EDITORIAL

Creating opportunities for Cardiology training in South Africa

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CURRENT STATE OF AFFAIRS IN SOUTH AFRICAN CARDIOLOGY TRAINING

South Africa continues to see a rise in the prevalence of cardiovascular disease, as is the case for many low- to middle-income countries. This growing cardiovascular disease burden, combined with rapidly evolving treatment modalities, requiring the acquisition of novel skills by practitioners, places an ever-increasing strain on the country's limited number of cardiologists.

Current estimates suggest there are approximately 195 registered cardiologists in South Africa, equating to just 3.3 cardiologists per million people which compares poorly to the situation in other low- to middle-income-, not to mention high-income countries. Of particular concern is that the number of cardiologists has not increased significantly since 2016, while the demand from patients and hospital groups have increased.[1,2]

The majority of South African cardiologists are based in the private sector (> 85%) (Figure 1), where they endeavour to meet the demands of around 9.8 million people (15.8% of the population) with predominantly mostly private medical insurance.[3] A very small proportion of the national pool of cardiologists are based in the public or academic sector, where they face the dual responsibility of providing cardiology services to more than 50 million South Africans, and of training the next generation of cardiologists and allied healthcare workers involved in cardiovascular services. Unsurprisingly, the small number of trainers in the public service, coupled with a small number of national training numbers, have been major stumbling blocks in the drive to successfully address the unmet need to increase the number of cardiologists nationally.

A critical constraint has been the limited number of consultant posts in the public sector (Figure 1). Due to the Health Professions Council of South Africa (HPCSA) regulation that allocates two

Figure 1: Cardiologists and specialist registrars in South Africa

registrar training numbers for every full-time consultant post, the shortage of consultants directly limits training capacity. Furthermore, a number of the currently occupied specialist registrar positions are unfunded by government (supernumerary), instead, relying on external or self-generated revenue streams. Currently we have 34 specialist registrars in training, this would suggest that we can expect the addition of around 10 newly qualified cardiologists per year. If we evaluate the College of Medicine of South Africa's (CMSA) yearly outcome in the certificate examinations, it is clear that we fall well below this mark. The reason for the discrepancy is likely multifactorial, but it highlights the need for quality training opportunities in an environment that is conducive to success at the end of the 3 year training period.

The problems of adequately staffing cardiovascular services are not unique to adult cardiology, extending also to include disciplines such as paediatric cardiology, cardiothoracic surgery and various allied healthcare services including cardiac technologists and perfusionists to name some. Faced with these disheartening statistics, we must ask ourselves how we go about expanding quality training opportunities for future cardiologists in South Africa?

WHAT ARE THE COMPONENTS OF A QUALITY TRAINING PROGRAMME?

A high-quality training programme rests not only on skilled human resources, but on a robust ecosystem comprising adequate infrastructure, sufficient patient volume, and access to research opportunities. Key components include:

- A structured curriculum covering core domains such as clinical cardiology, interventional procedures, imaging, electrophysiology, heart failure, and preventive cardiology.
- Extensive supervised clinical exposure to a broad spectrum of cases and diagnostic modalities.
- Hands-on procedural training in coronary interventions and device implantation.
- Opportunities for academic development and participation in research.
- Access to dedicated mentors who provide consistent guidance, feedback, and support.

The cardiovascular ecosystem, including access to specialist investigations and treatment modalities including catheter laboratories and echocardiography services, are broadly present in the South African public sector, although not necessarily equally distributed. However, where the system is particularly lacking in capacity is perhaps surprisingly, in the category of human resources. A large stumbling block in addressing this constraint remains funding, where the trend over the last 2 – 3 decades has seen funding of infrastructure and primary health, diverting funding away from human resources at sub-specialist level, including cardiology.

WHO SHOULD BE TRAINING FUTURE CARDIOLOGISTS?

At the heart of any training programme is mentorship. Effective training requires supervisors with the skills, time, and passion to guide trainees. Given the limited number of cardiologists in the public sector, we must consider broader inclusion—cardiologists in private practice can help expand training capacity further. Many private cardiologists already contribute to training via teaching forums and part-time affiliation with academic units, often without compensation. Various special interest groups within SA Heart®, supported by industry partners, utilise both sectors to further specialist registrar training and have become an important cog in the training machinery, assisting with cardiology registrar education and training. Strengthening this collaboration is crucial to expanding capacity and improving training quality going forward.

HOW DO WE CREATE MORE TRAINING OPPORTUNITIES?

