

Identifying the determinants of and solutions to the
shortage of doctors in South Africa: Is there a role for the
private sector in medical education?

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1 Executive summary and introduction

South Africa has a shortage of medical doctors. Whereas South Africa had 60 doctors per 100,000 citizens in 2013, the world average was 152 doctors per 100,000 citizens in the same year.¹ Large inequalities in the distribution of resources between the public and the private sector, as well as between rural and urban areas exacerbate the shortage.

The effect of South Africa's doctor shortage is already of concern but will be felt more acutely under the proposed National Health Insurance (NHI) plan, currently in its pilot phase. Given the envisioned re-engineering² of primary healthcare in South Africa, the NHI will require greater numbers of clinical and non-clinical professionals with different skills and competencies. Minister of Health, Aaron Motsoaledi, has stated that he plans to triple the number of medical graduates to at least 3 600 doctors per year in preparation of implementing the NHI.³ Training capacity will have to be increased substantially in order to achieve this goal.

The emigration of healthcare professionals and restrictions on foreign doctors working in South Africa contribute to the doctor shortage. The most significant factor that limits the supply of doctors from meeting demand, however, is the constraint on the number of doctors trained. Eight faculties of medicine at South Africa's public universities ('medical schools') carry the full responsibility for training doctors. These medical schools do not deliver enough doctors to respond to South Africa's doctor demand and large disease burden. In comparison to other countries, each of South Africa's medical schools serves a much larger share of the population, and training capacity has not kept up with population growth. The prohibition on establishing private medical colleges in South Africa limits the private sector's ability to help lift this burden, and leaves training in the public sector constrained by limited funding and resources.

In this report we discuss the various initiatives by national or provincial governments, universities and the private sector to address the lack of training capacity for healthcare professionals in South Africa. One such policy is to send students to countries like Cuba and China for medical training. We argue that the long term effectiveness of such policies needs to be weighed against counterfactual scenarios and the quality and suitability of medical education received. Training doctors abroad is at best a temporary solution to doctor shortages in South Africa. Instead, partnerships between universities and provincial governments, as well as (limited) partnerships between universities and the private sector have been proven to help lift the burden, albeit only marginally, and should be further encouraged. The structural shortage of doctor training capacity will best be solved through a combination of initiatives.

¹ Econex presentation at HASA Conference (2014)

² This process has as its objective to redefine the tasks and roles of different healthcare workers (DoH, 2011), such as allocating a greater teaching and referral role to medical officers. In this context, medical officers include interns, community service doctors and private general practitioners.

³ Malan, M. (2014). South Africa ready for private medical school. *Mail and Guardian*. 24 Sept.

We also discuss initiatives of other developing countries that have encouraged the expansion of medical training in various ways. The rise of private medical schools in India, for example, has retained medical students who might otherwise have studied abroad. Brazil relies on both public and private medical schools to provide training, and uses both of these platforms to provide healthcare services to communities while students are in training. Indeed, research shows that private medical schools are common internationally and as a rule provide high quality education.

Other important lessons can be drawn from African countries like Malawi, which has increased its training capacity with the help of international volunteer doctors. Zambia's experience illustrates that exposure to rural areas during training needs to be complemented by adequate mentoring in order to provide healthcare practitioners in these areas with the necessary skills.

Greater participation by the private sector can thus play an important role in the provision of medical education. This study considers two possible avenues of participation: (i) allowing the establishment and accreditation of private medical colleges, and (ii) encouraging greater participation by private hospitals and specialists in the clinical training of undergraduate students studying at South Africa's public universities. In addition to considering the relevant literature, this study also relies on interviews that were conducted with a selection of stakeholders and interested parties (see Appendix for the list of interview participants).

Our findings suggest that rather than posing a threat to the public sector, the private sector can strengthen South Africa's medical workforce by helping government achieve many of its stated healthcare objectives. In the first instance, we find that the accreditation of private medical colleges can allow a greater number of doctors to be trained at minimal cost to the public purse. However, the perceived inequality in the distribution of resources between the private and public healthcare sectors creates the concern that private medical colleges will exacerbate current inequalities and give rise to elitist private training facilities. This history of antagonism in South Africa's healthcare suggests that while private medical colleges provide a structural long term solution, it will not be easy to implement in the short term.

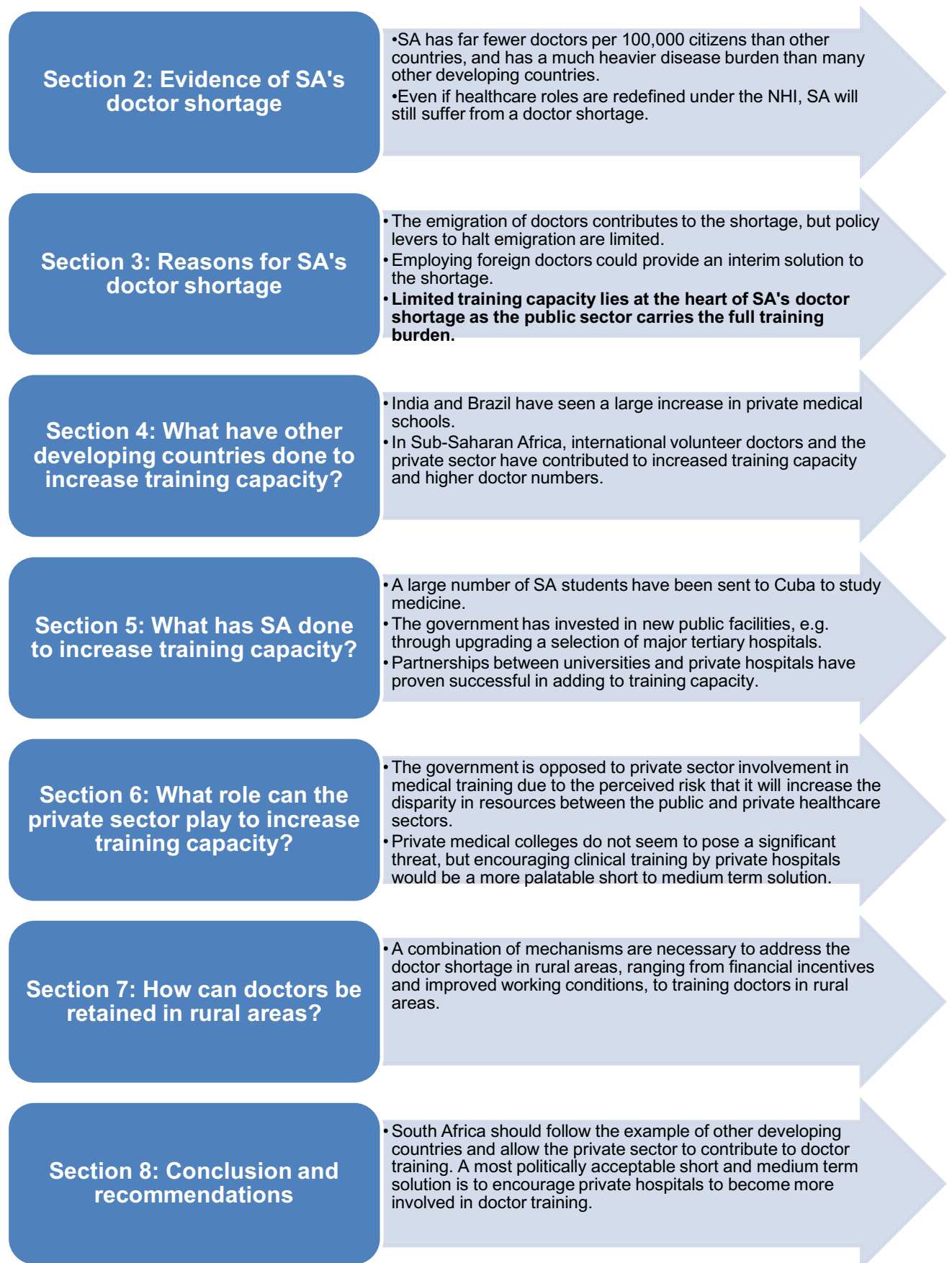
In the second instance, we consider the role that greater participation by private hospitals can play in doctor training. There are already examples where the private health sector and public universities have collaborated effectively to lessen the training burden on public medical schools. An initiative between Mediclinic South Africa (MCSA) and Stellenbosch University (US), where internal medicine students in mid-rotation complete a portion of their clinical training at a MCSA hospital, suggests that the private sector can contribute to the training capacity of public universities. It provides an easy and cost effective way of increasing the number of doctors in South Africa, without skewing the distribution of healthcare resources. Netcare and Life Healthcare also contribute to lifting the training burden of the public sector through making funding and scholarships available for specialist and sub-specialist training.

Greater involvement by the private sector in medical training should therefore be investigated and encouraged as a matter of priority, especially in light of the demand that the NHI will create for more doctors. The private sector can also be used to help address the need for more healthcare resources in rural areas, where South Africa's doctor shortage is especially acute. More doctors will be available for community service and internships in rural areas if larger numbers of students are trained. Strategic agreements between (public or private) universities and rural clinics could also be tailored to increase the propensity of medical students to practise in these areas.

The structure of this report is as follow, with the key arguments presented in the diagram below:

- Section 2 provides evidence of the shortage of general practitioners and specialists in South Africa;
- Section 3 investigates the key drivers of the doctor shortage, looking at aspects such as the emigration of doctors, restrictions on the employment of foreign doctors, and limited training capacity;
- Section 4 examines the role that the private sector has played in increasing training capacity in other developing countries;
- Section 5 evaluates past and present attempts to increase training capacity in South Africa, such as sending students to Cuba;
- Section 6 considers whether there is a role for greater participation by the private sector in the training of doctors without increasing the discrepancy in resources between South Africa's public and private healthcare sectors;
- Section 7 looks at various mechanisms whereby training and economic incentives can be used to address the shortage of doctors in rural areas.
- Finally, section 8 concludes.

Figure 1: Diagram of key arguments



2 The number of doctors in South Africa

Much like a doctor would investigate a patient's vital signs before making a diagnosis, so too an economist needs to analyse an industry's vital statistics before pronouncing policy interventions. The number of doctors in a country's healthcare system is an important indicator of the state of the system.

This section starts by discussing the number of medical doctors in South Africa. The public-private sector split and the number of general practitioners (GPs) and specialists provide further evidence of the sector's health. We then compare these numbers to international statistics and the demand for doctors under the NHI to gain an understanding of the shortage of doctors in South Africa.

2.1 South Africa's medical workforce supply

In this section, we consider doctor numbers in South Africa in absolute terms, as well as in comparison to that of other countries.

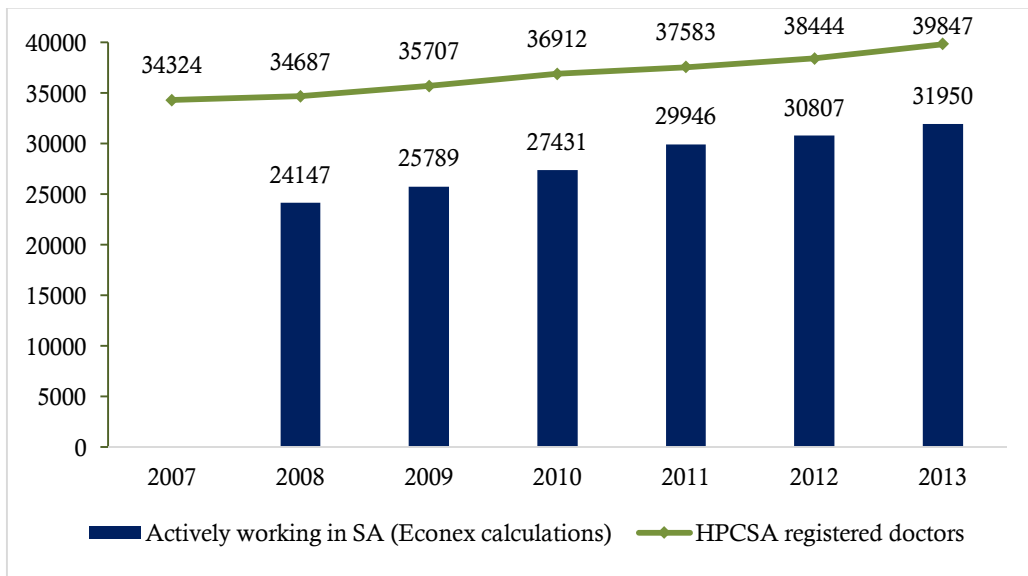
2.1.1 The number of doctors in South Africa

Econex has previously highlighted that the number of doctors registered with the Health Professions Council of South Africa (HPCSA) is not an accurate representation of doctors practising in South Africa. Some doctors remain registered with the HPCSA even though they are inactive, retired, or practising medicine overseas.⁴ Using PERSAL data, Econex has estimated the number of doctors (GPs and specialists) active in South Africa from 2008 to 2013⁵. The difference between these estimates and the number of doctors registered with the HPCSA is illustrated in Figure 2.

⁴ Econex (2010). Updated GP and Specialist Numbers for SA. *Health Reform Note 7*.

⁵ Data for 2009 are interpolated.

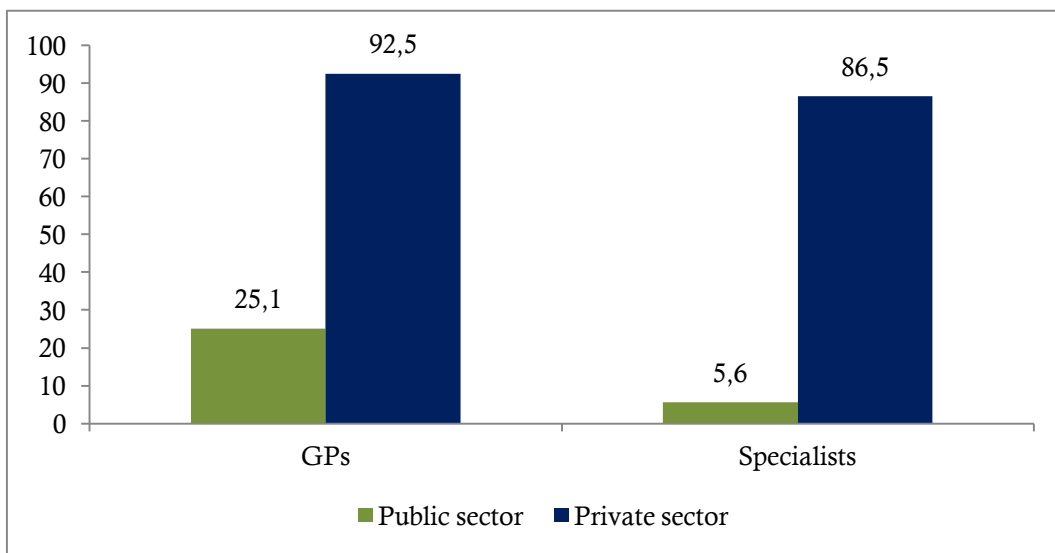
Figure 2: Estimates of active doctors in South Africa and doctors registered with the HPCSA (GPs and specialists)⁶



Source: Econex (2009), Econex (2013)

The distribution of healthcare professionals in South Africa varies greatly between the public and the private sectors. This is illustrated in the figure below, which shows that the distribution of medical specialists in the private sector was 86.5 per 100,000 beneficiaries in 2013⁷, as opposed to 11.4 specialists per 100,000 people within the public sector dependent population. The discrepancy also applies to GPs.

