The nursing labour market in Botswana: An economic analysis

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Abstract

Nursing is one of the largest and most essential components of the medical profession in health care in any country. The objective of this paper is to critically assess the demand for and supply of nursing labour in Botswana. Literature shows that nurses are likely to be paid low wages because of the monopsonic nature of the nursing labour market. The study empirically examines the shortage of nurses in Botswana and factors responsible for the same. We argue that there is a shortage of nurses, resulting from resignations which are mainly due to increased workloads. Nurses also believe that they are under-paid and are highly dissatisfied by the working conditions in the country and thus display a high propensity to migrate to other countries.

Keywords: medical profession, Botswana, nurses, labour, shortage, monopsonic.

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Introduction

Botswana's physical and social infrastructures were woefully inadequate at the time of independence in 1966, with very few Government schools and hospitals, less than a dozen university graduates, and only 13km of tarred road in a country the size of France. Three major developments played a significant role in the initial surge of economic development of Botswana: they were the discovery of diamonds in 1967, the renegotiation in 1969 of the 1910 Customs Union Agreement between South Africa and three countries; namely, Botswana, Lesotho and Swaziland, which greatly increased the share of the common pool of customs and excise revenue accruing to the poorer members, and the discovery of copper/nickel deposits which led to a substantial mining and related investment in infrastructure, including health and education.

Botswana's impressive track record of good governance and economic growth, supported by prudent macroeconomic and fiscal management was the catalyst in the fast growth of the economy. This was in contrast to the health outcomes in the economy which are below those of countries in the same income group (Government of Botswana, 2010). In 2008, the Health Hub was created by the Government of Botswana, which functions within the Ministry of Health to identify strategic initiatives and innovations to drive sustainable transformation and service delivery improvement throughout the health sector. During NDP 9 significant increases in health expenditure led to an expanded health service response to HIV/AIDS. According to NDP 9 the sustainability (with respect to the system) of health service provision would be a key concern. Health promotion and disease prevention continue to be key priorities. The development and delivery of health services in Botswana are based on the principles of primary health care, in sync with the National Health Policy approved in 1995. To avoid wastage of resources that are devoted to the health service expansion, nurses are at the centre of the health care delivery system in the country.

The structure of health care in Botswana

For the Government of Botswana, health is a major issue, and the most important aspect of health care policy is to provide health care in both urban and rural areas. The health care system in Botswana follows a decentralised model, with primary healthcare as the pillar of the delivery system, supported by an extensive network of health facilities (hospitals, clinics, health posts, mobile stops) in the 27 health districts.

Despite Botswana's sparse population distribution, health facilities are accessible to over 90% of the population. About 84% of the population lives within a 5 km radius and about 95% live within an 8 km radius from a health facility. For rural areas, the corresponding figures are 72% and 89% for the 5 km and 8 km standards respectively (Central Statistics Office (CSO), 2010). The Ministry of Health (MOH) aims to provide effective health services to every person. The primary health care (PHC) services are integrated within overall hospital services, being provided in the outpatient sections of Primary, District and Referral hospitals and can also be accessed by the people at clinics, primary hospitals and health posts. In addition, private hospitals and missionary hospitals also provide health care services. Table 1 below presents the availability of different health care facilities in Botswana from 1996 to 2006. A minimal increase in health facilities from 1998 to 2006 is evident. Over this period, the number of clinics increased by 14.4 % and health posts by 5.5%. Mobile stops increased from 740 in 1998 to 860 in 2006, but some fluctuations are evident and may be due to the fact that mobile clinic visits to remote areas depend on the availability of staff and transport at the clinic in a particular catchment area. The number of hospitals increased from 16 in 1998 to 17 in 2006, (Table 1). The number of beds increased from 22.7 in 1998 to 23.3 beds in 2006 per 10,000 people which represents a 12% increase overall or an average annual increase of 1.6% during this period (Table 1). In 2003, out of 3816 beds, 69.0 % beds were in the district hospitals, 18 % were in primary hospitals and 13 % in the clinics. There are 101 clinics with beds in the country.

