CASE STUDY | SOUTH AFRICA

MINIMUM DATA SETS FOR HUMAN RESOURCES FOR HEALTH AND THE SURGICAL WORKFORCE IN SOUTH AFRICA'S HEALTH SYSTEM

A rapid analysis of stock and migration

African Institute of Health & Leadership Development

Acknowledgements

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Comments on an earlier draft were provided by James Buchan (University of Technology, Sidney) and Giorgio Cometto (WHO).

Funding for the development of this document was provided through the project "Brain Drain to Brain Gain - Supporting WHO Code of practice on International Recruitment of Health personnel for Better Management of Health Worker Migration", co-funded by the European Union (DCI-MIGR/2013/282-931) and Norad, and coordinated by WHO. The contents of this document are the sole responsibility of the African Institute for Health and Leadership Development, and can under no circumstances be regarded as reflecting the position of the European Union or WHO.

September 2015

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Abstract

Background. The provision of health services is largely dependent on the sufficiency of the health workforce in terms of numbers, the quality of skills they possess, how and where they are deployed and how they are managed. With increasing urbanization, the issue of migration (in all forms) of health personnel has become a critical factor in the debate about social justice in health, especially access and equity in the provision of health services. This case study seeks to establish the existence of a system that is necessary if health authorities are to improve the management of health workforce migration.

Objectives. The objectives of the study were to determine the minimum data sets that are recorded by government, statutory health councils and professional associations in their management systems; determine the stock of health professionals involved in surgical care; and establish the existence of data and systems to manage the emigration of South African health professionals.

Method. Data were collected from the National Ministry of Health, provincial departments of health, statutory health councils (Health Professions Council of South Africa, South African Nursing Council and South African Pharmacy Council) and the South African Society of Anaesthesiologists. The data sources that were utilized fell into the following categories: policies (health policies that relate to the health workforce); status report from a payroll system (specific focus on the workforce); and statutory health council annual reports and responses to a survey questionnaire.

Results. Data analysis revealed that the provincial departments of health do not collect information on employees in a uniform manner. There is no distinct national register of categories making up the surgical workforce. However, the scopes of practice that are developed by the statutory health councils dictate who can offer surgical care. Consequently the surgical workforce is mostly made up of medical specialties and medical officers. There is however no quantifiable information relating to numbers of medical officers offering surgical care at health facilities.

Conclusion. The country needs to improve collaboration between stakeholders that have human resources for health data management systems; modify and strengthen the use of the current public service-wide human resources system (Vulindlela) to cater for health-specific human resources data; and strengthen its workforce planning capability by ensuring the existence of an appropriate national health workforce information system. This should straddle both public and private health sectors, including the statutory health councils. The National Ministry of Health and Ministry of Home Affairs need to improve their collaboration on the measurement and monitoring of emigration by South African health professionals.

Key words: emigration, immigration, minimum data sets, health professionals, South Africa

MINIMUM DATA SETS FOR HUMAN RESOURCES FOR HEALTH AND THE SURGICAL WORKFORCE IN SOUTH AFRICA'S HEALTH SYSTEM

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1. Background

1.1 Constitutional and organizational context of South African health system

South Africa has an estimated population of 54 956 900 *(1)*, the majority of whom access health services through government-run public clinics and hospitals. The health system comprises the public sector (run by the government) and the private sector. The public health services are divided into primary, secondary and tertiary through health facilities that are located in and managed by the provincial departments of health. The provincial departments are thus the direct employers of the health workforce while the National Ministry of Health is responsible for policy development and coordination.

South Africa's Constitution guarantees every citizen access to health services (section 27 of the Bill of Rights). However, everyone can access both public and private health services, with access to private health services depending on an individual's ability to pay. The private health sector provides health services through individual practitioners who run private surgeries or through private hospitals, which tend to be located in urban areas. The health care system consumed about 8.8% of the country's gross domestic product during 2012 *(2)*. The majority of patients access health services through the public sector District Health System, which is the preferred government mechanism for health provision within a primary health care approach. The private sector serves 16% of the population while the public sector serves 84% *(3)*. The country's population distribution indicates that about 64.7% inhabit the provinces that are largely rural in nature. Some of these provinces contain large cities, though the bulk of the population lives in rural communities. Table 1 shows population estimates and distribution by province.

