

Current status of surgical training and practice: Australasian regional perspective

Divya Dara*

Department of surgery, university of Melbourne, Australia

Review article

Please cite this paper as: Dara D. Current status of surgical training and practice: Australasian regional perspective. AMJ 2023;16(3):582-584

<https://doi.org/10.21767/AMJ.2023.3945>

Corresponding Author:

Divya Dara

Department of Surgery,
university of Melbourne ,
Australia

divyadara523@gmail.com

Introduction

Australasian region has unique geography and demography. In term of medical services including surgical treatments the challenges that are faced in the Australasian regions are also unique. Surgical treatments requires clinical expertise backed by extensive training, technological development and expertise gained over years of practice. Additionally clinical research also facilitates customised approaches and accurate treatments with consistently positive outcomes. This review summarises information on surgical training, service and practice from recent and relevant studies that are focused on Australasian region. This study provides a concise view of the status of surgical dimension of clinical practice while suggesting some aspects that need attention for overall improvement in health care delivery.

COVID-19 and subsequent pandemic restrictions has impacted several facets of healthcare and healthcare delivery, including biomedical experimentation, clinical practices and surgical training. The COVID-19 pandemic has posed an enormous challenge to the surgical training bodies all across the world including the Australasian region, as they had to strike a balance between mobilising the frontline surgical resident workforce and safeguarding trainees. The threat posed by the pandemic and limitations imposed thereby have challenged the surgical trainers in terms of imparting effective training, assessment, and selection. The demands for healthcare professionals are met by the supply of qualified, well-trained, and skilled clinicians from the academic systems. This defines the

interrelationship between healthcare and the healthcare education system. A recent study has emphasised the need for continued training, assessment, and progression of the residency schemes despite adverse pandemic-induced circumstances to ensure the continued supply of a world-class, competent surgical workforce. This study reviewed the impact of pandemics on international surgical training and suggested strategies to mitigate the effects¹. The study revealed that residency programmes in the USA, Australia, and New Zealand in fact remained unaffected by the pandemic. For example in Canada, face to face interviews were conducted via online networking resources. In the UK, the self-assessment protocol was implemented for evaluation of the trainees. However, it has to be noted that the surgical board examinations were either postponed or cancelled, and the methods of training and certification were converted into online mode.

The Royal Australian College of Surgeons places great emphasis on scholarship and teaching to maintain competency in surgical field. The training board generally relied on the metrics as part of the assessment process. The college identified the academic surgery as a life-long commitment. It expects the academic surgeons to acquire and integrate research and education into their training and experience and make them an integral part of their career. This would enable the surgeons to judge better and improve their skills. The Board of Paediatric Surgery is a training board specialisation of the Royal Australasian College of Surgeons (RACS) that looks after the training programme in paediatric surgery in both Australia and New Zealand. Clinical expertise is recognised as critical to gaining credibility among non-academic surgical colleagues, while research leadership and academic output are regarded as critical to maintaining credibility among academic surgeons². RACS lays greater emphasis on a working knowledge of the scientific methods, along with the ability to formulate a research question, contribute to research studies, setting up links and collaboration with other research groups, analysis and interpretation of the research data, and utilization of the interpretations in refining clinical practise towards evidence based environment.

In the context of most widely practiced surgeries such as Abdominoperitoneal excision or restorative bowel resection, several clinical parameters are involved in the decision-making process. On an international level, the rate of APR remains highly variable across different countries. Recently, a study was conducted to analyse the APR surgeries for low rectal cancer in the Australasian region based on the data registry of colorectal surgical units in Australasia and New Zealand. The study revealed that, among three to four thousand patients with rectal cancer, nearly half have undergone APR for resection of the low rectal cancer and most were conducted in urban hospital settings. The major predictors for APR were a tumour size, T4, M1 disease, and neo-adjuvant therapy. Restorative surgeries were performed in public hospital settings of Australia and New Zealand. However, the APR procedure resulted in a significantly increased rate of positive circumferential resection margin, and the CRM increased with open approaches, T4, N2, and M1 staged diseases, as well as in emergency and urgent settings. The APR cohort also showed significantly increased wound and pulmonary complications. The rate of APR was found to be significantly higher in Australia and New Zealand; however, the authors have noticed that this rate is comparable to one third choice of APR surgeries among lower rectal tumour treatments that were conducted internationally³.