Table 1: Health facilities by type and number of beds, 1998 – 2006

	1998	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Type of facility									
General hospitals	16	16	16	16	16	16	17	17	17
Primary hospitals	15	15	17	17	17	17	17	17	17
Clinics	225	227	232	230	242	257	259	261	263
Health posts	323	325	324	321	340	336	341	341	342
Mobile stops	740	725	712	812	810	761	528	527	860
Number of beds									

General hospitals	2,618	2,552	2,551	2,547	2,551	2,634	2607	2,639	2,729
Primary hospitals	533	540	598	674	685	685	704	738	752
Clinics	421	412	467	483	494	497	578	578	578
Total beds	3,572	3,504	3,616	3,704	3,730	3,816	3,889	3,955	4,059
Beds per 10,000 population	22.7	21.8	21.9	22.0	22.4	22.6	22.7	22.9	23.3

Source: *www.cso.bw downloaded on 09/10/2012.*

Health facilities are supported by three categories of health professionals: doctors, nurses and family welfare educators (FWEs). Table 2 shows trends in the distribution of health personnel employed in Botswana in the period 1998-2006. From the table, we can infer that nurses are in the front line of health care delivery as they form the largest group of health care professionals. There are various categories of nursing professionals in Botswana's health care system; they include general nurses, ICU nurses, theatre nurses, paediatric nurses, psychology nurses and anaesthetics nurses. The ratio of nurses to patients increased from 27.1 in 1998 to 28.8 in 2006 per 10,000 people whereas that of doctors increased from 2.7 to 3.1 per 10 000 people, followed by a dramatic drop to 2.0 in 2004 and then an increase in 2006 to 3.3. The ratio of family welfare educators (FWEs) increased from 4.7 to 5.2 per population of 10,000 (CSO, 2010). Similarly, there were 10 nurses per doctor during 1998 and 1999 which declined to around eight or nine during 2000 to 2003. In 2006 it increased to 12 and thereafter it again declined to 9 in 2006. There is evidence supporting a direct link between health outcomes and nursing workforce numbers. Similarly, the ratios of doctors to population seem to be critical determinants of standardised health outcomes in a country.

Table 2: Selected health personnel, 1998 – 2006

Number	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Doctors	424	507	499	510	536	526	339	466	591
Nurses	4,265	4,992	4,319	3,994	4,146	4,450	4,211	4,468	5,006
Fwes	742	775	1,269	821	862	867	841	829	920
Per 10,000 population									
Doctors	2.7	3.1	3.02	3.03	3.2	3.1	2	2.7	3.3
Nurses	27.1	31	26.16	23.76	25.1	26.6	24.6	25.9	28.8
Fwes	4.7	4.8	7.68	4.88	5.2	5.2	4.9	4.8	5.2

Nurses per doctor	10	10	9	8	8	9	12	10	9

Source: www.cso.bw

A direct correlation between patient outcomes and the nursing workforce suggests that a greater nurse per capita is uniquely associated with healthier communities (Bigbee, 2008). Work loads of nurses can be measured in terms of nurses per doctor and beds per nurse. Table 3 below presents the work load of nurses in Botswana for the period 1999 to 2003.

Table 3: Nurses' workloads in Botswana

Facility by type		**1999**	**2000**	**2001**	**2002**	**2003**
Nurses per doctor		10	9	8	8	9
Beds per nurse		2.50	2.50	2.43	2.22	2.04
Total nurses		1397	1464	1541	1684	1886
Joiner nurses		36	90	113	180	227
Resignation		21	38	36	37	25

Source: CSO, Health Statistics Report 2003

The provision of health care in the public sector is a shared responsibility of the MOH and Local Government and it has been running smoothly. The Primary Health Care Services have been mainly provided by the Ministry of Local Government (District/Town Councils) through the Council Health Departments (District Health Teams). However, a decision was taken in Parliament in 2010 to transfer clinics from the Ministry of Local Government to the Ministry of Health to harmonize and strengthen the coordination of health service delivery by bringing it under one authority. The decision received mixed reactions. Those affected, particularly the nurses who were contracted under the central Government, were generally not happy with the decision because they thought they could be transferred to remote areas just like their colleagues who were contracted under the Ministry of Local Government. However, it is expected that this change will improve efficiency and service standards, promote equity and access to specialised services and enhance effectiveness and quality in the provision of health care. The Ministry of Health provides policy direction and leadership, while the Ministry of Local Government continues its role of the delivery of primary health care services at the district level. The Primary Health Care Services are

