



Implications from a medical specialist need model for different HRH stakeholders

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1. Introduction and key findings

Percept was asked by Discovery Foundation to produce a projection model of the supply of and need for medical specialist resources in South Africa. The model was commissioned with a view to inform Discovery Foundation in its decisions on the funding of medical specialist training. It therefore does not explicitly take into account interaction with other healthcare cadres and vertical task sharing and shifting.

The project focused on 26 specialties and 44 sub-specialties. Data on only the general specialties are reported on in the main report while projections for the sub-specialties are available from the Excel model. It was the first model to forecast the need for medical specialist that includes both the public and private sectors and takes into account the inter-dynamics between the two sectors.

The model uses base data for the 2018/19 financial year from several datasets (HPCSA, BHF, Persal, Colleges of Medicine and universities) that reflects the age, sex, sector of employment and full- or part-time status for each specialty. The model then projects from 2020 to 2040 using actuarial population modelling techniques (decrement modelling) to rigorously allow for entry to, exit from and transitions between sub-groups within the model. The exits include emigration, retirement and death. The model uses in-migration (although this has initially been set at zero) and the specialist training pipeline (registrars) to estimate the supply of specialists going forward, based on current university and fellowship examination dynamics.

The following key *general* findings emerged from the model and the work informing it:

The baseline data (2019) of the model shows that currently in SA there are 7 specialists per 100 000 population in public sector and 69 in private sector with an average national level of 16.5 per 100 000. This is low relative to other upper-middle-income countries.

- In 2018, there were an estimated 9,731 Specialists (FTEs) which is considerably less in comparison to other studies undertaken in SA namely, SAHR 15,008 (2015), HPCSA 12,776 (2018) and Econex 10,585 (2012). However, these studies followed a headcount methodology, and did not account for those who may be working in both private and public sectors or who were no longer active in the system.
- By 2019, the country only managed to meet the targets set out in its HRH strategic plan for five of the specialisations: family medicine, ophthalmology, psychiatry, radiation oncology and urology. However, this includes the subspecialist population and all private sector specialists. We also know that these targets were conservative at the time and therefore these may not be a useful benchmark.
- Overall, the number of specialists is expected to more than double by 2040- but that still falls way short of South Africa's need.

Other more specific findings and their implications for funders are explored in the sections below.



2. Implications for Discovery Foundation

The following implications for Discovery Foundation given its original project mandate emerge from the model and its projections:

- Discovery Foundation should continue to support the funding of medical specialists: while there is a much higher relative availability of medical specialists in the private sector compared to the public sector, South Africa's overall average specialist ratio (across both sectors) is low compared to other countries of similar development levels and there also exists shortages for even certain private sector specialties.
- The model finds a clear pattern of feminisation of the health sector in the specialist projections. There are clear differentials in male/female specialty preferences. These choices have the potential to skew the available specialties in future, although this will be constrained by the availability of registrar posts. It is therefore recommended that **Discovery Foundation support specifically female candidates in specialties that have traditionally been known as male-dominated specialties** to prevent future specialist shortages in these specialties. Discovery Foundation may also be interested in supporting work around the breaking down of gendered specialist stereotypes and in making primarily male specialties more accessible to women.
- By 2040, **cardiothoracic surgery, forensic pathology, neurosurgery, otorhinolaryngology, radiology, public health and surgery** still show a deficit against the target despite an overall doubling of the number of specialists. **It is recommended that Discovery Foundation considers funding specialty training in these specialties.** It is notable that these specialties are historically more male-dominated and poor achievement of these targets is mostly likely driven by feminisation of the sector and the need to encourage the selection of surgical specialties amongst women. Based on our analysis, these specialties require the most urgent attention. **Efforts are also required to improve the physical infrastructure to support surgery in the public sector.**

3. Implications for medical schemes like Discovery Health

The study and model holds various implications for health system funders (medical schemes) in thinking about the availability of medical specialists but also HRH in general to service their members:

- The study finds a low availability of medical specialists in the public sector compared to a much higher availability in the private sector. South Africa's overall specialist ratio is low and there are even shortages compared to international ratios and thresholds in certain private sector specialties. **It is in medical schemes' long-term interest to continue to engage with policy makers on the need for the expansion of the specialist (studying) pipeline at both the undergraduate and postgraduate levels.**



- A large proportion of medical specialists (at least 35%) work in both sectors. The availability of private sector specialist expertise is thus enabled by a system that allows public sector specialists to conduct private sector work. **It would be in health system funders' (medical schemes) interest to support the RWOPS system (support government in ensuring it functions smoothly).**

4. Implications for the National Department of Health and the South African government

The absence of effective planning is evident in the dire shortage of physicians, the collapse of certain specialist services and a disjoint between the training platform and the public service.