Figure 3: Number of doctors in the public sector per 100,000 citizens, relative to the number of doctors in the private sector per 100,000 beneficiaries (2013)



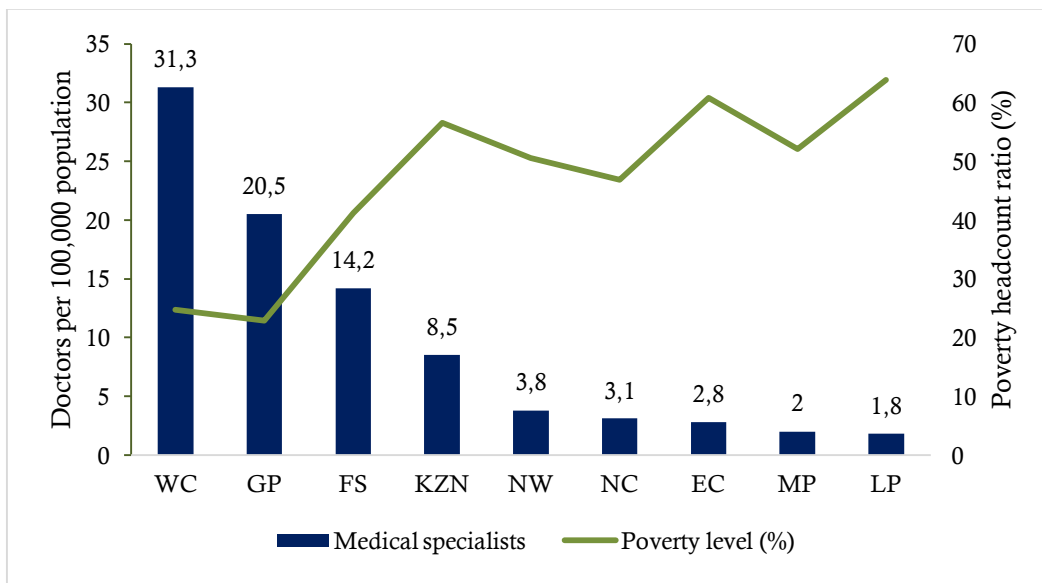
Source: Econex, 2014

⁶ Econex (2009). NHI Note 4: Supply Constraints. November.

⁷ Econex presentation at HASA Conference (2014)

In addition to the skewed distribution of doctors between the private and the public sectors, there is also a large variation in the distribution of doctors between provinces. More urbanised and affluent provinces – such as the Western Cape and Gauteng – have a much higher number of specialists relative to provinces where a larger share of citizens live in rural areas. Figure 4 illustrates the correlation between the distribution of specialists and the poverty headcount ratio⁸ within different provinces: the provinces with the highest poverty headcount ratio have the lowest incidence of specialists.

Figure 4: Specialists in the public sector per 100,000 of the public sector dependent population (2014) and poverty headcount ratio per province (2011)



Source: HST, 2015; StatsSA, 2014

Analyses based on data from the Health Systems Trust⁹ suggest that provinces where a larger share of the population lives in rural settings, suffer from a higher public sector vacancy rate for ‘medical practitioners’.¹⁰ Later in the report, we return to how the shortage of doctors in rural areas can be addressed.

2.1.2 Do these numbers reflect a doctor shortage?

Without a clearly defined policy norm or target against which the current number of doctors can be measured, it is not possible to assess if the statistics presented in section 2.1.1 imply an oversupply or undersupply of doctors. No official policy target has been determined for South Africa, but various policy and strategy documents have evaluated the country’s human resources for health. In 2006, the Department of Health (DoH) published the *National Human Resources Plan for Health* to provide

⁸ The proportion of the population living below the upper-bound poverty line of R620 per month. (StatsSA (2014). Poverty trends in South Africa: An examination of absolute poverty between 2006 and 2011)

⁹ Health Systems Trust Indicators, 2014. Available online: <http://www.hst.org.za/content/health-indicators>

¹⁰ Limpopo appears to be an exception to this rule, with a public sector vacancy rate of 11%. Mpumalanga had the highest estimated vacancy rate, at 28% (*Health Systems Trust, 2014*)

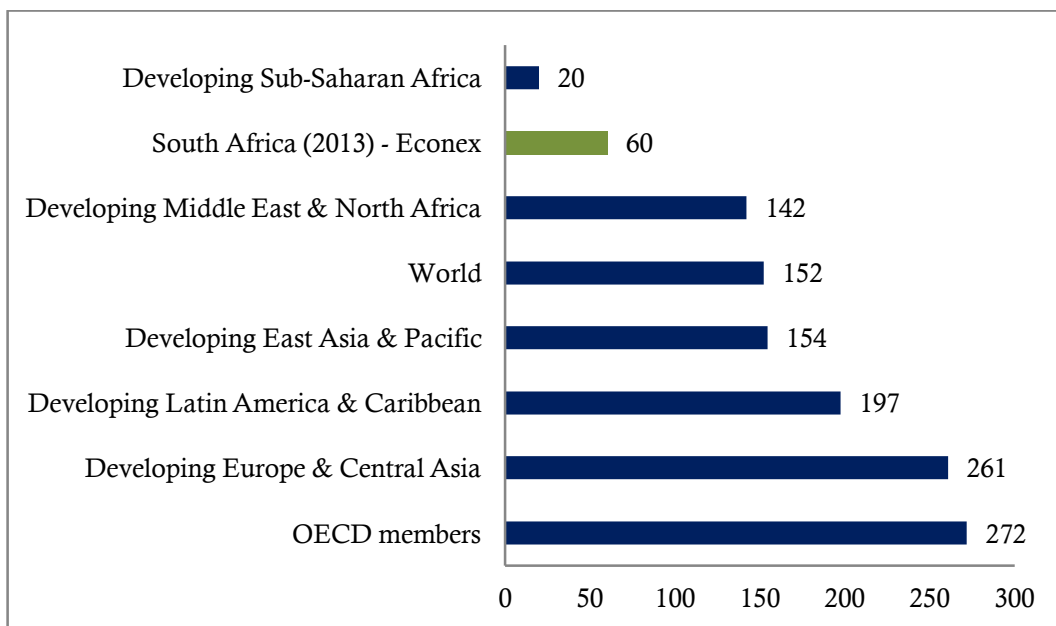
skilled human resources for a healthcare system that would adequately take care of all South Africans. The *Human Resources for Health Strategy for the Health Sector: 2012/13 – 2016/17* (the HRH Strategy) was subsequently published in 2011 (also by the DoH) to provide input into workforce planning for the healthcare sector. The report focused on the supply of health professionals and equity of access, education, training and research, and the working environment of the health workforce – specifically within the context of the demands for human resources under the NHI.

Given the absence of policy targets in these official documents, we compare the distribution of doctors in South Africa with other countries to understand whether South Africa has a shortage of doctors.

2.1.2.1 International comparison: Doctors per 100 000 population

Doctor shortages are often identified by comparing the number of doctors per 100,000 citizens. The figures below put South Africa’s doctor numbers into context by comparing them across countries and regions. This illustrates that while South Africa largely outperforms its peers in Sub-Saharan Africa, it underperforms in comparison to most other countries or regions.

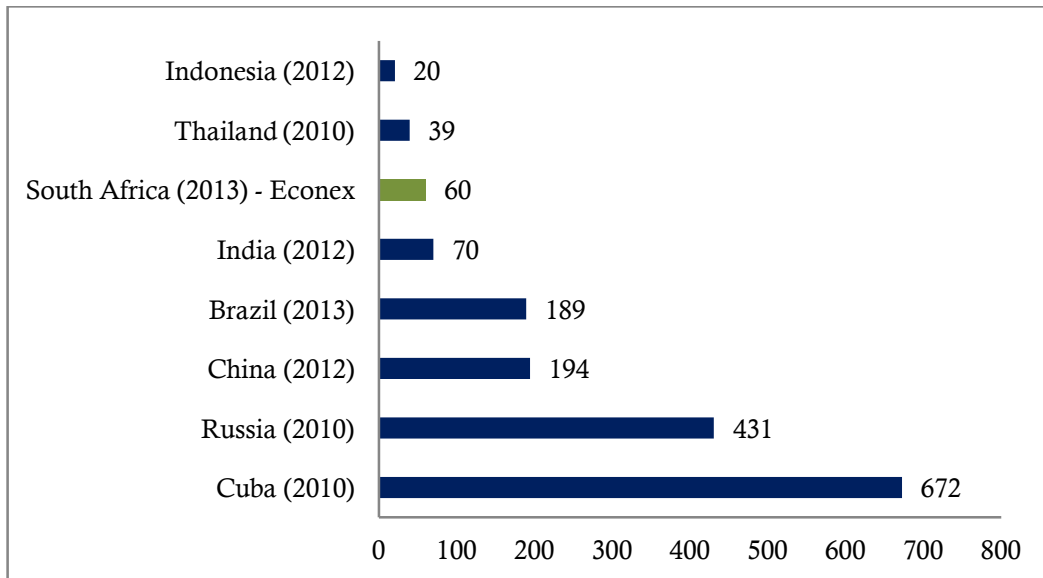
Figure 5: Regional comparison – All doctors per 100,000 citizens (2010 or latest year available)



Source: World Health Organisation, 2014¹¹

¹¹ Econex presentation at HASA Conference (2014)

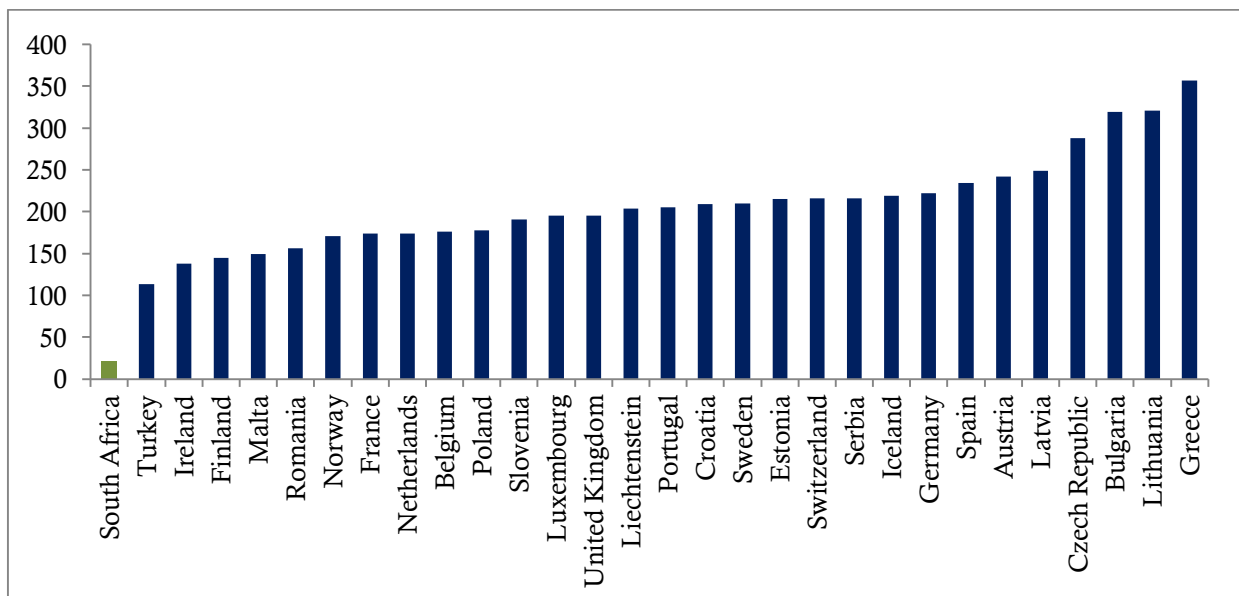
Figure 6: Country comparison – All doctors per 100,000 citizens (2010 or latest year available)



Source: World Health Organisation, 2014¹²

The strain on South Africa’s healthcare resources is especially evident when comparing the number of specialists per 100,000 citizens to that of developed countries. While no data were available to allow a comparison between South Africa’s distribution of specialists and BRICS and other developing countries, the figure below illustrates an evident shortage.

Figure 7: Number of specialists¹³ per 100,000 citizens in developed countries and South Africa (2011)



Source: Eurostat, 2015; Econex, 2014

¹² Econex presentation at HASA Conference (2014)

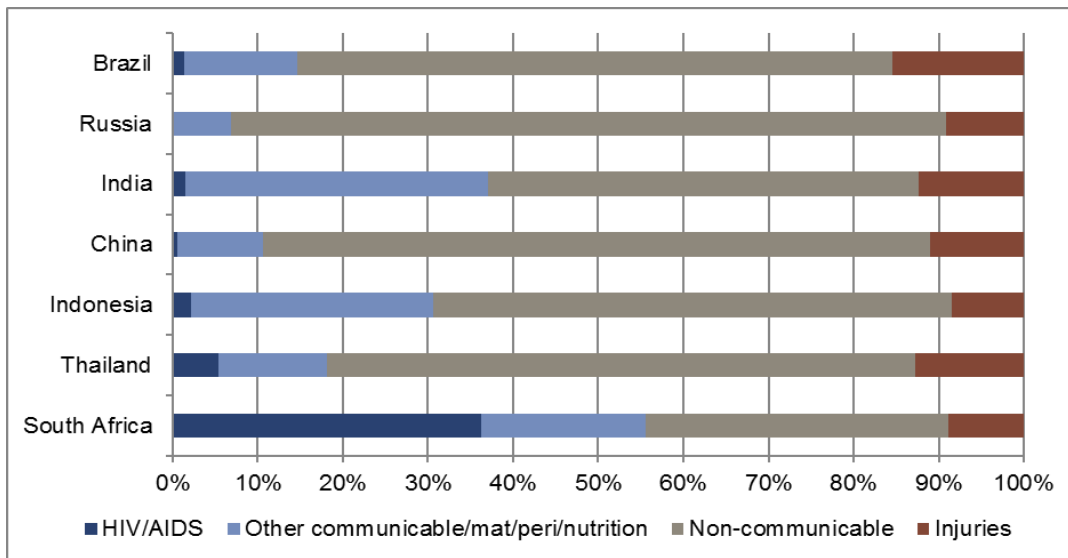
¹³ Eurostat includes Paediatricians, Obstetricians and gynaecologists, Psychiatrists, Medical specialists, Surgical specialists as well as medical interns or residents in training for a specialty.

The regional and country comparisons of South Africa’s distribution of doctors, presented above, suggest that South Africa suffers from a severe doctor shortage.

2.1.2.2 International comparison: Disease profile

Important nuances, however, are ignored when comparing the number of doctors per 100,000 citizens with those of other countries. Factors that affect these comparison include that the disease profile of the South African population is different, that its health system differs, and that there are large discrepancies between the number of doctors in the public and the private sector. South Africa’s burden of disease, specifically, has a different composition than many other developing countries as HIV/AIDS plays a disproportionately large role in the disability adjusted life years (DALYs) of South Africans. This is shown in Figure 8 below:

Figure 8: Developing country comparison of DALYs (2012)



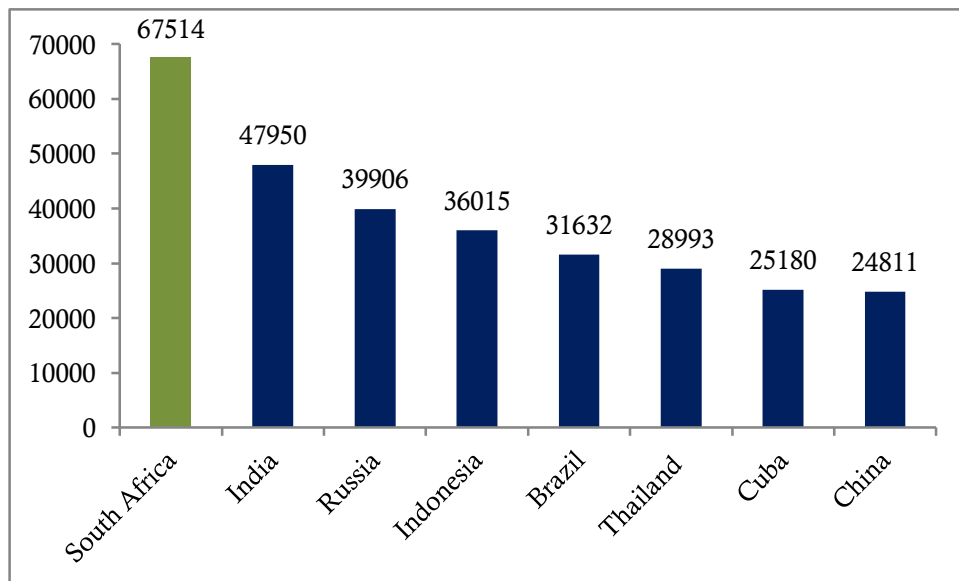
Source: World Health Organisation, 2014¹⁴

The high incidence of HIV/Aids contributes to the disease burden by increasing cases of TB, diarrhoea, meningitis and other opportunistic infections that are associated with HIV infection. This implies that prevention, care and treatment programmes need to accommodate these scenarios, putting further pressure on human resources.¹⁵ South Africa’s disease burden is not only different to that of other developing countries, but also appears to be much more severe (see Figure 9).

