

Quantitative Study of Health Care Human Resources in Mali

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Abstract

Materials and Method: We visited health care structures in Bamako to assess health care resources and to look at relevant records. The data was collected electronically and / or in hardcopy. We also looked at documents via the internet.

Results: Ministry of Health data showed 9,583 available health care agents in the public sector in October 2010 and 1,671 in the private sector in 2009. The Bamako district has 32.6% of available health care agents as against the eight regions which have 67.4%. According to the population density, the Mopti region was the least disadvantaged with 0.22 health care agents per 1,000 inhabitants. There is also a shortage of health care personnel in the rural areas with 29% of health care agents available. This shortage is seen across several categories of personnel. The most important shortages were in the organisations that serve as the first point of contact; that is the community health care centres (CSCOM). This was evident especially in CSCOM located within the interior areas of the country. Of the 1,070 CSCOM for the whole country, 1,053 were functional with 53 of these in Bamako. The 1,000 functional CSCOM in the interior areas comprised 70.6% of doctors, whereas 187 doctors were in Bamako, 78 doctors cover the 53 CSCOM, about 1.5 doctors per CSCOM. For other qualified agents such as nurses (state registered nurses and first level / enrolled nurses), the midwives and obstetric nurses numbered 1,534; 267 were in Bamako and the remaining personnel in other centres within the country.

Conclusion: The Malian health care system suffers from a shortage of health care personnel. This shortage is accentuated by the unequal distribution between the Bamako district and all other regions and also between rural and urban zones. This can be seen in terms of numbers within the personnel categories for many varying reasons. The CSCOM were the most disadvantaged with the major share in Bamako. In many assisted birthing centres, the deliveries were performed by health care assistants or by retrained traditional birthing assistants (ATR) due to the low incomes of many community health care associations (ASACO) who struggle to recruit qualified health care personnel.

Keywords: Shortage, Uneven Distribution, Human Resource for Health, Mali, Density

1. Introduction

The substantial number of healthcare personnel constitute the vertebral column of a robust health care system. Access for all to a qualified healthcare agent who is motivated and

supported is an essential step on the path to realising the objectives of the Millennium Development Goals related to health and also to universal healthcare coverage¹. The personnel crisis in the health care system is seen throughout the entire world, but particularly in Sub-Saharan Africa. The World Health Organisation (WHO) in its report on World Health 2006 remarked upon the fact that 24% of the world's health care problems are in Africa which has less than 3% of health care personnel and which accounts for 1% of healthcare expenditure worldwide².

Mali is a vast country with varied geographical features and differing regional climates. Mali figures amongst the 36 African countries which possess an important shortage of healthcare human resources. Mali is amongst the 57 countries of the world, that despite an increase in the number of organisations and an increase in training and qualifications still face significant shortages³.

The statistics below show the threshold recommended by the WHO and also the big disparities at regional level⁴.

The goal of our study was to evaluate the number of available healthcare staff and their geographical distribution through a literature review.

2. Objectives/purpose of the Study

To evaluate the number of available health care personnel within health care structures.

3. Methodology

This study concerns all healthcare agents nationally within the timeframe 1st September 2011 to 31st August. One part is in Bamako with the other parts in Sikasso and Kolokani. However the survey lasted six months with two phases: a literature review and an interview phase which were conducted simultaneously. The second of these phases is the subject of another report.

For the literature review, it was a question of visiting the administrative structures in Bamako in connection with

healthcare human resources (RHS) to collect the data in electronic format via a USB key or external hard disk drive. We also consulted the available publications and relevant information on the internet.

4. Result

Mali had two establishments for training medical staff in 2010, one public and one private. There were eighty establishments for training paramedical staff. Five of these were public and there were seventy-five private health training colleges / schools.

