CHAPTER 11
Multi-sectoral Collaboration: A Proposed Means of Mitigating Medical Brain Drain in South Africa

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Abstract
Medical brain drain is an ongoing phenomenon in low and middle-income countries (LMICs), of which South Africa (SA) is no exception. This movement within the human resources for health has a far-reaching socio-economic impact. It is attributed to better economic, working and living conditions offered by opportunities in the private sector and abroad. In SA, this movement has considerably impacted the sustainability of the public healthcare system and its increasing burden due to high poverty levels. Reports monitoring the inflow of foreign-trained and returning South African doctors are lacking. This research was conducted to ascertain gaps in addressing the medical brain drain in SA to identify potential opportunities to mitigate the impacts of the brain drain through retention strategies and innovative strategies to create a sustainable medical labour force within the country. It was desktop-based research conducted using content analysis. A total of 128 relevant documents were retrieved, but only 14 articles, policy documents, and reports met the inclusion and analysis criteria. The results indicated that the number of doctors leaving the country continues to outweigh the number entering the country. Innovative solutions to retain doctors are lacking, and policy implementation is low. Despite the increased number of students being trained, the doctor-patient ratio remains low, and the availability of health services is inequitable. Addressing the

medical brain phenomenon requires multi-sectoral initiatives. Policy barriers to increasing the medical workforce using available resources must be addressed. Efforts to improve the working conditions within the public health system depend on multi-sectoral governance systems that currently function in isolation due to a disconnected public administration system.

Keywords: multi-sectoral approaches, medical brain drain, public health nterventions, South Africa.

1 Introduction

As far back as the 1960s, the migration of doctors raised national concern about brain drain in the South African healthcare sector (Wright, Flis & Gupta 2008). Whereas the political activities within South Africa (SA) contributed to the exodus of skilled labour during the apartheid years, the migration in post-apartheid has been driven by dissatisfaction with socio-economic and increasingly difficult working conditions within the country (Vosloo 2020; Rasool & Botha 2011).

The administrative systems to track medical doctors within the country have improved. However, there are gaps in identifying the reason for leaving, which countries they now practice in and at what level. This information is necessary to construct a solution-based approach to mitigate the impact of brain drain (Mahlathi & Dlamini 2017). It is also required for constructive planning mechanisms regarding human resource allocation in the health sector.

Moreover, the focus on 'brain flight', as it is referred to, is strongly attached to the economic impact of migration. In recent years, the cost of medical migration in Africa has been approximately USD 45 billion (Zakus & Anteh 2021). The narrowed view about the negative impact of the exodus of doctors has dominated the narrative to the extent that there have been few discussions on its positive outcomes, such as remittances paid, return to the country and the number of foreign doctors entering the country. While the ratio of doctors to patients is lower than the Organisation for Economic Co-operation and Development (OECD) average of 3.4%, the increase in the number of students being trained is positive (George, Blaauw, Thompson & Green-Thompson 2019). The known benefits of the increase in students trained are not without limitation. Arising challenges for students in SA include finding

placement within the public health sector for the compulsory community service and internship years necessary for qualification. Retention within the public health system beyond these years is low. There is a commonality of push factors from the public health system to the private sector and abroad.

Whereas there is no shortage of literature about the brain drain phenomenon in SA, there has been little known action in practice to address the causes of this phenomenon. This research focused on identifying potential opportunities to mitigate the impact of brain drain based on previously identified gaps in the literature. Thus, the discussion of findings is focused on the impact on the health system, factors favouring brain drain and associated policy perspectives.

This chapter provides the background to the brain drain phenomenon within the South African context. It is premised on a review of literature aligned to specific search criteria, where the summarised content of the reviewed literature is presented in tabular format under the methodology section.

2 Background

SA is renowned for its challenges regarding the delivery and access to the social determinants of health. The consequent socio-economic impact is a growing population exposed to potentially detrimental health outcomes. The quadruple burden of disease in SA – maternal, newborn, and child health; HIV/AIDS and Tuberculosis (TB); non-communicable disease; violence and injury – and particularly the HIV/AIDS prevalence, which is worse in low-income communities has resulted in a considerable strain on an already ailing health system. The outbreak of Covid-2019 and its devastating impact on communities has further unmasked the health service delivery and access issues (Burger *et al.* 2020). The cyclic nature of equitable access to the social determinants of health and the health outcomes of people can become a highly debatable area regarding which services should be prioritised in a budget-constrained environment (Mayosi & Benatar 2004). The number of people in chronic healthcare strengthens the argument for much-needed introspection in the health sector. The sustainability of the country's healthcare system concerning the high turnover within its health labour market is attributed to better economic, working and living conditions offered by opportunities in the private sector and abroad. Reports monitoring the inflow of foreign-trained and returning South African doctors are lacking.