¹⁴ Econex presentation at HASA Conference (2014)

¹⁵ Tawfik, L. & S.N. Kinoti, SN. (2006). The impact of HIV/AIDS on the health workforce in developing countries. *Background paper prepared for The world health report 2006 - working together for health.*

Figure 9: Age-standardised DALYs per 100,000 citizens, 2012



Source: World Health Organisation, 2014¹⁶

South Africa's high disease burden exacerbates the effect of the low distribution of doctors relative to other countries. It emphasises the extent of South Africa's doctor shortage, and the need for a structural solution to the problem.

2.2 South Africa's demand for doctors under the NHI

South Africa's doctor shortage becomes especially evident within the context of South Africa's proposed NHI policy. The DoH notes that *"the biggest threat to NHI is the unequal distribution of health professionals between the private and public sector, and between urban and rural areas. One of government's most urgent tasks, as we prepare for NHI, is to increase the numbers of health professionals who provide services and training, and undertake health research."* Earlier work by Econex (2009) also pointed to the greater demand that the NHI will create for doctors, due to the combination of zero co-payments, comprehensive benefit packages, and universal coverage.¹⁷

In response to the above concerns, the HRH Strategy (2011) argues that redefining the traditional roles of GPs and specialists will address the shortage of human resources in health. The Strategy states that *"the 'scopes of practice' of all healthcare professionals need to be reviewed and revised with a view to shifting tasks to the category of worker that can most efficiently perform the work"*.¹⁸ Inter alia, it argues that the number of clinical associates suited to working in district hospitals should increase. At these hospitals, tasks are well-defined and it is possible to be specific about the scope and practice limits of work requirements. Clinical associates will be *"intended to fill the gap that exists*

¹⁶ Econex presentation at HASA Conference (2014)

¹⁷ Econex (2009). What does the demand for healthcare look like in SA? NHI Note 3.

¹⁸ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17. p.65

in district hospitals where a large proportion of the clinical work of doctors is related to emergency care, diagnostic and therapeutic procedures and inpatient care”.

Despite the above, a rough calculation of the number of GPs needed to satisfy three GP visits per person per year¹⁹ suggests a shortage even if more clinical associates were introduced into South Africa’s healthcare system. Moosa *et al.* (2012)²⁰ estimated that GPs in the private sector on average see 22 patients per day and work 288 days of the year. Based on this workload, 25 569 GPs will be required to serve South Africa’s population of 54.002 million.²¹ This is roughly 4 100 more than the current number of GPs practising in South Africa. Furthermore, a larger number of GPs need to be trained every year (assuming that GPs exit the system at a constant rate) in order to keep up with population growth of 1.58% (in 2013-2014).

Dr Nicolas Crisp has argued along similar lines, saying that “...*the problem [is] not so much that there is a shortage of specialists, but that there are not enough generalists, such as GP’s, to serve the population where the real burden of disease is. Because of consumer and specialist pressure, general clinicians increasingly doubt their ability and pass patients on to specialists, said Crisp. ‘We’ve created a shortage of specialists because we’re not using specialists as they should be used – as consultants, rather than the first port of call’.*”²² This contributes to the pressure on South Africa’s already low incidence of specialists in the public as well as the private sector.

2.3 Concluding remarks

The data show that while the comparison of South Africa’s doctors per 100,000 citizens provides a useful benchmark, it obscures many important dynamics. It is important that the response to South Africa’s doctor shortage not only increases doctor numbers in absolute terms, but that it also corrects discrepancies between the public and private sector, rural and urban areas, and between provinces.

International comparisons as well as the demand that the NHI will create for healthcare practitioners, show that South Africa suffers from a shortage of GPs as well as specialists, even if the roles of medical practitioners were to be redefined. While this could assist in addressing the problem, it will not sufficiently address the shortage; more doctors are required. The following section considers the key contributing factors to South Africa’s doctor shortage, which will inform the appropriate policy response.

¹⁹ Health24. (2012). The ANC’s NHI plan. Available online: <http://www.health24.com/Medical-schemes/General-info/The-ANCs-NHI-plan-20120721>

²⁰ Moosa, S. *et al.* (2012). Introducing a national health insurance system in South Africa: A general practitioner’s bottom-up approach to costing. *The South African Medical Journal*. 102(10).

²¹ StatsSA (2014). Mid-year population estimates. *Statistical Release P0302*.

²² Strachan, B. (2013). Experts warn of looming shortage of specialist doctors in South Africa. *Health Management Review Africa*. 1 November.

3 Why does South Africa have a doctor shortage?

After confirming the extent of South Africa's doctor shortage in Section 2, we now investigate the key reasons for this shortage. A correct prognosis is imperative to design an appropriate policy response.

We explore the key constraints that are prohibiting the supply of doctors in South Africa from meeting demand. It recognises the impact of the emigration of doctors and restrictions on foreign nationals, but argues that limited training capacity poses the largest structural constraint.

Box 1: Doctor shortages: The dynamics of demand and supply

When demand exceeds supply in a perfectly competitive (unregulated) market, competition among buyers leads to higher prices. This results in more suppliers being attracted to the sector. More competition among suppliers in turn puts downward pressure on prices, allowing supply to meet demand and settling at an efficient price. These dynamics are commonly referred to as 'the market mechanism'.

In healthcare, the market mechanism does not function optimally due to information asymmetry and third party payment systems. However, the demand and supply of doctors would influence the price at which the market clears. Restrictions on the supply of doctors in South Africa – for reasons investigated below – has not allowed the market to respond by increasing supply. This has led to a private sector characterised by short supply (in comparison to international benchmarks), which could contribute to prices settling at above equilibrium rates.

The unmet demand for doctors in the public sector is even greater than in the private sector, as shown in the previous section. Working conditions in the public sector are often found to be poor relative to the private sector. In order to attract doctors to the public sector, government has to offer salaries that are competitive with the income of doctors working in the private sector. Budget limitations in turn restrict the number of doctors that the public sector can employ, below a level where supply adequately meets demand.

This disequilibrium is aggravated by the cap on the number of doctors being trained, as well as the global shortage of doctors which puts South African doctors in high demand. Furthermore, as illustrated earlier, South Africa's disease burden is high in comparison to many other countries, creating a demand for doctors presumably above international levels.

3.1 Emigration of doctors

South Africa competes with the global demand for doctors as South African doctors are highly regarded due to their professional and language skills. In 2004, the OECD²³ found that New Zealand, Canada, Australia, the United Kingdom and the United States were the countries that attracted the most South African-born doctors.

Doctors that exit South Africa's healthcare sector have a twofold cost to the economy: the loss of the expected return on investment from subsidising students of medicine, and the implicit costs to the economy associated with a doctor shortage. While accurate data on the emigration of doctors are not available, 17% of the newly graduated doctors from 2005 to 2009 did not register for community service. As doctors need to undertake community service in order to register with the HPCSA to practise medicine in South Africa, this may imply that these doctors opted instead to practise medicine abroad.^{24 25}

Box 2: Media excerpts on doctor migration

"Another factor is that a lot of doctors don't even choose to stay in South Africa but choose to take jobs out of the country".²⁶

"Jordan said the poor treatment of doctors during community service encouraged them to seek work overseas..."²⁷

"Remuneration in foreign countries, that the government cannot match, is frustrating efforts to retain doctors and nurses in South Africa... countries such as the US and the United Arab Emirates offered "greener pastures" for local medical professionals. South Africa could not afford to compete..."²⁸

"The situation is made worse by the fact that nearly 70-80% of trained South African health professionals were not retained in the public sector and are lost either to the private sector or overseas".²⁹

"Doctors, nurses and skilled people all around the world move to greener pastures where they are paid better. If you meet the Canadians, they will tell you how many doctors they are losing to the US. Canadians say 'if it was not for you guys in South Africa then we would be finished because all of our doctors go to the US'. Our doctors will then move to replace those in Canada, or move to Australia or England".³⁰

²³ OECD (2004). The international mobility of health professionals: An evaluation and analysis based on the case of South Africa. *Trends in International Migration*.

²⁴ Makoni, M. (2009). Doctor brain drain continues. *University World News*. 30 August.

²⁵ Waters, M. (2009). South Africa haemorrhaging doctors. *Politics Web*. 19 July.

²⁶ Rondganger, L. (2013). SA needs 14 351 doctors, 44 780 nurses. *Daily News*. 22 January.

²⁷ Child, K. (2014) Is there a doctor in the house? *Times Live*. 13 March.

²⁸ Phakathi, B. (2014). SA faces uphill battle to retain doctors, nurses. *Business Day Live*. 27 February.

²⁹ HASA Conference (2013). South Africa faces a looming critical shortage of specialist doctors, warn experts. October.

³⁰ Phakathi, B. (2014). SA faces uphill battle to retain doctors, nurses. *Business Day Live*. 27 February.

"The loss of doctors from South Africa has also been attributed to the high quality of medical education they receive here, a feature that would indisputably render them prime candidates for employment in various developed countries across the world,' Joubert wrote."³¹

The factors that contribute to a doctor's decision to leave South Africa and instead practise medicine abroad were investigated in a 2013 study which surveyed pre-final and final year students at three medical schools and one nursing school in South Africa. The study identified various push and pull factors affecting emigration decisions, listed in the table below in order of decreasing importance.

Table 1: Percentage of students indicating that the following push or pull factors were a 'great influence' on their emigration decisions (n=298)

Push factors	%	Pull factors	%
Working conditions in the public sector	53.7	Higher salaries in destination country	47.8
Inadequate medicine supplies and equipment	51.5	Quality and variety of speciality training offered	47.3
Heavy workloads for doctors and nurses	49.1	Prospects for professionals' advancement	43.6
Risk of occupational exposure (e.g. to TB, HIV)	41.7	Greater personal safety abroad	40.0
Crime and violence	41.6	Availability of good jobs abroad	39.8
Low salaries	33.5	Potential to earn more money abroad to put towards a private practice in SA	37.9
Political instability in SA	29.7	The quality of life abroad	37.9
Deterioration of quality education	29.6	The standard of living abroad	37.8
Current economic conditions in SA	27.2	The economic situation of the destination country	37.4
Poor quality of life	25.2	Better opportunities for family abroad	33.8
Uncertainty about SA's future	23.7	Stability of the national government in the destination country	32.6
Working conditions in the private sectors	23.7	Transferability of qualification	29.8
Lack of opportunities for career advancement	21.0	Ability to repay student loan or other financial commitments sooner	28.8
Cost of living in SA	12.8	Similarities in healthcare training between SA and destination country	11.1
I won't find a job in SA	7.5		

Source: Adapted from George & Rearden, 2013

About half of the students surveyed listed the work environment in the public sector as a motivation for emigration. Poor working conditions, inadequate resources and heavy workloads were noted as factors that would affect their decision, and seemed to play a more important role in emigration decisions than the political and economic environment of South Africa. The attractiveness of destination countries (i.e. pull factors) are driven by expectations about better career prospects, including higher salaries, a higher quality and variety of speciality training, and greater opportunities for professional advancement. In sum, a poor working environment and lack of career prospects seem to be the primary drivers behind the emigration of doctors from South Africa.

³¹ Makoni, M. (2009). Doctor brain drain continues. *University World News*. 30 August.

Recent years have seen a slight change in the attitude of developed countries with regards to 'poaching' doctors from developing regions. In some instances, these changes in attitude have been legislated, such as in the UK where in 2008 the British Home Office published a list of professionals where appointments from outside of the EU will no longer be allowed without submitting sufficient evidence.

"...in the past decade, countries have significantly tightened up on their registration requirements for foreign graduates. [Dr Mark Sonderup, deputy chairman of the South African Medical Association] said the South African government had also in the past decade formally requested countries such as the UK to stop poaching local doctors."³²

South African doctors will however remain in demand as long as the global shortage of doctors endures. Rather than relying on countries to stop recruiting South African doctors, policy makers should focus on addressing the problems that 'push' doctors to leave.

3.2 Restrictions on employing foreign doctors

South Africa's doctor shortage is worsened by restrictions on allowing foreign nationals to practise medicine in South Africa. Current policy aims to limit foreign doctors to 6%, and to only recruit doctors through country-to-country arrangements. However, in 2011, 3 004 foreign doctors were registered with the HPCSA, which accounted for approximately 10% of the medical workforce.^{33,34} South Africa discourages the recruitment of foreign healthcare professionals from other developing countries, so as to not deprive these countries of a scarce resource.³⁵

Box 3: How can a foreign doctor qualify to practice medicine in South Africa?

The Medical and Dental Professions Board (MDPB) of the HPCSA will approve registration of foreign healthcare workers (for public service only) without the required written HPCSA examinations. This is on condition that their training curriculum is considered to be of a high standard, and that they have appropriate post-internship experience and training.³⁶ HPCSA exams are written two or three times annually³⁷ for individuals who do not meet the aforementioned criteria. The Department of Home Affairs agrees to issue them with three-year working permits for South Africa, but no foreign national may practise medicine or seek employment in South Africa without a formal letter of endorsement from the Foreign Workforce Management (FWM) programme.

There appears to be a large demand among foreign doctors to practise medicine in South Africa, driven by the need for healthcare services and the valuable exposure gained from South Africa's

³² (2015). SA is the winner as local doctors stay put. Government Employees Medical Scheme. 22 March.

³³ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17

³⁴ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17

³⁵ Green, A. (2014). HPCSA's inertia sinks foreign medics. *Mail & Guardian*. 21 February.

³⁶ (2015). Working in South Africa. RuDASA.

³⁷ (2015). Working in South Africa. RuDASA.

particular and heavy disease burden. However, current healthcare policy minimises the opportunities for foreign doctors to become involved in South Africa's healthcare sector. Poor administrative processes serve as a further limitation. The South African government has been heavily criticised for the difficulty experienced by foreign doctors in registering to practise in South Africa. Foreign doctors experience severe delays and inefficiencies in registering with the FWM³⁸ and the HPCSA^{39,40}, and 'non-exam track' doctors report waiting months for registration with the HPCSA.⁴¹ Many of them express extreme frustration at the process, and instead seek work in other developing countries where registration procedures are run more smoothly.^{42,43}

The irony is that foreign nationals present a low cost and effective mechanism for addressing doctor shortages in the short term. While there is merit in not actively recruiting doctors from other developing countries with struggling healthcare systems, South Africa's severe doctor shortage demands in the least a process whereby foreign nationals from developed countries are rapidly and efficiently screened.

Box 4: What do stakeholders say about employing foreign nationals in SA's health sector?

"The policy which only allows government-to-government agreements should be reviewed and all existing bilateral agreements should be monitored;

The management process for foreign recruitment is slow and this process needs to be more efficient and effective;

Foreign recruitment should be considered as a useful mechanism for meeting short-term shortages in doctors and other professionals, but needs careful and considered management;

The recruitment system should be made attractive and easy to use."

Department of Health, 2011⁴⁴

UCT's African Paediatric Fellowship Programme (APFP) is a good example of making use of foreign resources without contributing to the 'brain drain' of other developing regions. The Programme consists of a partnership between South Africa and eleven other African countries (Ethiopia, Ghana, Kenya, Nigeria, Sierra Leone, Sudan, Tanzania, Uganda, Malawi, Zambia and Zimbabwe), to "[create] a network of skilled African healthcare professionals who can develop capacity in, and lobby for, child health through clinical service provision, training, education and research".⁴⁵ Between 2008 and 2014, 55 paediatrics have trained or were being trained in general paediatrics or diverse paediatric sub-

³⁸ Waters, M. (2010). Foreign Workforce Management Programme: Staff unqualified for regulating foreign-qualified workers. DA. 25 October.

