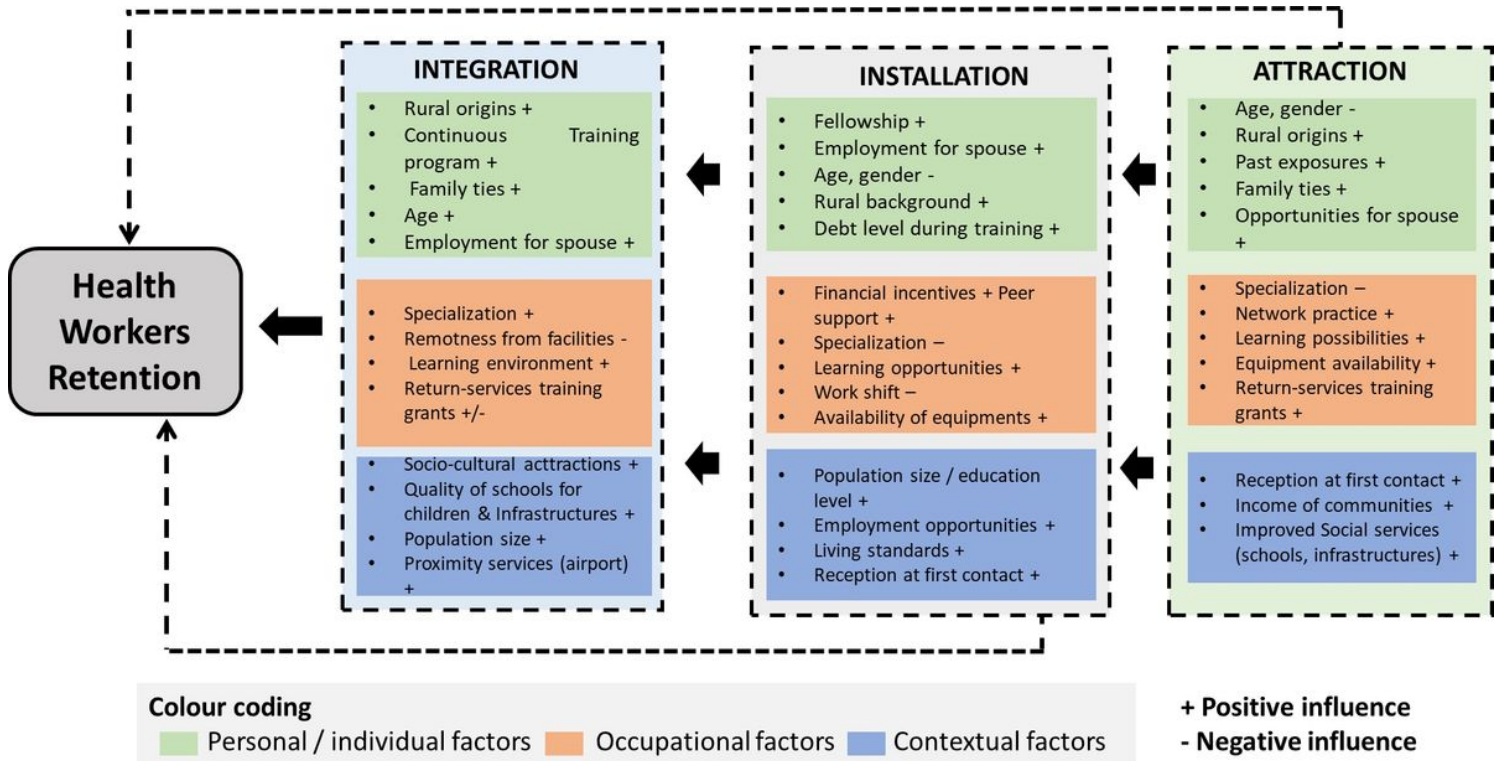


Figure 1

Adapted from Bilodeau' analytical framework of the main factors determining health workers attraction, installation and integration in remote areas

