

Health Service Research

A human resources for health analysis of registered family medicine specialists in South Africa: 2002–19

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Abstract

Background: In South Africa, there is a need to clarify the human resources for health policy on family physicians (FPs) and to ensure that the educational and health systems are well aligned in terms of the production and employment of FPs.

Objective: To analyse the human resource situation with regard to family medicine in South Africa and evaluate the requirements for the future.

Methods: A retrospective review of the Health Professions Council of South Africa's (HPCSA) database on registered family medicine practitioners from 2002 until 2019. Additional data were obtained from the South African Academy of Family Physicians and published research.

Results: A total of 1247 family medicine practitioners were registered with the HPCSA in 2019, including 969 specialist FPs and 278 medical practitioners on a discontinued register. Of the 969, 194 were new graduates and 775 from older programmes. The number of FPs increased from 0.04/10 000 population in 2009 to 0.16/10 000 in 2019, with only 29% in the public sector. On average, seven registrars entered each of nine training programmes per year and three graduated. New graduates and registrars reflect a growing diversity and more female FPs. The number of FPs differed significantly in terms of age, gender, provincial location and population groups.

Conclusions: South Africa has an inadequate supply of FPs with substantial inequalities. Training programmes need to triple their output over the next 10 years. Human resources for health policy should substantially increase opportunities for training and employment of FPs.

Key words: Family medicine, family practice, general practice, health workforce, human resources development, South Africa

Introduction

The 2030 Agenda for Sustainable Development called for substantially increased health financing and the recruitment, development, training and retention of the health workforce (1). As agreed by most governments, strengthening primary health care (PHC) is the most inclusive, effective and efficient approach to enhance physical and mental health, as well as social well-being of the population (2).

The World Health Assembly states that family physicians (FPs) are essential members of PHC teams (3) and the World Health Organization has noted that most effective PHC systems include a medical practitioner (MP) with postgraduate training in family medicine (4). In the African context, FPs are also an important resource at the district hospital. Small, often rural and remote, district hospitals have significant skills gaps (5) that can be addressed

Key Messages

- In 2019, 969 family medicine specialists were registered in South Africa.
- Density of family physicians was 0.16/10 000 population in 2019.
- Densely populated and urbanized provinces have majority of family physicians.
- Tripling the output will ensure one family physician/health facility in next 10 years.
- Need more registrar and family physician posts to strengthen district health services.
- New human resources for health policy must recommend more registrar and family physician posts.

by FPs specifically trained for this context. In many countries, such as Kenya and Botswana, the intention is to place FPs at this hospital and for them to also support the surrounding primary care platform.

South Africa is a middle-income country with one of the highest Gini coefficients (6). This reflects inequities in health care access, quality of care and spending between the public and private health sectors. This highlights an urgent need to improve the quality of public sector health services because of the intention to ensure universal health coverage (7). A number of strategies to strengthen PHC have been implemented, including district clinical specialist teams (that include a FP) and ward-based outreach teams that include community health workers and strengthening of school health services (8).

During the 1970s and 1980s, training was orientated towards private general practice (9), but after 1994, the new democratic government emphasized the need to strengthen PHC and provide equitable access to health care (8). Medical schools responded by developing undergraduate exposure to family medicine as well as postgraduate training that was more orientated towards the public sector. All medical schools developed clinical Masters degrees in family medicine and the Health Professions Council of South Africa (HPCSA) created a separate register for family medicine.

The speciality of family medicine was only fully recognized in 2007 and led to all nine medical schools developing formal training complexes. The Family Medicine Education Consortium and later the SA Academy of Family Physicians provided coordination and enabled collaboration between programmes. This led to consensus on the roles of the FP in the health system (10), national programmatic learning outcomes (11), defined clinical competencies (12) and national textbooks (13,14). Training programmes consciously took the decision to train FPs for both PHC and district hospital settings.