There is realization that the health workforce plays a critical role in advancing the health system goals, largely driven by a policy position of improving access to health

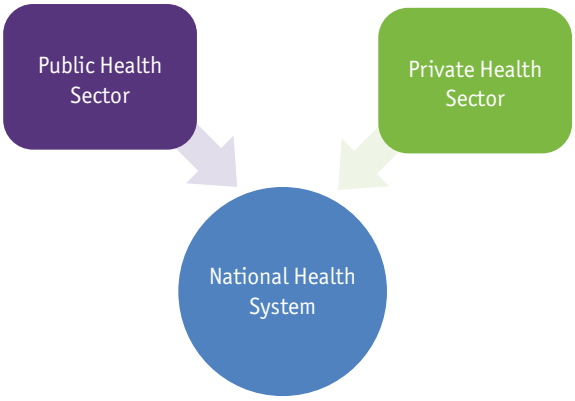
TABLE 1. SOUTH AFRICA: POPULATION TOTALS AND DISTRIBUTION BY PROVINCE (MIDYEAR 2015)

Province	Population estimate	% of total population
Eastern Cape	6 916 200	12.6
Free State	2 817 900	5.1
Gauteng	13 200 300	24.0
KwaZulu-Natal	10 919 100	19.9
Limpopo	5 726 800	10.4
Mpumalanga	4 282 900	7.8
Northern Cape	1 185 600	2.2
North West	3 707 000	6.7
Western Cape	6 200 100	11.3
Total	**54 956 900**	**100.0**

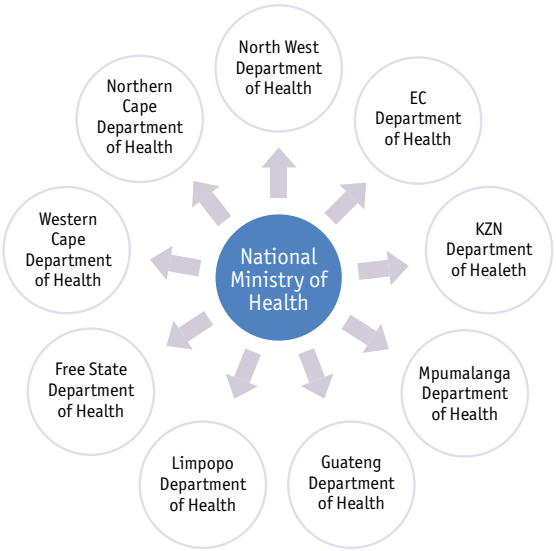
Source: Statistics South Africa *(1)*.

FIGURE 1. ORGANIZATION OF THE SOUTH AFRICAN HEALTH SYSTEM

1a. Macro-organization of the South African health system



1b. Organization of the South African public health sector



care for all citizens *(4)*. Figure 1 shows how the South African health system is organized.

1.2 Health workforce context

The mandate for health workforce policy lies with the National Ministry of Health in cooperation with the Department of Higher Education and Training (for output of trained personnel) and Department of Public Service and Administration (for employment conditions). South Africa has a total of 23 universities and eight schools of health sciences; a ninth medical school is being established. In addition there are nine provincial nursing colleges and a number of private nursing schools. Collectively, the medical schools have an annual output of medical graduates ranging between 1200 and 1300. This is viewed as grossly inadequate for a country with a population size of approximately 55 million. The production of medical doctors is supplemented by the training of doctors in Cuba under a government-to-government agreement.

Once health science students graduate from university or college, they are required by law to register with a relevant professional health council, namely the Nursing Council in the case of nurses, the Pharmacy Council in the case of pharmacists and one of the 12 professional boards for those professions that are governed by the Health Professions Council. These professional councils are referred to as statutory health councils because they were set up by various acts of Parliament, for example the South African Nursing Act No. 33 of 2005, the South African Pharmacy Act No. 53 of 1974 and the Health Professions Act No. 56 of 1974. These acts and associated regulations get amended from time to time.

Graduates in the health sciences are required by law to perform community service before they can be sanctioned for independent practice by the relevant professional council. This is in addition to the period of internship for categories such as medical graduates.

The professional councils are also responsible for accrediting the academic programmes of training institutions. In the case of the medical profession, an examining body – the Colleges of Medicine of South Africa – conducts specialist examinations. This is in addition to the specialist examinations conducted by individual universities.

The employment of health professionals is either through government institutions or through self-employment in the private sector. Some become employed by corporate bodies, for example medical insurance entities or mining companies. The management of the health workforce is guided by a number of policies that were adopted by the government over a number of years following the 1995 White Paper on Transformation of Health Services. Table 2 lists those policies and indicates their focus.