³⁹ Slow, unresponsive and unconcerned: How the Health Professions Council hurts patients. *Daily Maverick*. 31 October 2013.

⁴⁰ Green, A. (2014). HPCSA;s inertia sinks foreign medics. *Mail & Guardian*. 21 February.

⁴¹ Health-e News. (2012). Rural hospitals buckle as foreign docs delayed. *Health Systems Trust*. 25 January.

⁴² Green, A. (2014). HPCSA;s inertia sinks foreign medics. *Mail & Guardian*. 21 February.

⁴³ Health-e News. (2012). Rural hospitals buckle as foreign docs delayed. *Health Systems Trust*. 25 January.

⁴⁴ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17

⁴⁵ Govender, K. (2014) Innovative training programme helps strengthen paediatric care in Africa. *UCT press release*. 29 July.

specialities. Of these students, 98% returned to their countries of origin. As registrars (medical practitioners training as specialists), these doctors contribute to alleviating South Africa's doctor shortage, yet return to their home countries with invaluable expertise and a level of training that they would not otherwise have been exposed to.

Restrictions on the employment of foreign doctors contribute to the inability of South Africa's healthcare system to respond to the high demand for healthcare practitioners. Properly using these resources can greatly assist South Africa in overcoming its doctor shortage in the short term, whilst allowing more sustainable mechanisms to be put in place to provide a longer term solution.

3.3 Limited training capacity

South Africa's limited capacity to train doctors is a key factor preventing doctor supply from meeting demand. Lack of training capacity is not only restricted to the South African context, but is also considered one of the contributing factors to the global doctor shortage. The WHO states that "*without massively increasing training of workers in [] other wealthy countries, these growing gaps will exert even greater pressure on the outflow of health workers from poorer regions.*"⁴⁶ This section investigates undergraduate and specialist training in South Africa, and the associated limitations.

Box 5: Media statements on limited training capacity

*"There are many students who qualify to study but do not get in (to university). It is not only necessary for us to increase the number of medical schools but also to expand the existing ones by ensuring we have faculties that can teach these students."*⁴⁷

*"The major challenge we're currently facing is the finite available capacity we have to train new doctors. Hence, with increased numbers and strained capacity, a concern is being expressed that the quality of those being trained could be affected."*⁴⁸

*"Also, medical schools do not have the capacity to train more doctors - more than 8000 people applied for 250 first-year places at Wits Medical School this year."*⁴⁹

3.3.1 Undergraduate training

The DoH's 2006 recommendation⁵⁰ to increase the output of students graduating with an MBChB, from 1 300 graduates per annum to 2 400 graduates per annum, has not materialised. As shown in the figure below, medical schools are operating at full capacity and little success has been achieved in increasing capacity. Much progress has however been made in terms of improving the

⁴⁶ The World Health Report 2006.

⁴⁷ Rondganger, L. (2013). SA needs 14 351 doctors, 44 780 nurses. *Daily News*. 22 January

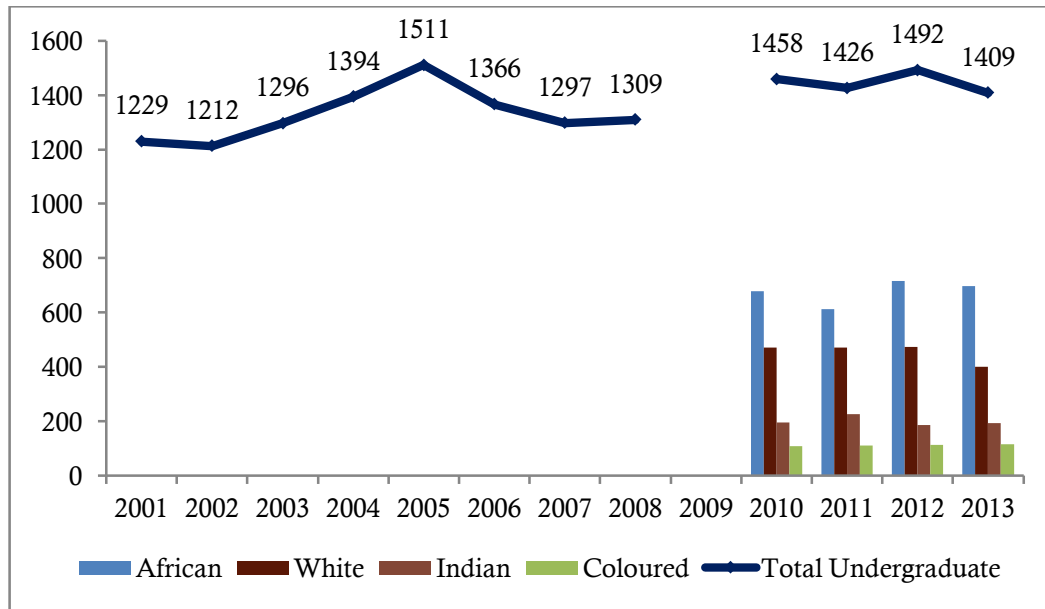
⁴⁸ Epic Communications (Pty) Ltd. (2014). SA medics worried about poor training, doctor shortages. *Health24*. 4 July.

⁴⁹ Child, K. (2014) Is there a doctor in the house? *Times Live*. 13 March.

⁵⁰ DoH (2006) National Human Resource Plan for Health.

representation of different race groups at an undergraduate level, where African students made up 55-60% of all graduates between 2010 and 2013.

Figure 10: Graduates receiving undergraduate qualifications in Medicine or Clinical Medical Sciences⁵¹



Source: HRH Strategy, 2011; HEMIS, 2014

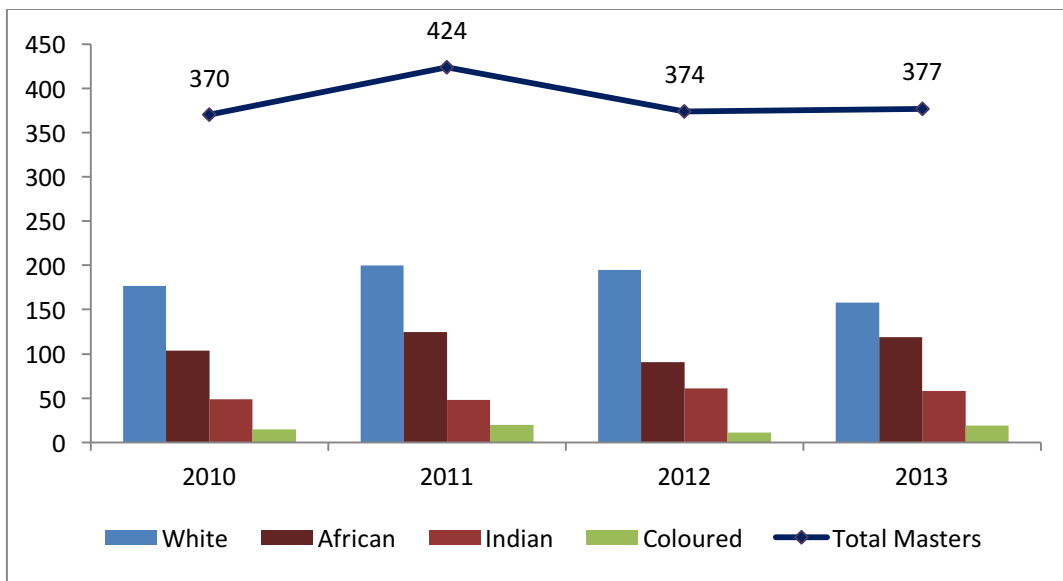
While training capacity at undergraduate level has not substantially increased, it is also important to consider if progress has been made to train larger numbers of postgraduate students to practise as specialists.

3.3.2 Specialist training (postgraduate)

In 2013, 377 students graduated with Master's degrees in Medical Clinical Sciences. This number remained relatively constant between 2010 and 2013. In contrast with the trend at undergraduate level, white students made up the largest portion of those graduating with Master's degrees.

⁵¹ Data from 2001-2008 are from the DHET as collated in the HRH Strategy. Data from 2010-2013 are from the Higher Education Management Information System (HEMIS) database and shows the number of students graduating at South Africa's eight medical training universities with Bachelor's degrees.

Figure 11: Graduates receiving Master's degrees in Medical Clinical Sciences⁵²



Source: HEMIS, 2014

South Africa has an imperative to increase the number of medical graduates, as well as to align the demographics of graduates with that of the country. The analysis above shows that the number of undergraduate and postgraduate students that received degrees in Medicine or Medical Clinical Sciences remained relatively stable from 2010 to 2013. Further, the demographic representation of undergraduate medical students more closely reflects that of the country than is the case for students receiving Master's degrees. In the remainder of this section, we consider training capacity at South Africa's medical schools to better understand these dynamics.

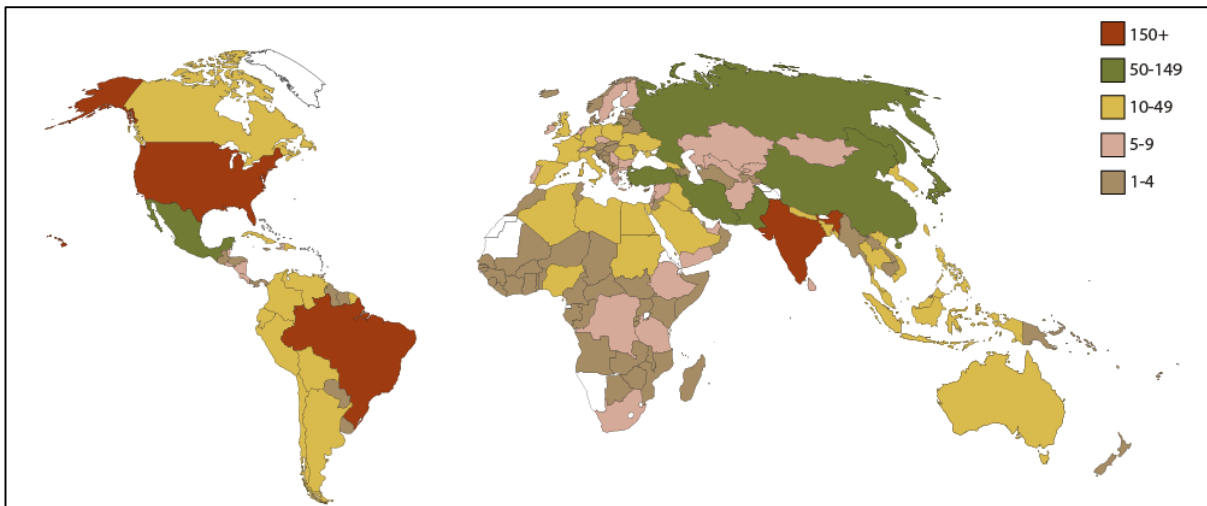
3.3.3 Training capacity of South Africa's medical schools

International comparisons on doctor training provide a useful metric to assess South Africa's performance. Figure 12 presents the number of medical schools per country. Although the number of medical schools in Africa increased from 127 in 2006 to 208 in 2013⁵³, countries in Sub-Saharan Africa lie at the bottom of the distribution. With eight medical schools, South Africa performs slightly better than its neighbouring countries.

⁵² These figures reflect the number of students graduating with Master's degrees in Medical Clinical Sciences from South Africa's eight medical schools.

⁵³ Boulet et al. (2007); Duviviers et al. (2014)

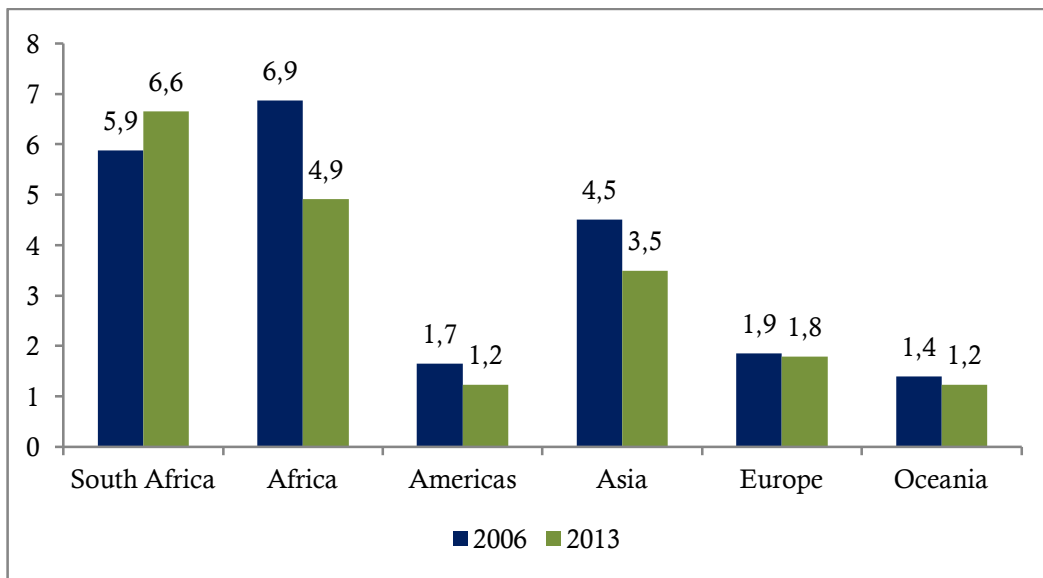
Figure 12: Mapping medical schools internationally



Source: *International Medical Education Directory (IMED), 2014*

It is however of more relevance to assess if medical training capacity has responded to population growth. Figure 13 suggests that medical schools internationally have more than kept up with population growth and capacity has improved in response to the global doctor shortage. But this has not been the case in South Africa, where the number of citizens per medical school has increased. Where there was one medical school for 5.9 million people in South Africa in 2006, the number of citizens per medical school increased to 6.6 million in 2013.

Figure 13: Population per medical school, 2006 & 2013 (millions)

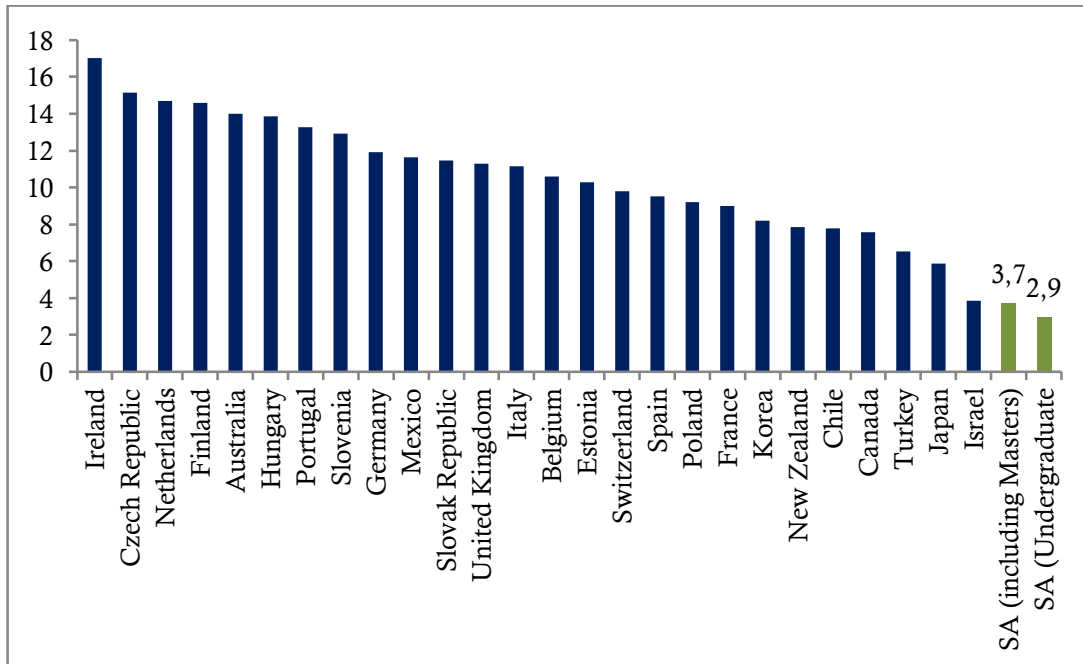


Source: *Boulet et al. (2007); Duviviers et al. (2014)*

South Africa also underperforms in terms of the number of graduates per 100,000 citizens, and trains far fewer doctors than most OECD countries. South Africa produced 3.7 medical graduates

(undergraduate and Master's degrees) per 100,000 citizens in 2012, less than a third of those trained in OECD countries on average (10.7 per 100,000 citizens). This is reflected in Figure 14 below.