In addition, the College of Family Physicians was tasked with establishing a national licencing examination. In order to register as a FP, you must now complete 4 years of vocational training and obtain the Fellowship of the College of Family Physicians. The Fellowship requires registrars to complete workplace-based assessment, pass a national clinical examination and successfully complete a research assignment.

FPs in the public sector may be employed in district clinical specialist teams, district hospitals, community health centres or sub-districts with multiple clinics. In the private sector FPs may work as general practitioners in primary care. Salaries in the public sector are on a par with other specialists and FPs receive an occupational specific dispensation from the government, which makes their salaries competitive with the private sector. In the private sector, family medicine specialists' income has been on a par with general practitioners without any postgraduate training. Medical Aid funders have not paid higher remuneration rates to specialist FPs or recognized their additional competencies in terms of fee payments, although they are required to do so by the Board of Health Care Funders.

Human resources for health policy in South Africa have yet to fully comprehend the role and contribution of the FP. Policies previously prohibited the employment of FPs in district health services, which meant in several provinces FPs were unhelpfully located at regional or tertiary hospitals (10). The new policy on district clinical specialist teams provided opportunities to employ FPs in each district, but as one specialist for the whole district and only focused on maternal and child health care (8). Despite this, there is evidence of an early impact of FPs on improving district health services (15).

As South Africa embarks on the development of a new human resources for health policy, there was a need to analyse the human resource situation with regard to family medicine, assess the current stock and evaluate the requirements for the future.

Methods

Study design

This was a retrospective review of the HPCSA's database.

Selection of data

The HPCSA provided all their electronic data on family medicine for the period 2002–19. Data were also obtained from the national Education and Training Committee (ETC) of the South African Academy of Family Physicians on the training programmes since 2007 as well as from a previous cross-sectional study of FPs in the public sector (16).

The following nomenclature is used:

- Family medicine practitioner refers to anyone registered with the HPCSA in the discipline of family medicine.
- MPs refer to those registered with the HPCSA in the discipline of family medicine who are on the pre-2007 non-specialist register.
- Family medicine specialist (FP) refers to those registered with the HPCSA on the post-2007 specialist register.
- Grandfathering refers to the family medicine practitioners that were added to the post-2007 specialist register on the basis of their prior qualifications, training and experience, without completing the new specialist training programme and examination.

Data collection

A similar approach using a standardized data collection tool to extract data from the HPCSA database was adopted from a previous study (17). Data included numbers registered each year, province, qualifications as well as the demographic profile by sex, population group and age. In this article, we have used the term population group in line with the definitions in the Population Registration Act (Act No. 30 of 1950) (18), which previously classified South African citizens into four major categories, namely 'white', 'coloured', 'Indian' and 'black' (18). Although the legislation was repealed in

1991, the population categories are still required in some instances. These categories are used to monitor redress in the education and training of health professionals among population groups who were previously denied access to such training in terms of Apartheid legislation.

Data from the ETC included the number of new registrars, current registrars and graduates across all nine training programmes from 2007 to 2019. Data from the cross-sectional study provided information on the number of FPs in public sector posts per province in 2011 and 2015 (16).

Data analysis

Data were entered into a Microsoft Excel spreadsheet and analysed using the Statistical Package for the Social Sciences (SPSS version 22.0) (19) and RStudio (20). Summary statistics and graphical representations were used as descriptive statistical methods. Inferential statistics, using the Mann-Whitney and Kruskal-Wallis tests, were employed to determine the association between the number of FPs and demographic variables such as age, sex, population groups and province.

The data on public sector FPs in 2015 from the cross-sectional study were compared with HPCSA data on all FPs and their location in 2015 to calculate the public-private split.

Results

Profile of family medicine practitioners

Figure 1 provides a summary of the data according to age, sex, provincial distribution and population categories. A total of 1247 family medicine practitioners were registered with the HPCSA in May 2019. Of these, 969 were on the new specialist register and 278 remained on the inactive non-specialist family medicine register (hereafter referred to as MPs).

These 278 MPs on the old family medicine register cannot be employed as specialist FPs in the current health system and while they may deliver useful clinical services cannot contribute to the shortage of FPs.