To create more opportunities, we must expand the ecosystem that includes infrastructure, human resources and research opportunities. First and foremost is the need to increase the number of consultant posts in the public sector, as any increase in capacity should branch from here. Also, we need to ensure that academic careers remain attractive and fulfilling so that high quality trainers choose to remain in the academic/public health training system. Low numbers of consultants in training units create fragile units without redundancy and we have seen several units in the country being severely affected with 1 or 2 core individuals moving on to new opportunities. Cardiology units take a long time to build capacity and without also building redundancy, training centres will not be robust enough to weather temporary change. Currently, the government is the major funder of consultant cardiologist and specialist registrar posts, with universities contributing to a lesser degree. The South African public sector wage bill has attracted significant criticism from various sources. This has led to decisions from healthcare departments to freeze consultant posts, with a subsequent decrease in the number of employed academic/public sector cardiologists. Universities have faced similar financial constraints, so that with both major funders reluctant to increase their human resource expenses, we face an uphill battle. A criticism often levelled at healthcare in South Africa is that it is fragmented, and academic units are certainly not protected from its own form of resource fragmentation where specialists are torn between the different priorities of service delivery, training and research. Increasing post numbers is really the only way to maintain the breadth of academia.

In a system with limited funding, it remains important that all roll players function in harmony and take collective responsibility to maintain physical and human resource infrastructure. The reality is that without service delivery, training and research will always be limited. The other side of this coin is that training and research improves service delivery. Only by investing in research that is locally relevant and adjusting practise through training can we change our local disease landscape. It is important that both universities and government set clear targets for academic units, with incentivising in the form of additional or ongoing funding for systems that achieve targets in infrastructure building and human resource development.

The next step is to address the elephant in the room. Cardiology units in South Africa need more resources if they are to train more cardiologists. Although we, as a community, must continue to lobby government and universities for more funding, it is unlikely that these sources alone will bridge the currently required funding gap. Cardiology training units will have to generate independent (third stream) funds to expand infrastructure and staff. One strategy that has proven successful, is the creation of PhD programmes via grant funding. Although PhD candidates spend the majority of their time conducting research, they do provide important support both in terms of training and research support of specialist registrars, an important component of maintaining the research momentum in a unit. In addition, PhD candidates have the potential to generate significant funding which may assist in developing career paths for cardiologists planning to follow an academic career. Also, private practitioners can play a critical role in supporting academic units on a part time basis through offering time and skills where resources are poorest.

Private sector support is essential to increasing opportunities for training. Industry already contributes significantly to the training of specialist registrars through a number of programmes, and recently, private sector partners and philanthropic organisations have increased funding with a view to improving the manpower shortage at various post levels with a view to expanding training opportunities. It is important that these strategies are supported and that we involve industry further to maximise benefit for all, industry included.

Any cardiology unit can suffer from a rapid succession of manpower losses and may need an increase in support in one or more areas. We need to take collective responsibility as a cardiology

community to ensure that all units remain functional – it is easy to cut down a tree in a day, that has taken years to grow. Healthcare departments, universities and the private sector should work together to prevent the loss of functional training units.

It is important that we provide specialist registrars with quality training and a positive environment during their years of training. This will encourage them to either remain in the public sector after completion or to remain involved in supporting public cardiology systems through training and service delivery within the public sector on a part-time basis for the good of the greater cardiology community. Although private cardiologists already support training of specialist registrars via multiple forums, we do believe this may be an avenue that can be further developed as a lot of expertise resides in our private cardiology corps.

DIFFERENT MODELS

Different models have been considered for training cardiologists. The most common is where training is limited to academic units, as is largely the case in South Africa. Although a purely private training model, similar to the private schools' model, has been considered, it is unlikely to realise soon. A hybrid model, where training in academic units is supported by private cardiologists and where trainees spend some of their training time in private hospitals, are starting to develop. This has been successfully implemented in the training of electrophysiologists and advanced interventional training programmes – particularly in the field of structural heart interventions. Academic units and private practices often have different strengths and by exposing specialist registrars to both environments, we may enhance the quality of training while expanding our training capacity. This hybrid approach may also address the problem of limited caseloads in certain areas of cardiology in the public sector. The hybrid model will require brave leadership to ensure success and mitigate the potential risks.

The time has come to align our goals and our resources to achieve something that will benefit all. Creating additional opportunities for training will require additional investment from government, universities and the private sector. This investment will not only increase training capacity, but will significantly improve the access and quality of care of patients in the public sector.

It is time that we all synchronise our goals, priorities and efforts in the training programmes we develop. If all the segments of our community pull together, in unison, we will have resynchronised our training programme and created a realistic expectation of increasing the output of well-trained cardiologists for South Africa, even given a resource-limited setting.

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