Figure 14: Graduates⁵⁴ per 100,000 citizens in OECD countries and South Africa, 2012



Source: OECD, 2015; HEMIS, 2014; World Bank, 2010

Based on the descriptive analytics presented above, it is clear that insufficient training capacity contributes to South Africa's doctor shortage. In what follows, we consider why this is the case.

3.3.4 Why does South Africa have a shortage of training capacity?

3.3.4.1 No accreditation for private medical colleges

Medical training of doctors and specialists is regulated under section 16 of the HPCSA Act, which states that *“Notwithstanding anything to the contrary in any other law contained but subject to the provisions of the Nursing Act, 1978 (Act No. 50 of 1978), no person or educational institution, excluding a university or a technikon, may offer or provide any training having as its object to qualify any person for the practising of any profession to which the provisions of this Act apply or for the carrying on of any other activity directed to the mental or physical examining of any person or to the diagnosis, treatment or prevention of any mental or physical defect, illness or deficiency in man, unless such training has been approved by the professional board concerned.”*⁵⁵

⁵⁴ Graduates are defined by the OECD as “the number of students who have graduated from medical schools or similar institutions in a given year. Dental, public health and epidemiology graduates are excluded”. For South Africa, the number of students graduating with Bachelor degrees from South Africa's eight faculties of medicine at public universities in 2012 was used.

⁵⁵ Health Professions Act 56 of 1974, section 16 (1)

The private sector is prohibited from training doctors, barring a maximum of three months clinical training at a private hospital at undergraduate level. Medical doctors can thus only be trained at South Africa's eight public universities offering degrees in medicine. Students receive their clinical training at academic hospitals affiliated with these universities. The lack of accreditation for private medical colleges place the full training burden on the public sector.

3.3.4.2 High cost of undergraduate training, especially at the clinical level

Medical faculties at South African universities need to limit student numbers, due to the high cost of training healthcare practitioners: the time required in clinical training, low ratio of students to teachers, and the need for the training environment to be appropriately equipped contributes to the high cost.⁵⁶

Box 6: Funding healthcare education in South Africa

Financing of academic hospitals, academic health complexes and health professional education is provided through earmarked grants from provincial and national government⁵⁷. The allocation of this funding however creates large uncertainties. Bongani Mayosi⁵⁸ (Head of the Department of Medicine in the Faculty of Health Sciences and Chief Specialist at the University of Cape Town) has summarised the situation as “[what] we have now is a “mixed masala” of provinces, education departments, local authorities and the national health laboratory services (to name a few), with no governance framework that sets out how the joint mandate is implemented.” This uncertainty results in the underfunding of training institutions which limits the number of registrar positions that can be filled and academic consultants that can be appointed.

In many ways it is less costly to increase training capacity in the classroom than it is to increase clinical training. Increasing capacity at classroom level can be done by expanding classroom size or changing assessment methods, such as relying more heavily on multiple choice questions.⁵⁹ However, increasing *clinical* training capacity requires more academic consultants to be appointed to supervise training. A limited number of consultants (and registrars) can be appointed within available budgets, creating a bottleneck in the clinical training of undergraduate students. An increase in student numbers that goes unaccompanied by an increase in consultants, will lead to more students per consultant, fewer learning opportunities through one-on-one interaction, and potentially dissatisfied patients due to the large number of students around their hospital beds.

3.3.4.3 Registrar posts are constrained by funding

The capacity to train more specialists in registrar posts is also constrained by available funding. Registrar posts are only available at teaching hospitals in the public sector, with the exception of the (semi-public) Wits Donald Gordon hospital in Johannesburg (this model is described in more detail in

⁵⁶ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17, p.50

⁵⁷ DoH. (2011). HRH Strategy for the Health Sector: 2012/13 – 2016/17, p.108

⁵⁸ Bateman, C. (2010). Academic health complexes bleeding in 'no man's land'. *The South African Medical Journal*. January.

⁵⁹ Moosa, R. (2015). Panel discussion on doctor training at the Fourth Annual Congress of Consulting Physicians, Cape Town. 29 May.

section 5.3.2). The number of posts available is limited by the high cost of training specialists: roughly R3.1 million is needed to train a specialist for four years and R2 million is needed to train a subspecialist for two years.⁶⁰ While registrars often assist with the clinical training of undergraduate students and can help to increase training capacity at the clinical level, the high cost of appointing registrars limits the extent to which they can be used to increase training capacity.

3.3.4.4 Problems at existing universities impede training capacity

The shortage of training capacity is exacerbated by problems at the faculties of medicine at existing universities, with some universities having lost (or are at the risk of losing) their accreditation for the training of some specialties. One example is where the registrars at the Cardiology Department at the University of the Free State were forced to transfer to other universities after the Department closed down in 2014. The suspension of the only cardiologist left at the Universitas Academic Hospital in Bloemfontein, led the hospital to enter into agreements with four cardiologists in the private sector. However, after allegedly receiving no payments for their services despite numerous requests, the cardiologists terminated their assistance.⁶¹ The hospital reportedly experienced an exodus of doctors and medical specialists as a result of the poor management.⁶²

3.4 Concluding remarks

This section provided some background on the factors that contribute to South Africa's doctor shortage, and inhibit the supply of doctors from meeting demand. While the emigration of doctors plays a role, opportunities for policy intervention at this level are limited and depend on a high degree of international collaboration.

The difficulty of registering as a foreign doctor in South Africa also exacerbates the shortage, where stringent regulations and inefficient administrative systems prevent their recruitment into the system. However, even if these processes were streamlined, a heavy dependence on foreign healthcare workers would not allow a structural solution to the problem.

Our analysis suggests that the limited number of doctors that are trained creates the largest impediment to increasing the supply of doctors in South Africa. This is especially true in regards to clinical training, where limited budgets disallow more consultants and registrars to be appointed.

The following section draws from the experience of developing countries to investigate initiatives that contributed to the increase of training capacity.

⁶⁰ Makholwa, A. (2013). SA medical schools in need of a funding jab. *Financial Mail*. 3 October.

⁶¹ Pittaway, M. (2014). Free State Health Crisis results in desperate UFS intervention at Universitas Academic Hospital. *DA MPL Assistance Network*.

⁶² Crisis looms at Bloemfontein academic hospital. (2014). *News24*.

4 Developing country experiences with doctor training

The objective of medical training is to produce high quality and sufficiently large student numbers of doctors. Government and the private sector often join forces to achieve these objectives, sometimes with the additional aim of alleviating shortages in rural areas.

This section presents evidence from a selection of developing countries. In many instances, these countries struggle with the same healthcare challenges as South Africa, such as severe doctor shortages, high disease burdens and underserved rural areas.

Box 7: Summary of international initiatives		
The table below summarises doctor training initiatives and the associated outcomes in a selection of developing countries.		
COUNTRY	TRAINING INITIATIVE	OUTCOME
India	Expansion in the number of private medical schools.	Students who would otherwise have left India now pursue their studies in India.
Brazil	Expansion in the number of private medical schools.	Public and private students are used in the public healthcare system.
Ethiopia	Mandate to increase student numbers while govt. provides infrastructure support.	Significant increase in student numbers.
Tanzania	Public funding for students studying at private universities. Private universities partner with public hospitals to provide clinical training.	Hubert Kairuki Memorial University has a reputation for producing high quality doctors.
Mozambique	Faculty members are trained and promoted to retain them at the Catholic University.	More than half of the medical faculty are Mozambican nationals.
Malawi	International volunteers are used to train healthcare professionals. Policies in place to attract healthcare workers to underserved areas.	A 53% increase in staff has been achieved.
Zambia	A financial incentives programme to attract doctors to rural areas was implemented.	Programme successfully attracted doctors but doctors lacked surgical and obstetrics knowledge and experience, and managerial skills.

4.1 India: growth in private training colleges

In India, private medical colleges produce equal numbers of medical graduates to public universities, with 194 private colleges and 161 government (public) medical colleges.⁶³ Financial constraints in the public sector⁶⁴ and a willingness of students to pay for medical education⁶⁵ are some of the reasons postulated for the fast growth of private medical education in India.

The availability of private medical colleges has provided opportunities for students from the rising Indian middle class who may otherwise have studied abroad, to be educated within the country.⁶⁶ The mobility of students and demand to study medicine within India is evidenced by the finding that students who study at private medical schools often come from outside of the province where the school is located, more so than students who studied at public institutions within the same province.⁶⁷

Concerns have been raised that the higher prevalence of private training colleges in India might result in exclusionary effects on students who are unable to afford studying at private colleges, and that students who graduate from private colleges might be less willing to practise medicine in rural areas. This echoes the concern of the South African government in establishing private medical schools (discussed in more detail in section 6). While it is not clear if these trends were realised in India, the increase in private training appears to have been effective in increasing doctor numbers.

4.2 Brazil: ensuring quality for adequate and universal healthcare

Similar to India, Brazil also experienced a large increase in the number of private medical colleges. The private sector established 25 of 30 new medical schools between 1966 and 1970, and by 1983 more than half of Brazil's 76 medical schools were operated by the private sector.⁶⁸ The number of medical schools in Brazil increased to 197 in 2012.⁶⁹

Medical education at Brazil's public universities is provided free of charge, whereas students at private institutions are required to pay tuition fees.⁷⁰ To ensure that quality training is offered by public as well as private institutions, the National System for the Evaluation of Higher Education was introduced in 2004.

In 1988, Brazil's new Constitution established that all Brazilians have a right to health and that this needs to be provided by the state. The medical curriculum was changed to provide healthcare to the

⁶³ Diwan, V., Minj, C., Chhari, N. & De Costa A. (2013) Indian medical students in public and private sector medical schools: are motivations and career aspirations different? – studies from Madhya Pradesh, India. *BMC Medical Education*. 15 September.

⁶⁴ Qadeer I (2006) The real crisis in medical education. *Indian J Med Ethics*, 3:95-96.

⁶⁵ Mahal A, Mohanan M (2006). Growth of private medical education in India. *Med Ed*, 40(10):1009-1011

⁶⁶ Khan A (2004). Scope of medical colleges in the private sector. *J Ayub Med Coll Abbotabad*. 16(1):1-3.

⁶⁷ Diwan, V., Minj, C., Chhari, N. & De Costa A. (2013) Indian medical students in public and private sector medical schools: are motivations and career aspirations different? – studies from Madhya Pradesh, India. *BMC Medical Education*. 15 September.

⁶⁸ National Institute of Health (1983) The development of the medical school in Brazil. *US National Library of Medicine*.

⁶⁹ Tempski, P. (2012). What do medical students think about their quality of life? A qualitative study. *BMC Medical Education*, 12:106

⁷⁰ de Oliveira, N.A. (2011). Student views of research training programmes in medical schools. *Medical Education*. 45: 748–755

community through medical education, concurrently with teaching.⁷¹ This model has similarities to South Africa, where undergraduate students of medicine are used to a limited degree in public hospitals during their clinical training.

4.3 Sub-Saharan Africa: trends in medical education

Countries in Sub-Saharan Africa (SSA) are trying to address doctor shortages by increasing training capacity. A 2009 survey of medical education in SSA found that of 78 responding universities, 59 reported increases in the number of students in their first year classes.⁷² These increases are achieved through various means, as shown by the select examples below.

4.3.1 Ethiopia

The Ethiopian government required all medical schools to increase their class sizes, while it provided support by investing in new infrastructure such as teaching hospitals. In 2012, 13 new medical schools were established. Ethiopia enrolled 3 100 medical students in 2012, almost tenfold compared to six years earlier.⁷³ These changes have however been accompanied by concerns about overcrowded schools and the quality of training being offered.⁷⁴

4.3.2 Tanzania

Private medical schools account for roughly a quarter of medical schools in Sub-Saharan Africa. Tanzania has relied on the private sector to scale up medical training, allowing the Hubert Kairuki Memorial University (a private not-for-profit university) to expand its medical student intake from 25 first-year students in 1998 to 70 first-year students in 2010. The Tanzanian government has supported this initiative by providing grants and loans to students studying at private universities, enabling more students to afford the tuition fees. The University has gained a reputation for delivering high quality doctors and partners with public hospitals to provide clinical training to their students.

4.3.3 Mozambique

In Mozambique, the not-for-profit Catholic University is an example of successful collaboration between the Mozambican government, the Catholic Church and international organisations. The university has made a concerted effort to train and promote its faculty members, resulting in a faculty where more than half of the employees are Mozambican nationals.

⁷¹ Falavigna, A. et al. (2013) Health System and Medical Education in Brazil: History, Principles, and Organization. *World Neurosurgery*. 80, 6:723-727

⁷² Mullan, F. (2010) Medical schools in sub-Saharan Africa. *The Lancet*. Vol 377, March 26.

⁷³ Public Radio International (2012). Ethiopia's Crowded Medical Schools. December 20. Available online: <http://www.pri.org/stories/2012-12-20/ethiopias-crowded-medical-schools>

⁷⁴ Public Radio International (2012). Ethiopia's Crowded Medical Schools. December 20. Available online: <http://www.pri.org/stories/2012-12-20/ethiopias-crowded-medical-schools>

4.3.4 Malawi

The international community can also be used to increase training capacity. In 2005, the Malawian government implemented a six year Emergency Human Resources Programme to increase and improve the number of medical staff in five local areas. International volunteer doctors and nurse tutors were used to expand training capacity until Malawian replacements were available, and to initiate long-term activities in the area of promotion, retention, training and career development. Policies aimed at improving the deployment of staff in underserved areas were also developed (e.g. by providing staff housing and introducing location-specific incentives).⁷⁵ Health professionals seemed to respond positively to efforts to make the profession more desirable in these areas.

The programme managed to increase staff by 53% between 2004 and 2009, although not to the same level of success across all fields of medicine.⁷⁶ The total number of graduates from Malawi's main training institutions increased by 39% between 2004 and 2009, with the number of doctors graduating from the College of Medicine increasing by 72%, from 18 to 31 over the same period.⁷⁷ However, despite success in the early years of the implementation, these gains are "fragile". No plan for sustainability is in place, and the continuing high burden of disease, the weak state of the health system and rapid population growth present difficult challenges.

4.3.5 Zambia

In Zambia, a doctor retention scheme was implemented in the most rural and impoverished areas. The scheme provided financial and other tangible incentives for 80 doctors on three year contracts. Rural areas were categorised according to the extent of isolation and the level of 'disadvantage' of the area, with areas categorised as "C" and "D" considered the most rural and disadvantaged and the least desirable to work in. The financial incentives consisted of a monthly hardship allowance of approximately 200 Euro for doctors working in Zone C and approximately 250 Euro for doctors working in Zone D. Doctors also received educational allowances for up to four children, and opportunities to secure loans for houses or vehicles. After serving in the rural areas for three years, doctors received financial assistance for postgraduate training.⁷⁸

The retention scheme was successful in attracting doctors to rural areas. The majority of the doctors who enrolled were young men who joined after finishing their training. However, although they were equipped with the clinical skills to provide essential services, they did not have the surgical knowledge nor the experience in obstetrics required for the work they were expected to do. These doctors were often required to manage senior staff as well as hospital and district centres, and lacked the management skills to do so. They indicated a strong need for professional support, and given that no provision was made to assess their performance, little incentive existed for them to perform well.⁷⁹

⁷⁵ WHO, 2006

⁷⁶ WHO, 2010.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

Although staffing numbers improved, no monitoring and evaluation plans were in place to ensure the quality of healthcare provided in these areas.⁸⁰

This highlights the need for adequate supervision and support of doctors working in rural areas, as well as the necessary training to allow them to provide managerial services in rural environments.