TABLE 2. HUMAN RESOURCES FOR HEALTH POLICIES AND THEIR FOCUS

Policy	Year	Focus / rationale
Human Resource Strategy	2001	Proposals on the definitions, entry requirements and scope of practice of all categories of health care professionals
Scarce Skills Allowance	2003	Financial incentive to retain "scarce skills" in the public health service
Policy on Remunerative Work outside Public Service	2002	An incentive scheme allowing doctors to work in the private sector while fully employed by the government
Human Resources for Health Planning Framework	2006	Highlighting the need for systematic national health workforce planning
Policy on Remuneration of Health Professionals Working in Public Health Service	2007	System of differentiated pay for health professionals employed in public health facilities with the objective of recruiting and retaining professionals in the public health service
Nursing Strategy	2008	Focus on nursing as the backbone of health services by advancing six key strategies for stabilization of nursing
Policy on Employment of Foreign Health Professionals in the Public Health Sector	2008	Principles and practices in the employment of health professionals who are non-citizens aligned to the immigration processes of the Department of Home Affairs
Human Resources for Health Strategy South Africa	2011	Focus on planning and staffing of health facilities in preparation for the introduction of National Health Insurance. The strategy builds on the foundation laid by the 2001 Human Resource Strategy and the 2006 Human Resources for Health Planning Framework

1.3 Migration of the health workforce

The migration of South African health professionals has been a subject of discussion for a considerable period of time. Many studies have been conducted and have advanced varying estimates of emigration by health professionals *(5–7)*, and several causes of migration of health professionals have been identified. Internal migration of nurses within the South African health care sector and emigration to other countries are two major factors that have contributed to the high turnover rate of South African professional nurses *(8)*. Measuring the extent of emigration of South African health professionals remains a challenge. Many research studies have been based on incomplete data, as systematic data on international flows of health workers from South Africa, and indeed from the whole of the African continent, have generally been absent, leading to untested hypotheses *(9)*. As a result, some studies utilize destination country data systems to estimate the extent of emigration of health workers from developing countries *(9)*.

South Africa still does not have a systematized mechanism for measuring and monitoring emigration of its health professionals. However, it does have a mechanism for managing the immigration of those who wish to work in the South African health system. The country formalized its policy on migration of health professionals in 2008 through the adoption of the Policy on Employment of Foreign Health Professionals in the Public Health Sector. During the height of emigration of South African nurses, mostly to the United Kingdom in the late 1990s and early 2000s, the South African Ministry of Health engaged with its counterpart in the United Kingdom to explore cooperation in the health field. This resulted in the development and adoption of a bilateral agreement between the two countries – the Memorandum of Understanding on the Reciprocal Educational Exchange of Healthcare Concepts

and Personnel (2003). While it did not seek to stop emigration by South African health professionals, its thrust was to influence it. Due to the lack of a policy explicitly addressing the emigration of South African health professionals, no systems have yet been developed to monitor their movement out of the country. Even internal movements appear not to be closely recorded, as evidenced by the survey responses of provincial departments of health.

Due to the difficulty of producing empirical evidence, some studies have resorted to making deductions based on "intention to leave" of respondents *(5)*.

2. Objectives and methods

2.1 Study objectives

The objectives of the study were threefold:

1. determine the minimum data sets that are recorded by government, statutory health councils and professional associations in their management systems;
2. determine the stock of health professionals involved in surgical care;
3. establish the existence of data and systems to manage the emigration of South African health professionals.

In addition, the study sought to identify what synergies existed between the workforce data systems of major entities such as the provincial departments of health, which are the major employers within the health sector, and what data gaps needed to be filled.

2.2 Methods

In 2015 the study group contacted the nine provincial departments of health, the National Department of Health, the three statutory health councils and one umbrella professional organization for surgical societies. The nine provincial departments of health were included in the study as they are the biggest direct employing entity of health professionals for the government; that is, they constitute the public health service employer. The statutory health councils – the Health Professions Council of South Africa, the South African Nursing Council and the South African Pharmacy Council – were included on the basis that they carry a legislative mandate to maintain the registers of all health professionals in the country. The South African Society of Anaesthesiologists was included as it is an umbrella organization of specialists involved in surgical care.

Each respondent was sent a questionnaire to complete and, based on the responses, telephone follow-up interviews were conducted to obtain further explanations or to close any gaps in the information supplied. The research data-gathering process was guided by a protocol developed by the Global Health Workforce Alliance, which provided a list of minimum data sets against which to match responses.