mainly provided by the Ministry of Local Government (District/Town Councils) through the Council Health Departments (District Health Teams).The public health system, which is a referral system in Botswana, comprises all Government health facilities owned or supported by the Government and the facilities are open to the public. The Ministry of Health currently administers three Referral Hospitals, six District Hospitals, and 16 Primary Hospitals and provides running costs to three Mission Hospitals. Debswana has entered into an agreement with the Government to open the Mine Hospitals at Orapa and Jwaneng to the public as fulfilment of its corporate social responsibilities. The BCL Mine in Selebi-Phikwe is the only one that has confined its services to its employees and their relatives (NDP 9).

Elsewhere in the world, the average nurse population ratio varies from 10 nurses per population of 100, 000 people in poor countries (especially Africa) to above 100 per population of 100,000 in developed countries (World Health Report, 2006). In Botswana it was 27.1 per 100,000 in 1998 which increased to 28.8 in 2006 (Table 1), which is among the lowest (WHO, 2012).

Table 4: Total supply of nurses in Botswana

Hospital	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**
Total nurses	2792	2520	2207	1886	1684	1541	1464	1412	1397
Joiner	334	373	373	227	180	113	90	36	124
Resignation	62	60	52	25	37	36	38	21	3

*Total Nurses $_{2006}$= NEmp$_{2005}$ + Joiners$_{2006}$ – Resignations$_{2006}$

However, the health sector continues to face challenges of availability of drugs, staff shortages and increased incidences of diseases like cervical cancer, tuberculosis and HIV/AIDS.

Nurses and the nursing labour market

Nursing is the process of caring for, or nurturing another individual (Getzen 1997) and constitutes the largest medical profession in health care (Seitio, 2000). In Botswana the nurses constituted more than 77 per cent of medical staff in the year 2006. According to the Department of Local Government Service Management (2006) the total establishment of nurses included 2103 posts out of which 1970 were filled and 133 were vacant. The Ministry of Health Staff Plan (2004) shows that there

were 4157 filled nursing posts in the year 2004 but the identified need was 5829 nurses. In Botswana the nurse patient ratio is approximately 353 nurses per 100,000 people. The nursing shortage occurring in health systems around the world poses unprecedented challenges for policy makers and planners in high and low income countries alike. In 2006, it was estimated that there was a shortfall of more than 600,000 nurses in Sub-Saharan Africa relative to the estimated numbers needed to scale up priority interventions, as recommended by the Commission on Macroeconomics and Health. At the time, a number of countries had only one nurse for 50 patients (International Council of Nurses, 2006). Botswana is known to have extra pressure due to HIV/AIDS amid gross shortages of nursing staff due to growing migrations spurred on by low pay and poor working conditions. According to the National Health Manpower Plan (1997) developed by the Ministry of Health (MoH), the rapid growth of health services infrastructure during the last decade (i.e. in NDP 8) has resulted in a shortage of health human resource. Total curative attendances in Botswana increased by 7.0 % from 3.4 million in 1998 to 3.6 million in 2006, but there was a slight increase in the number of health facilities. From this, it is evident that there has been an increase in the workload of health professionals, especially nurses. This critical shortage has been so severe that newly completed health facilities had to stand empty due to a shortage of nursing staff. Furthermore, health facilities which had been in operation have managed with a desperate shortage of nurses. In 1996, most health facilities required an average of 25% to 50% more nurses in order to reach the required minimum staffing levels (National Health Manpower Plan 1997).

Literature review

The role of nurses has expanded in many countries. In the developed economies it is due to the ageing population which needs more care. On the other hand, in Africa it is because of the increased health care needs related to HIV/AIDS. For instance, in Botswana nurses are expected to counsel HIV/AIDS patients, intensify health education on HIV/AIDS, and provide care for the severely ill patients. This means more responsibilities for the nurses. Nurses are required to do rapid testing of patients for HIV and other diseases (Ministry of Health Quarterly Report on ARVs, 2006).This puts a lot of pressure on the few available nursing staff and inevitably leads to stress and dissatisfaction among nurses, and consequently to their outward migration. Job satisfaction, defined as the "degree to which one enjoys his/her job", is influenced by (1)