As can be seen in Figure 1, MPs were older [mean age 71 years (SD \pm 14.1)], male (79%) and predominantly classified as white (76%). By contrast, the 969 specialist FPs, on the new register (Fig. 1), were younger [mean age 55 years (SD \pm 10.2)], also male (74%) and those from previously disadvantaged population groups made up the majority (56%). Overall, 30.8% of family medicine practitioners obtained their qualifications outside of South Africa and predominantly came from Nigeria, Democratic Republic of Congo and India. More of the FPs had foreign nationality (34.4%) compared with the MPs (18.3%).

As shown in Figure 2, male FPs outnumber females in all age categories from 40 years and above, but females are starting to

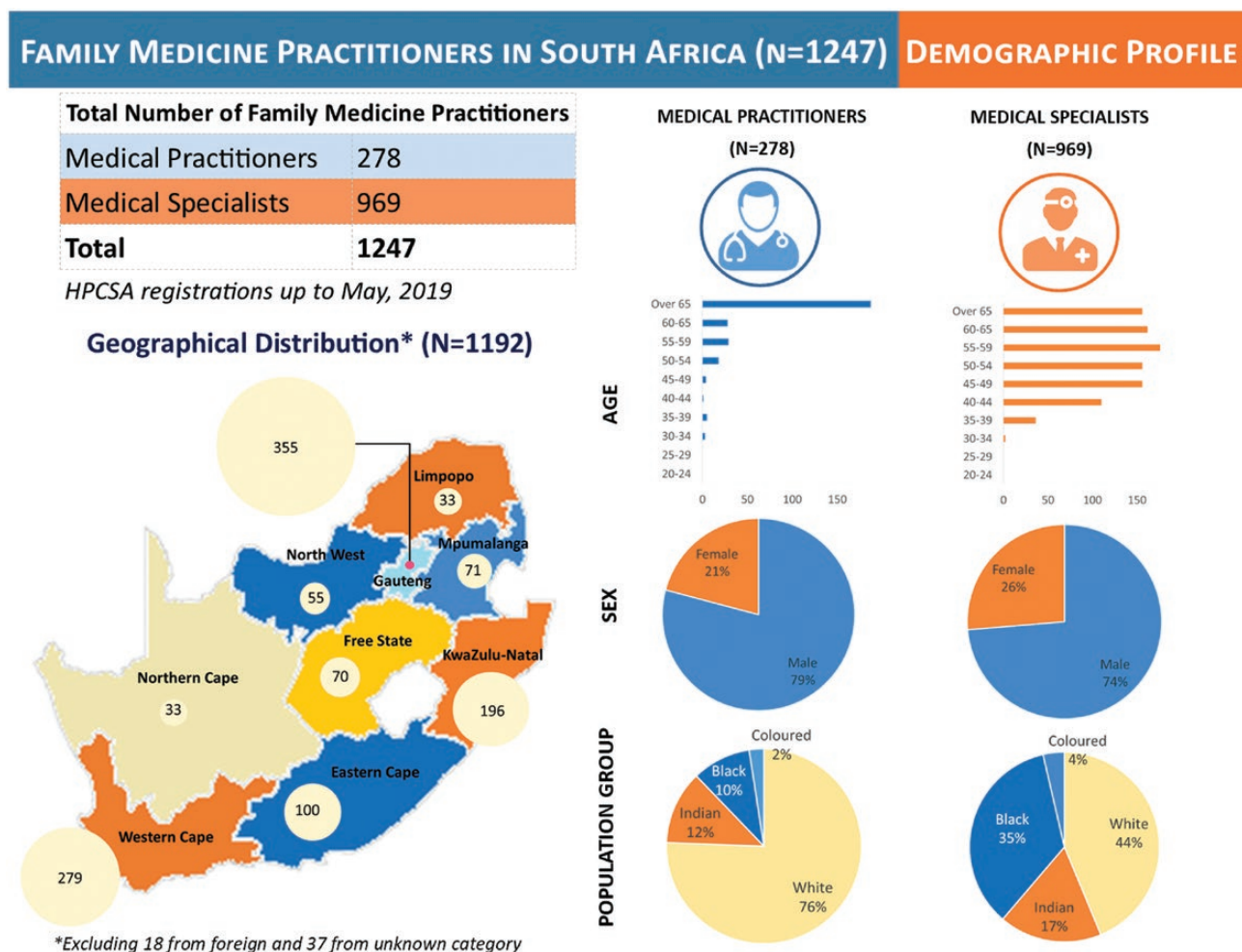


Figure 1. Profile of family medicine practitioners in South Africa (2019).

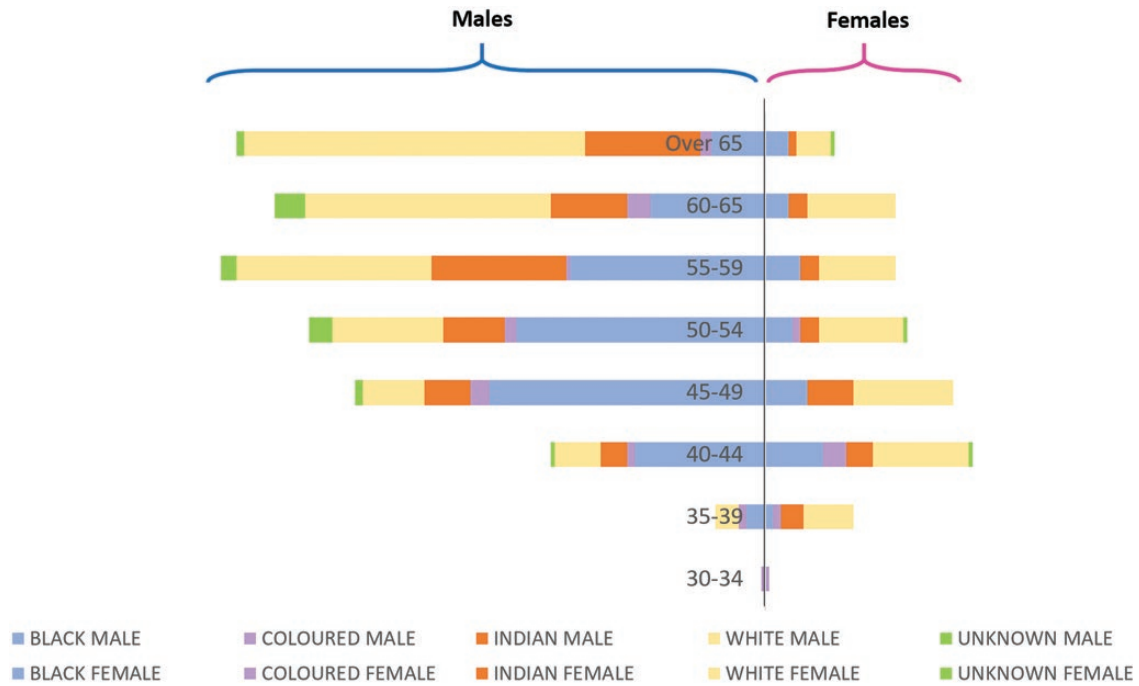


Figure 2. Breakdown of registered family medicine specialists by age, sex and population group.