4.4 Concluding remarks

Developing countries have encouraged the expansion of medical training in various ways, as summarised in Box 7 above. The experience of India shows that the rise of private medical schools has retained medical students who might otherwise have studied abroad. Brazil also relies on both public and private medical universities to provide training, and uses both these platforms to provide a service to the community during training. In SSA, Malawi's initiatives to increase its training capacity show that international volunteer doctors can play an important role in increasing training capacity and that doctors respond to incentives to attract them to rural areas. The experience of Zambia shows the importance of providing adequate mentoring and support for doctors in rural areas. In Tanzania and Mozambique, private hospitals have contributed to the training of doctors.

In the next section, we consider and evaluate various initiatives that have been implemented to address the constraints on doctor training in South Africa.

⁸⁰ Ibid.

5 Past and present attempts to train more doctors for South Africa's healthcare sector

Various public and private initiatives have attempted to address the limited capacity for doctor training in South Africa. In this section, we consider the effectiveness of sending South African students to be trained abroad, public investment in new training facilities, and public/private partnerships.

5.1 Sending South African students to Cuba

As a response to the shortage of doctors in the South African healthcare system, the DoH advocates sending medical students to be trained in Cuba. During the mid-1990s, Cuba and South Africa signed an agreement whereby Cuban doctors would be recruited to work in rural hospitals in South Africa, and South African students would be recruited to study medicine in one of Cuba's 23 medical schools.

Box 8: Why were medical students originally sent to Cuba?

The first South African medical students were sent to Cuba due to the exclusionary effects of the high entry criteria for South African medical schools. Shortly after the end of Apartheid, South Africa's highly unequal education system resulted in many black students not fulfilling the entry requirements of South Africa's medical schools, even if they had the capacity to study medicine. The entry criteria therefore inadvertently excluded historically disadvantaged individuals from gaining entry to study medicine. Medical schools in Cuba catered explicitly for such individuals, offering bridging courses to ensure that students were well-prepared to study medicine. By sending students to Cuba, the South African government hoped to better align the demographic profile of doctors to that of the South African population.

Dr Ayanda Ntsaluba, 2015⁸¹

Recruitment for medical training in Cuba is done predominantly from impoverished, rural communities. The aim is to ensure that once students return to South Africa they are more likely to remain in those communities and address the doctor shortage where the need is most pressing.⁸² Upon returning from Cuba, doctors are contracted to work the same number of years in the public health system as they studied abroad.

Unfortunately, medical training in Cuba is provided within a different context than the South African reality. Medical students trained in Cuba are not familiar with nor prepared for the conditions and challenges that characterise the South African healthcare system.⁸³ In Cuba, primary healthcare is community based, preventative and actively encourages community participation, whereas South

⁸¹ Interview with Dr Ayanda Ntsaluba, June 2015.

⁸² Bateman, C. 2013. Doctor shortages: Unpacking the 'Cuban solution'. *South African Medical Journal*. 103(9):603-605.

⁸³ Bateman, C. 2013. Doctor shortages: Unpacking the 'Cuban solution'. *South African Medical Journal*. 103(9):603-605.

African healthcare is largely curative and the country faces a relatively higher burden of disease (see Figure 9 in section 2.1.2). Cuba further has a markedly smaller population than South Africa (just over 11 million in comparison to South Africa's 53 million in 2013), with a significantly higher physician density. Whereas South Africa has 60.31 doctors per 100,000 citizens, Cuba has 672.3 doctors per 100,000 citizens (see Figure 6 in section 2.1.2). Cuba ranks high on global health indices, attaining a 39th position according to the World Health Organization compared to South Africa's 175th position (out of 190).⁸⁴ In addition, healthcare in Cuba is solely provided by the Cuban government. South African healthcare on the other hand is characterised by a large private sector and severe discrepancies in the quality of healthcare offered for South Africans across different parts of the income distribution.

Box 9: What does it cost to train a doctor in Cuba?

In 2009, it reportedly cost R420 000 to train a medical student in Cuba for a duration of six years (the first year of which is spent learning Spanish). This covered tuition fees, books, accommodation, meals, transport between South Africa and Cuba and allowance for the six years spent abroad. More recent figures are that it costs R750 000 per student. The costs are borne by provincial Departments of Health who participate in the training programme, and are reportedly half of what it costs to train a doctor in South Africa.⁸⁵

Despite the lower cost of training doctors in Cuba, the success of the initiative depends on the extent to which Cuban-trained doctors – insofar as they originate from areas where substantial doctor shortages exist – are likely to remain in those areas after completing their internship and community service years. It is often argued that doctors trained in Cuba are not prepared for what they are expected to manage in South Africa and therefore opt to specialise and move into private practice once their obligations are fulfilled.⁸⁶

Spanish is the primary language of instruction at Cuban medical schools and provides a further drawback. South African students spend the first year of studies learning Spanish, followed by five years of medical training. Medical students who return from Cuba have 18 months in which to pass South African exams. Although most of them pass within this time period⁸⁷, the failure rate amongst Cuban-trained students writing South African exams is twice as high as that of students trained at South African medical schools. This significantly reduces the cost-effectiveness of training South African medical students in Cuba.

Sending students to Cuba to receive training does not solve the fundamental problem of doctor shortages in South Africa, nor does it provide a structural solution to the problem.

⁸⁴ WHO (2014).

⁸⁵ Khan, T. (2013). Minister mulls Russia training for SA doctors. *BDay Live*. 14 March.

⁸⁶ Bateman, C. 2013. Doctor shortages: Unpacking the 'Cuban solution'. *South African Medical Journal*. 103(9):603-605.

⁸⁷ Bateman, C. 2013. Doctor shortages: Unpacking the 'Cuban solution'. *South African Medical Journal*. 103(9):603-605.

5.2 Investment in new public training facilities

Minister of Higher Education and Training, Blade Nzimande, announced in 2011 that the Medical University of South Africa (Medunsa) was to be separated from the University of Limpopo to become the Sefako Makgatho Medical University (SMU).⁸⁸ This follows after Medunsa and the University of the North merged in 2005 to form the University of Limpopo; an initiative which largely failed to transfer medical studies to Limpopo and “*compromised Medunsa's capacity to produce much-needed black health professionals*”.⁸⁹

SMU was established in May 2014 to continue the academic programmes that were offered by Medunsa and the first intake of students was scheduled for January 2015. The decision to incorporate Medunsa into SMU is envisaged by the DoH and the DHET to address equity issues of the past, while simultaneously contributing to the improvement of the quality of healthcare in South Africa. The objective of the new university is to train a new generation of health professionals and ‘retool’ health professionals currently working in the South African health system by improved focus on community- and patient-centred primary care.

The creation of SMU is part of a wider initiative by the DoH to build six new medical schools and academic hospitals from 2011 to 2025.⁹⁰ In 2012, some R1 billion was earmarked for the upgrading and rebuilding of major tertiary hospitals – Chris Hani Baragwanath Academic Hospital in Soweto, King Edward Hospital in Durban, George Mukhari Hospital in Pretoria, Nelson Mandela Academic in Umtata and Limpopo Academic – to equip medical schools with greater capacity for clinical training.⁹¹

5.3 Public/private partnerships

5.3.1 Partnerships between universities and provincial governments

Some universities have partnered with provincial governments to invest in training capacity through integrated training at district and regional level, with the additional benefit of exposing undergraduate students to rural healthcare environments. By making use of regional and district hospitals in rural areas, the universities are able to increase their clinical training capacity.

The Ukwanda Rural Clinical School (Ukwanda RCS) in Worcester forms part of the Ukwanda Centre for Rural Health and is an initiative of Stellenbosch University. The Worcester regional hospital and Brewelskloof hospital (a specialised TB hospital) associated with the Ukwanda Centre for Rural Health provide specialist support to seven district hospitals and more than 70 fixed and mobile clinics.⁹²

⁸⁸ Sefako Makgatho Health Sciences University (SMU). <http://www.smu.ac.za/>

⁸⁹ Maqutu, A. (2014). Mixed progress for merged institutions. *Financial Mail*. 23 January.

⁹⁰ Business Day. (2011). Billions for hospitals to pave way for state's NHI. *Health Systems Trust*. 12 October.

⁹¹ BuaNews. (2012). R1bn pumped towards NHI. *Health Systems Trust*. 23 February.

⁹² Ukwanda Rural Medical School. Online: www.sun.ac.za/ukwanda-rcs

An integral part of the RCS is the training of students in District Health Services. Students are trained at the regional as well as the district hospitals under the supervision of general specialists, family physicians and other healthcare professionals. Students from Stellenbosch University can complete their final year of training at one of the five participating district hospitals (three students per hospital) or in the regional Worcester hospital (15 students). In the first intake year (2011), eight students graduated in medicine after spending their full final year at the Ukwanda RCS (six students in Worcester and two in Ceres). Twenty medical students were selected for the 2015 placements (16 in Worcester, and two each in Hermanus and Ceres).⁹³

The RCS also allows post-graduate training, with 8 registrars in Family Medicine at the Worcester Training Complex in 2010. Registrars in Obstetrics and Gynaecology, Paediatrics, Surgery, Anaesthetics and Internal Medicine are also allowed to complete one year of specialist training at Worcester hospital.⁹⁴ In 2012 a rural campus was completed, with a new academic building as well as a residence that can accommodate 40 students.⁹⁵

The Lehurutshe District Educational Campus is another initiative focused on training doctors to address South Africa's doctor shortage in rural areas. The campus is a joint initiative of the Centre for Rural Health of Wits University and the North West Department of Health. It was made possible by a R9-million grant awarded by the Atlantic Philanthropies to Wits University Centre for Rural-Based Education in the North-West.⁹⁶

The objective of the campus is to increase the rural workforce by allowing local students on scholarships to work in their province of origin (Mpumalanga or North West) alongside their studies in health sciences. By training students at the Lehurutshe Hospital in Zeerust, the campus provides training for students studying towards degrees in medicine as well as a selection of allied health services.⁹⁷

5.3.2 Partnerships between universities and the private sector

Although there are restrictions on the private sector's involvement in doctor training, the market is trying to respond to the shortage of doctors through limited private-public partnerships. Due to growing student numbers, Stellenbosch University's Tygerberg Academic Hospital was struggling to accommodate the number of students that required clinical training in its emergency ward.⁹⁸ The University started investigating the possibility of using other public hospitals in the vicinity for clinical training, but a shortage of doctors at public hospitals limited the number of students that could be accommodated.⁹⁹

⁹³ Ukwanda Rural Medical School. Online: www.sun.ac.za/ukwanda-rms

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ (2009). R9mil boost for rural based education. *SA News*. 4 November.

⁹⁷ Centre for Rural Health. Biennial Report. 2012-2013.

⁹⁸ Moosa, R. (2015). *Personal communication*. 4 June.

⁹⁹ Ibid.

5.3.2.1 Stellenbosch University and MCSA

In 2014 Stellenbosch University accredited MCSA Durbanville hospital as a centre for internal medicine for medical students.¹⁰⁰ This allowed 32 students in mid-rotation (fourth and fifth year of medical training) to complete part of their training there. This initiative is in line with current policy which allows undergraduate students studying at public universities to spend a maximum of three months in clinical training at private hospitals. The students were trained under the supervision of local specialists at the hospital. Durbanville hospital was selected due to its close proximity to Stellenbosch University's Tygerberg campus, and the willingness of specialists at the hospital to become involved in the training programme. The objective is to expand the programme to 140 students, with the involvement of three other MCSA hospitals in the vicinity (Panorama, Cape Gate and Louis Leipoldt).¹⁰¹

One or two students are allocated per specialist. So far no patient has refused a visit by a specialist who is accompanied by students. The patients reportedly enjoy the extra attention that they receive through bedside teaching and the specialists are forced to practise evidence-based medicine by having to explain their diagnoses and procedures to the students. In doing so, the patients learn more about their cases and conditions, and feel that they are receiving an extra opinion without having to pay for it.¹⁰² MCSA has reportedly assisted by providing services such as meals and parking facilities for the students.¹⁰³ The University provides support for student assessments at the hospital.

The involvement of MCSA in doctor training is motivated by the fact that private (and public) hospitals depend on the availability of high quality specialists, with specialists responsible for the majority of clinical work at private hospitals. In assisting with the clinical training of undergraduate students, MCSA increases the pool of potential doctors who can later become specialists.

Currently, neither MCSA nor the specialists involved with the training programme receives financial compensation for their involvement. However, specialists can benefit from the 'academic standing' of becoming accredited lecturers and by teaching students who could later become referring doctors. 'Softer' incentives include gaining access to the university library and all library services – key among which is subscription to medical journals for which the costs are often high. In the University's view, specialists are attracted to the programme by the gratification they receive from the interaction with the students and knowing that they are making an important contribution to the training of future South African doctors.¹⁰⁴ In turn, the students benefit from being exposed to a wider variety of cases relative to what they would have been exposed to in the public sector, as well as the higher degree of one-on-one training with specialists.

¹⁰⁰ Mediclinic Annual Report 2015.

¹⁰¹ Bateman, C. (2015). Hands-on student training in private hospitals has arrived. *The South African Medical Journal*. February.

¹⁰² Dr R Theron (2015). Panel discussion on doctor training at the Fourth Annual Congress of Consulting Physicians, Cape Town. 29 May.

¹⁰³ Moosa, R. (2015). *Personal communication*. 4 June.

¹⁰⁴ Prof R Moosa (2015). Panel discussion on doctor training at the Fourth Annual Congress of Consulting Physicians, Cape Town. 29 May.

5.3.2.2 Wits Donald Gordon Medical Centre

The Wits University Donald Gordon Medical Centre (WDGMC) is another initiative whereby the private sector has become involved in doctor training. The University established the hospital in 2002 through the acquisition of Kenridge Hospital in Parktown Johannesburg, made possible by a donation from Sir Donald Gordon. In 2005, MCSA became a partner by acquiring 49% of the hospital and was awarded the management contract for the hospital.¹⁰⁵ It has “*created a site for public sector doctors to do their private work in a controlled and regulated environment and draw doctors from the private sector back into the Academic sector to make a positive contribution to the training of medical specialists and subspecialists.*”¹⁰⁶ The hospital does not facilitate undergraduate clinical training and only accommodates the training of specialists. Doctors in the training programme also train at the Chris Hani Baragwanath and Charlotte Maxeke hospitals, and in doing so are exposed to both the public sector and private sector work environments.¹⁰⁷

The WDGMC was established as a result of the university’s concern that – due to a lack of public funding at the time – they would not be able to continue training subspecialists. Although WDGMC has been training subspecialists since 2007, it has remained constrained by limited funding: in 2013, they were only able to fill 24 out of 51 available registrar posts (18 subspecialists and 6 specialists) due to a lack of funding.¹⁰⁸ Wits University reinvests all profits it makes into the training programme, while MCSA ploughs back 25% of its profit into the hospital.¹⁰⁹

5.3.2.3 Life Healthcare scholarships for sub-specialty training

In 2012, Life Healthcare announced a scholarship programme administered by the College of Medicine. The hospital group made R78 million available over six years for the funding of medical students to study towards sub-specialties. The aim of the scholarship is to “[create] a *cadre of highly trained professionals to help address the skills crisis in our medical industry.*”¹¹⁰ The motivation behind the scholarships is that “*private healthcare groups [can]not simply draw staff from the existing national supply, but had to make a significant contribution to restocking the skills pool for the benefit of all South Africans.*”¹¹¹

Central to the scholarship programme is that applicants must commit to working within the public sector upon completion of their studies (subject to the availability of posts), and to building their careers in South Africa. The funding agreements are made between the universities and Life Healthcare.

