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# Cardiothoracic surgery training in South Africa: Where to from here?

Standing in the operating theatre and seeing a heart's function improve after replacing a stenotic aortic valve, or repairing an incompetent mitral valve or revascularising obstructed coronary arteries is an amazing experience. Very few people have the opportunity to see a heart come to life when we remove the aortic cross clamp after cardiac surgery. Blood flushes the cardioplegia out of the coronaries, the myocardial cells fuel its sodium, potassium and calcium pumps from the life giving blood, and the heart starts beating: a miracle we get to witness every day.

But there's more...a blue child, 2 years old, with Tetralogy of Fallot comes into theatre, his cyanotic fingers and toes are clubbed and the saturation monitor reads 76%. For the next few hours his heart gets an overall; closure of a previous Blalock Taussig shunt, widening the pulmonary outflow tract and closure of a large ventricular septal defect. When the surgical drapes are removed, the pink fingers and toes bring a smile to your face and the saturation monitor beeps a happy 99%. Another miracle...

Cardiothoracic surgery is such an interesting field. We see the anatomy, physiology and pathophysiology of the heart and lungs on a daily basis. We are able to change patients' lives and the results are very rewarding with very grateful patients. Why then are junior doctors not flooding through our doors to apply for Cardiothoracic Surgery (CTS)?

In the United States there has been a steady decline in the amount of applications for CTS training since 1994. So much so, that by 2007, a third of their cardiothoracic training positions could not be filled.<sup>(1)</sup> In our department, in spite of very good examination and training outcomes, we also experienced a steady decline in the number of applications for advertised registrar posts. This makes the pool smaller from which we can choose suitable candidates for training.

According to a survey in the USA, the main reason why surgery residents are not choosing CTS is a concern for job security when they qualify.<sup>(2)</sup> There simply is not enough work for qualified cardiothoracic surgeons. Percutaneous interventions, performed by cardiologists, have decreased the amount of cases being referred for surgery. On the bright side, this surplus of cardiothoracic surgeons could be temporary.

A manpower study in the USA predicted that the need for cardiothoracic surgeons will decrease from 1.3 per 100 000 people to 0.9 per 100 000 in 2020.<sup>(3)</sup> With the population growth and the increasing aging population, combined with an increase in cardiovascular disease, we could see a shortage of cardiothoracic surgeons in the next 10 to 20 years despite increased percutaneous interventions.

In South Africa CTS also have some of the problems of the USA and other first world countries but we also face different challenges. The private sector, comprising about 23% of the population, has a number of surgeons and this pool stays relatively constant. The private sector, as in the USA, is saturated with cardiothoracic surgeons. It is very difficult for a newly qualified cardiothoracic surgeon to enter this job market.

All the training facilities in our country are in the public sector and rely on government funding to deliver a cardiothoracic service to 77% of the population and to train registrars. Training facilities have been severely affected by budgetary constraints. In this current financial year some of the provinces started off with a huge deficit that will surely influence the more costly surgical specialties like cardiothoracic surgery.

Some units in the country do 50% or less of what they did 10 years ago. A severe shortage of nursing staff, especially ICU trained nurses, across the country also limits cardiothoracic units' capacity. Our department has not increased its capacity in the last 15 years, mainly because of budget constraints. The numbers do not add up. With the increased population in the Western Cape, our capacity should have increased accordingly. We do feel the pressure on our waiting lists and there must be a large number of patients who never get to our department via the primary care facilities.

The quality of training of a cardiothoracic surgeon depends heavily on the amount of cases a candidate performs and assists in. It is therefore very important for a candidate to work in a busy CTS unit where he can gain this experience under the supervision of senior specialists. The current problem of CTS units with low numbers will in future influence the quality of training of cardiothoracic surgeons, unless the

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units regain their previous capacity. This is not only necessary for adequate training, but also for quality of patient care. As an examiner for the College of Medicine since 1992, I feel that the quality and depth of knowledge of candidates who sit for their final examination in CTS have steadily declined over the years. The main reason is that candidates who present themselves, lack surgical experience.

The government needs to decide urgently on whether they still want to have a quality CTS service in this country. If this is the case, as it should be in any quality health care system, they must empower the cardiothoracic units in this country with adequate budgets. Every CTS department should have the capacity to deliver a quality service to the population in their respective service area. This means a realistic waiting list. The true need for the amount of cardiothoracic surgeons in the public sector will only be realized when each unit works according to its required capacity. This will create more state-funded specialist posts and opportunities for junior and senior specialists to have a career path in CTS. It will also improve training conditions for registrars.

This could be possible via a unified front by all the heads of CTS departments coordinated by possibly The Society of Cardiothoracic Surgery. Once a realistic, workable budget for a department is calculated it will be very easy to adapt it to every department in the country. Another issue that requires urgent consideration is the total number of registrar posts in South Africa as well as the ratio between cardiac cases done in a specific unit and number of registrars. Medical officers could supplement a department by helping with the workload. They gain valuable experience in CTS without taking away surgical cases from a training registrar. This also gives young doctors the opportunity to get exposure to CTS that could lead to a career in CTS. Fellowship programs can help with medical staff shortages but fellows can compete with registrars for surgical experience.

Unfortunately there is currently no central control over the training of registrars. The HPCSA is only concerned with registration after training. The Colleges of Medicine/Cardiothoracic Surgery are examining bodies and have no statutory influence on the training of students. The universities are protected by law and can, in fact, run their own examinations as long as they have a registered course for that examination. The only remaining possibility is the Society of Thoracic Surgery.

Can we rekindle the interest of more young doctors in cardiothoracic surgery? Only if we can assure them of adequate training and job security when they qualify. It is imperative that we do this now to ensure a generation of cardiothoracic surgeons that are also fascinated and enthusiastic about their profession when we are retired and need some work done on the old ticker.

## REFERENCES

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