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Guidelines for Hospitals to Assist in Credentialling of Transplant Surgeons in Australia and New Zealand

TSANZ Guidelines G004/2017

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I. INTRODUCTION

The need for surgeons to be trained and credentialed in the procedures they undertake is a standard requirement of surgical practice in Australia and New Zealand. In 2010, the Executive of the Royal Australasian College of Surgeons (RACS) Section of Transplant Surgery responded to requests from credentialing bodies to develop guidelines that could be used by employing institutions, both at time of surgeon appointment and for any subsequent re-appointment processes. These guidelines were available on the RACS website from 2012 to 2015 when they were replaced with more generic guidelines.

Due to ongoing requests for specific credentialing guidelines from the transplant community in Australia, particularly from the Australian Tissue and Organ Authority that oversees the Australian Kidney Exchange Program, the guidelines were reviewed in 2016 with the intention of publishing them on the website of the Transplantation Society of Australia and New Zealand (TSANZ).

These guidelines for organ transplantation surgery were developed and refined by a working party comprising Australian and New Zealand transplant surgeons in 2016 (see Table 1) and represent a consensus of the Australasian transplant surgery community at that time. It was necessary to be mindful of the particular features of Transplant Surgery as practiced in Australia and New Zealand. While the numbers recommended for some procedures may be low by international comparison, it was deemed necessary to balance the demographic and geographical issues outlined below with the need to maintain high standards of care. Guidelines developed outside Australia and New Zealand may not take local conditions of practice into account, although precedents exist in countries with small populations and geographically isolated transplant centres. In developing the Credentialing Guidelines for Transplant Surgeons a number of stakeholders were consulted (see Table 2 below).

II. DEFINITIONS

The credentialing process needs to recognise and accommodate differences in surgical practice outlined in Section III below and, at the same time, define minimum criteria for training and maintenance of skills to practice as a Transplant Surgeon in Australia and New Zealand.

The following definitions apply to the terms credentialing, training and maintenance as used in this document.

Credentialing: The process to verify the qualifications, experience and other professional attributes of medical practitioners for the purpose of forming a view of their competence and professional suitability to provide a safe and high standard of care.

Training: The requirement in terms of post-fellowship education and training in transplantation surgery including the performance of a minimum number of organ-specific procedures as the primary surgeon or first assistant under the guidance of a surgical mentor.

Maintenance: The requirement in terms of clinical activity and continuing medical education (CME) to provide a safe and high standard of care on an ongoing basis.

III. OVERVIEW OF TRANSPLANTATION SURGERY IN AUSTRALIA AND NEW ZEALAND

Characteristics of Transplant Surgery in Australia and New Zealand are that:

- Transplantation centres in Australia and New Zealand are comprised of multidisciplinary teams that include a surgical head of department who is a fully trained and credentialed transplant surgeon.
- There are relatively few transplant surgeons in Australia and New Zealand who are engaged exclusively in Transplant Surgery, in part because the majority of organ transplant procedures are not scheduled electively.
- The majority of transplant surgeons in Australia and New Zealand work partly or predominantly in other specialties; General Surgery, Vascular Surgery, Urology, Hepatobiliary Surgery, Cardiothoracic Surgery and Paediatric Surgery.
- The level of involvement in transplantation activity varies considerably. Some surgeons play a dominant role in all phases of management from patient assessment and selection through to long term care after transplantation. Other surgeons may not be so involved in overall management of transplant patients but, because of their technical skills, are involved in after-hours transplant surgery procedures. Many transplant centres would be unable to provide continuous surgical cover without otherwise experienced surgeons who are prepared to provide this kind of service.
- Small transplant centre size may limit training opportunities in transplant and multi-organ donor surgery and limit ongoing individual surgeon experience. Living donor kidney and liver transplantation have become necessities and require specialised donor surgery skills that are complimented by the regular practice of other surgery in related areas. For example, laparoscopic ablative nephrectomy experience is seen as appropriate initial training for laparoscopic donor nephrectomy, but experience in the former does not necessarily equate to skills in the latter.

IV. TRAINING IN TRANSPLANT SURGERY

The RACS Section of Transplant Surgery undertook training in transplant surgery from 1999 to 2012. General Surgeons Australia (GSA) subsequently developed a Post-Fellowship Education and Training (PFET) program for transplantation of abdominal organs, with the first trainee commencing in 2015. Fellows who undertook equivalent training in transplantation surgery in the time between the two programs were eligible to apply to GSA for recognition of prior learning.