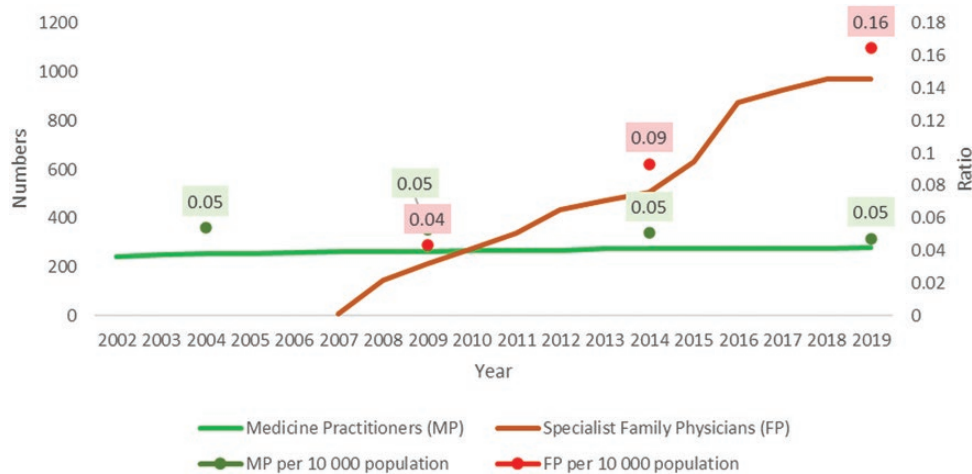


Figure 3. Number of medical practitioners and family physicians per 10 000 population from 2002 to 2019.

predominate in the younger categories. Despite this, the gap between males and females has widened over time and there is a significant difference in the median number (Males 321 versus females 132, $P = 0.007$) (Supplementary Fig. 5).

Growth in the number of family medicine practitioners

The total number of family medicine practitioners increased almost six times from 2002 ($N = 243$) to 2019 ($N = 1247$). However, the MPs only increased from 243 (in 2002) to 257 (in 2006) to 278 (in 2019). Given that 793 FPs were grandfathered onto the new register between 2007 and 2019, this implies that the majority were not previously registered as family medicine practitioners at all. Specialist FPs increased from 8 in 2007 to 969 in 2019. The initial average annual growth rate between 2009 and

2015 was 24.3%, but this subsequently fell to 12.2% between 2016 and 2019. The ratio of MPs to population has remained 0.05 per 10 000 since 2004, whereas for specialist FPs, this has increased from 0.04 in 2009 to 0.16 per 10 000 population in 2019 (Fig. 3).

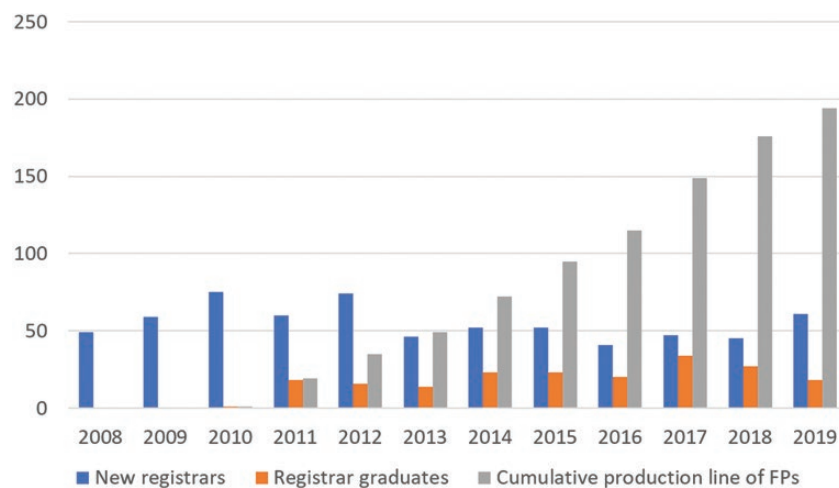
Geographical distribution by province

The majority of FPs were located in Gauteng (28.1%), the Western Cape (22.6%) and KwaZulu-Natal (18.1%). Whereas Limpopo (3.0%), Northern Cape (3.1%), North West (5.0%), Free State (5.8%), Mpumalanga (6.3%) and Eastern Cape (8.0%) had the lowest numbers (see Table 1 and Fig. 1). The gap between the number of FPs in different provinces has widened over time and there is a significant difference between the median number per province ($P < 0.001$) (Supplementary Fig. 6).