demographic variables (age, sex, education, experience, and position in the hierarchy); (2) job characteristics (status, autonomy, repetitiveness, tasks, job outcomes, and pay); and (3) organizational environment factors (type of unit, nursing care delivery model, degree of professionalization, organizational climate, supervision, and interpersonal relationships). In a study of nurses' job satisfaction, all health care systems worldwide have undergone major changes (Mrayyan, 2006), which include shortened lengths of hospital stay, increased emphasis on cost effectiveness, and an increase of patients with acute and chronic diseases (Baker et al. 2000; Curtin 2000). Many nurses feel that they are devalued in their jobs as reported in Kettle (2002) and that profits are placed above patients (Fletcher 2001). Dissatisfied nurses may be distracted from their patients, fail to provide holistic care, or provide a lower quality of nursing care. All of these factors together may have a negative impact on patients' satisfaction.

In Botswana, the nurses who were most likely to be satisfied with their work are those with higher academic education, a high level of training, and high income (Fako and Forcheh, 2000). Such nurses receive recognition and support from their supervisors and peers, and are generally satisfied with their salaries. The health care workers who are placed in hospitals and have adequate equipment and telecommunication facilities also seem to experience more job satisfaction than those in clinics. Fako and Forcheh's conclusion on the relationship between job *satisfaction* and *age* is consistent with the findings by McNeely (1988) which have shown that job satisfaction is related to life satisfaction for women. This may be due to the fact that older nurses tend to command higher incomes by virtue of seniority and rank. Such nurses usually belong to the same age cohort as their supervisors from whom they receive considerable support and recognition. Although the nurses find their workload to be heavy, and often experience staff shortages, these are among the least important factors affecting job satisfaction or dissatisfaction. This may suggest high levels of professionalism and commitment among these nurses. However, union members have been found to report lower levels of job satisfaction than non-members do (Schwochau, 1987; Fako and Forcheh 2000) .This observation, however, does not apply to nurses registered with the Nursing Association of Botswana (NAB) or Botswana Nursing Council (BNC). This apparent contradiction may be explained in terms of the differences between the roles of traditional workers unions and that of NAB and BNC.

Shortage of nurses

The economic study of nursing has focused on issues of wages and recurrent labour shortages (Getzen, 1997). Because of the concern that market imperfections have caused recurrent nurse shortages, a historical approach is used to review the market for nurses and the appropriateness of Government interventions (Feldstein, 2005). Lane and Gohmann (1995) provide examples of the difference between the economic approach to nursing shortages and a non-economic needs-based approach developed by the Office of Shortage Designation (in the USA). The office identifies countries with shortages by using the ratio of full-time equivalent nurses in short-term general hospitals to the average daily number of patients. A 'shortage' is not merely a numbers game or an economic model; it is about individual and collective decision-making and choice (Buchan 2002). The outcome of shortages, in terms of the impact on patient care, is a complex challenge, making difficult the procedure of assessing health outcomes. Nurses' decisions about whether to enter the labour force and how many hours to work are influenced by the fact that many nurses are married and therefore are part of two-earner families (Johnson-Lans 2006).

Health professionals' availability is considered in terms of, *inter alia,* reported percentages of unfilled budgeted positions (Folland et al., 2004). In a competitive market a shortage should be resolved by wage increases until an equilibrium is restored. However, two dominant themes in the literature about nursing markets are said to be the shortage of registered nurses and the notion that nurses are "underpaid". The problem with nurses is that, unlike physicians, they cannot work on their own, but their labour market is a monopsony, a market in which one buyer faces many sellers (Johnson-Lans 2006, Phelps, 1997). A study of the market for nurses (in the US) has found an apparently considerable degree of potential monopsonic power in the market (Booton and Lane, 1985).

Nurses do not leave their job out of choice but are forced to do so by the circumstances at work and at home (Awases et al, 2003). The shortage of nurses is thus not a new phenomenon (Buchan 2002). With the high prevalence of HIV/AIDS, the shortage becomes more pronounced because of the increased demand for bed space which, in most health facilities in Botswana, has more than doubled. In addition, sometimes nurses become sick, leaving fewer nurses to work for longer hours. The demand for nurses is a derived demand; it is derived from the

demand for the institutional settings at their employment in providing care to those patients (Feldstein, 2005).