3. Results

3.1 Minimum data sets

The following data elements were included in the minimum data sets: full names, identity number, date of birth, citizenship, country of residence, language, address, contact information, qualifications, professional registration status, employment status, employment address, previous employer and number of years as a professional. Respondents were asked to add any other relevant field to the above. There were small variations in what respondents provided for the minimum data sets but nothing additional to the list provided in the research protocol and questionnaire.

The provincial departments of health utilize the governmentwide human resources data system – "Vulindlela" – to collect information on human resources for health but do not perform this task uniformly. Table 3 indicates the fields that are recorded by the provincial departments of health.

Limited recording relates to a situation where only the primary academic qualification that is a basic requirement for the post or job is recorded. That then excludes the recording of any other academic qualifications that may have been obtained additional to the primary qualification.

The statutory health councils and the South African Society of Anaesthesiologists responded to the minimum data sets section, as shown in Table 4.

TABLE 3. DATA FIELDS RECORDED BY PROVINCIAL DEPARTMENTS OF HEALTH

Data element	EC	FS	GA	KZN	LP	MP	NC	NW	WC	NDoH
Full names	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Identification number	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Date of birth	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Citizenship	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Country of residence	Yes	Yes	No	Yes	Yes	NR	Yes	Yes	Yes	Yes
Language	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Address	Yes	Yes	No	Yes	Yes	NR	Yes	Yes	Yes	Yes
Contact information	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Qualifications	Yes	Yes	Yes	LR	Yes	NR	Yes	Yes	Yes	Yes
Prof. registration status	Yes	No	Yes	LR	Yes	NR	Yes	Yes	Yes	No
Employment status	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Employment address	Yes	Yes	Yes	Yes	No	NR	Yes	Yes	Yes	No
Previous employment address	No	No	No	Yes	No	NR	Yes	Yes	Yes	Yes
No. years as a professional	Yes	No	Yes	Yes	No	NR	Yes	Yes	Yes	Yes

Key (provincial departments of health): EC = Eastern Cape; FS = Free State; GA = Gauteng; KZN = KwaZulu-Natal; LP = Lwimpopo; MP = Mpumalanga; NC = North Cape; NW = North West; WC = Western Cape; NDoH = National Department of Health. Other abbreviations: LR = limited recording; NR = no response.

TABLE 4. DATA FIELDS RECORDED BY STATUTORY HEALTH COUNCILS AND SOCIETY OF ANAESTHESIOLOGISTS

Data element	HPCSA	SANC	SAPC	SASA
Full names	Yes	Yes	Yes	Yes
Identification number	Yes	Yes	Yes	Yes
Date of birth	Yes	Yes	Yes	Yes
Citizenship	Yes	Yes	Yes	Yes
Country of residence	Yes	No	No	Yes
Country of origin	No	No	No	No
Language	Yes	No	Yes	No
Address	Yes	Yes	Yes	Yes
Contact information	Yes	Yes	Yes	Yes
Qualifications	Yes	Yes	Yes	Yes
Professional registration status	Yes	Yes	Yes	Yes
Employment status	No	No	Yes	Yes
Employment address	No	No	Yes	Yes
Employment address	No	No	Yes	No
Number of years as a professional	Yes	No	Yes	No

Key: HPCSA = Health Professions Council of South Africa; SANC = South African Nursing Council; SAPC = South African Pharmacy Council; SASA = South African Society of Anaesthesiologists.

3.2 Stock inflows (production)

The major data source for stock inflows was the Health Professions Council of South Africa, which maintains a register of all medical doctors that are licensed to practice medicine in South Africa. The second and third sources were the provincial departments of health (including the National Ministry of Health) and the South African Society of Anaesthesiologists, respectively. The Health Professions Council of South Africa has under its aegis 12 professional boards, with the Medical and Dental Board forming the largest in terms of numbers. As of 6 May 2014, there were 40 749 medical practitioners on the Medical and Dental Board register *(10)*. This figure includes those in the medical profession who are specialists. During the period 1 April 2013 to 31 March 2014 a total of 1972 new registrations of qualified practitioners were recorded by the Medical and Dental Board *(10)*. For the same period, a total of 1538 new registrations for medical internship were processed, representing the number of new medical graduates from the country's medical schools, inclusive of 160 foreign medical interns granted permission to do internship in South African hospitals.