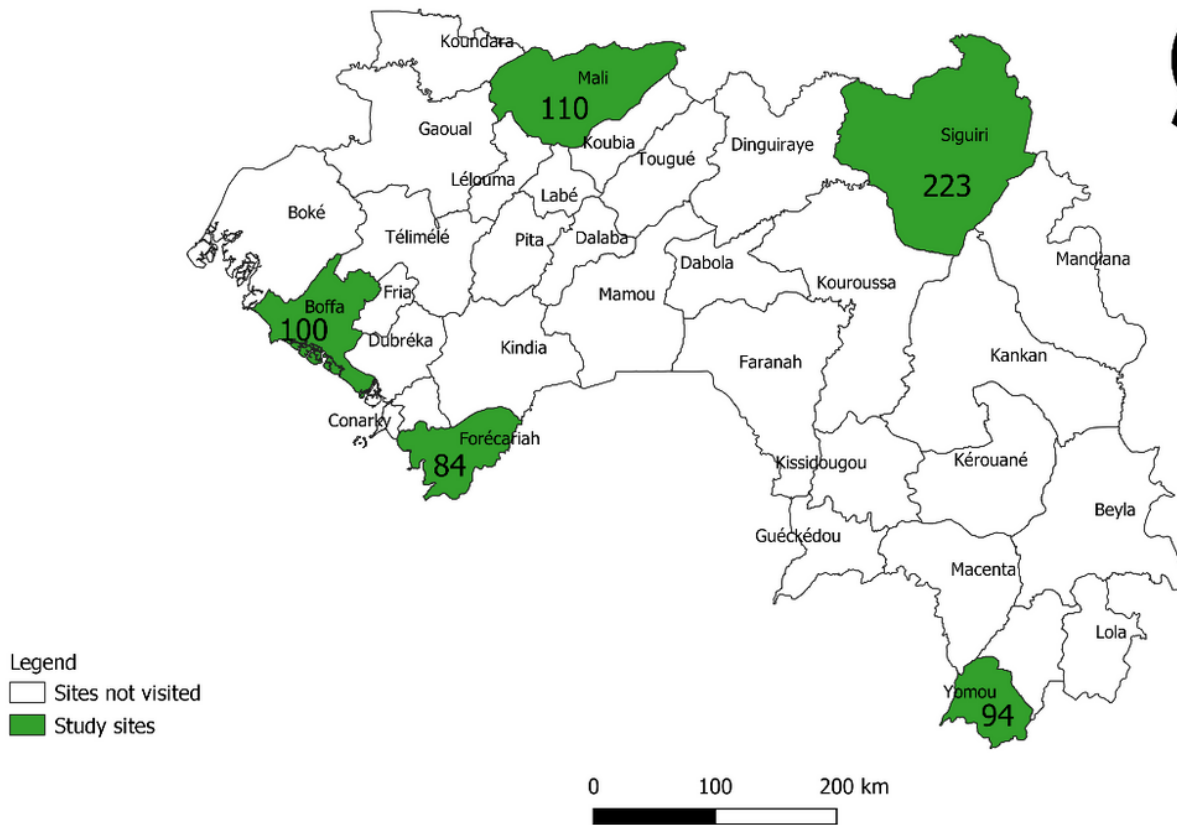


Figure 2

Location of study sites and the number of healthcare workers officially deployed in April 2017 Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.