¹⁰⁵ Wits University Donald Gordon Medical Centre. Online: <http://www.dgmc.co.za/the-medical-centre>

¹⁰⁶ Ibid.

¹⁰⁷ Makholwa, A. (2013) SA medical schools in need of a funding jab. *Financial Mail*. 3 October.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ Life Healthcare (2012). Scholarships to boost medical brain power. *Business Update*.

¹¹¹ Ibid.

5.3.2.4 Netcare scholarships: The Hamilton Naki Scholarship

Recognising that the ability of South Africa to train high-quality health practitioners will be severely constrained if academic physicians are not recruited and trained led Netcare to establish the Hamilton Naki Scholarship.¹¹² The Hamilton Naki Scholarship was established by Netcare's Physician Partnership Trust to enable historically disadvantaged South African specialists and sub-specialists to pursue doctoral and post-doctoral studies in clinical disciplines. The selection committee consists of academic physicians from South Africa's eight medical schools. The scholarship is awarded based on the ability and commitment of applicants to make a difference in healthcare in South Africa. The scholarship enables successful candidates to pursue full-time studies on funded and supervised research projects either internationally or in South Africa. It also helps candidates to establish independent academic careers.¹¹³

5.3.2.5 Netcare's university co-operative agreements and Memorandums of Understanding (MoUs)

Netcare has entered into partnerships with South African universities and public hospitals to support registrar and fellowship posts. The purpose of these agreements is to contribute to the establishment of doctors in leadership roles and to produce highly qualified sub-specialists to conduct research and teach across all branches of medicine. The Netcare Foundation has formal agreements with the University of Pretoria, University of Cape Town, Sefako Makgatho University, University of Johannesburg and Stellenbosch University in this regard. Netcare provides financial assistance to the universities to enable them to create additional registrar posts. Newly qualified specialists are not required to work in the private practice or at a Netcare facility. They may however be required to work for an institution in South Africa for a minimum of one year.

5.4 Concluding remarks

Various initiatives driven by national or provincial governments, universities or the private sector have tried to address the lack of training capacity in South Africa's healthcare sector. The persistent shortage of trained doctors highlighted in Section 2 suggests, however, that these initiatives were not enough to even maintain the ratio of trained doctors as a share of the total population, let alone improve it. This suggests that the shortage of training capacity will best be solved by encouraging a variety of initiatives. While sending students to Cuba for medical training is an attractive solution due to the apparent low cost and ease of implementation, these students are often not equipped to deal with the harsh environment in public hospitals. Their low success rate in the South African examinations suggest that the programme is also more expensive than currently estimated. This programme cannot be seen as the 'one and only' way of increasing doctors in South Africa.

¹¹² Netcare (2015)

¹¹³ Netcare (2015)

As shown by the analysis above, partnerships between universities and provincial governments, as well as small-scale partnerships between universities and the private sector have been successful and should further be encouraged to increase training capacity. In the following section, we critically evaluate the effectiveness with which the private sector can be used to increase training capacity in a manner that supports South Africa's healthcare objectives.

6 Increasing training capacity in South Africa

Having made the diagnoses and identified the root cause of South Africa's doctor shortage, we now turn to ways in which the shortage can be addressed.

6.1 Perceived risks of private sector involvement

Shortly after the end of Apartheid, a concerted effort was made to deliver a population of doctors that is demographically representative of South Africa. In response, private medical colleges were proposed as a way to guarantee that those excluded from studying medicine due to racial quotas would still be able to do so. These proposals spoke to the government's worst fears that private sector medical training would exacerbate inequality in the healthcare sector and would not align with national healthcare objectives,¹¹⁴ as access to these schools would be determined on the basis of funds.

Over time, such antagonism between government and private healthcare in South Africa has been exacerbated by the perceived inequality in the distribution of resources between the public and the private healthcare sectors. Current discussions about private medical colleges are still 'tainted' by these earlier debates. From the government's perspective, training by the private sector would attract the best lecturers and students away from the public sector, and would result in an exodus of teaching doctors from public universities to better-paying private schools. The government fears that this will create a discrepancy in the quality of training provided at public and private institutions, as the current shortage of specialists already constrains the availability of resources for teaching and academic positions.

The government also fears that private medical colleges would make it more difficult to sustain the high quality of medical training in South Africa, and to ensure that the demographic representation of students aligns with that of South Africa. There is a further concern that it would undermine efforts to ensure that (at least) some students graduate with a desire to practise medicine in rural areas, where the shortage of healthcare services is most severe. While private medical colleges may thus be additive in terms of the number of students trained, from the government's perception it may not be additive in terms of quality.

¹¹⁴ Dr Ayanda Ntsaluba (2015). *Personal Communications*. 30 June.

Box 10: Why does government not want private sector involvement in medical training?

Prof Jimmy Volmink (Dean of Stellenbosch University's Faculty of Medicine and Health Sciences) has attributed the reluctance of the public sector to involve the private sector in medical education to a concern that "somehow the private sector would cannibalise the public sector. I think we need to do more to try and reassure them, and the private sector needs to be more clear about its goals in addressing the broader needs of the population. Also if you look at education generally in the private sector, there are a number of degree and certification programmes that are very poor, with quality assurance not always what it should be. That could be another reason."

Bateman, 2015¹¹⁵

The concerns and perceived risks around the role of the private sector in medical training is in contrast to the role envisaged for the private sector in the general economy, as set out in the National Development Plan (NDP). The role that the private sector can play in achieving higher levels of economic growth is repeatedly emphasised in the NDP. Specifically, the NDP considers the importance of *"improving trust between the public and private sectors. The government must treat private actors as partners in policy design and implementation, and the private sector in turn must respond to and facilitate the realisation of national objectives."*¹¹⁶

If the private sector wants to become more involved in medical training, they will have to approach it in a manner that makes it clear that their objectives align with those of government. The public sector, in turn, needs to be willing to enter into open-minded discussions with the private sector.

To inform such discussions, this section focuses on the merits and disadvantages of allowing the private sector to become more involved in doctor training, and the implications that this may hold for achieving South Africa's healthcare objectives. It first considers the implications of providing accreditation for private medical colleges, and then of encouraging private hospitals to become more involved in clinical training.

6.2 Private medical colleges

No accreditation are offered for private medical colleges in South Africa. As evidenced by our discussion of medical training in other countries (section 4), this is contrary to policy in other BRICS countries. Almost half of medical training capacity in Brazil and India is provided by the private sector, and China also allows private colleges to train doctors although it is less common than in Brazil and India. Countries in Sub-Saharan Africa, such as Tanzania and Mozambique, also allow doctors to be trained at private universities.

¹¹⁵ Bateman, C. (2015). Hands-on student training in private hospitals has arrived. *The South African Medical Journal*. February.

¹¹⁶ National Development Plan 2030. Executive Summary. p.155.

Given the success with which nurses have been trained in South Africa's private sector – the majority of nurses and auxiliary nurses are trained in the private sector¹¹⁷ – there is merit in investigating whether the private sector should also be allowed to play a role in the training of doctors. Specific concerns associated with establishing private medical colleges in South Africa are addressed below.

6.2.1 Concern: there is no demand for private medical education

The demand for more medical training capacity in South Africa is evident from anecdotal evidence: more than 8 000 potential students applied for 240 first-year positions at Wits Medical School in 2014, and 5 800 students applied for 220 positions at UCT in the same year. Many students who are not accepted into South African universities due to fierce competition and racial quota policies look to study abroad. In 2012, there were reportedly 150 South African students studying at the Shandong Medical University in China.¹¹⁸ Other popular destinations for South African medical students include the SSR Medical College in Mauritius and Mauritius University, with 21 South African students reportedly graduating from SSR Medical Colleges between 2005 and 2013.¹¹⁹ These students decide to study overseas and often rely on their own funding; they are not supported by the South African government (as is the case for South African students studying in Cuba). The costs involved with studying overseas suggest that many of these students may have opted to study medicine at a private university in South Africa, were the option available.

As suggested by the experience of private medical training in India, private medical colleges could retain medical students who might otherwise have studied overseas. This has the advantage of increasing the likelihood of these students remaining in South Africa as doctors.

6.2.2 Concern: private medical colleges will negatively impact on the quality of training

In countries where private medical colleges complement public training, quality control is of the essence. In South Africa, the Education Training & Quality Authority Committee of the HPCSA is responsible to ensure that the quality of training offered by different institutions is of sufficient standard.¹²⁰

Quality assessments and accreditation of private medical colleges can be ensured by expanding the responsibility of the HPCSA to these institutions. However, given a profit motive, private medical colleges will have an incentive to maintain high quality standards. This will be their only means of attracting students as they will not be able to compete with public universities on the basis of price.

The poor performance of some public universities that offer medical degrees over the past years (e.g. former Medunsa) might lead some students to favour studying at a private medical college instead of at an underperforming public university, despite the high costs. A decline in student numbers is

¹¹⁷ DoH. Strategic Plan for Nurse Education, Training and Practice 2012/13 – 2016/17.

¹¹⁸ Rondganger, L. (2013). Durban student forced to study overseas. *IOL News*. 22 January.

¹¹⁹ SA medical students all over the world (2015). *Sunday Times*. 5 April.

¹²⁰ Education training & Quality Authority Committee. HPCSA. Online: <http://www.hpcsa.co.za/Committees/ETQA>

unlikely due to the high demand for medical training, but should student numbers fall, this would provide a strong signal to the Minister of Health that the quality of training at medical faculties at public universities requires attention. Private medical colleges will therefore incentivise underperforming public medical schools to improve their standards, and for high performing schools to maintain the quality training that they currently provide.

6.2.3 Concern: private colleges will drain public faculties of human resources and expertise

The government's largest objection to private medical colleges lies in the concern that it might drain existing medical faculties of staff by offering better working conditions or higher salaries. The concern is valid, but it is worth noting that the focus and objectives of private medical colleges would differ slightly from that of public universities. Public universities would likely retain a greater focus on doing research and provide more support for doing so. Private colleges, in contrast, would in all likelihood only focus on delivering doctors. While public universities will have to compete with private medical colleges for personnel, it is expected that academics who assign a high priority to research would prefer to work at one of South Africa's eight public universities than at a private medical college.

The benefits and prestige of working at one of South Africa's eight faculties of medicine at existing universities or academic hospitals will continue to attract high quality academic doctors. This is, however, subject to good management and salaries that are competitive with the private sector.

By allowing private medical colleges to complement training, the working environment at public universities and academic hospitals will improve as the pressure to train large numbers of students will be reduced. This will allow for more resources per faculty member and student, and an overall better working environment. This is an especially important consideration in light of the cohort of students trained in Cuba who will return to South Africa from 2018 onwards to complete their training.¹²¹

6.2.4 Concern: private colleges as elitist training facilities

Whereas students who apply to public medical schools are chosen on academic merit, students who apply to private colleges are evaluated based on relative academic merit as well as their ability to afford the more expensive tuition fees.¹²² This gives rise to the concern that private medical colleges in South Africa would exclude students who are unable to afford high tuition fees, and specifically black students from impoverished backgrounds.

This concern is equivalent to arguing that private primary or secondary schools should not be allowed due to exclusionary effects. The experience of the Curro private school model is a good example of how the private sector has managed to lift some of the burden off the public sector while providing

¹²¹ Bateman, C. (2013). Doctor shortages: Unpacking the 'Cuban solution'. *The South African Medical Journal*. 103(9).

¹²² Diwan, V., Minj, C., Chhari, N. & De Costa A. (2013) Indian medical students in public and private sector medical schools: are motivations and career aspirations different? – studies from Madhya Pradesh, India. *BMC Medical Education*. 15 September.

high quality education. Despite high costs, 46% of learners at Curro schools were black, 44% white, 6% coloured and 4% Indian in 2013.¹²³ The schools contribute to providing high quality education to learners who would not otherwise have been able to afford it by allocating 5.9% of revenue towards bursaries. A similar model could be replicable for private medical colleges. The government could address their concerns about exclusionary effects by for example imposing requirements for Corporate Social Investment through bursary schemes.

Furthermore, South Africa's well-developed financial sector could allow medical students from poor backgrounds to study at a private medical school despite potentially high tuition fees. In most instances, medical graduates are guaranteed a high and stable income upon completion of their studies. This makes them ideal candidates for student loans to fund their studies. As illustrated by the Tanzanian government, the South African government could provide subsidies and grants for students from poorer backgrounds to study at private medical college. These fees could be equivalent to what students are currently sponsored to study in Cuba.

Finally, the good reputation of South Africa's public medical schools and the fact that tuition fees are subsidised by government will in all likelihood cause these universities to remain the preferred institutions for students hoping to study medicine. Public medical schools will be able to compete with private schools on price as well as quality, in all likelihood giving them first choice of students wanting to study medicine. The risk of private medical colleges becoming elitist training facilities can thus be mitigated in many ways. There is a high likelihood that the introduction of private schools as a training platform will allow more students from poor backgrounds to be trained at a lower cost than the current strategy of sending students abroad, or even than in investing in expensive, new public medical universities.

6.2.5 Concern: graduates from private colleges will be unwilling to work in rural areas or the public sector

South Africa's doctor shortage is most severe in rural areas. There are various public training initiatives focused on increasing doctor numbers within these regions including the Stellenbosch University's Ukwanda programme in Worcester and the Wits Centre for Rural Health's Lehurutshe District Educational Campus. The concern is that students who are solely exposed to a private training university will be less inclined to practise medicine in South Africa's rural areas.

Students who are exposed to rural environments during their training have been found to be more willing to practise medicine in a rural setting.¹²⁴ Private medical colleges can be encouraged to make use of or partner with public hospitals in underserviced rural areas as part of their training, following a similar model as the Ukwanda programme in Worcester. This would have the dual outcome of exposing students to rural environments, while simultaneously increasing doctor capacity within these regions.

¹²³ Curro Annual Report 2013.

¹²⁴ Bateman, C. (2011) Academics appeal to State: 'help us train where the needs are'. *South African Medical Journal*. 101(8)

Students graduating from private medical colleges could also be mandated to complete internships and community service in public hospitals for a specified number of years, similar to what is expected of students who studied at public universities. It is also likely that the heavy workloads of current interns will ease with the introduction of more interns, encouraging more students to stay on as doctors in the public sector.

Concerns that private medical colleges will refrain from exposing students to the disease burden of the public sector can be mitigated by mandating students to complete a specified proportion of their clinical training at public hospitals. Limited clinical training capacity at these hospitals could in turn be circumvented by encouraging private hospitals to participate in clinical training, thereby reducing the burden on public academic hospitals. (This is investigated in more detail in section 6.3.)

In the final instance, there is also the possibility that private medical colleges can be established in areas with the greatest need for doctors. This can expose students to the full complement of South Africa's healthcare burden, and contribute to the shortage of doctors in the areas where it is most needed. Rather than posing a threat to healthcare provision in the public sector or rural areas, private medical colleges can provide an opportunity to address these problems through a means that requires minimal public investment.

6.3 Private hospitals

As discussed in section 5.3, Stellenbosch University and select MCSA hospitals have partnered in the clinical training of internal medicine students in mid-rotation. Current policy allows undergraduate students to spend a maximum of three months in clinical training at private hospitals. The bottleneck in student training reportedly occurs at the clinical level, with an insufficient number of consultants and registrars at academic hospitals to oversee and assess the clinical training of undergraduate students. By involving private hospitals in this process, this bottleneck can be addressed.

Private hospitals have an incentive to become involved in clinical training as they rely on a pool of highly trained doctors to provide services at their hospitals. To this end, it is in their interest to contribute to the training of a new generation of doctors.

The researchers and specialists at Stellenbosch University and MCSA involved in the current training programme are reportedly drafting an article on the experiences of the different stakeholders in the process. While this will shed more light on the success of the initiative, potential concerns are addressed below.