For the year 2013–2014, 733 registrations of foreign practitioners were recorded by the Medical and Dental Board. Of these, 26% were in the specialist self-funded training category, 44% in the general practitioner category, 22% in the internship category and 8% in the fully qualified specialist category. An overview of the growth in registers of professional categories under the Health Professions Council of South Africa is indicated in Figure 2.

These health professionals are trained at the public institutions of higher learning (schools of health sciences) across the country except for the emergency care practitioners, who are trained by both the public and private colleges.

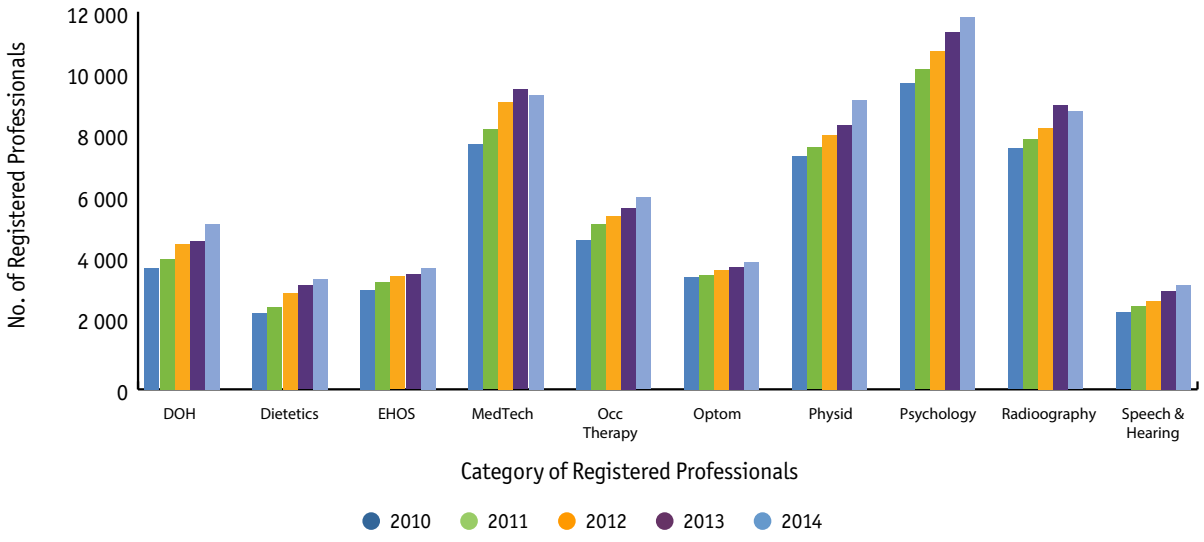
3.3 Stock in existence

The data for the current health workforce levels were derived from the government's human resources system, Vulindlela, and from the Health Professions Council of South Africa's registers. It was difficult to make accurate comparisons due to the unreliability of data, particularly in the Vulindlela system. Provincial departments of health could not provide accurate numbers of those employed as they depended also on the Vulindlela system.

The majority of those in the emergency care category are basic ambulance assistants (88%), who do not have the high-level skills to handle medical emergencies and are largely produced by the private sector. The register for basic ambulance assistants is currently in the process of being closed.[1]

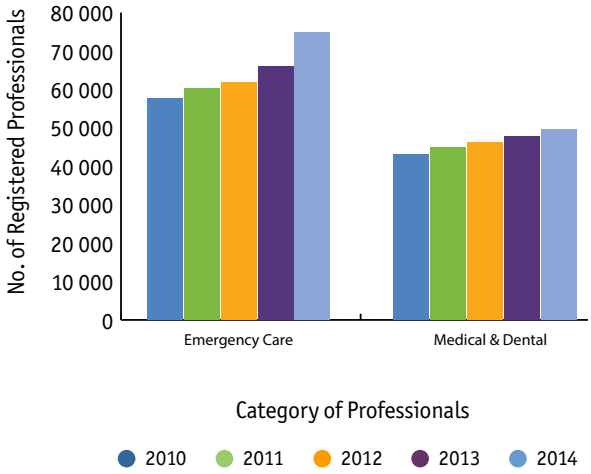
1 Information received during discussions with the national deputy director-general responsible for human resources for health.

FIGURE 2.
HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA REGISTERS 2010 TO 2014



Key: DOH = Dental Therapy and Oral Hygiene; EHOS = Environmental Health; Med Tech = Medical Technology; Occ Therapy = Occupational Therapy; Optom = Optometry; Physio = Physiotherapy.