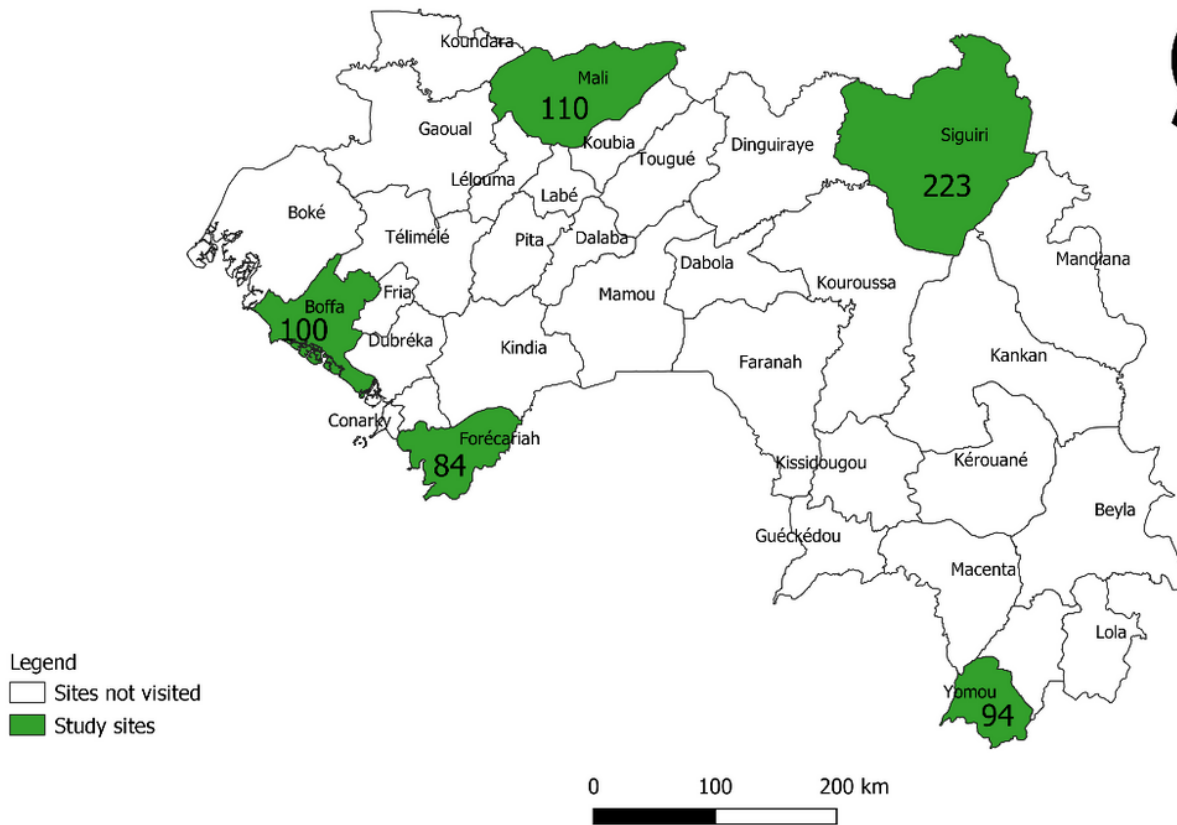


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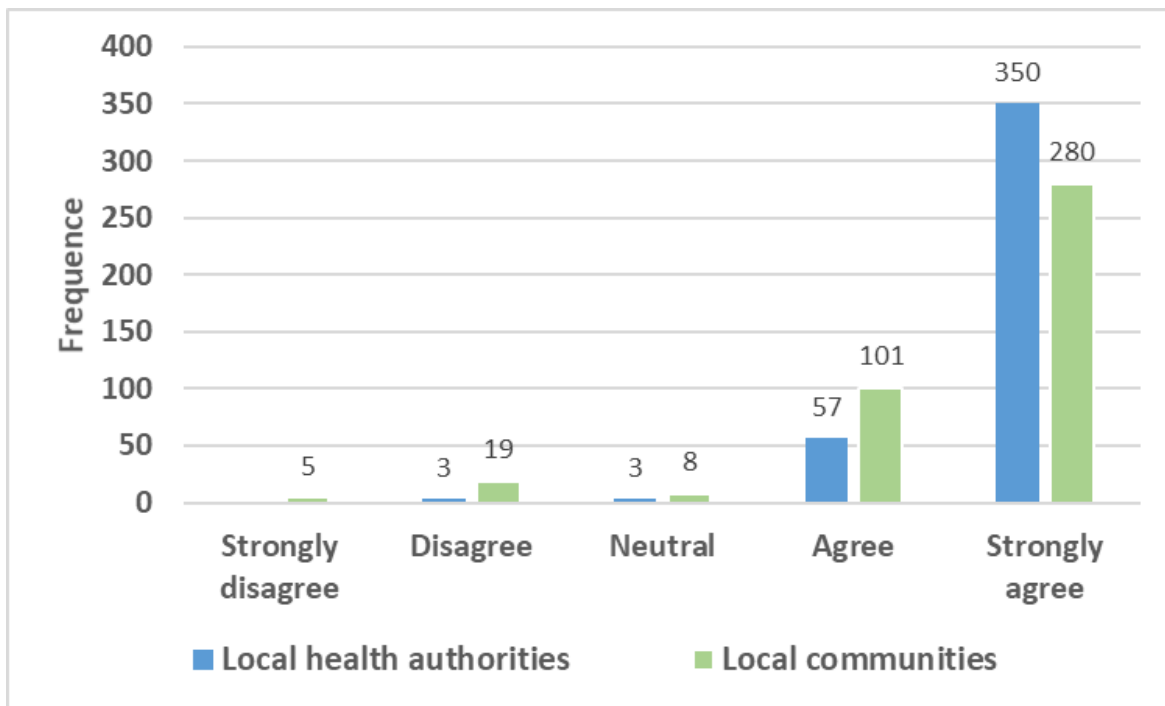


Figure 3

Frequency distribution of responses to the question: "When you came to take-up office, were you well received by the local health authorities" and "local communities"? N=413