In 2010, SA hosted 8443 foreign-trained doctors, while South African

qualified medical graduates in OECD countries accounted for 14933. This figure indicated a net migration of 18% in SA. By 2014, the number of South African-based international medical graduates increased by 4%, and the loss of South African-trained graduates to OECD countries reduced by 15%. By 2017, the emigration of South African physicians dropped from 1.8% to 0.3% per year, translating into a six-fold decline in the emigration rate due to the return of 5095 physicians between 1991 and 2017 (Tankwanchi, Hagopia & Vermund 2019). A paucity of information exists on the emigration trends from 2018 to 2023, notwithstanding the global shutdown in response to the Covid-19 pandemic and the civil unrest in SA in July 2021 (Nwadiuko, Switzer, Stern, Day & Paina 2021). In 2013, a South African Migration Program (SAMP) survey of out-of-country employment found that nearly half of the South African doctors who completed the survey had worked in at least one other country, while 15% had worked in at least two other countries. Some had worked in three or more countries, with a maximum of seven countries. As many as 61% of those with work experience outside SA had been to the United Kingdom (UK). Canada was second with 10%, followed by several European countries – Germany, the Netherlands, and Belgium – with 9%, Ireland with 9%, and Australia and New Zealand with 6%. Around 5% had worked in newer destinations such as the United Arab Emirates and Saudi Arabia (Crush 2019). Four countries – the US, the UK, Australia, and Canada – jointly employ 72% of the foreign-born nurses and 69% of the doctors working in OECD (WHO 2013), with the US employing the most of any country. An analysis of physician migration from Sub-Saharan Africa (SSA) to the United States by Tankwanchi and colleagues (Tankwanchi *et al.* 2019) highlights two inter-related and worrying trends: (1) migration of these physicians is on the rise; and (2) physician density is declining in most African countries under investigation.

Whereas George and colleagues highlight a reduction in the rate of physician emigration, the country continues to have an imbalance in the physician-patient ratio. For example, in 2017, the ratio of doctors per 1000 people increased from 0,59% in 1996 to 0.91%, yet it was still lower than the OECD countries' average of 3.4% (George *et al.* 2019). In contrast to the number of physicians within and returning to the country, the deficit in the doctor-patient ratios poses pertinent questions about the causes of brain drain within the public health sector. Innovative multi-sectoral approaches to create sustainable, safe and attractive work environments for doctors are necessary to address the labour force gaps.

3 Methodology

This study was a desktop search of existing literature supplemented by additional information accessed from the South African Migration Project (SAMP) office, Statistics SA (Stats-SA), and the Africa Centre for Migration (ACM) based at Wits University in Johannesburg. Articles and other relevant information dated 1997-2021 were included. The search engines utilised were Google Scholar, EBSCOhost, Worldwide Science, Google Books, Refseek and iSeek. The flow chart in Figure 1 below describes the methodology adopted by the authors to extract information for the study.

Keywords

The *keywords* searched were as follows.

Medical brain drain, doctors leaving SA, situation of healthcare workers in SA, why doctors leave SA, strategies to maintain doctors in the SA health system and healthcare workers leaving SA.

A total of 14 articles, policy documents and reports met the inclusion criteria and were considered for analysis.

Inclusion Criteria

Only English articles published between 1997 and 2021 relevant to the South African context were included.

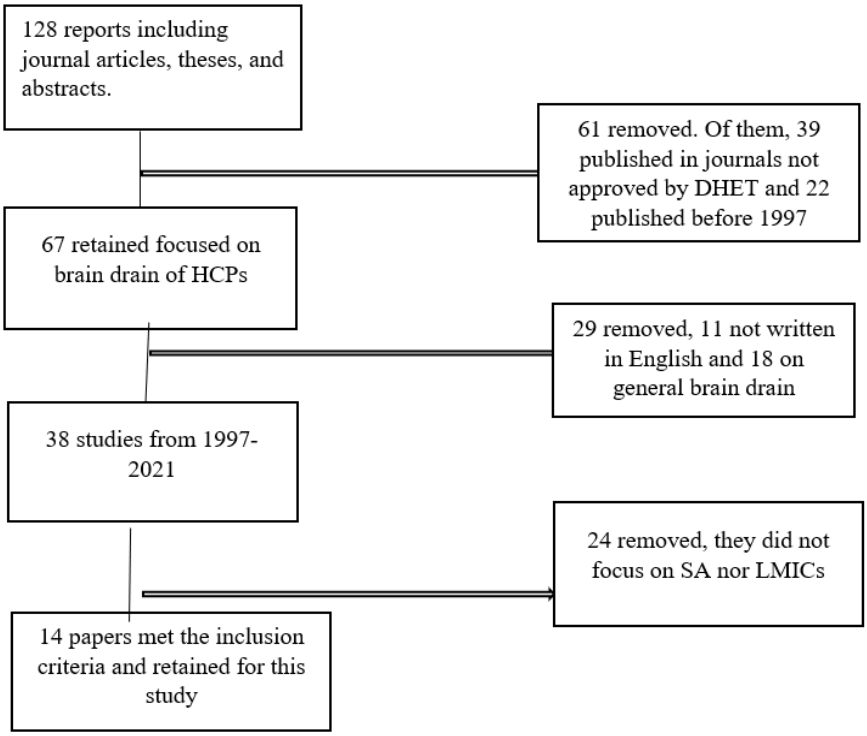
The cut-off point for literature was 1997, as it is three years into the democratic dispensation of the country.