FIGURE 2. (continued)
CONTINUED HPCSA REGISTER OVER A 5 YEAR PERIOD



3.4 Surgical stock

The medical specialists involved in surgical care appear in the relevant specialist registers of the Medical and Dental Board. These registers do not make any differentiation on the basis of country of residence or work location. It is therefore possible to have a register with members who are staying and working outside South Africa while still fully registered with the Health Professions Council of South Africa, which was the most reliable data source for surgical specialists, but only as far as registration was concerned. The register does not provide an accurate number of those in active practice versus those who are no longer practising. Figure 4 indicates the status of the register for different specialist categories in surgical care during the period 2010 to 2014.

As at December 2014, 1.13% (51) were registered in the category of public health service only, while 98.67% (4462) were registered for independent practice and 0.20% (9) were registered in the education category. Those registered for independent practice have no restrictions placed on where they can provide their clinical services. Most of these specialists belong to specialist associations that fall under the umbrella of the South African Society of Anaesthesiologists. The membership system of the South African Society of Anaesthesiologists does not specify the location of work of its members, that is, whether solely public or private or both.

While provinces could not provide comprehensive data on other categories that provide surgical services, they indicated that the group in this area of service are specialists, medical doctors and clinical associates. There is however no special register of medical practitioners providing surgical care. They are expected to perform surgical procedures that are in line with their scope of practice as determined by the Medical and Dental Board. Clinical associates (an equivalent of medical assistants) are limited to performing minor procedures and have in recent times been utilized to perform circumcisions in line with the policy of male medical circumcision as part of the fight against HIV infection.

4. Discussion

South African physicians are well qualified from a clinical and academic perspective, thus they have little difficulty in being accepted in many countries across the world. They are esteemed for the high standard of training they receive locally, a quality that renders them prime candidates for employment *(11)*. In a 2004 study, Hagopian et al. *(12)* reported that a total of 5334 working in the United States

FIGURE 3. HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA REGISTERS 2010 TO 2014

New HPCSA Registrations 2013

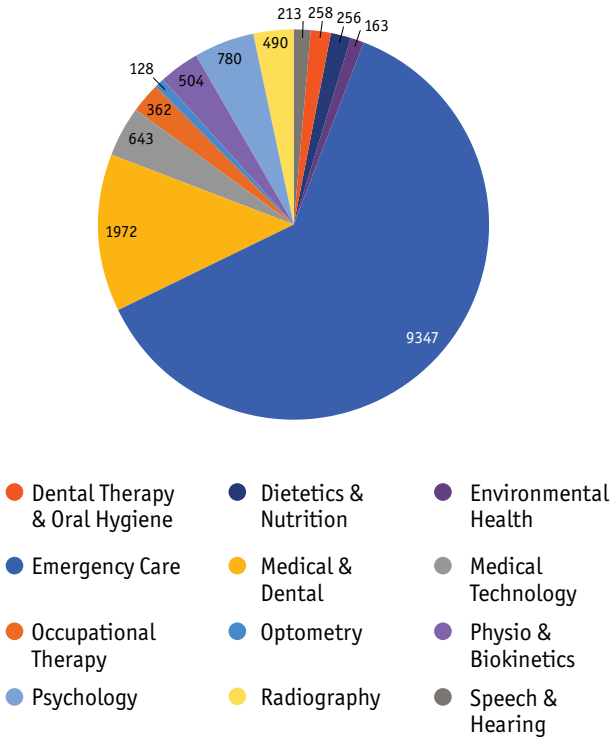
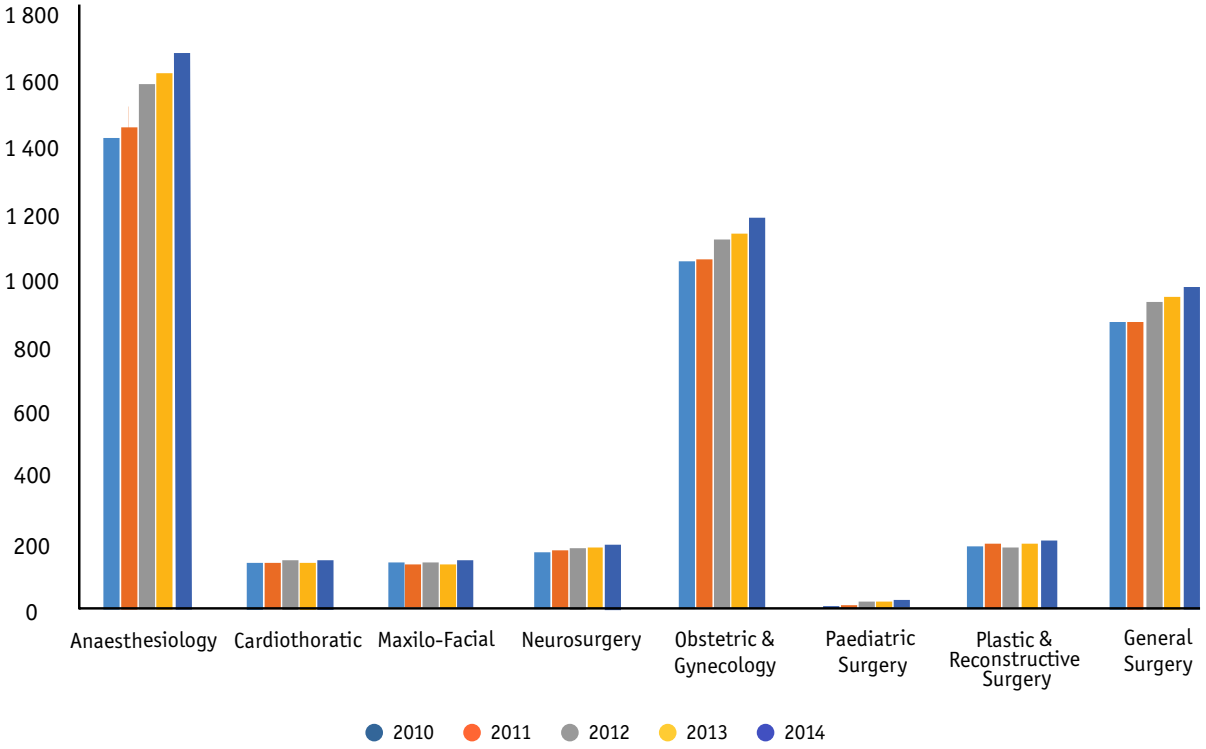