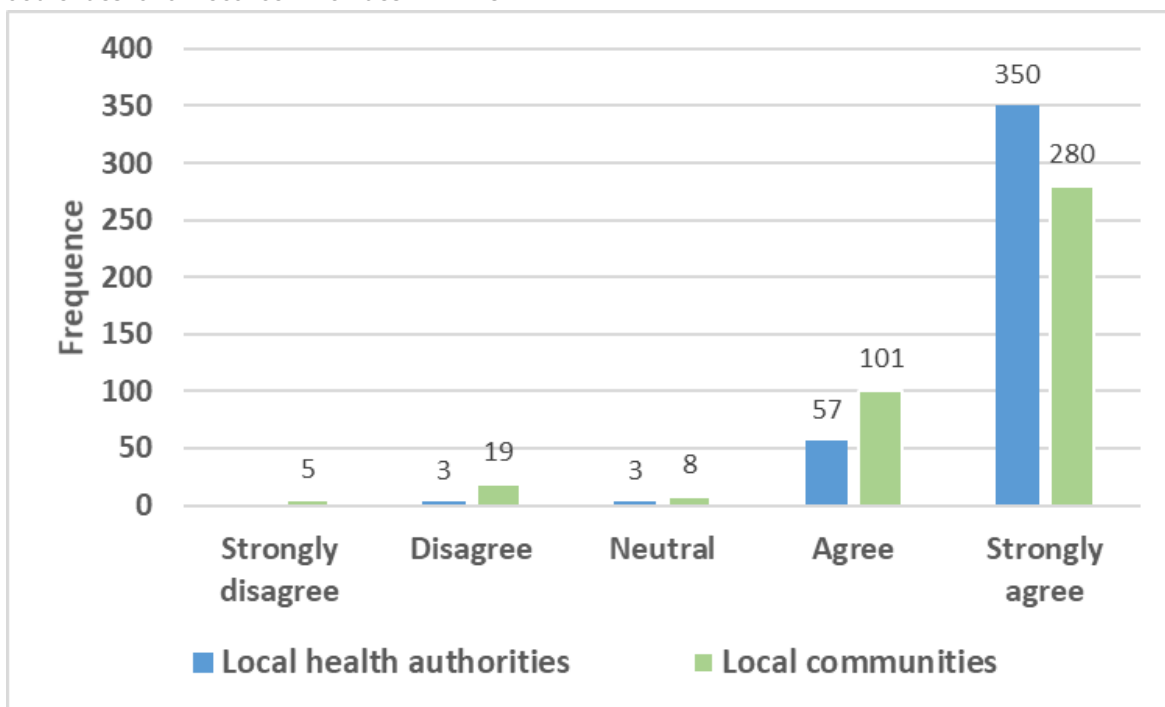


Figure 3

Frequency distribution of responses to the question: "When you came to take-up office, were you well received by the local health authorities" and "local communities"? N=413

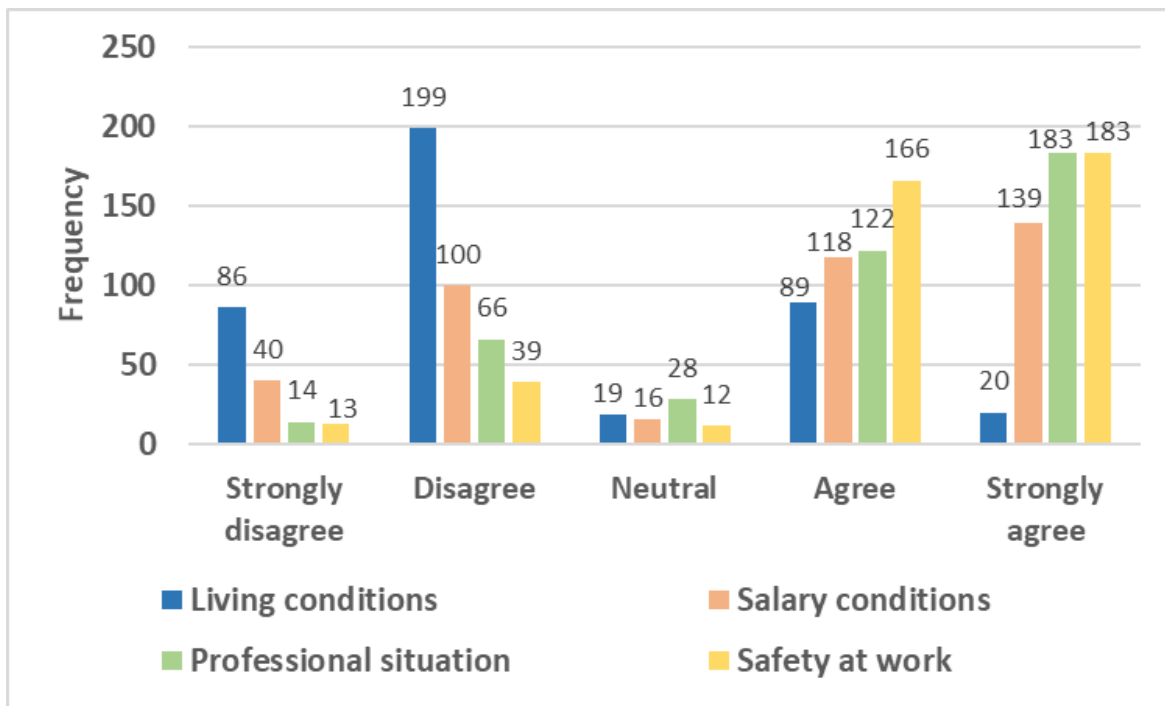


Figure 4

Frequency distribution of responses to the question: " You are satisfied with your current living conditions (water, electricity, food, road, internet)", "Salary conditions" "professional situation", and "is there an environment of safety at work"? N=413