Mali trained 4,317 doctors between 1974 and 2010¹ and 1,053 pharmacists between 1978 and 2010.⁵ Between 1999 and 2010 there were 4,848 paramedical staff trained of which 2,884 were nurses and 1,823 obstetric nurses; 141 were laboratory technicians (associate diploma); 2,547 were higher-level health care technicians of which 885 were midwives and 1,261 were state registered nurses; there were 459 medical assistants⁶. There was a total of 7,854 paramedical staff trained in Mali between 1999 to 2010. Figure 1 shows the proportion of these agents who were officially in service in Mali in 2010. There were no reliable statistics for paramedical training prior to 1999. Since this time there has been a training program for auxiliary midwives (trained for prenatal consultations and for normal deliveries with referral for all at-risk pregnancies). Their training was "on the ground" or "hands on" but is now done in private health care colleges. However there were no statistics for the number trained. In the same way, there are training programs for health care assistants but no reliable data on the number trained. Auxiliary midwives and health care assistants are regarded as non-qualified health care agents.

According to health care human resource management (DRH) in October 2010 the Ministry of Health had 9,583 health care agents in the public sector with 6,706 qualified agents and the remainder auxiliary midwives and health care assistants. That is less than 50% of agents trained since 1974 (doctors and pharmacists) and since 1999 (paramedical agents) (Figure 1)⁷. In 2010, there were 1,671 healthcare agents officially registered in different professional roles in the private health care sector; 850 doctors, 800 pharmacists and 21 midwives⁷. This makes an official total of 11,254 on record with 8,377 of these agents qualified.

Together these two sources of information made it possible to calculate the total number of doctors, nurses and midwives (Table 1) derived from a study, Joint Learning Initiative (JLI) created by the Rockefeller Foundation. These figures show a density of 0.54 health care agents for each 1,000 inhabitants for a population estimated at 13,838,569² against 2.3 for each 1,000 inhabitants according to the 2006 WHO report.

At the regional level this density varies from one locality to another. The district of Bamako was more privileged, with 1.76 health care agents per 1,000 inhabitants, followed by the three northern regions and specifically the region of Kidal (Figure 1). The unequal spatial distribution of health care agents remains one of the major difficulties of the system. These difficulties are not only concerned with the

numbers but also the quality of the health care personnel. It was observed between the District of Bamako and between urban and rural zones. Of the 9,583 health care agents available to the Ministry of Health the District of Bamako has a demographic-weighting of 10.4% accounting for about 32.6% of health care agents with 75.7% of medical specialists. After the District of Bamako, the region of Sikasso comes in second place with 14.1% of agents followed by the region of Segou with 13.1% and the region of Kidal in last place with 0.9%. Moreover this latter region has 0% of medical specialists and dentists⁷.

The deficit of qualified personnel was the most evident in the CSCOM who represent the first level of health care services in the system in our country (Table 2) with 21% of agents qualified. For 1,070 CSCOM each CSCOM has on average one nurse or one health care technician, only a third have a midwife or obstetric nurse and less than 25% have a doctor.

Within the structures of first medical contact the distribution in terms of numbers differs from that observed at the source. This time it was the region of Sikasso who dominated far above all the other localities with 20.5% of personnel followed by the regions of Kayes and Segou which represented 16.9% and 15.8% respectively. The District of Bamako occupied 4th place with 12.8% and the region of Kidal was in last place with 0.8%⁸.

However in terms of qualified personnel, the CSCOM in the District of Bamako together had 19% followed by the regions of Segou & Kayes with 18% & 17% respectively. The regions of Gao, Tombouctou and Kidal had the least number of qualified personnel with Kidal in last place with 1% (Table 1).

According to salary financing sources, of the 4,633 agents, ASACO employed 2,279 healthcare agents of which 88.7% were non-qualified. Qualified agents comprised 80.2% of which 62.6% were doctors, and of these, 82.8% were paid by the fund "Very Poor Indebted Countries" as civil servants / public servants (Figure 2).

The disparity in distribution was observed between urban and rural zones. In effect, the distribution in the urban zone was about 61% of agents. But the big disparity was observed at the level of certain categories of agents. Personnel categories such as medical specialists, dentists, dental technicians and dental assistants, pharmacists, scientists and laboratory assistants, health and hygiene professionals were almost absent in rural zones. Others such as general practitioners, midwives, laboratory technicians exist but in very limited numbers⁷.

5. Discussion and Conclusion

Our study showed some shortcomings during the enquiry. These deficiencies were due to a lack of information on qualified health care agents trained prior to 1999, and the number of non-qualified health care agents trained such as birthing assistants and health care assistants.