FIGURE 4. HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA REGISTERS 2010 TO 2014



of America came from sub-Saharan Africa, and of these, South Africa contributed 35% (1840/5334). Such studies are indirect measurements of the scale of emigration from developing countries. Direct measurements should yield better data and information but there need to be appropriate systems in place to enable this.

The purpose of this discussion is to highlight the need for the harmonization of health workforce data management systems within the South African health system so that the measurement of migration patterns of health professionals is accurately done. As indicated in Table 2, South Africa has in place a policy and system for managing immigration by health professionals who wish to work in the country. Such health professionals have to apply through the National Department of Health while at the same time engaging with the relevant statutory health council with regard to the eligibility of their qualifications in South Africa. The Health Professions Council of South Africa has guidelines on its website to assist those who wish to work in South Africa.[2] A note in the guidelines indicates that any interested professional should seek a job offer in the public health sector. This therefore brings an element of cooperation between health authority and registration authority.

Figures 1a and 1b indicate the macro-organization of the South African health system and, understood together with Table 1, illustrate that provincial health administrations will have varying challenges that are linked to provision of services to predominantly urban or rural populations. This matter is also linked to the retention of skills in health facilities that serve rural populations. The need to recruit and retain health workers in rural settings has been recognized and guidelines issued by the World Health Organization *(13)*. The shortage of medical doctors in the rural public service globally has previously been documented *(14)*. However, it is difficult to state categorically how many doctors work in rural areas, partly because of the challenge of defining what qualifies to be rural or not. A number of provinces are termed rural even though they have metropolitan cities within them: for example, in KwaZulu-Natal province the city of Durban is surrounded by many rural villages. The practice has been to categorize areas as rural or urban in terms of health policy development. However, there has over the years been a move towards

2 www.hpcsa.co.za.

utilizing levels of deprivation as an additional measure to guide policy-makers to better allocate resources and more effectively target policies *(15)*. Statistics South Africa's multidimensional poverty index (MPI) includes a variety of factors that contribute to a poor person's experience of deprivation, including poor health, lack of education, inadequate living standards, lack of income, disempowerment, lack of decent work and threat from violence, many of which can be categorized as "social determinants of health". In the South African context, urban–rural factors, while important in the distribution, recruitment and retention of health workers, must be considered together with other factors in the health workforce planning processes. Lack of access to social amenities is one of the factors hindering retention of medical doctors in poor resource settings.