6.3.1 Concern: clinical training by private hospitals will deplete capacity in the public sector

The government may raise the concern that students will be less likely to practise medicine in the public sector if they received a portion of their clinical training at private hospitals. However, the benefits of training more doctors greatly outweigh the risk as the number of doctors available to

practise in the public sector will also increase. The majority of clinical training will still occur within public hospitals, exposing students to the full realm of South Africa's health burden and contributing to the overall quality of training they receive.

In contrast to undergraduate training, private hospitals are currently not allowed to partake in training specialists. Given that public hospitals rely heavily on registrars to provide specialist services and to oversee the clinical training of undergraduate students, it is not recommended to change this policy in the short to medium term. However, once increased training capacity has given rise to a higher incidence of doctors – specifically in the public sector – the opportunity cost of allowing private hospitals to train specialists will be reduced.

6.3.2 Concern: private patients do not want to be exposed to student doctors

The preferences of private patients may also be a constraint to the effectiveness of clinical training at private hospitals, but so far the experience of MCSA and Stellenbosch University have been overwhelmingly positive in this regard. Specialists have an incentive not to inconvenience their patients by providing training, as they rely on their reputations and the satisfaction of patients to ensure demand for their services. By limiting training to one or two students per specialist, disturbance to patients can be minimised.

6.3.3 Concern: it will be difficult to monitor the quality of training at private hospitals

To maintain South Africa's reputation for delivering high quality doctors, it is imperative that the training students receive at private hospitals is monitored. A first step in this process is to accredit specialists as lecturers affiliated to universities. Universities or the HPCSA will further need to monitor or oversee the quality of training received at private hospitals, specifically with regards to the assessment of students. The experience of MCSA and Stellenbosch University may be valuable in this regard.

6.3.4 Concern: specialists at private hospitals have no incentive to assist with training

Personal satisfaction has been documented as the main motivating factor among clinical supervisors for teaching students, followed by the opportunity to attract students to their own field of specialisation.¹²⁵ Under the current arrangement between MCSA and Stellenbosch University, specialists have little incentive to partake in training other than personal fulfilment and the non-monetary benefits provided through affiliation to the University. While this may be sufficiently attractive for some specialists involved, it cannot be expected to be the case for all. As private hospitals are not allowed to employ specialists, they cannot force specialists to partake in the training of students.

¹²⁵ WHO. (2006). The World Health Report.

Provincial or national health departments should consider the merits of providing financial incentives for specialist training involvement at private hospitals. This will require a comparison of the cost of these incentives with the cost and ease of implementing counterfactual scenarios, e.g. investing in new public universities, sending medical students to Cuba for training, or requiring public universities to increase capacity beyond feasible means. One of the benefits of encouraging private hospitals to become involved in clinical training is the low fixed costs involved: once an incentive scheme is put in place, it can be rolled out without any additional investment in physical infrastructure. At most, specialist trainers will need to be accredited as lecturers, and quality control measures as well as arrangements with private hospital groups will need to be put in place.

6.4 Concluding remarks

South Africa's shortage of doctors primarily stems from a training environment that is unable to deliver the required number of medical graduates. A structural and sustainable solution to this problem is imperative, but it is important that this solution does not exacerbate the current level of perceived inequality of South Africa's healthcare system. This section has investigated the role that greater participation by the private sector can play in assisting with the training of medical students. Two possible avenues of participation were considered: (i) allowing students to be trained at private medical colleges, and (ii) encouraging greater participation by private hospitals in the clinical training of undergraduate students.

Our assessment of medical training in developing countries shows that private medical schools have been used in various ways to expand training capacity. We have further shown that many of the government's potential concerns about accrediting private medical colleges can be mitigated or are outweighed by the contribution that they can make to medical training. However, the history of antagonism between South Africa's private and public healthcare sectors remains an obstacle to discussions between government and the private sector. For any progress to be made, it is necessary for the private sector to illustrate that it is committed to helping South Africa achieve its healthcare objectives. A process of piecemeal expansion is advised.

High gains may be achieved by encouraging private hospitals to become more involved in clinical training, and provides an easy and low cost way of increasing training capacity. This can contribute to the bottleneck that currently exists in clinical training and could allow public universities to deliver more undergraduate medical students. Preliminary evidence of the initiative between MCSA and Stellenbosch University suggests that such a programme can be implemented with a high degree of success. It provides an easy and cost effective way of increasing the number of doctors in South Africa, without contributing to the unequal distribution of healthcare resources. In light of the demand that the NHI will create for more doctors as well as the cohort of Cuban-trained doctors who are expected to return in 2018, greater involvement by the private sector in medical training is imperative. While accreditation of private medical colleges present a long term solution, clinical training at private hospitals can be used to expand training capacity in the short term.

7 Retaining doctors in rural areas

South Africa's severe doctor shortage in rural areas requires specific attention. While training capacity needs to be increased in absolute terms, it is imperative that higher doctor numbers trickle down to supply services in rural regions. Various local and international training initiatives to increase doctor numbers in rural areas have been discussed above, but this section provides a theoretical discussion about alternative means through which rural doctor shortages can be addressed. It further evaluates the success through which subsidies and transfers have managed to attract doctors to South Africa's rural areas.

A number of theoretical models of health worker retention consider how healthcare professionals can be attracted to and retained in rural areas. These include (i) the affinity model, (ii) the practice-characteristic model, (iii) the economic incentive model and (iv) the indenture model. Each model is discussed briefly below.

7.1 The affinity model

The affinity model is based on the assumption that some individuals are predisposed to practise medicine in rural areas and that higher levels of job and life satisfaction in rural areas will therefore result in higher retention rates.¹²⁶ For example, doctors whose homes are in rural areas or medical students who have been exposed to practising in rural areas are assumed to be more willing to work in such areas.¹²⁷ Elements of this are in effect in South Africa. As discussed in section 5.1, medical students recruited for training in Cuba are recruited from underprivileged areas in the hopes that they will be willing to return to these areas to work as doctors upon their return. It is also the model followed by Wits University at the Lehurutshe District Educational Campus (discussed in section 5.3.1).

An international example of this type of intervention can be found in Canada in the 1990s, when medical students at Dalhousie University attended a summer programme in rural areas. The objective was to prepare students for practice in rural areas where the need for doctors was greatest.¹²⁸ Although the programme eventually saw the introduction of a 12-week rotation which included a rural element for all students studying family medicine, the semi-rural, remote and isolated areas in which the students completed the rotation remained underserved.¹²⁹ The programme was therefore not sufficient to reduce the inequality in services between urban and rural areas.

¹²⁶ Nestmann, 1998.

¹²⁷ Candall, Dwyer & Duncan, 1990

¹²⁸ Nestmann, 1998.

¹²⁹ Ibid.

7.2 Practice characteristic model

The practice characteristics model is based on the assumption that the demanding nature of rural practice means that additional support and facilities are required in order to improve the non-pecuniary aspects of working in a rural area. These may include locum service, telemedicine and hospital facilities¹³⁰ or, as exemplified by the experience of doctors in rural Zambia (see section 4.3), adequate supervision and support.

Providing locum services enables doctors to take time off, while information technology enables doctors in remote and isolated locations to access timely and relevant information. This may enable doctors to better communicate with colleagues and supervisors and assist in making a faster and more accurate diagnosis. It could also assist with opportunities to further education on-site. Improvements in information technology and specifically the availability of telemedicine mitigate – to some extent – the disadvantages characterising the isolation of practising in some rural areas.¹³¹

The provision of additional nurses in rural areas is another option used to improve working conditions. Nurses are often able to handle patient cases independently of doctors, and studies show that nurses are often more willing to work in rural areas and remain there.¹³²

A study in Victoria, Western Australia proves valuable in this regard. The Greater Green Triangle University Department of Rural Health introduced an Allied Health Workforce Enhancement Programme to increase the number of allied health workers operational in particular rural areas. The programme was state funded and focused on addressing the needs of health workers, the organisations for which they worked, as well as the community in which they served. Health care workers were offered continuous professional development, as well as development and promotion of new care models. Importantly, cultural awareness training and rural health seminars were introduced in order to improve health workers' knowledge both of the communities in which they were working and the conditions in which they would be expected to perform their jobs. The programme also included a community involvement element. Information on development in the health sector as well as information on the health workers themselves was provided to the community to foster a supportive environment for those working in rural areas.

When health workers left the area in which they had been employed, exit interviews were conducted to better understand their decision to leave, as well as to develop an evidence-based recruitment strategy.¹³³ In the case of Victoria, an important aspect of the recruitment programme was conducting seminars on cultural awareness and rural health to contribute to the training of rural healthcare workers.

¹³⁰ Crandall, Dwyer and Duncan, 1990.

¹³¹ Nestmann, 1998.

¹³² Conrath, 1983.

¹³³ WHO, 2006.

7.3 The economic incentive model

The economic incentive model is based on the assumption that doctors will work in rural areas if it is financially attractive to do so, and that recruitment and retention in rural areas will improve if economic incentives are provided.¹³⁴

Financial incentives may well assist in the recruitment of doctors to rural areas, but whether or not they convince doctors to remain there remains difficult to answer. It is important to consider the extent to which the incentives apply to doctors already practising in those areas when looking at the design of financial incentives. It may create strained relationships between doctors incentivised to go to the rural area and those already established there if it does not apply.¹³⁵

A possible option is to design different remuneration schemes according to the specific characteristics of the area in which doctors practise medicine. This was implemented in Nova Scotia in Canada, with remuneration systems differing according to the number of doctors serving the population, population size and size of the geographic area served by the practise.¹³⁶

In 1994, the South African government instituted a rural recruitment allowance for dentists and medical doctors to attract and retain medical professionals in areas of need. However, the subsidy remained at the same fixed rate for some years after its implementation, and despite the introduction of compulsory community service for healthcare professionals (with the exception of nurses), retention and recruitment of staff for rural and remote hospitals, clinics and health centres remained difficult. In response to this, Treasury approved the implementation of a new rural allowance in July 2003 for which R500 million was budgeted.¹³⁷

Reid (2004) conducted a study to investigate the extent to which the allowance succeeded in the retention of healthcare professionals in rural areas. He compared the responses of healthcare workers on a standard questionnaire prior to and post the implementation of allowances. Respondents completed questionnaires in November 2003 and again after the implementation of the allowances, in May 2004. Reid points out that the results are likely influenced by the fact that allowances were retroactive to July 2003 which means that recipients would have received a sizeable sum of money relative to what they would normally receive as part of the allowance. It is conceivable therefore that their responses regarding whether the allowances are likely to convince them to stay in rural areas may be affected by the fact that they had received larger payments than they would in future.

Reid finds that amongst professionals receiving the allowance, 51% reported that the allowance had “influenced them favourably” towards working in a rural area in the future, but only 28% of them agreed that it had changed their career plans.

¹³⁴ Hurey & Labelle, 1994.

¹³⁵ Nestmann, 1998.

¹³⁶ Buckley, 1997.

¹³⁷ Reid, 2004

Reid's study is admittedly dated, but it provides evidence that financial incentives may not be sufficient to create a long-term supply of healthcare professionals in the rural areas of South Africa. This indicates the importance of working and living conditions in the decision of doctors to work in certain areas and to remain there. A more desirable distribution of healthcare professionals is unlikely to be achieved simply by increasing remuneration.

7.4 The indenture model

Indenture models compel students to work in rural areas for a certain amount of time in exchange for some financial incentive, be it repayment of loans or the awarding of bursaries. This is likely to be effective amongst medical students seeking financial assistance to further their studies.¹³⁸ To a degree, this model is already followed by the DoH placing graduates at public rural hospitals across South Africa to complete their internship and community service years, before being allowed to register with the HPCSA. As shown by the experience of South Africa, these kinds of programmes can be effective in recruiting doctors to rural areas but appear largely unsuccessful in convincing doctors to remain in rural areas after their obligations have been met.

7.5 Concluding remarks

Addressing the shortage of doctors in rural areas cannot be achieved through a single mechanism. Whilst training in rural areas could increase the propensity of medical students to practise medicine in these areas, the indenture model and South Africa's experience with doctors completing their community service and internship in rural areas, illustrate that this is not sufficient to address the shortage. The economic incentives model and experience with providing rural allowances illustrate that financial incentives can only be applied with a limited degree of success. Even the affinity model – as exemplified by students from rural areas who return from Cuba – cannot guarantee that students will have a desire to work in rural areas. The practice characteristics model could be expected to attract more doctors to rural areas by creating a better working environment, but is unlikely to fully address the problem.

South Africa's doctor shortage in rural areas will in all likelihood be best addressed through a combination of the above efforts. Training in rural areas should be encouraged, such as through initiatives like the Lehurutshe District Educational Campus and the Ukwanda Centre for Rural Health. There is merit in recruiting a portion of students studying medicine from rural areas. However, as illustrated in section 6, partnering with the private sector and allowing greater private sector involvement in medical education can also help to address the shortage of doctors in rural areas. Rather than relying on a single policy to address the problem, the DoH should allow the market to assist.

¹³⁸ Nestmann, 1998.

8 Conclusion and recommendations

South Africa's shortage of doctors is strikingly apparent. The shortage is exacerbated by severe inequalities in the distribution of doctors between the public and the private sectors, as well as in rural and urban areas. Whilst the emigration of doctors and restrictions on employing foreign doctors contribute to the shortage, limited training capacity is the key structural constraint that prohibits the high demand from being met by associated increases in supply. If more doctors could be trained, the larger supply of doctors would create a more competitive healthcare sector. This would place downward pressure on prices of healthcare in the private sector and the associated salaries required to retain doctors in the public sector. As evidenced by the doctor shortage discussed in 2.1.2, it is imperative for South Africa to increase the capacity to train general practitioners as well as specialists.

Training capacity at South Africa's eight medical schools allows roughly 1 400 doctors to graduate per annum. This is far below the 3 600 graduates required for the implementation of the NHI. Various initiatives to increase training capacity have been investigated, such as sending South African students to Cuba for training, investing in new public training facilities, training doctors with an aptitude for working in rural areas, and strategic partnerships between the private sector and public universities.

International evidence suggests that the private sector can be used effectively to complement training in the public sector, as illustrated by the experience of India, Brazil, and various countries in SSA. The Malawian and Zambian governments further managed to successfully make use of foreign doctors to expand training capacity and their healthcare workforce.

The South African government is rightfully cautious of initiatives that may increase the disparity between the public and private healthcare sectors. However, our analysis and assessment of experience in other developing countries suggest that the private sector can play an important role in doctor training. While private medical colleges could provide a long term structural solution, greater involvement by private hospitals provide an easy way to complement medical training capacity. Such a piecemeal approach will illustrate to the government that the private sector is committed to helping the DoH achieve its healthcare objectives.

The value of private sector involvement in doctor training has been discussed at length, and the success of such arrangements as exist between Durbanville Mediclinic and Stellenbosch University, for example, provide evidence thereof. Institutionalising such relationships may help to ensure equal training for significantly more students and may allow private sector involvement in doctor training to become more palatable amongst policy makers. If the NHI is to be successfully implemented, private-public partnerships between universities, involvement by private hospitals, and private medical colleges will be key.

9 Appendix: List of interviews

Participants	Designation	Date of interview
Dr Hannes Loots	Private sector specialist	19 May – meeting
Dr Edwin Hertzog	Founder and Executive Chairman of Mediclinic International	19 May – meeting
Prof Alex van den Heever	Chair: Social Security Systems Administration and Management studies at Wits School of Governance	21 May – teleconference
Dr Rust Theron	Private sector specialist leading the training initiative at MCSA Durbanville hospital	29 May – panel discussion at the Congress of Consulting Physicians
Prof Rafique Moosa	Head of the Department of Medicine at the US Faculty of Medicine and Health Sciences (FMHS)	29 May – panel discussion at the Congress of Consulting Physicians) 4 June – teleconference
Prof Wim de Villiers	Previous dean of UCT Faculty of Health Sciences at UCT and current Vice-chancellor of US	4 June 2015 – meeting
Dr Ayanda Ntsaluba	Former Director General of Department of Health; Currently Executive Director for Discovery Holdings Limited	30 June 2015 -- teleconference