Methodology and results

The supply of nurses has remained more or less stable in Botswana over the period under study due to the number of nursing schools and their capacity. Demand is defined in terms of the capacity of the hospitals and the incidence of diseases. For the purpose of this economic analysis, demand for and supply of nurses in all the districts in Botswana in the public sector hospitals is estimated based on the information on number of nurses at the beginning of the year 2007, using data from the MOH and adding the new joiners, less the number of resignations, and this is expressed as:

$$\text{Supply}_{2005} = \text{NEmp}_{2006} + \text{Joiners}_{2006} - \text{Resignations}_{2006}$$

Where: S_{2005} is the total supply of nurses working in Government hospitals as at the end of the year 2005. The total number of nurses employed in the hospitals (NEmp2006) at the end of the year 2006 is given as 2792. *Joiners* means nurses who joined the MOH as employees in the public sector hospitals during 2006); and *Resignations* means the number of nurses who resigned during 2006 .This procedure was used to estimate the supply for 2001, for comparisons with the supply of nurses in 2007**.** Secondary data were obtained from the MOH and the Central Statistics Office (CSO) for all the Government hospitals around the country, and include "joiner nurses" in each hospital from the year 1996 up to 2006; as well as nurses' resignations per hospital from 1998 up to 2006 have been used.

***Demand for nur*ses:** More nurses are employed in referral and district hospitals than in primary hospitals. In terms of nurse allocation, referral and district hospitals are not favoured over primary hospitals by virtue of their status. The variation in the resignations per hospital cannot be explained by the workload of nurses measured in terms of beds per nurse.

Supply of nurses: From the supply-of-nurses identity, we estimate the supply of nurses in all the Government hospitals at the beginning of the year 2007. During the period 2002 and 2007 there has been a 15% growth in the supply of nurses.

Table 5 presents hospital data in terms of bed capacity; and the number of required and actual nurses in the year 2006. It is clear from the table that in almost all districts there was a shortage of nurses in 2006 in Botswana.

Table 5: Bed capacity, required nurses and actual nurses per hospital, 2006

Hospital	Bed - capacity	Nurses			Beds per nurse*	Resignation
		Authorized	Actual	Shortage		
Princess marina	553	636	591	45	0.94	22
Nyangabwe	520	494	401	93	1.30	7
Lobatse mental	101	125	112	13	0.90	2
Mahalapye	98	144	133	11	0.74	1
S/phikwe	65	132	123	9	0.53	1
Scottish	180	155	152	3	1.18	2
Sekgoma	178	178	151	27	1.18	1
Athlone	163	150	143	7	1.14	3
Maun	146	169	127	42	1.15	3
DRM	130	147	144	3	0.90	7
Gantsi	90	51	44	7	2.05	2
Masunga	50	50	48	2	1.04	0
Gweta	50	41	33	8	1.52	0
Hukuntsi	50	45	42	3	1.19	0
Sefhare	50	48	41	7	1.22	0
Tshabong	33	48	40	8	0.83	1
Palapye	42	85	68	17	0.62	3
Letlhakane	24	50	43	7	0.56	1
Tutume	44	55	49	6	0.90	0
Rakops	42	44	37	7	1.14	0
Gumare	44	58	45	13	0.98	2
Bobonong	33	51	52	-1	0.63	0
Mmadinare	48	45	39	6	1.23	0
Goodhope	34	43	42	1	0.81	2
Kasane	32	47	42	5	0.76	2
Thamaga	30	52	50	2	0.60	0
Total	2830	3143	2792	351		62

Source: CPMS Infinium, Establishment Staffing (PandP and Indus) (2006) Ministry of Health, Gaborone, Botswana

Primary data were collected from a sample of 30 in-service nurses, mainly in the form of a written questionnaire. To be specific, 20 and 10 questionnaires were submitted to nurses working at Princess Marina Hospital and clinics in Gaborone, respectively. The results show that when nurses perceive deteriorating external work environment and consider their workload to be heavy, they also report low job satisfaction (Zeytinoglu, *et al*.2007).