Exclusion Criteria

Not included were papers (relevant policy documents or reports) published by a scientific journal not approved by the Department of Higher Education and Training (DHET).

Any publication not in English was rejected together with those published earlier than 1997. Papers about the brain drain of other types of professionals who are not Healthcare Professionals (HCPs) were rejected.

Figure 1: Flow Chart of Sample Selection (Source: Authors)



It was ensured that all sources were visited and exhausted during the search for information. The SAMP, ACM, StatsSA and other relevant institutions' websites were accessed to ensure all sources were exhausted before conducting the analysis.

The information was then analysed through content analysis to support the focus areas of this chapter, which are: to ascertain the previously identified gaps to address the medical brain drain in SA to identify potential opportunities to mitigate the impacts of the drain through retention strategies as well as to establish how innovative strategies can create a sustainable medical labour force within the country.

Of the total of 14 papers analysed, one used mixed methods (qualitative and quantitative), and two (n=2) used the qualitative method; then three (n=3) were just narrative reports. The qualitative literature was based on the views of

key informants on the topic and information from focus group discussions. The last eight (n=8) papers used a quantitative methodology with an average sample of 480-760 participants. Eight manuscripts were recognised as contributing strong evidence to the literature documenting the brain drain of healthcare professionals from SA as one of the LMICs. The authors created Table 1 below to represent the studies analysed. It summarises the aims, methodology, major findings and identified gaps.

Bibliographical Information	
Nagi, S.E.S. *et al.* 2020. Impact of Merit-Based Immigration Policies on Brain Drain from Low- and Middle-Income Countries. *JCO Global Oncology* 6: 185 – 189. http://ascopubs.org/doi/full/10.1200/JGO.19.00266	
Aims	**Methods**
Address the potential impact of merit-based immigration plans to the USA on healthcare service delivery in LMICs and their preparedness to deal with it.	Data on immigration policies, numbers of international medical graduates practising in high-income countries (HICs), various scientific exchange methods, and efforts for capacity building in LMICs.
Major Findings	**Gaps in Research and Summary**
Talented individuals seek to advance their knowledge and skills and may stay in high-income countries (HICs) because of greater rewards or opportunities. HICs also rely on immigrant, international medical graduates to supplement their physician workforces.	LMICs should have opportunities to advance their education and training in more advanced countries. They should increase their educational efforts, research capabilities, and infrastructures and reduce their brain drain phenomenon.

Bibliographical Information	
Zakus, D. & E. Anteh 2021. *Brain Drain from Africa - Reasons, Consequences and Impacts: Discussing Outflow of African Health Professionals to More Developed Countries.*	
Aims	**Methods**
Contributory factors of African health practitioners' migration to Canada highlight existing mecha-	This was a desktop-based study. It selected articles related to the topic and conducted a critical review of

nism policies and incentives adopted by governments, health agencies, economic communities and unions to mitigate brain drain and its effects.	the literature with the support of additional HCPs from SA living in Canada.
Major Findings	**Gaps in Research and Summary**
The study results indicate that the South African government lacks a clear-cut policy on reducing brain drain, which will impact the country's socio-economic development in the long term. Using the theoretical framework of Lee's push-pull theory, it is argued that certain socio-economic factors reinforce brain drain in SA.	The chapter's authors conclude that SA's vision of becoming Africa's industrial hub may remain a dream if the country fails to put losing its skilled professionals under control.

Bibliographical Information	
Crush, J. 2019. *Rethinking the Medical Brain Drain Narrative.* South African Migration Program (SAMP). https://media.africaportal.org/documents/SAMP81.pdf	
Aims	**Methods**
Examine the temporary employment opportunities for SA doctors in the UK, Ireland, Canada, and Australia. These include residencies, fellowships, locums, and various temporary worker programs. Global data on the temporary migration of doctors are scarce, but there is enough evidence to test the dominant narrative that all doctor migration is permanent and, by definition, harmful.	Large-scale online surveys were conducted with SA-trained doctors in the country. The survey was completed by 745 doctors in 2007 and 860 doctors in 2013. The first survey found that over one-third (35%) of the respondents had worked outside SA. The second survey found that 593 out of 2,229 physicians surveyed (20%) had experience working outside of SA.
Major Findings	**Gaps in Research and Summary**
While some South African physicians fit the traditional picture,	The global phenomenon of temporary doctor migration

research shows that the return intentions of emigrants are very low. The report draws two major conclusions: (a) the dominant brain drain narrative overlooks the complex nature of South African physician migration. It ignores that many doctors have temporary employment experience outside the country. (b) it suggests that temporary employment overseas increases the chances of permanent emigration later.	complicates the conventional brain drain narrative, which sees all departures as permanent and all impacts of doctors leaving a country as negative. The hegemony of this narrative partly explains why so little attention has been paid to mobile physicians and, as a result, there is so little concrete data and research on the subject.