The model included a review of best-practice HRH planning experiences which showed a need for more research on HRH planning processes in countries more comparable to South Africa, e.g. other African or other middle-income countries. Available information on how to go about HRH planning is dominated by insights from the experiences of high-income countries. However, international best practice is well within the reach of the South African health system.

As we move into NHI, with all its requisite policy changes and system reorganisation, we have a unique opportunity to correct these issues. Effective HRH planning will be central to the NHI Fund being able to carry out strategic purchasing functions and to remedy inequities in the distribution of resources. We, now more than ever, need HRH modelling that is able to both reflect changing policy and support policy choices.

The needs of the planning environment in South Africa, coupled with the lessons from international best practice outlined in the literature review, inform the following recommendations to the National Department of Health and the South African government:

- **A regular HRH planning process** needs to be institutionalised, including both the public and private sectors. We recommend the establishment of a separate health workforce planning agency. The establishment of a body tasked with ongoing planning would create a structure within which data can be housed securely.
- From the experience of other countries, it seems clear that **an inclusive approach, bringing in key stakeholders and experts, is the gold standard for HRH planning.** The inclusion of higher training institutions to ensure greater coherence between the training platform and the service-delivery platform is crucial.
- All data and outputs from this process need to be publicly available and open to scrutiny, and recommendations flowing from this process need to be integrated into the management of the health system.



- Our recommended approach to HRH modelling is **an estimated gap model** that pays careful attention to the need, and not just the demand, for health services. While it may be useful to start with medical specialist modelling, ideally modelling should reflect all cadres of health workers given the policy imperative for multi-disciplinary service delivery. The use of scenarios is recommended to enable the exploration of the impact of policy choices and interventions to address shortages.
- The inequity between the public and private sector is projected to persist and this requires **specific policy intervention to increase first doctor numbers overall and then specialist numbers overall** and to ensure greater specialist availability in the public sector and specific parts of this sector.
- **Shortages of anaesthetists and surgical specialties in the public sector** has far-reaching consequences and a short- to medium-term solution needs to be determined to increase availability and access to these skills.
- The baseline data informing the model, matched across both the public and private sectors, shows that 35% of public sector specialists are currently engaging in RWOPS. It is not clear what proportion of these specialists are registered to do so. It is recommended that **a thorough review of the RWOPS system and specialists registration on RWOPS be undertaken.**
- **A centralised HRH (including specialists) database should be established** to include professionals in both the public and private sectors and should reflect all cadres of health workers. A simple initial change that could aid HRH planning substantially is to **capture more data on health workers in the PERSAL system (for example, RWOPS status and academic qualification).**
- A health-worker census would more meaningfully capture full-time and part-time dynamics, as well as the intention of health workers to leave South Africa.
- It is not clear from the data how many specialists are lost to the South African health system due to emigration. The model had to rely on estimates from literature that draws on estimates on emigration intentions and it is likely to overstate emigration. Thorough work using various alternative data sources is required to arrive at reliable estimates of both doctor and specialist emigration so that the South African health system has a clearer idea of what proportion of physicians it is losing over time and can put in place mechanisms to retain doctors.

5. Implications for the funders of HRH work

There are a range of ways in which the existing work can be taken forward to support the urgent health system reform that is currently underway. The first would be to do **a deeper dive into medical specialist modelling.** This would involve:

- Adding a geographical overlay;
- Adding a costing module;



- Doing further stakeholder engagement and research on the target ratios, and on the epidemiological projections that drive need; and
- The development of a meaningful set of scenarios for each specialty.

The second would be to extend the work to other cadres of healthcare workers. There is an urgent need for similar work to be done for **general practitioners (GPs) and nurses** – with the ultimate aim of also incorporating **pharmacists, dentists, occupational therapists, physiotherapists and other allied health professionals**. The medical specialist model was constructed in isolation and it is necessary to move towards a broader HRH planning process that provides the same level of detailed thinking and detailed data link and analysis also to other health cadres. The effort taken to build a rigorous mathematical model should be leveraged for other cadres. By using the same modelling techniques, the sector can ensure that HRH planning stems from the same theoretical, mathematical and philosophical constructs.

Thirdly, support the National Department of Health and the South African government in implementing the recommendations that apply specifically to this stakeholder grouping.

6. Conclusion

The medical specialist planning model, the data which informs it and its project hold implications for different stakeholders in the South Africa HRH space as well as for the larger South African health system reform and successful implementation of NHI.



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