The global issues faced by the international vascular surgery community are also common in Australia and New Zealand. These challenges include the prevalence of comorbidities such as diabetes, obesity as well as the greater percentage of the ageing population. The treatment methods, training of the vascular surgeons and financial constraints are common across global communities and those within the Australasian region. Both Australia and New Zealand are large countries with relatively lesser population densities. These geographical and demographic features bring unique challenges to the delivery of health care, particularly vascular surgery services that require immediate attention. Access to health care and transportation are the major challenges. Both in Australia and New Zealand, the healthcare system comprises of public and private systems. All the residents of these two countries are covered by comprehensive public health services. Vascular surgery has become a multifaceted specialisation, and posting a workforce in remote areas is a major challenge. The aboriginal and indigenous populations remain largely deprived of vascular surgery services. The Australia and New Zealand (ANZ) chapter of the International Society for Cardiovascular Surgery was established in 1983. International fellowships of vascular and cardiothoracic surgeons, the establishment of vascular surgical units, and

vascular adjunct laboratories have immensely contributed to the development of the specialisation in Australia and New Zealand. ANZ promotes basic and clinical vascular research with substantial academic representation. The Vascular Foundation arranges funds for vascular research. However, most of the research outputs were observational in nature such as case reports. Academic vascular surgeons, who make up the top 5 per cent of the authors, contributed nearly 41 per cent of the total publications over the last two decades. Comorbidities such as chronic limb-threatening ischemia, diabetic foot disease, peripheral arterial diseases, and diabetes complications that differ between the indigenous and other ethnic groups, pose major challenges apart from issues of access to health care services, delayed presentations, prevalence of obesity, and end-stage renal disease. There is not much clinical information on aortic disease among aboriginal populations and islanders in Australia⁴. Similarly, the prevalence of vascular disease across demography also needs to be ascertained.

Surgery for adult Obstructive Sleep Apnea (OSA) is generally conducted as either second-line treatment or in a facilitatory capacity. A committee comprised of sleep surgeons and physicians was constituted to study the role of this form of surgery and its appropriate usage in the Australasian region. The study was approved by the Australasian Sleep Association clinical committee. For OSA surgery, a comprehensive knowledge of the history and examination is essential. Prior to OSA, the medical comorbidities of sleep disorders, narcolepsy, depression, and formal PSG are also taken into consideration. The risk-benefit ratio is also considered. Nasal interventions such as allergy profiling and radiological imaging, including relevant clinical examinations, are also considered. However, sleep nasendoscopy was not considered essential for routine clinical assessment as its role is not yet validated⁵.

For the treatment of rectal cancer, laparoscopic-assisted surgeries are widely opted, but the cost involved is generally higher as it involves advanced technology, sophisticated equipment, and technological skill. A recent study focused on the evaluation of the total cost involved in laproscopy-assisted surgery over a period of one year in a randomised control trial involving patients enrolled at the Australasian Laproscopic Cancer of the Rectum trial. This prospective per-patient costing analysis included costs involved in the index surgery, hospital admissions and readmissions, as well as follow-up care. In this study comprising of nearly five hundred patients, it was discovered that the cost of a laproscopic procedure was nearly 12 per cent higher than the mean cost of an open procedure. This was mainly due to the longer time of operation and the involvement of costly equipment. However, due to the shorter hospital stay

period after laparoscopic surgery, there was no statistically significant deviation when compared to an open procedure⁶. Therefore, the authors have advised clinicians to opt for the method based on clinical need.