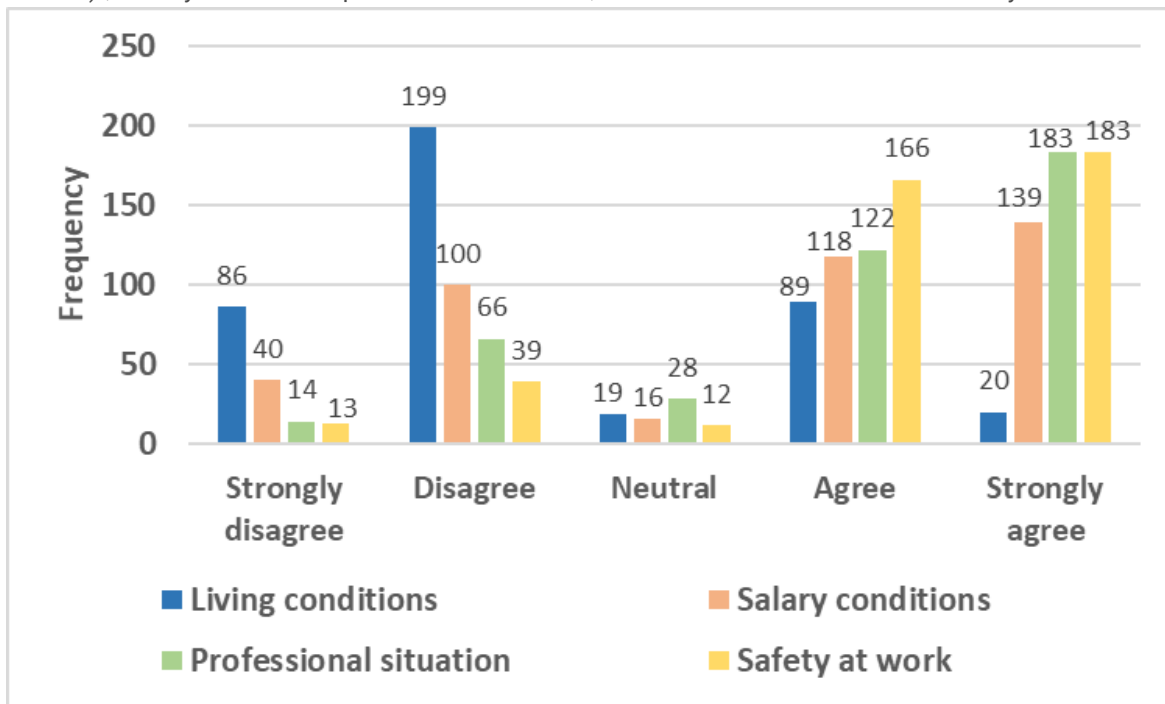


Figure 4

Frequency distribution of responses to the question: " You are satisfied with your current living conditions (water, electricity, food, road, internet)", "Salary conditions" "professional situation", and "is there an environment of safety at work"? N=413

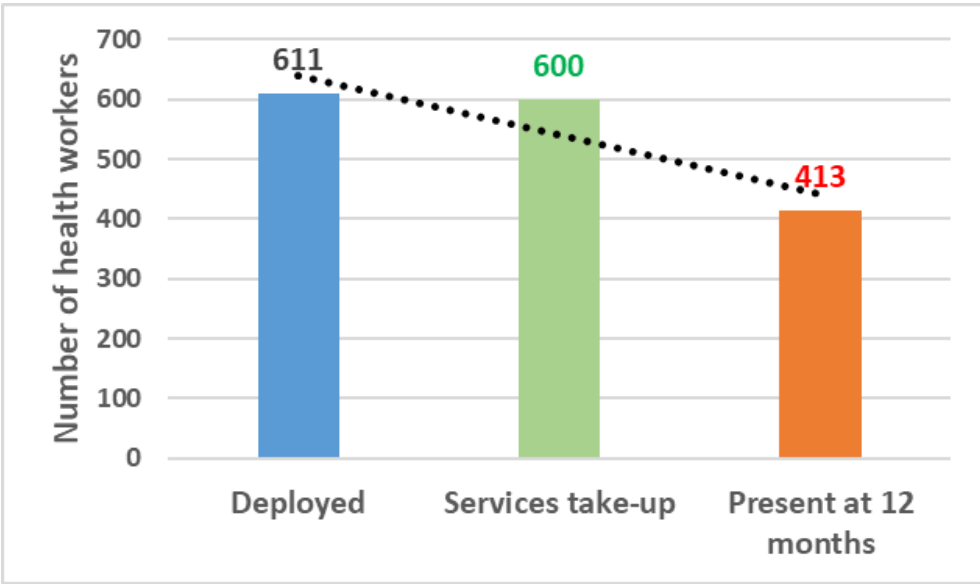


Figure 5

Frequency distribution of health workers present at their assigned post one year after deployment

