RACS NSW Medical Student Award

Annual Essay Competition 2020

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**Describe your vision of sustainable surgery:**

In 2007 an earthquake struck the Australian medical training system. The ripple effect of seismic policy activity was a tsunami of medical students flowing in and out of campuses around Australia[1]. This earthquake was manmade, in the hope that the subsequent tidal wave would wash over the cities and flow down the rivers into regional Australia.

Fifteen years on and I am the Department of Health's ideal water droplet; a bonded medical student, graduating from a medical school that was funded in the 2007 earthquake. As a recipient of multiple rural health initiatives my Sydney launching point flowed down the Murrumbidgee River and settled on the banks of Wagga Beach. In Wagga Wagga I am confronted with the immense dichotomy of this tsunami; surrounded by a stagnant pool of junior doctors existing in a medical training system that does not yet have the sponges to soak them up. Simultaneously, it is not uncommon to meet patients with terminal or severe chronic illness that is directly related to a shortage of qualified specialists. My vision of sustainable surgery in Australia is one where every person has timely access to quality surgical care regardless of their postcode or socioeconomic status. It is one where the medical student tsunami is utilised not to create a stagnant pool, but to water the drought stricken lands of rural and regional Australia through the creation of a sustainable surgical workforce.

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It is well known that Australians living in rural and remote areas have significantly poorer health outcomes than their metropolitan counterparts and that these health outcomes worsen with increasing remoteness[2]. In 2017, the rate of preventable deaths was 2-3 times higher in remote areas than in major cities[2]. Many of these preventable deaths are accounted for by poorer access to health services resulting in either delayed diagnosis or delayed treatment[3]. As an example, whilst Australians in remote areas are less likely to be diagnosed with cancer, for those that are, their 5 year survival rate stands at 55%, 7% lower than city-dwellers[2].

The causes of geographical disparities in health outcomes are multifactorial, however, the limited availability of medical professionals, in particular specialists such as surgeons plays a large role[3]. Intuitively, geographical distancing should result in a greater number of doctors as a proportion of the population in rural and remote areas yet the opposite is true[4]. The full time equivalent (FTE) rate of specialists in metropolitan areas remains steady at 143 per 100, 000 people[4]. This declines to just 60 per 100, 000 in regional areas and 22 per 100, 000 in remote areas[4]. With regards

to surgeons, although 29% of the Australian population reside in rural and remote areas just 15% of surgeons work exclusively in these areas and only a further 15% work in regional areas in addition to their metropolitan base[5]. For most of the latter, this is outreach work completed just once a month[5]. According to the Rural Division of RACS NSW, nearly half of all new rural surgeons are international medical graduates and this is the direct result of the current Australian training pathway failing to keep up with workforce needs[6]. In this climate, the burden of overcoming geographical distance falls on the individual patient. Placing such a burden on an already disadvantaged population is a tremendous failing of our health system that is unsustainable in the long term should we choose to recognise the current health disparities as unacceptable and in need of redress.

One of the strongest arguments against regional and rural surgery stems from the relationship between surgical caseload and clinical outcomes. The research clearly shows that the more frequently a surgeon performs a particular surgery, with the same or similar approach, the lower the complication rate[7]. This argument is certainly compelling. It seems counterintuitive for a patient to have their Whipple's pancreaticoduodenectomy performed locally or within driving distance by a rural general surgeon who might only do such a procedure once or twice a fortnight when there is an option to instead travel to the nearest tertiary centre and have the surgery completed by a sub-specialist in Upper GI malignancy.

This approach to the issue is highly paternalistic in nature and fails to consider the values of an individual patient. Current research shows that rural patients are willing to accept a significantly increased risk of surgical complications for the opportunity to have their surgery completed locally[8]. Further to this, the more we allow rural surgeons to practice surgery the greater their own caseload and thus the better the outcomes[7]. This is pivotal in the event that a rural patient cannot or will not travel. There is perhaps no greater demonstration of the need for surgeons permanently based in rural areas than the catastrophic bushfires this past summer. In this environment patients were unable to be transported to metropolitan centres via road or air and were thus reliant on the services available in their own region. In addition to this, many rural and regional patients choose to forgo treatment if it involves travelling too far from home[9], especially those who are palliative for whom creature comforts, family and access to primary carers are valued far more highly than medical procedures[9]. To deny these patients the opportunity to have their quality of life improved by the removal of an obstructing gastrointestinal tumour or the repair of their fractured neck of femur would be a great injustice. Finally, this consideration of complications fails to take into account the unfortunate event that a complication does arise in a rural patient after they have returned home. A patient suffering a catastrophic bleed post-tonsillectomy should have a much greater chance of survival if they are in close proximity to the ENT surgeon who performed the procedure than if they are many hours away.