Plastic surgeries have become accessible and affordable, with diverse services covering all parts of the human body. Plastic surgeries have become available with a wide variety of techniques to restore form and function. The involvement of various sub-specializations has raised the standard of clinical care and fostered innovation, while novel insights from clinical research have led to improved clinical care. In the Australasian region, the populations are geographically dispersed, and therefore the local data could not be gathered in a comprehensive manner to derive statistically significant clinical outcomes. Therefore, in Australasia, plastic surgery research is hindered by a lack of quality clinical research data, while most of the available data were single-centred. A recent study emphasised the development of clinical trial initiatives, collaborative research efforts, and multiple centre trials across different countries, which would provide the necessary framework, resources, expertise, and protocols that support surgical research right from basic clinical audits to advanced randomised clinical trials. To accomplish these goals, the Royal Australasian College of Surgeons (RACS) founded the Clinical Trials Network of Australia and New Zealand (CTANZ). The goal was to create numerous surgical specialty-specific sub-initiatives in Australasia. The Australasian Clinical Trials in Plastic, Reconstructive, and Aesthetic Surgery (ACTPRAS) research group was formed, which is responsible for this initiative's plastic surgery specialisation.

ACTPRAS facilitated multicentre, international, collaborative studies where data on thousands of patients were observed across multiple centres, viz., Comparison of Non-Absorbable versus Absorbable Sutures for Skin Surgery (CANVAS) and Chlorhexidine versus Iodine Prep in Hand Surgery (CIPHUR). These investigations are equipped to provide a conclusive response to challenging clinical queries, advancing practise towards a more evidence-based environment. Such large research bypasses the drawbacks of smaller, single-centre studies, such as confounding bias, while preparing a network of teams and generating proof to support financed trials. Through RACS and the Australasian Students' Surgical Association, access to surgical networks has been made possible by social media and the widespread use of electronic communications. Like ACTPRAS, other plastic surgery research organisations throughout Australasia are involved in producing high-quality research. To promote cooperation, ACTPRAS' strategies are extensively promoted. Clinical research will advance the collaborative sector owing

to a new breed of social media-aware trainees who support big data analysis. The general surgical curriculum has been updated by RACS to encourage participation in group research projects. When it comes to its training programme, the plastic surgery community is embracing fresh changes⁷. Research of the highest caliber is essential to the development of evidence based surgical practice. The research output of vascular surgeons in Australia and New Zealand is not currently quantified sufficiently. An impartial picture of Australasia's vascular surgery trends is provided by a recent study. The Royal Australasian College of Surgeons database was compared with the database of the Australia and New Zealand Society for Vascular Surgery to create a list of every active vascular surgeon in Australia and New Zealand. Each surgeon's author profile over the previous 20 years was searched in Scopus database. In about two decades, Australasian vascular surgeons together published 2120 articles, showing a general upward trend in publications. The majority of publications were case studies or audits and only 8per cent of the publications provided high-level evidence.

Among different surgeries, thoracoabdominal aortic diseases, followed by peripheral artery disease, were the most discussed issues. Chronological analysis shows that there has been a steady increase in the number of publications on endovascular and hybrid surgery, as well as a volume of research on peripheral artery disease. A large amount of high-level evidence research is produced by the top 10 (5per cent) highest publishing authors, who are also responsible for 41per cent of all publications and 49per cent of all citations. Vascular surgeons from Australia and New Zealand have significantly advanced medical knowledge. However, the majority of the evidence in these papers was weak. In line with the trend in clinical practice, there have been an increasing number of papers on endovascular and hybrid surgery throughout this time. These topics, as well as studies on peripheral arterial disease, show potential for high-evidence research in the future⁸. The bibliometric review of the research output of all vascular surgeons in Australia and New Zealand over the previous 20 years was found to be thorough and unbiased. The authors have published 2120 articles throughout this time, making a major contribution to medical research. An area for improvement is highlighted by the tendency for low-evidence work and the disproportionately small number of higher-level publications such as randomized control trials, systematic reviews, and meta-analyses. The top 5per cent of authors are responsible for 41 per cent of all publications and significantly more high-quality evidence studies. Quantitative research reveals that peripheral artery disease and thoracoabdominal aortic diseases are the most popular

subjects, while endovascular and hybrid surgery have seen an increase in publications in line with the trend in clinical practice. This information allows for improved identification of top contributing authors to vascular surgery research and can be used in resource allocation for future research projects or identification of research gaps.