Bibliographical Information	
Mahlathi, P. & J. Dlamini 2017. *From Brain Drain to Brain Gain: Understanding and Managing the Movement of Medical Doctors in the South African Health System.* African Institute for Health and Leadership Development. https://www.readkong.com/page/south-african-health-system-from-brain-drain-to-brain-6553852	
Aims	**Methods**
(a) to assess the recorded movement of medical officers employed in public health facilities; (b) to gain insight into the views and perspectives in SA of emigrant medical practitioners; and (c) to identify existing policy instruments and practices to maximise benefits and mitigate the negative consequences of the migration of medical doctors.	Data were collected from the provincial Departments of Health, the Medical and Dental Board of the Health Professions Council of SA, the South African Medical Association and individual medical practitioners through a survey. The data utilised were derived from responses to a survey questionnaire. Information on medical doctors is presented, specifically on general practitioners extracted from the HPCSA GP register and on medical officers from provincial-level records.

Major Findings	**Gaps in Research and Summary**
Of the 754 respondents (South African-trained doctors), 37% had worked outside SA, while 63% had not. The government keeps records of only those that it employs. Once medical doctors resign from public service, there is no mechanism to provide data on their destination. About 57% of respondents believed that migration by medical doctors should be monitored, though there were variations in the reasons put forward as to why it should or should not be monitored. Some respondents are sceptical about managing migration, interpreting it as an attempt to victimise them by controlling their movement.	The country needs to develop a mechanism to record and manage information regarding the mobility of its medical workforce. There are government initiatives to increase the training of medical doctors to boost the stock, though fiscal challenges obstruct progress. The Policy on the Recruitment and Employment of Foreign Health Professionals in the South African Health Sector is used to manage immigration. However, it requires review so that it is aligned with the new immigration laws of the country. Refugees and asylum seekers who are professionals form a component of migration that is not often considered in the literature on the migration of health workers.

Bibliographical Information	
Tankwanchi, A.S. *et al.* 2019. International Migration of Health Labour: Monitoring the Two-Way Flow of Physicians in SA. *BMJ Global Health* 4: e001566. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6747914/	
Aims	**Methods**
To determine the flow of healthcare workers in LMICs.	Data were from the National Reporting Instrument reports, the OECD, and the General Medical Council. Using the numbers of foreign nationals and international medical graduates (IMGs) registered in SA and SA medical graduates registered in OECD, they estimated 'NM' as the difference between immigrant physicians and emigrant

	physicians and 'net loss' as the difference between OECD-trained IMGs and OECD-based SA-IMGs.
Major Findings	**Gaps in Research and Summary**
IMGs represented 46% of 2010–2014 new registrations in SA, with the UK, Nigeria and the Democratic Republic of the Congo serving as leading sources. Registrants from conflict-scarred Libya increased >100-fold. More than 3400 SA-IMGs exited OECD-based workforces.	NM is a better measure of the brain drain than simply the emigration fraction. Strengthened health personnel data management and reporting through implementation of the Code-related system of National Health Workforce Accounts will further increase our understanding of health worker mobility in LMICs, with policymakers empowered to make more informed policies to address the shortage.

Bibliographical Information	
George, A. *et al.* 2019. Doctor Retention and Distribution in Post-apartheid SA: Tracking Medical Graduates (2007–2011) from One University. *Human Resources for Health* 17**:**100. https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-019-0439-4	
Aims	**Methods**
This document reports on the retention and distribution of doctors who graduated from the University of the Witwatersrand, SA (SA), between 2007 and 2011.	Data on 988 graduates were accessed from university databases. A cross-sectional descriptive email survey was used to gather information about graduates' demographics, work histories, and current work settings. Frequency and proportion count and multiple logistic regressions of predictors of working in a rural area were conducted. Open-ended data were analysed using content analysis.

Major Findings	**Gaps in Research and Summary**
The survey response rate was 51.8%. Of 497 South African respondents, 60% had completed their vocational training in underserved areas. At the time of the study, 89% (444) worked as doctors in SA, 6.8% (34) practised medicine outside the country, and 3.8% (19) no longer practised medicine. Of the 444 doctors still in SA, 80% worked in the public sector. Only 33 respondents (6.6%) worked in rural areas, of which 20 (60.6%) were Black. Almost half (47.7%) of the 497 doctors still in SA were in specialist training appointments	Most graduates were still in the country, with an overwhelmingly urban and public sector bias to their distribution. Most doctors in the public sector were still in specialist training at the time of the study and may move to the private sector or leave the country. Black graduates, preferentially selected in this graduate cohort, constituted most doctors practising in rural areas. The study confirms the importance of selecting students with rural backgrounds to provide doctors for underserved areas.