It is understandable that rural and regional Australians do not have close geographic access to the same level of surgical care as their metropolitan counterparts. There are surgical sub-specialties such as paediatric cardiothoracic surgery that do not

have the population need to be based in more than one or two hospitals per state, in which case it would be nonsensical to offer this outside of a major metropolitan centre. My vision of sustainable surgery is not one where we are performing paediatric heart transplants in a town of 3000 people but rather a surgical workforce that is sufficient in number and distributed appropriately to meet population needs. This means that patients have fair and reasonable waiting times based on clinical need and that these waiting times are consistent between population groups. It means that patients have equal health outcomes regardless of their postcode and that we utilise our current glut of junior doctors to meet these population needs and stem our reliance on attracting an overseas trained workforce.

It goes without saying that if achieving this vision were simple, the current shortages and associated challenges would have been corrected long ago. It is therefore essential to consider the barriers preventing a sustainable surgical workforce. These barriers and their accompanying solutions can be divided into three categories: meeting population needs through trainee numbers, attracting applicants with a pre-existing rural interest and generating and/or maintaining a rural interest amongst current SET trainees and surgeons.

As it currently stands, trainee numbers are principally dictated by terms beyond population need such as funding, access to senior supervising surgeons and the availability of jobs for SET trainees[24, 27]. This has resulted in a fragmented system where a few surgical specialties are producing an excess of fellows who struggle to find employment whilst other specialties are experiencing a stagnation or decline in numbers[10, 11, 12]. In 2018 just one applicant was accepted into paediatric surgical training[13] in Australia and no applicants were successful in 2019[14] despite a nationwide shortage of paediatric surgeons and a reliance on an overseas trained workforce to fill even the most stereotypically 'competitive' jobs in major metropolitan hospitals[15, 16]. General surgery is another surgical specialty, which according to Health Workforce Australia does not have sufficient trainee numbers to meet the population need[15].

Although counter intuitive, it may be the case that increasing trainee numbers has a detrimental effect on the number of rural surgeons. The principle purpose of increasing trainee numbers is to flood the system such that there are more fellows than available metropolitan jobs and the overflow are forced rurally in order to gain employment. The downside to this method is that rural surgical positions can be perceived as inferior and a sign of failing to have the calibre of a metropolitan surgeon. When one considers that surgeons are an inherently high achieving group who have excelled within a competitive career, positioning rural surgery as inferior could create a deterrent. Further to this, rural populations deserve better than to be perceived as a sub-class, served only by those unable to work anywhere else.

Surgical specialties that have successfully increased their trainee numbers in an attempt to meet population need are still plagued with a maldistribution[11]. Although an oversupply of fellows in the city may contribute to an individual's choice to move

to a regional or rural location in search of work, it is not the case for the majority. There are significant barriers to rural practice, which result in these fellows electing to bide their time awaiting a metropolitan consultants job or work exclusively in private practice. Extensive research has been conducted into this phenomenon across all facets of medicine. Generally, the largest barriers to rural practice amongst doctors are social and professional isolation especially if a doctor has a partner who is unable to work rurally[17]. Amongst surgeons, specific barriers include a greater on call load, lack of tertiary hospital support and a perception of rural inferiority[6]. Subsequently, creating a sustainable surgical workforce involves overcoming these barriers.

Targeting selection of applicants with a rural interest is one strategy to overcome barriers to rural practice. By the time a doctor reaches the point of applying to surgical training a genuine rural interest will have declared itself; evidenced through the decision to train and work at a rural hospital, involvement in rural health advocacy and events or research. The decision by some surgical factions to incorporate rural experience into the CV component of the application can be commended as a positive first step[18]. Unfortunately for most colleges the current criteria are easily manipulated with many applicants electing to complete 12 months as a PGY3 in a rural location purely for the purpose of attaining these CV points. Looking beyond, or perhaps behind this, to consider the JMO and medical student years in addition to other rural activities such as committee involvement or research is another way of elucidating rural interest and reducing the potential for manipulation of an egalitarian system. Alternatively, a quota system with a certain number of training positions dedicated to future rural surgeons is a novel solution. A separate selection process requiring a supplemental written application and interview in addition to bonding the successful applicants to rural employment for a certain period post-fellowship would favour those with genuine rural intent. Bonding is largely considered an unpopular solution to workforce maldistribution due to changes in circumstance[19]; however, it would proactively prevent those without a genuine rural interest from applying to this pathway.