These shortcomings have shown some weaknesses at the level of human resource management. We were dependent throughout the literature review on making approximate

estimations of health care agents officially in service in the different structures.

Moreover, the lack of infrastructure and equipment in health care structures, the health system in Mali is confronted like most African countries, with a problem of health care human resource management (RHS).

The 2006 report by the WHO recommends 2.3 doctors, nurses and midwives per 1,000 inhabitants to reach coverage of assisted births by a qualified agent for 80% of the population¹. Mali has 0.54 health care agents for 1,000 inhabitants at a national level. This value has placed Mali amongst the countries presenting a shortage of human resource management so that all the human resources trained have not been utilised. We have attempted to analyse these phenomena to be able to do something regarding the number of agents, notably those in retirement. We do not have official figures of the number of retired health care agents. In Sub-Saharan Africa, it has been estimated that each year between 8,780 and 13,070 take retirement⁹, that is 0.6 to 1% of the numbers. According to the 2006 WHO report the age for retirement is dependent on gender. It was estimated at 23 years of service for nurses and thirty years of service for doctors¹⁰.

If we take into account these parameters, the first medical graduates should have commenced retiring in the year 2000 upwards, but the number retired is negligible taking into account that many retirees continue to give care and to teach a number of health care agents trained each year.

The *brain drain* was also another factor that influenced the number of human health care resources more so than the number retired. These agents in the hope of a better tomorrow quite often stay in the countries of their specialisation. We do not have the official number but according to a study carried out in 2008, the most favoured destinations were Great Britain, The United States of America, France, Australia, Canada, Portugal, Belgium, Spain and South Africa. The numbers were estimated to be 15% of nurses (265) born in Mali but practising overseas and 23% of doctors (157)¹¹.

Always with the worry of health care economics, young graduates in the Faculty of Medicine taken on lucrative private sector work called "the delegation"¹. Currently called "the medical delegation" these graduates for the most part doctors promote pharmaceutical products and different laboratories as well as their different service provisions. The numbers remain unknown due to a lack of organisation in this sector.

To reach the level recommended by the WHO, Mali ought to have 31,829 agents to cover 80% of the health care needs of the population This need represents nearly four times the number of services actually available.

At the regional level and in the District of Bamako, the density of agents employed for the local population was also below limit recommended by the WHO. This varied from one locality to another. Bamako as the political and economic capital of Mali has the highest population density. This high density in relation to other localities was due to the high level of health care agents and a demographic weighting

estimated to be 10.4% of the total population. As well as not having sufficient agents of qualified health care personnel, the region of Kidal came in at second position with 1.35 agents per 1,000 inhabitants. This value was due to the weak population density which was 0.4%. Amongst all the regions, the region of Mopti was the best served with 0.22 agents per 1,000 inhabitants due to the large population estimated at 2,085,476 inhabitants, that is 15% of the total population.

The disparities in distribution were not only seen at the level of numbers but also with the quality between urban and rural zones. In effect, the urban zone distribution is about 61% of agents sheltering under certain specialties within the health care body that are never found in rural zones. These were the medical specialists in all domains, dentists, dental technicians, dental assistants, pharmacists, scientists and laboratory assistants, public health and hygiene professionals almost absent in rural zones and others such as general practitioners, midwives who exist but in limited numbers (Figure 2).

These differing estimations demonstrate the undermanned spatial distributions which confront our health care establishments. These difficulties cause much suffering at the level of basic health care structures like the CSCOM. In a 2010 census, of the 1,070 CSCOM, 1,053 of these were functional.

The report of CSCOM personnel has shown that only 2% of CSCOM were covered by midwives and 21% by nurse obstetricians. As for the doctors, they covered 26%. The major problem with these structures is more tied up with the quality of health care personnel. In effect after independence, the state aimed to implement a health care administration based on colonial needs and not centred on the needs of the population. This was also the birth of medicine for the masses and voluntary work (human commitment). During the years 1969-1980 Mali adopted an integrated strategy. it recommend a package that extended the health care system to the centre of the villages. These healthcare agents (health care attendants, traditional midwives, first-aid workers) constituted the health care team for the villagers¹².