Bibliographical Information	
Cometto, G. *et al.* 2013. Health Workforce Brain Drain: From Denouncing the Challenge to Solving the Problem. *PLOS Med* 10,9: e1001514. https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001514	
Aims	**Methods**
Although the objective is not stated in the paper, by reading, it comes out that the researcher wanted to propose solutions to the challenges of health workforce brain drain.	The article is a literature review that uses a narrative approach. The number of relevant documents included was not given, but the authors critically analysed the issue of brain drain from different publications.
Major Findings	**Gaps in Research and Summary**
When destination countries tightened their immigration rules, the number of immigrating doctors from SSA was reduced.	The need for evidence-based solutions to move from denouncing brain drain to problem-solving,

There needs to be more than just increasing the salaries of physicians in LMICs	Policy and investment options are needed to create sustainable solutions.

Bibliographical Information	
Labonté, R. *et al.* 2015. Health Worker Migration from SA: Causes, Consequences and Policy Responses. *Human Resources for Health* 13**:**92. https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-015-0093-4	
Aims	**Methods**
This document arises from a four-country study that sought to understand better the drivers of skilled health worker migration, its consequences, and the strategies countries have employed to mitigate negative impacts. The four countries – Jamaica, India, the Philippines, and SA – have historically been 'sources' of skilled health workers (SHWs) migrating to other countries.	It is a scoping review of health workers' migration from SA and empirical data collected from skilled health workers and stakeholders. Surveys were conducted with physicians, nurses, pharmacists, and dentists and analysed using descriptive statistics and regression models. Interviews were conducted with key informants representing educators, regulators, national and local governments, private and public sector health facilities, recruitment agencies, and professional associations and councils and were analysed thematically.
Major Findings	**Gaps in Research and Summary**
There has been an overall decrease in the outmigration of skilled health workers from SA since the early 2000s, attributed to a reduced need for foreign-trained skilled health workers in destination countries, limitations on recruitment, and tighter migration rules. Low levels of worker satisfaction persist,	In the near past, SA's health worker shortages because of emigration were viewed as significant and harmful. Domestic policies to improve healthcare and the health workforce, including innovations such as new skilled health worker cadres and OSD policies, appear to

although the Occupation Specific Dispensation (OSD) policy (2007), which increased wages for health workers, has been described as critical in retaining South African nurses. The most promising initiatives are those designed to reinforce the South African health system and undertaken within SA.	have somewhat decreased SHW shortages.

Bibliographical Information	
Reardon, C & G. George 2014. An examination of the factors fuelling migration amongst Community Service practitioners. *African Journal of Primary Healthcare and Family Medicine* 6,1: E1–E9. https://doi.org/10.4102/phcfm.v6i1.625	
Aims	**Methods**
The aims were to: (a) explore the migration intentions and the factors that influence these intentions amongst Community Service (CS) nurses and doctors; (b) explore their views and opinions about the Bilateral Agreement between the UK and SA and other UK policies around the recruitment and employment of foreign HCPs; and (c) understand the impact of these policies on the migration plans of these CS doctors and nurses.	Qualitative focus groups and interviews were conducted with 23 CS doctors and nurses. Six interviews were conducted with five nurses and one doctor who had worked in the UK to supplement this number.
Major Findings	**Gaps in Research and Summary**
A higher disposition toward moving abroad was apparent amongst those who had experienced a challenging and frustrating CS year. Poor working conditions, including long working hours, high patient loads,	The findings suggest that government efforts to manage better, recognise and respect the work and contribution of health professionals to the country would

inadequate resources and equipment, low salaries, and perceived ambivalence of the government to the complaints of health practitioners, were influencing decisions to migrate abroad.	go a long way toward retaining health professionals.

Bibliographical Information	
Mahlathi, P. & J. Dlamini 2015. Minimum Data Sets for Human Resources for Health and the Surgical Workforce in SA's Health System. Pretoria: Institute for Health and Leadership Development. https://pdf4pro.com/view/minimum-data-sets-for-human-resources-for-health-and-the-3f6326.html	
Aims	**Methods**
(a) To determine the minimum data sets that the government records, statutory health councils and professional associations in their management systems; (b) to determine the stock of health professionals involved in surgical care; and (c) to establish the existence of data and systems to manage the emigration of South African health professionals.	Data were collected from the National Ministry of Health, provincial departments of health, statutory health councils and the South African Society of Anaesthesiologists. The data sources utilised fell into the following categories: policies, a status report from a payroll system, and statutory health council annual reports and responses to a survey questionnaire.
Major Findings	**Gaps in Research and Summary**
Data analysis revealed that the provincial health departments do not collect information on employees uniformly. There is no distinct national register of categories making up the surgical workforce. Consequently, the surgical workforce mostly comprises medical specialities and medical officers. There is, however, no	The National Ministry of Health and the Ministry of Home Affairs need to improve their collaboration on measuring and monitoring emigration by South African health professionals

quantifiable information relating to the number of medical officers offering surgical care at health facilities.	