A sample of 26 nurses was drawn from hospitals and clinics in Gaborone. Of these 92% were females. The response of the nurses about their view of migration shows that nurses believe that they are underpaid: 92% and 93 % of the nurses in hospitals and clinics respectively said that their salaries did not match their qualifications. Thirty-four percent (34 %) of the respondents expressed a need for more staff when answering a question on the facilities and staff shortages. Further, 34 5% of the nurses believed that the hiring of more staff would make them happier but 50% believed that an increase in their salaries would make them happy. The results show that nurses find their jobs less than satisfactory, as 54% of them said they were not satisfied at all. Most nurses reported that they were 'neither satisfied nor dissatisfied' on the following items: (1) external rewards such as salaries, vacations, and benefit packages; (2) scheduling and work opportunities such as working straight days (single shift) and part time, having weekends off per month, scheduled weekends off, and to be compensated for working on weekends when they are supposed to be off; (3) family/work balance chances especially about child care facilities; (4) interaction at work, social contact with colleagues after work, interaction with professionals from other disciplines; (5) praise/recognition opportunities such as recognition from superiors and peers, opportunities for career advancement, participating in nursing research and publishing, and the amount of encouragement and positive feedback.

Nurses were 'moderately satisfied' with: (1) co-workers such as immediate supervisors and nursing peers, physicians, and the delivery care system); and (2) control/responsibility such as control over work and what goes in work settings, the amount of responsibility, and participation in organizational decision-making. Empirical evidence shows that the shortage of nurses is mainly due to increased workloads as a result of HIV/AIDS (as expressed by almost all the nurses in the sample), migration and resignations. Increased workload is more likely a compelling factor behind their migration as indicated by 46% nurses. About 65 % respondents expressed their desire to migrate to other

countries with the hope of getting better pay and working conditions. The study found that job satisfaction was generally low among nurses in Botswana. The study points to a need for continued efforts to improve their service conditions. It reinforces the need for supportive supervision in order to improve job satisfaction and associated productivity among the nurses leading to higher satisfaction for the patients.

Conclusion and policy implications

The primary health care strategy in Botswana continues to make remarkable strides in extending health services, particularly to the rural population, through a network of primary hospitals, clinics and mobile services both in the public and private sectors**.** However, based on the results reported above, we conclude that nurses in Botswana are generally overloaded and the demand for nurses in Botswana hospitals has been increasing, largely due to the increased number of beds per nurse in each hospital. On the other hand, the supply has remained stagnant due to institutional factors in the country; though a slightly upward trend (3% per annum) is observed. An increase in the workload is not matched by a *pro rata* increase in the number of nurses, and this inevitably leads dissatisfaction among nurses. Although the workload has not been a factor responsible for the resignation of nurses, the true workload of over-admitting patients may ultimately force nurses to resign. Nurses believe that the HIV/AIDS pandemic has increased their workload because patients are being admitted in large numbers. We infer from the responses to the questionnaire that nurses believe that they are "are not happy with their salaries" and would be happier if their salaries were increased.

In light of the above conclusions, the policy implications that emerge are interventionist because very little can be achieved in the health sector without the Government at the forefront. The Government, as the main health care provider, must channel more resources towards improving the nursing profession by training more nurses and offering competitive salaries and emoluments to attract and retain talented nurses. This is especially important because the Government has already given itself an ambitious target in the form of Vision 2016, in which it envisions to be 'A compassionate, just and caring nation'. The Government must also put more effort in educating its people about the importance of routine medical check-ups (at least once every month) for any disease so that illnesses can be detected early in order to avoid having to be hospitalised. Neglecting health education can lead to more incidences

of illness which can put pressure on the Government's scarce resources, and create an unnecessarily heavy workload for health professionals such as nurses. It is particularly important to educate people about the need to be screened for silent killers such as HIV/AIDS, cancer, organ failure and diabetes. Furthermore, it would be at such medical check-ups that family welfare officers can reinvigorate the nation's knowledge about the importance of home-based care.

More coordination between the Ministries of Health and Local Government would help the country achieve a common goal on matters pertaining to health care in Botswana. It is evident that the two do not seem to be in sync when it comes to providing reliable data on health care. There is need for data sharing between the Ministries of Local Government and Health, especially on how many nurses are employed.

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