There has been considerable interest worldwide in the application of a robotic operating platform in the practice of colorectal surgery. A recent study evaluated the current uptake of robotic colorectal surgery in Australia and New Zealand. Survey data were obtained from the Colorectal Surgical Society of Australia and New Zealand (CSSANZ) registry of all specialist colorectal surgeons in Australia and New Zealand. Specialist colorectal surgeons responded to the survey through e-mail contact via an official e-mail from the CSSANZ. A questionnaire was distributed to members of the CSSANZ regarding their current robotic surgical practice, volume of and nature of robotic surgery being currently undertaken in Australia and New Zealand, with an emphasis on seeking to understand the surgeon and patient factors that would promote robotic practice and also any factors or barriers in the implementation of robotic colorectal surgery. The response rate is similar to other comparable surveys published when the laparoscopic colorectal era was introduced. Most surgeons performed minimally invasive (laparoscopic) surgery; however, only 29per cent performed any robotic surgery and 50per cent of these performed < 5 cases in the preceding one year. Low rectal cancer and rectopexy surgeries were the most frequently performed robotic operations. About 48per cent of surgeons believed that the robotic platform offers specific patient benefits, and 75per cent believed that it offers specific technological assistance to the surgeon. The main reason for consultants not performing robotic procedures was largely related to cost, with inadequate training also cited as a barrier. Robotic colorectal surgery is being performed by 29per cent of colorectal consultants in Australasia, although only a minority of these surgeons had a substantial volume. In the future, a substantial reduction in costs is envisaged, as more companies enter the robotic surgery marketplace and competition drives reduction in costs. This in many ways mirrors the introduction of laparoscopy and it is believed that as cost comes down, training pathways need to be established to train the next generation of colorectal surgeons robotically⁹.

References

1. James HK, Pattison GT. Disruption to surgical training during Covid-19 in the United States, United Kingdom, Canada, and Australasia: a rapid review of impact and mitigation efforts. *J Surg Educ.* 2021;78(1):308-14. Doi: <https://doi.org/10.1016/j.jsurg.2020.06.020>

2. Beasley SW. Academic paediatric surgery in Australia and New Zealand: Its governance, drivers, successes and challenges. *Semin Pediatr Surg.* 2021;30(1):151017. Doi: <https://doi.org/10.1016/j.sempedsurg.2021.151017>
3. Smith N, Waters PS, Peacock O, et al. Abdominoperineal excision in Australasia: clinical outcomes, predictive factors and recent trends of nonrestorative rectal cancer surgery. *Colorectal Disease.* 2020;22(11):1614-25. Doi: <https://doi.org/10.1111/codi.15263>
4. Mohan IV, Khashram M, Fitridge R. Vascular Surgery in Australia and New Zealand (Australasia). *Eur J Vasc Endovasc Surg.* 2021;62(3):338-9. Doi: <https://doi.org/10.1016/j.ejvs.2021.06.020>
5. MacKay SG, Lewis R, McEvoy D, et al. Surgical management of obstructive sleep apnoea: A position statement of the Australasian Sleep Association. *Respirology.* 2020;25(12):1292-308. Doi: <https://doi.org/10.1111/resp.13967>
6. Law CK, Stevenson AR, Solomon M, et al. And Australasian Gastro-Intestinal Trials Group (AGITG) ALaCaRT Investigators. Healthcare costs of laparoscopic versus open surgery for rectal cancer patients in the first 12 months: a secondary endpoint analysis of the Australasian laparoscopic cancer of the rectum trial (ALaCaRT). *Ann Surg Oncol.* 2022:1-12. Doi: <https://doi.org/10.1245/s10434-021-10902-5>
7. Stanley GH, Hirth MJ, Findlay MW. Collaborative research in Australasian plastic surgery. *Australas J Plast Surg.* 2021;4(2):5-7.
8. Wang J, Coles-Black J, Radojic M, et al. Review of 20 years of vascular surgery research in Australasia: Defining future directions. *SAGE open Med.* 2019;7:2050312119871062. Doi: <https://doi.org/10.1177/2050312119871062>
9. Buxey K, Lam F, Newstead G. Current status of robotic colorectal surgery in Australasia: A questionnaire survey of consultant members of the colorectal surgical society of Australia and New Zealand. *World Journal of Colorectal Surgery.* 2019;8(2):44.