Bibliographical Information	
Crush, J. *et al.* 2014. Brain Drain and Regain: The Migration Behaviour of South African Medical Professionals. Waterloo, ON: Southern African Migration Programme. SAMP Migration Policy Series No. 65.	
Aims	**Methods**
An assessment of whether professional attitudes and perceptions have changed between 2007 and 2013, including (a) whether levels of satisfaction with work and life in SA have improved or worsened; (b) whether emigration potential has declined or intensified amongst health professionals, and (c) whether the 'brain drain' from SA will continue. These questions are relevant given the various changes in the health sector since 2007	The survey was developed in collaboration with the Institute of Population Health at the University of Ottawa as part of a CIHR-funded global project on health professional migration from India, Jamaica, the Philippines and SA. The questionnaire was hosted on the MED page's website, and potential respondents were invited by email to complete the survey. A total of 1,383 completed questionnaires were received from physicians, dentists and pharmacists – a response rate of 7%.
Major Findings	**Gaps in Research and Summary**
Previous studies have predicted that medical migration from SA is unlikely to subside in the short and medium term as health professionals and trainees exhibit high emigration potential. This report provides an updated (2013) picture of the state of mind of South African HCPs.	SA remains a destination country for HCPs from other countries, except for official schemes to temporarily import Cuban and Tunisian doctors – which is not an official policy. The study, however, provided an opportunity to profile a sub-group of non-South African doctors to assess whether they are more inclined to

	remain in the country than their South African counterparts.

Bibliographical Information	
Rasool, F. & C.J. Botha 2011. The Nature, Extent and Effect of Skills Shortages on Skills Migration in SA. *SA Journal of Human Resource Management* 9,1. https://sajhrm.co.za/index.php/sajhrm/article/view/287	
Aims	**Methods**
This study focuses on the causes and effects of the skills shortages in SA. Motivation for the study: The researchers undertook this study to highlight the role skilled foreign workers can play in supplementing the shortage of skilled workers in SA. Shortage is partly because of the failure of the national education and training system to supply the economy with much-needed skills.	The researchers undertook a literature study to identify the nature, extent and effect of skills shortages in SA. They consulted a wide range of primary and secondary resources to understand the problem in-depth. The article explains the research approach and method comprehensively. It also outlines the research method the researchers used.
Major Findings	**Gaps in Research and Summary**
The researchers mention only two significant implications. Firstly, this article provides a logical description of the nature, extent and effect of skills shortages on the economy. Secondly, it indicates the implications of skills shortages for immigration policy.	This study confirms the findings of similar studies the Centre for Development and Enterprise (CDE) conducted. Opening the doors to highly skilled immigrants can broaden the skills pool.

Bibliographical Information	
Hagopian, A. *et al.* 2004. The Migration of Physicians from SSA to the United States of America: Measures of the African Brain Drain. *Human Resources for Health* 2, 17. https://human-resources-health.biomedcentral.com/articles/10.1186/1478-4491-2-17	
Aims	**Methods**
To describe the number and types of physicians practising in the USA	Cross-sectional study using the 2002 American Medical Association

who earned medical degrees in Africa	Masterfile, from the United States of America.
Major Findings	**Gaps in Research and Summary**
23.3% of 771491 active physicians in the USA in 2002 were from LMIC, SSA – 5334 86% Nigeria, SA, Ghana	African nations – lack of reliable data on how many health workers have graduated from their schools, how many in the country, and how many in Poor countries need this data for workforce policy and investment

Bibliographical Information	
Mortensen, J. 2008. SA's Medical Brain Drain: Myths, Facts and What (not) to Do. DIIS Working Paper no 2008/18. Danish Institute for International Studies Copenhagen K. Denmark. https://www.files.ethz.ch/isn/92345/2008-18.pdf	
Aims	**Methods**
The underlying rationale behind SA's current policies toward the medical brain drain is questioned. It also challenges the dominating view on the medical brain drain that the outmigration of health workers from developing countries has damaging consequences, and curbing that migration is pivotal in safeguarding health systems.	This research is built on a critical literature review and uses a narrative approach. Several published articles are critically interrogated, and a conclusion is drawn in response to the research question.
Major Findings	**Gaps in Research and Summary**
The authors argue that there is a need to change basic assumptions in perspective on the migration of health workers. The current paradigm is built on questionable theoretical assumptions and hypotheses. It overestimates the effectiveness of its policy recommendations and systematically ignores important negative side	Its conclusions are, thus, not surprising. Instead, a perspective is needed that factors in the positive effects of the migration of health workers, such as remittances, diaspora linkages, and so-called brain gain effects – and which provides realistic policy recommendations without counterproductive side effects.

effects of these. Further, it completely ignores the positive impacts of outmigration and focuses solely on the negative.	

The table was drawn up to identify trends in the findings and the gaps over 23 years. Most of the research included shows: Poor documentation of the reasons why medical professionals are leaving SA.