This strategy still continues in rural health care centres and has been allowed to fill the deficit of qualified health care personnel in the health care system by the delegation of tasks. The census undertaken by FENASCOM with other partners in 20110 has shown that in a global fashion health care technicians and above all, auxiliary health care workers (attendants and assistants) were the stratum more important than numbers. The strong presence of this category of agent in the CSCOM was the result of a policy of health care decentralisation where the structures were managed by a collective, in a word, the community (ASACO). In the presence of their weak economic revenues these health care associations often recruited locally by establishing a monthly contractual salary between 20,000 F CFA and 35,000 F CFA according to the locality.

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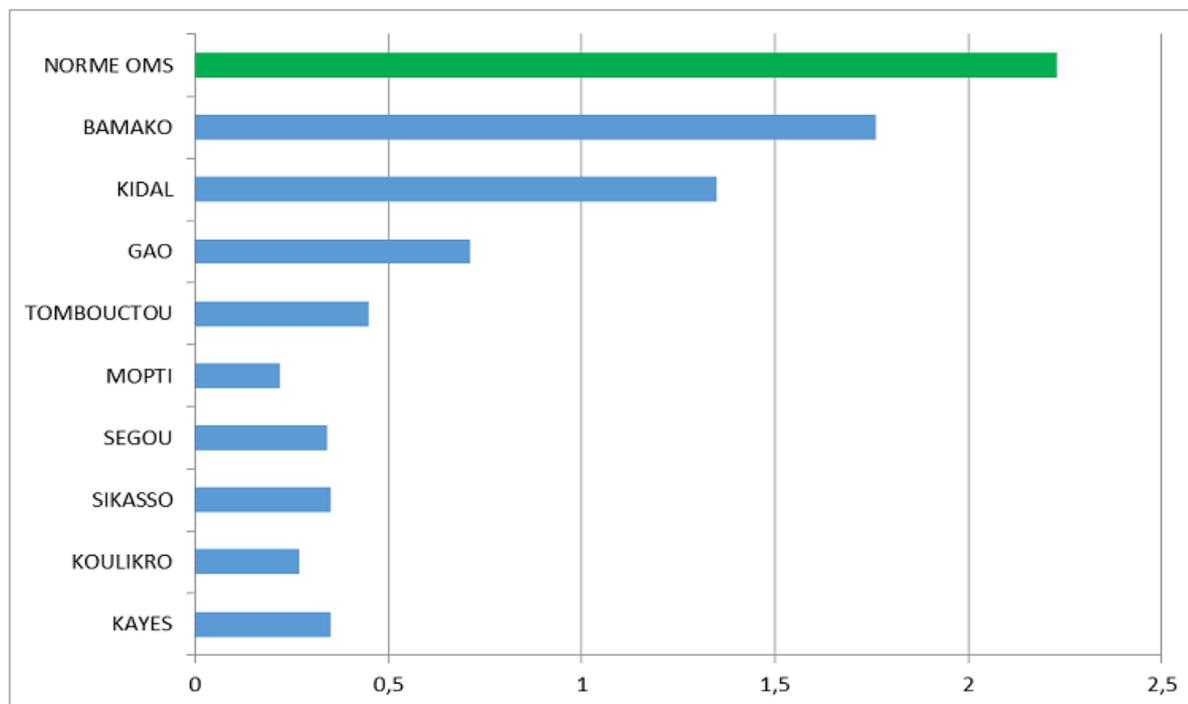
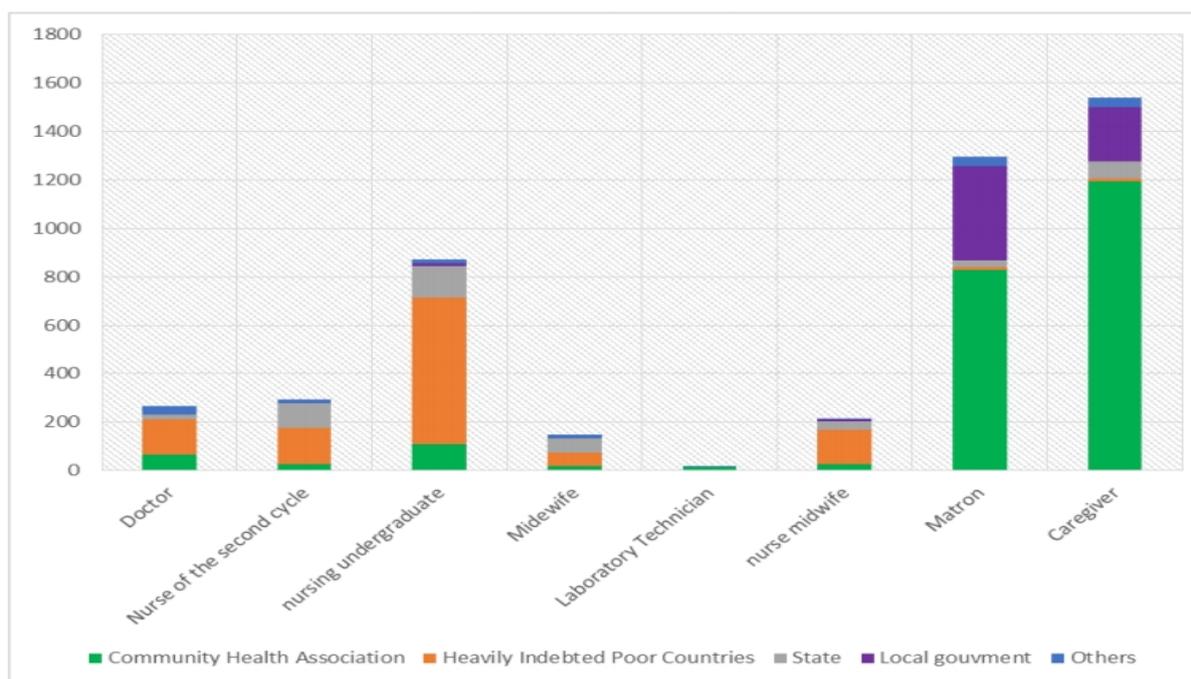
Tables and Figures