Table 1. Geographical distribution of family medicine practitioners (2019)

Category	Medical practitioners N = 254 ^a	Medical practitioners per 10 000 population	Family physicians N = 938 ^a	Family physicians per 10 000 population	Population %
1 Gauteng	91	0.06	264	0.17	25.3
2 Western Cape	67	0.10	212	0.31	11.5
3 KwaZulu-Natal	26	0.02	170	0.15	19.6
4 Eastern Cape	25	0.04	75	0.11	11.5
5 Mpumalanga	12	0.03	59	0.13	7.9
6 Free State	16	0.06	54	0.19	5.1
7 North West	8	0.02	47	0.12	6.8
8 Northern Cape	4	0.03	29	0.23	2.1
9 Limpopo	5	0.01	28	0.05	10.2
Total	254	0.04	938	0.16	100.0

^aOf the medical practitioners, 9 were located outside South Africa and 15 were unknown; of the family physicians, 9 were located outside South Africa and 22 were unknown.



New registrars: enrolments taking place across all programs; Registrar graduates: FPs graduating across all programs; Cumulative production line of FPs: Cumulative number of new FPs

Figure 4. Number of family medicine registrars and graduates over the years in South Africa.

Distribution by population groups

The breakdown of registered FPs for 5-year intervals starting in 2009 depicts growth in the number of FPs across all population groups. Over the years (2009–19), the percentage of FPs classified as white and coloured increased from 39.2% to 43.7% and 1.0% to 3.6%, respectively. However, black FPs remained at a similar proportion from 35.8% to 35.1%, while Indian FPs reduced from 24.0% to 17.5%. The gap between numbers of FPs in different population groups has widened over time and there is a significant difference in the median numbers (White 191, Black 152, Indian 79, Coloured 16, Other 15, $P < 0.001$) (Supplementary Fig. 7).

Distribution of family physicians in public versus private sector

In 2011, 45.4% of the FPs were in the public sector and by 2015 this proportion had dropped to 32.9%, presumably as a result of grandfathering of FPs working in the private sector. This represents a growth of 35.9% (from 153 to 208 FPs) in the number of FPs in the public sector between 2011 and 2015. If this growth were

maintained, then in 2019 there would be 283 FPs in the public sector, representing 29.2% of the total and with an overall public: private split for South Africa of 3:7.

Supply pipeline of family physicians since 2007

Figure 4 represents the number of new FPs entering into the South African workforce over a period of 10 years (2008–19) and the number of new registrars entering the training pipeline.

Between 2015 and 2019, the average number of new registrars per university grew from six to seven. The average number of new FPs increased from two per university in the period 2010–14 to three per university in the time period 2015–19. The current pass rate in the national clinical exit examination was 45% in 2019, which is low, but has improved from a low of 30% in 2017. In terms of the capacity to train new FPs, only 45% of the accredited post-numbers (the supervisory capacity of programmes as accredited by HPCSA) are actually funded and filled registrar posts in the health system.

Discussion

South Africa has 0.16 FPs per 10 000 population, which compares with a range of 4.3–12.0 per 10 000 population in high-income countries and 0.2 in Brazil or 1.2 in China (21). Models of primary care in high-income countries are often FP led, which requires higher density (22). In low- and middle-income countries (LMICs), with nurse-led teams, the need for first-contact primary care by FPs is reduced (23). On the other hand, FPs are needed to support these teams and to deliver services at district hospitals. There are no agreed norms for the density of FPs in LMICs and recommendations range from 3.0 per 10 000 to ‘a family doctor for every family’ (10).

South Africa has insufficient FPs, particularly when the maldistribution between public and private sectors is taken into account. In South Africa, the public sector caters for approximately 80% of the population (8) and yet only 29% of FPs are found there. Reasons for this may be historical and include both pull and push factors. Many of the FPs that grandfathered onto the register originally trained in and came from the private sector. More recently, qualified FPs may be pushed out of the public sector by a lack of posts and pulled into the private sector by better working conditions. The proposed introduction of national health insurance may also make FPs in the private sector more numerous but also more accessible to the general population (24,25).