Low collaboration between countries, the national and provincial departments of Health, Home Affairs, South African Revenue Service (SARS) and representative bodies like the South African Medical Association (SAMA) to articulate and measure the impact economically and otherwise on the country.

The government's lack of initiative and will in making access to posts possible for foreign-trained doctors and doctors within migrants and refugee committees attracted to living and work opportunities in the country. The results from this research show a commonality in the findings related to the multi-sectoral oversight attached to the retention and attraction of healthcare workers in SA and a view which is rooted in a perhaps intuitively convincing assumption that outmigration and low levels of health workers are tightly correlated – that outward migration causes low levels of health workers in SA.

4 Description of Findings

Medical Brain drain in SA amidst the challenges of a collapsing healthcare system is an under-prioritised government concern. Whereas some barriers to delivering effective public health services, such as budget and infrastructure, are presented among the root causes for the challenges, the causes of human resource challenges are underreported. The increasing difficulties experienced by skilled staff within the health system have been documented over time. Whereas some challenges are unique to the public and private sectors, the commonality of challenges rests within the social and economic impacts healthcare providers face. These include remuneration, safety, career growth, and quality of life. Challenges of this nature warrant interventions beyond what the health ministry can advance independently. It requires collaboration and input from multiple sectors. Identifying the commonalities in gaps reported over 23 years to highlight its multi-sectoral nature underpins the focus of this chapter.

4.1 Brain Drain Effects on SA Health System

Despite many researchers reporting that SA needs more human resources for health (Gumede, Taylor & Kvalsvig 2021; Zihindula, Ross, Gumede & MacGregor 2019), the current list released by the Department of Home Affairs (DHA) on critical skills needed in the country did not show the medical field as a scarce skill (DHA 2022). This indication by the DHA is somehow contradictory, obscuring whether the issue of Human Resources for Health (HRH) has been solved in the country, especially in rural areas where public health facilities are most affected compared to their urban counterparts.

Emerging information, such as that by Mortensen (2008), has also shown that brain drain can be beneficial when remittances and other returns are sent by doctors who emigrated. This perspective suggests that brain drain is not necessarily negative but, in some cases, positive to both the sending and receiving countries when viewed from an economic perspective.

In the case of SA, the survey did not show the use of healthcare professionals who hold an asylum seeker's document (refugee) or a work permit and even those who have naturalised whether they intend to stay once employed or if they also seek to leave for greener pastures. Notably, anecdotal evidence echoed by King-Dejardin (2019) suggests that SA is home to thousands of trained healthcare professionals who are found doing a variety of odd jobs like car guards, security, and informal trading due to the difficulties in penetrating the labour system and complicated immigration policies which turn them away. For the policy-related studies (Kaplan 1997), not much was shown as being done by the government to implement retention strategies for healthcare professionals. On the other hand, in the same study, Kaplan (1997) showed that the number of people leaving for the UK in each period was less than those who came to SA from the UK. The number of South Africans that went to Australia was far more than those who came to SA. The results show that 21 485 graduates from five South African universities living abroad were concentrated in the USA, the UK, New Zealand, Australia, and Israel. As Kaplan (1997) speaks about all critical skills and not only medicine, this is also a potential indication that strategies for retaining professionals are inadequate in SA.

4.2 Existing Retention Strategies

This review-based research sought to ascertain the efforts made in policy and practice to create attractive opportunities for the retention of doctors and to

attract foreign qualified personnel. It further sought to establish how innovative strategies can create a sustainable medical labour force within the country. Information emerging from articles reviewed by Nagi *et al.* (2020), Zakus and Anteh (2021), and Crush (2019) illustrate the complexity and interconnected nature of the healthcare systems to bigger governance systems to be able to deliver its mandate. Within health service delivery, healthcare providers are the cornerstone of the system due to the specialised skill set required to perform within their roles. Where healthcare workers are described in the South African Health Acts to be all the people within the health system to enable service delivery, healthcare providers are those providing services in terms of law to include the Acts governing health professionals, allied health professionals, nurses, dental technicians, and pharmacists (Cassim 2007).

Amongst reviews by Labonté *et al.* (2015), Mahlathi and Dlamini (2017) and others, the essential nature of healthcare workers' roles to implement policies for health service delivery is often recognised in absentia of the challenges they face to deliver on their mandate. Research by Buchan, Catton, and Shaffer (2022) highlights the need for key interventions to retain and recruit healthcare providers. These needs include safety in the workplace, better remuneration, work hours and conducive work environments. The discussions surrounding medical brain drain in LMICs have long been influenced by these concerns (Buchan *et al.* 2022).

There is a cyclic connection between the socio-economic status of the country, its political activities and the discomfort felt by skilled health workers sufficient to consider migration (Mchunu 2018). Poor governance and public administration rooted in corruption impact service delivery. Within the health sector, institutions providing essential and critical care at primary and tertiary levels are vulnerable (Presidential Health Summit 2018). Nevertheless, their services are meant to strengthen the South African health system toward an integrated and unified one. The high staff turnover, more than a critical challenge, reflects the unbearable conditions medical practitioners must work under to service an increasingly ill population burdened with chronic disease, violent crime, and poverty.