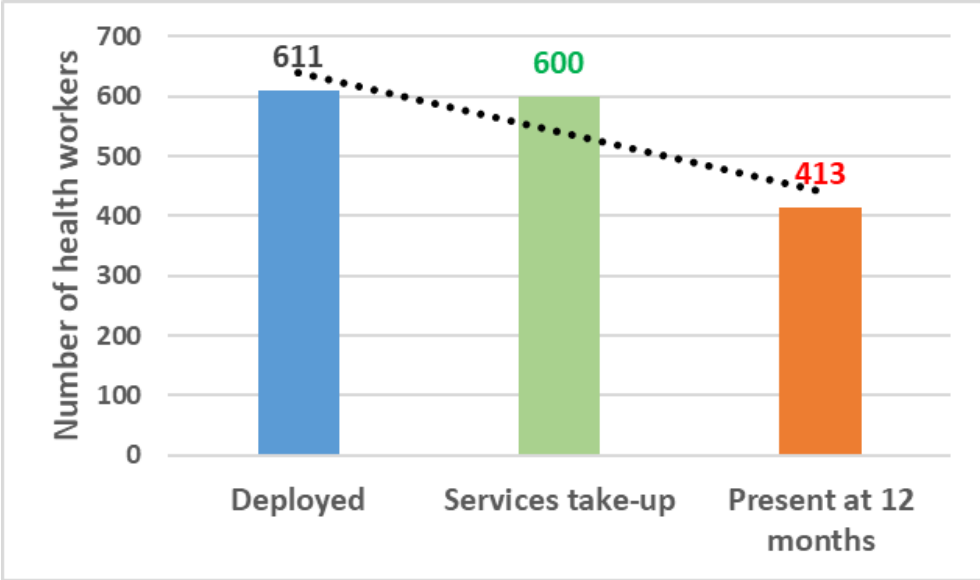
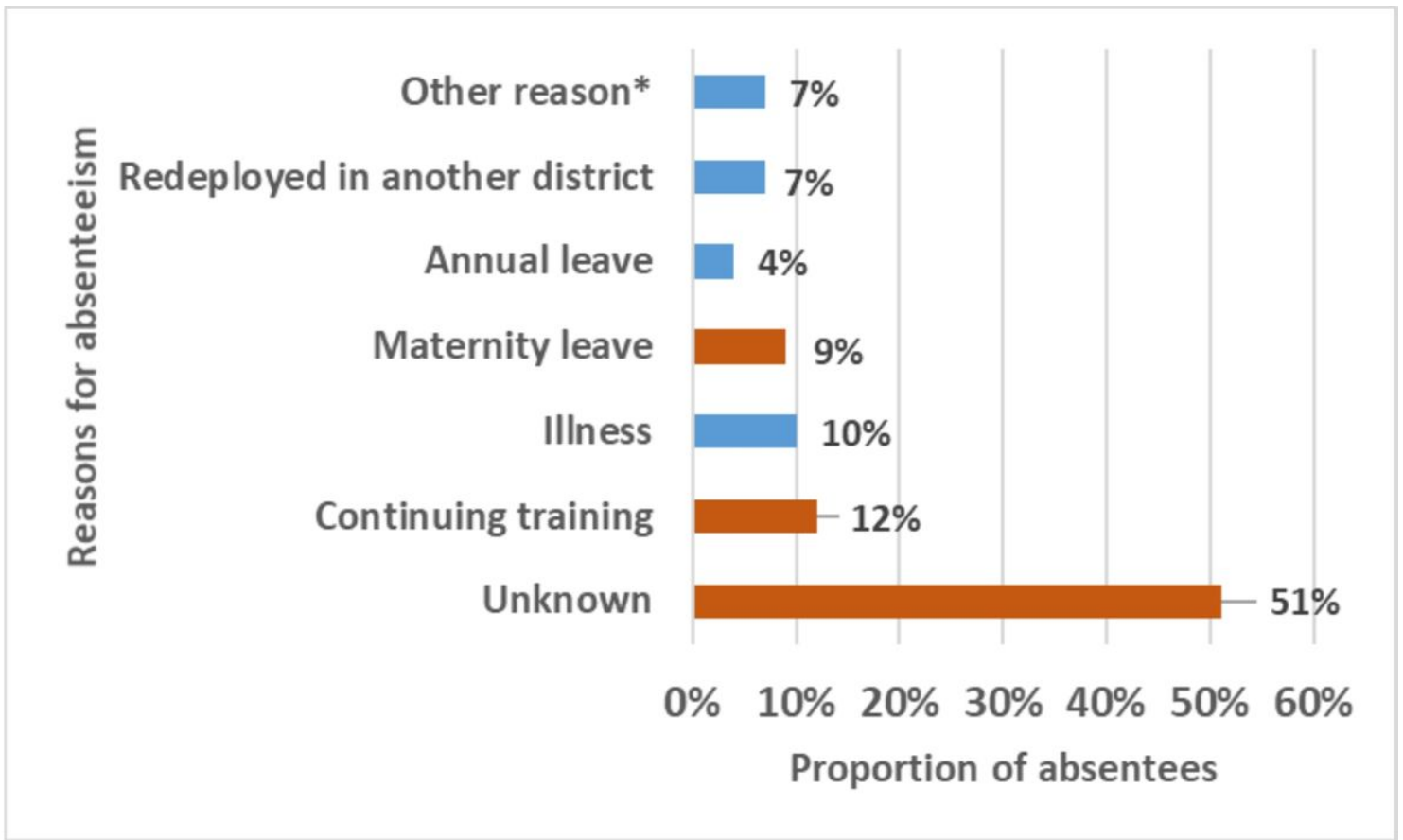