Aiding applicants with a rural interest in gaining selection to surgical training is necessary but not sufficient in attracting rurally minded doctors to surgery. Greater emphasis needs to be placed in supporting rural doctors to become surgeons and attracting them to surgical training through access to surgical education, professional development and research opportunities[20]. Rural junior doctors face greater financial and logistical hurdles in attending conferences and completing courses and exams such as the General Surgical Sciences Examination (GSSE). In an already competitive field, for some this could be the straw that breaks the camels back with regards to pursuing surgical training. Providing rural doctors with additional conference leave to accommodate for increased travel time as well as grants and scholarships to mediate the cost of travel and accommodation can abrogate this barrier[21].

Attracting and selecting trainees with genuine rural intent is just the first step on their journey to rural surgery. This interest must be maintained for the entirety of

training and further interest generated amongst those with a metropolitan focus. Rural rotations form a key component of attracting trainees to rural surgery[22]. For applicants who are already rurally minded, the opportunity to complete the majority of their training in a rural area maintains this interest and facilitates the formation of professional and personal connections in specific rural and regional communities[23]. An additional emphasis should be placed on ensuring that these trainees have the opportunity to complete terms or fellowships in metropolitan environments with a high caseload of their preferred sub-specialty interests. For example, an orthopaedic trainee with an interest in rural spinal surgery should be prioritised for a spinal term as it would allow them to bring this skill to the community they choose to work in. It is essential that trainees with a metropolitan interest have an enjoyable experience during rural secondments and are supported both professionally and socially throughout this time[24]. One of the greatest determinants of future rural practice is a positive rural experience and one of the greatest deterrents is a negative experience[24]. Anecdotally, many trainees perceive a rural secondment as a burden that must be overcome in order to exit the program. Conversely, a rural secondment should act as a sales pitch for rural surgery, showcasing its highlights and proselytising the joys of rural living in order to attract trainees to rural practice.

The creation of fellowship positions in rural and regional hospitals is another positive step towards increasing the number of rural surgeons[26]. The utility of these fellowships could be further increased by locating them in hospitals or providing them in disciplines that currently have or will have job openings immediately following the completion of the fellowship. The convenience of remaining in a stable environment would encourage the fellow to apply for available positions in that region. Similarly, placing final year SET trainees in rural hospitals with available fellowships would have the same effect in encouraging the trainee/new fellow to stay at the hospital especially if they have school aged children or a partner employed in that region.

In the case of encouraging new fellows or consultants to relocate to regional or rural areas, the greater on call load, lack of tertiary hospital support and social and professional isolation must be ameliorated. The first step is increasing remuneration to generate a financial incentive in addition to balancing increased expenditure from rural practice such as higher medical indemnity insurance rates, boarding school fees for dependents and a reduction in employment opportunities for a non-medical partner[3]. Technology is positioning itself as a crucial solution to overcoming social and professional isolation[27]. The formation of rural general interest groups in addition to online surgical communities such as #medtwitter mediate the professional isolation and the necessity of these technologies during the covid-19 pandemic has facilitated greater involvement of rural surgeons in professional circles. The most difficult barrier to overcome is undoubtedly the perception of rural surgery as inferior to highly sub-specialised surgery delivered in metropolitan environments. Unfortunately changing this perception requires a mammoth cultural change as it begins with the exposure of medical students to negative attitudes of rural surgeons by senior supervisors. Rural surgeons are often practicing in resource-limited settings and their techniques or approaches differ accordingly[28]. Rather than

understanding rural surgeons to be inferior to their metropolitan counterparts, we should encourage all levels of the medical hierarchy to acknowledge the difference between metropolitan, regional and rural practice and to appreciate that all surgeons in Australia are exceptionally trained and highly skilled with regards to their respective practice.

Australia values the egalitarian nature of its people, however surgical care in Australia is far from egalitarian. The quality of care a patient receives is highly dependent on their geographical location and socioeconomic status. This is the direct result of a surgical training system that is not receptive to population needs. In order for surgery in Australia to be sustainable we must utilise the medical student tsunami to water the drought stricken lands of rural and regional Australia.

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