4.3 Factors Facilitating the Brain Drain of Doctors in SA

Medicine is one of the higher-paying careers in the country, both public and private (Ashmore 2013). The salaries paid, however, do not justify the frustrations

and challenges of a failing health system. These include long working hours, crime, and increasing cost of survival (Reardon & George 2014). The outcome is an ailing society in a cyclic system that cannot achieve the SDGs and the social determinants of health.

Further, HICs depend on international immigrant graduates to sustain their medical workforce. In 2002, 23.3% of the 771 491 active physicians in the USA were from LMICs. Another 5334 (86%) were from SSA – Nigeria, SA, and Ghana. These countries offer the quality of life and work-life balance that South African physicians seek (Hagopian, Thompson, Fordyce, Johnson & Hart 2004; Tankwanchi, Ozden & Vermund 2013). While lucrative opportunities for South African physicians are a known reality, studies have shown that the introduction of regulatory examinations for South African practitioners by the UK led to a reduction in the number of physicians leaving the country, in contrast to countries without regulatory exams and protocols (Cometto *et al.* 2013).

Until recently, the migration of doctors to the global North from the global South in search of better opportunities was seen as a fixed event with no account of the number of people who chose to return. The literature suggests that SA has no system to establish why health workers leave the country (Mahlathi & Dlamini 2017). In addition, there is no repository to track the immigration patterns of physicians and healthcare workers into and out of the country (Chipangura, Mohamed & Mkhize 2020). This lack is problematic for solution-based responses, which require multi-stakeholder collaboration to address causal factors. It is particularly necessary given that solutions require more than simply financial and economic incentives (Cometto *et al.* 2013).

The mobility and flexibility of people in a world that is advancing through technological innovation and artificial intelligence are increasing (Brown, Gosling, Sethi *et al.* 2018). With flexible lifestyles, global migration trends are also changing, where such changes are not necessarily permanent ones. Trends amongst some physicians in SA are leaning toward a more complex one outside the traditional image associated with brain drain (Crush 2019). They can work abroad for varying lengths of time whilst keeping SA as their base.

4.4 Policy Perspective

SA has policies that focus on managing the health workforce, including statutory regulations, employment of medical doctors – junior to senior and speci-

alist levels – and the employment benefits provided to foreign medical doctors in the public health service. However, the retention strategies of the latter are lacking (Zakus & Anteh 2021), and this suggests that the brain drain in SA's public health sector needs more context-specific studies to support a paradigm shift needed in the perspective of migration of its physicians between rural-urban, public, and private, national, and international. The current paradigm is built on non-specific data. It is challenged by the absence of a repository (Chipangura *et al.* 2020), nationally and regionally, to monitor migration patterns among this skill set. The absence of such a repository will likely negatively impact workforce policy and investment within the public health sector.

The authors posit that the decline in the number of physicians emigrating, coupled with the increase in the numbers of foreign-trained doctors servicing rural and outlying communities, indicates significant pull factors to the country, which could outweigh the outmigration influence if strengthened. The return of physicians to SA and the emerging cyclic trend indicates positive opportunities for skill exchange and growth between physicians and countries at a global level.

A sustainable and supportive policy framework for skilled migration, coupled with multi-sectoral collaboration across all sectors, including education, economy, safety, and justice, would advance the agenda for brain gain. Aligned with previous policy recommendations in the field, the influence of multi-sectoral strengthening, particularly regarding public administration and governance, within the health sector, is fundamentally important to improving the working conditions within the public health sector, sufficiently to attract a greater workforce (Cometto *et al.* 2013).

5 Conclusion

Despite emerging literature on the brain drain phenomenon, SA remains slow in addressing the skills scarcity in a critical sector like health service delivery. While the movement of medical professionals cannot be stopped, systems must be in place to balance the skills demand through solutions to address its root cause and mitigate its impact. This recommendation includes an investment in policy, networking, and further attractive opportunities for brain gain. The interventions should be designed to include the skill sets available within refugee and asylum seeker communities. The results show that the number of doctors leaving the country continues to outweigh the number entering the country.

Innovative solutions to retain doctors are lacking, and policy implementation is low. A multi-sectoral approach is needed to reduce the impact of medical brain drain in SA. Ideally, it should include retention strategies through multi-sectoral interventions to improve living and working conditions. Further, strategies to attract foreign healthcare providers should be equally prioritised as a response.

The authors acknowledge that achieving this goal requires collaboration among various sectors, including government, private, and civil society. While health labour migration is a global phenomenon, studies have often overlooked the flow of health workers into LMICs. Therefore, further research is needed to explore this phenomenon and provide an alternative perspective that reframes brain drain as brain gain for LMICs.

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