Figure 5

Frequency distribution of health workers present at their assigned post one year after deployment

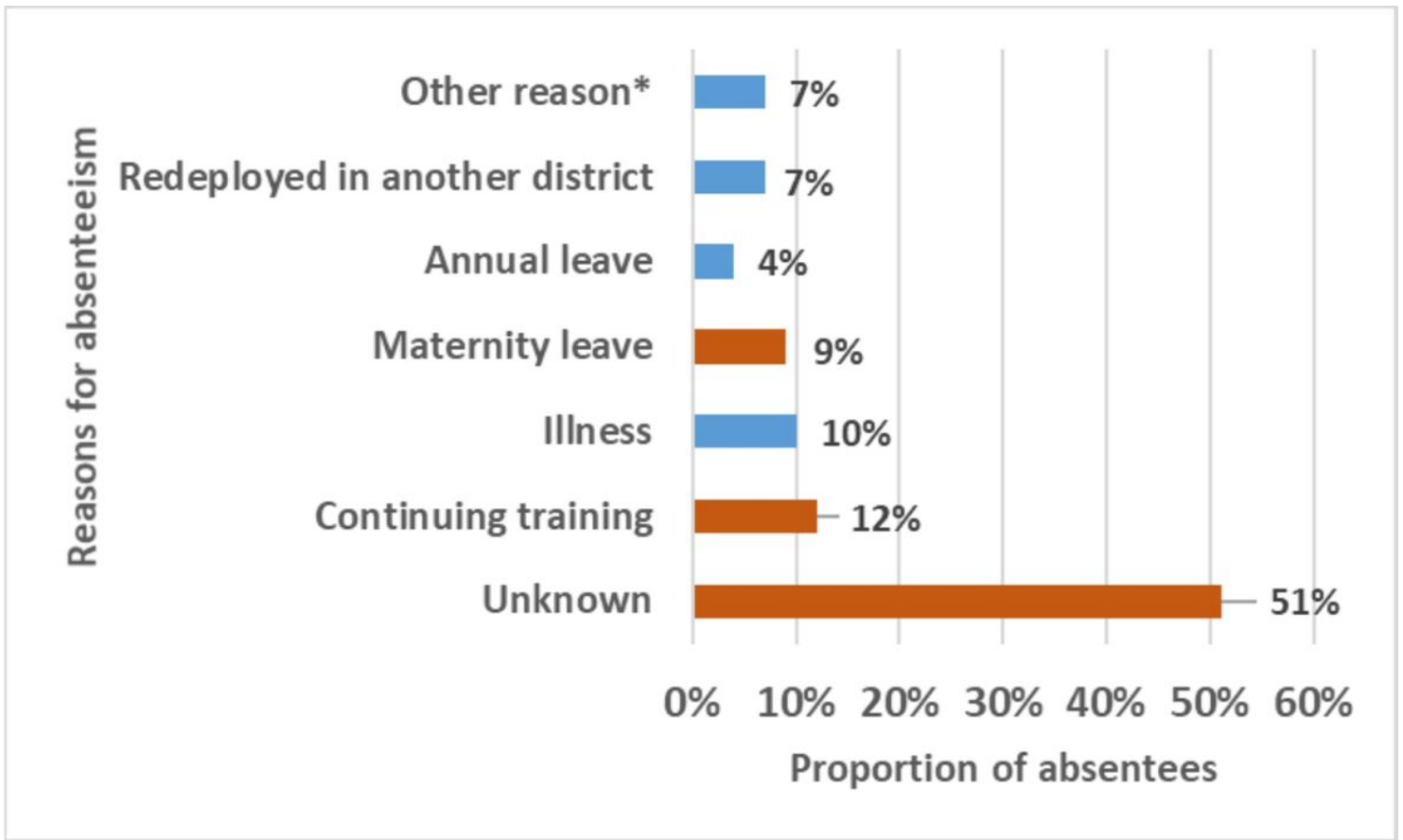


*** Other reasons (in number)**

Job abandonment (3) family concern (7) salary omission (4)

Figure 6

Reasons for absenteeism one year after deployment in five rural health districts in Guinea, N=187



**** Other reasons (in number)***

Job abandonment (3) family concern (7) salary omission (4)

Figure 6