Table 1: Distribution of health workers in community health centers by region

Category	Health Region (%)									
	EFFECTIF	KAYES	KKORO	SIKASSO	SEGOU	MOPTI	TBOUCTOU	GAO	KIDAL	BAMAKO
Doctor/ Pharmacists	265	14	18,5	12,1	16,6	6	3	0,4	0	29,4
Nurse in the second cycle	292	13	15,1	13,7	14	7,2	3,1	11,6	0,7	21,6
Nurse undergraduate	871	11,9	18,8	20	19,5	8,4	6,8	4,5	2	8,1
Mide-wife	134	0	17,9	7,5	18,7	5,2	0,7	1,5	0	48,5
Laboratory technician	17	0	0	17,6	0	0	0	0	0	82,4
Nurse midwife	215	8,4	10,2	18,1	20,5	5,6	5,1	9,3	0	22,8
Matron	1274	20,4	17	23,2	13	10,9	5,9	2,7	0,2	6,6
Caregiver	884	19,2	16,3	17,6	15,8	10,1	3,5	1,7	0,9	14,8
Manager of sales depot	637	24,3	4,7	25,6	15,7	11,8	5,6	5,6	0,9	5,6
Vaccinator	23	0	0	78,3	17,4	0	0	0	0	4,3
Recycled traditional birth attendant	21	0	0	100	0	0	0	0	0	0
Total workforce	4633	16,9	15	20,5	15,8	9,3	5	3,9	0,8	12,8

Table 2: Number of qualified health workers in Mali in 2010, and the proportion in Community Health Centres (CHC)

Type of health worker	Ministry of Health [7]	Private sector [7]	Total workforce	CHC (%) [8]
Doctors	1430	850	2280	265 (11.6%)
Nurses, health technicians and medical assistants	3518	Aucune donnée	3518	1163 (33.0%)
Midwives and nurse midwife	1350	21	1371	351 (25.6%)
Pharmacists	133	800	933	0

**Figure 1:** Density of skilled health workers per 1000 population by region

Source: MS DRH (EFFECTIF DU PERSONNEL DU MINISTERE DE LA SANTE OCTOBRE 2010)

Figure 2: Number of health workers in the 1,050 CHCs, by source of funding