It is also difficult to state categorically how many doctors work in the public and private sectors because some doctors work across both sectors, a practice purported to help retain public health care workers in the public sectors in low- and middle-income countries through additional wage incentives *(16)*. Collaboration between all key stakeholders in the provision of health services is necessary if the constitutional provisions (section 27) in the Bill of Rights are to be realized. National health workforce planning is an important activity and should commence with these key players being able to share information, thus the need to harmonize their minimum data sets. The World Health Organization advocates the production of national health workforce accounts as a mechanism to standardize the health workforce information architecture and interoperability and to track human resources for health policy performance towards universal health coverage. South Africa is working towards the implementation of National Health Insurance as one of the mechanisms in support of universal health coverage. The supply and retention of adequately skilled health professionals across the country's public health facilities is a key concern for the National Ministry of Health. The success of the National Health Insurance project relies on the sector's ability to provide human resources for health in adequate numbers. Managing migration is therefore a critical policy issue.

The significance of the data in Table 3 is that where gaps exist, that could signal less than optimal management of the health workforce. For example, two respondents indicated that they did not record annually the professional registration status of the health professionals. The implication is that a situation can exist where someone who is required by law to be registered can be employed while not registered. Such a situation would have implications for the employer in a case of litigation due to medical negligence. Another example is where four of the respondents reported that they did not record who the previous employer of the professional was. The employment record may then not be sought by the new employer, thus missing or overlooking crucial information about the experience and conduct of the professional in question. Similarly, Table 4 indicates that two statutory health councils do not record the employment status and employment addresses of the professionals they regulate. This thus limits their ability to know whether these professionals are within the country or outside. While this would not be an accurate measure, these data could provide an approximation of the distribution status of the registered professional health workforce in the country.

In South Africa public health workers have been permitted to work part time in the private sector since the early 1990s, initially through the Limited Private Practice Policy and, since 2001, through the Policy on Remunerative Work outside Public Service *(16)*. Because dual practice is a sanctioned activity, the public service employer should be in a position to know who does what work and where. Accurate records thus have to be maintained across all employing agencies of government. The minimum data sets have to be as comprehensive as possible and data uniformly captured. For the present study it was difficult to determine how many surgical specialists worked exclusively in the public or private health sectors, or in both. It was also difficult to determine how many of those appearing in the Health Professions Council of South Africa register have emigrated. A similar situation pertained to those specialists who are members of the South African Society of Anaesthesiologists, as its register did not have an overseas category – a situation that the society has since rectified by creating such a field in its membership system.

5. Conclusions

The policy context for improved management of the migration of health personnel in South Africa is compelling and relevant. All human resources for health policies in South Africa were developed with a central focus of retaining

health professionals in the public health service, though there is no evidence that these policies were purposefully sequenced. Their implementation remains a challenge even though the control of immigration of health professionals appears to be well executed. The emigration aspect of South African health professionals appears not to be on the radar for tighter control, presumably because of constitutional issues relating to freedom of movement and trade of citizens (section 22 of South Africa's Constitution). Several questions will need to be considered, particularly when addressing the issue of measuring the extent of migration – Should the system also monitor the in-country movement of health professionals? Should the system prioritize certain categories that are linked to specific priorities (for example specialists in relation to management of maternal deaths)? Would emigration only relate to those who seek remunerative work in another country? What about those who go on year-long sabbaticals or extended holidays? As an NHRC member remarked, some of these issues will depend on the honesty of the professionals involved to declare their true destinations and intentions. In addition, Clemens and Pettersson *(9)* pose the critical question of how long one must stay outside the country for that movement to be termed "emigration".

The following areas are recommended for action:

1. Harmonization of the minimum data sets on the health professionals between statutory health councils and health departments, with the National Department of Health taking the responsibility for coordination.
2. Review of existing human resources for health data management systems to include fields that will provide accurate information about the location of practice of health professionals.
3. Cooperation between the National Ministry of Health and Ministry of Home Affairs to improve the measurement and monitoring of emigration by South African health professionals.
4. Collection of occupation-specific data by the Ministry of Home Affairs on all emigrations.
5. Strengthening of the health workforce planning function at the National Ministry of Health to include the participation of all relevant stakeholders, for example statutory health councils and universities.
6. Closer interaction between the National Ministry of Health, statutory health councils and professional associations for the development of a national human resources for health information system, building on the existing governmentwide human resources system. This has previously been proposed and can take the form of modifying the existing Vulindlela system to be more aligned with health workforce planning.

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