Reasons for absenteeism one year after deployment in five rural health districts in Guinea, N=187

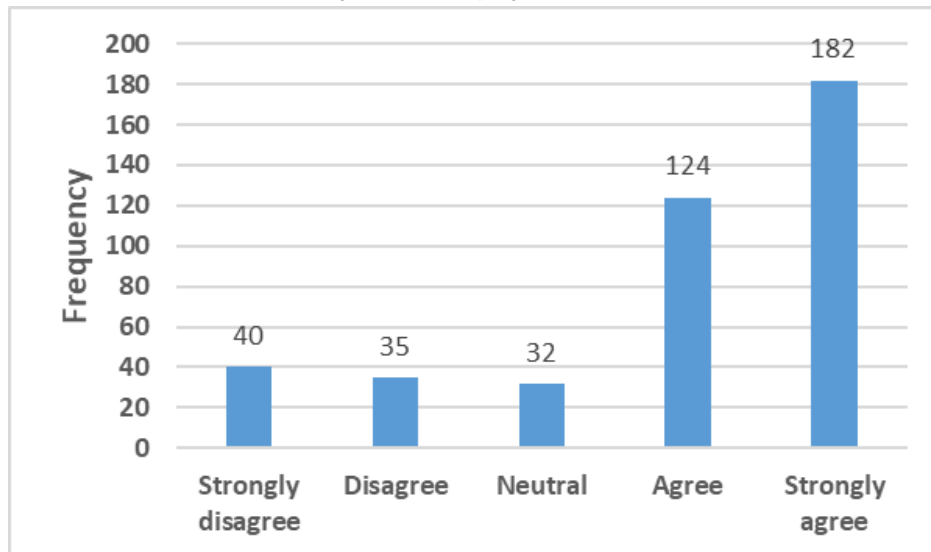


Figure 7

Frequency distribution of responses to the question: 'You intend to remain in your present position for the next 12 months'? N=413

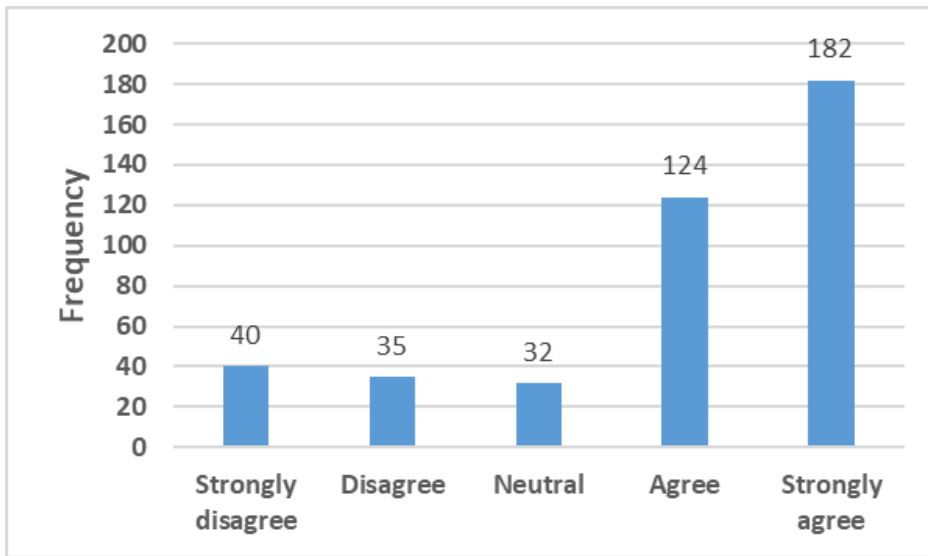


Figure 7

Frequency distribution of responses to the question: 'You intend to remain in your present position for the next 12 months'? N=413