In this situation, the SA Academy of Family Physicians has suggested a short-term goal of one FP at every district hospital as well as every community health centre or sub-district (10). This implies a short-term need for 680 FPs in the public sector (254 district hospitals, 321 community health centres and 104 sub-districts with no community health centres) and a gap of 399 FPs. If all new graduates entered the public sector, it would currently take 18 years to fill this gap. The Victoria Falls declaration on scaling up family medicine training in sub-Saharan Africa recommends that 40–60% of all medical graduates train in family medicine in order to strengthen district health services (26).

A recent study of graduates from one university found that 52% were in the public sector, 25% in the private sector and 23% had a mixed practice (27). Such mixed practice is common in rural areas where FPs in the private sector also provide services at the local district hospital. If we extrapolate these findings to the country, then we would need to train 767 FPs over the next 10 years to meet the public sector gap. These estimates need to be further modified as 20% of FPs emigrate over a 5-year period (27), and the demand for South African FPs in high-income countries is increasing (28). This implies that each medical school on average would need to graduate 10 FPs per year. Assuming a throughput rate of 50–80% over 4 years each programme would need to intake 12–20 new registrars per year.

It appears that the cohort of grandfathered FPs were predominantly white men and are now approaching retirement age. The new generation of FPs appears to be more diverse, particularly among the younger men, and there is also an increase in the number of women in training, which reflects the demographic changes in undergraduate medical education. Some of this transformation in population groups, however, may be due to foreign doctors entering the register from countries such as Nigeria and the Democratic Republic of Congo. There is still a considerable mismatch between the demographics of FPs and the SA population.

Final year medical students have a high awareness of family medicine as a speciality, but only 7% may consider it as their first choice (29). Students recognized the potential contribution of family medicine to the health system, but were not personally interested in it or saw it as too demanding. Although undergraduate students are now exposed to family medicine, the discipline needs to promote itself more effectively.

It is possible that the lack of public awareness and prestige for the discipline could also influence doctors’ career choices.

Predominantly rural provinces have attracted fewer FPs due to a variety of push and pull factors with regard to living environments, working conditions and development opportunities (30). Some provinces have made a policy commitment to FPs (31), while others remain ambivalent. Certain provinces that were historically disadvantaged under Apartheid remain under-developed and this is also reflected in the number of FPs. In addition, the provinces with the stronger training programmes have employed higher numbers.

Limitations

The HPCSA data did not provide information on whether FPs were in the public or private sectors, and this had to be estimated from data collected during a research study in 2015. Likewise, there was no information on whether FPs originated from SA medical schools or elsewhere.

Recommendations

Human resources for health policy needs to be clear on the roles of the FP in the health system, set clear targets and ensure the necessary number of training and FP posts in the public sector. The short-term goal outlined above requires provinces to substantially increase the number of registrar posts (50–80 per programme over 4 years) and the number of public sector FP posts (5 per province or per programme per year). Over 10 years, this should enable us to achieve the minimum short-term goal, but it is likely the country will require additional FPs to fully support the requirements of quality service delivery.

Ongoing attention must be given to the multiple factors influencing the output of new FPs and include advocacy for the discipline, planning for the new internship programme, training of clinical trainers and examiners as well as enhancing research supervision.

Conclusion

South Africa has an inadequate supply of FPs to meet the needs of the health system. There is a need to not only enable greater numbers of doctors to train as FPs, but also encourage more interest from historically disadvantaged population groups and female doctors. There are substantial inequalities in density of FPs between provinces and public and private sectors. Availability of FPs (in optimum numbers) can play a crucial role in safeguarding and ensuring universal health coverage to the population of South Africa.

Supplementary material

Supplementary material is available at *Family Practice* online.

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Declaration

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Conflict of interest: Prof. Bob Mash is currently President of the South African Academy of Family Physicians and therefore an advocate for the discipline of family medicine.

Data availability

The data underlying this article were provided by the Health Professions Council of South Africa. Data will be shared on request to the corresponding author with permission of the Council.

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