The GSA Transplant Surgery PFET program is a two-year program accredited by RACS. A RACS Fellowship in General Surgery, Vascular Surgery or Urology is a pre-requisite. Training can be undertaken at any of several approved posts in Australasia. Some or all of the training can be undertaken in transplant centres outside Australia. Transplant training can be undertaken simultaneously with training in other subspecialties. GSA awards the *Australian and New Zealand Certificate of Post-Fellowship Education and Training in Transplantation Surgery* to successful trainees. Further information about the GSA Transplant Surgery PFET program is available at: <http://www.generalsurgeons.com.au/post-fellowship-education-training/pfet-program-in-transplantation-surgery>. For cardiothoracic transplant surgery, RACS has a guideline for surgeons who

complete post fellowship training in heart and lung transplantation. They can apply for this Certificate upon completion of appropriate length of training (and caseload) at Heart Lung Transplant hospitals.

V. A TRANSPLANT SURGEON

Transplant surgeons, with the exception of Type 2 kidney transplant surgeons (described below), will have undertaken at least two years of post-fellowship training and have received a certificate of transplant surgery training from the Transplant Section of the Royal Australasian College of Surgeons or General Surgeons Australia or will have undertaken equivalent training.

Transplant Surgery training includes the acquisition of knowledge of the following:

- Living and deceased (donation after brain death and donation after circulatory death) donation, including donor assessment and risk of transmission of infection and malignancy
- Principles of eligibility for transplantation and organ allocation
- ABO and histocompatibility, cellular, humoral and vascular rejection processes, cytotoxic and flow cytometric crossmatch analysis and Luminex technology
- Causes of graft dysfunction
- Immunosuppressive agents
- Histologic interpretation of allograft biopsies
- Complications of immunosuppression – medical, viral, bacterial, fungal, and oncological.

VI. ONGOING ACCREDITATION OF ALL TRANSPLANT SURGEONS (irrespective of organ and procedure)

To maintain expertise and knowledge in transplant surgery, and irrespective of their role in the transplant centre, an individual surgeon needs to:

- Maintain expertise and knowledge in transplant surgery. (The requirements for ongoing accreditation may take account of the individual surgeon's prior experience, as determined by the surgical head of the transplant centre).
- Attend a minimum of the equivalent of one full day of CME approved meeting per annum with appropriate transplantation content.
- Meet the RACS requirements for Continuing Professional Development with specific attention to content relevant to transplantation.

In seeking ongoing accreditation, the transplant surgeon is expected to comply with their hospital's processes, including documentation requirements. Review should take place on a 3 yearly basis. They should also regularly perform transplant surgery and ideally participate in the care of transplant recipients. A minimum requirement is recommended for renal transplantation within this document and serves as a guide to ongoing credentialing, with recognition that absolute numbers may fluctuate from year to year across units.

VII. KIDNEY TRANSPLANT SURGEON – Type 1

A surgeon meeting this level of competence will be proficient in the assessment of end stage kidney disease patients for kidney transplantation, the kidney transplant operation, the post-operative care, the prompt diagnosis and management of surgical complications associated with kidney transplantation.

A surgeon meeting this level of competence will also be proficient in the decision making about the suitability of kidney graft from deceased or live donors.

Such a surgeon will have completed one of the following:

- At least two years of post-fellowship training and have received a certificate of transplant surgery training from the Transplant Section of the Royal Australasian College of Surgeons or General Surgeons Australia or will have undertaken equivalent training; or
- Equivalent training in an overseas training program acceptable to the credentialing body who may seek advice from RACS or GSA in this regard; and
- Cumulative experience that matches the following minimum kidney transplant numbers within a three year period and in a transplant centre that audits and reports appropriate clinical outcomes.

Training

The training experiences should include the following:

- Regular clinic participation for care of transplant recipients before and after transplantation as part of a multi-disciplinary care team to gain practical knowledge of management of patients with end stage kidney disease; the selection of recipients for transplantation; donor selection; knowledge related to tissue typing and histocompatibility; the use of immunosuppressive therapy including knowledge of the side effects of the drugs and complications of immunosuppression.
- Attendance at a minimum of 40 renal transplants, and performance of least 20 as the primary surgeon
- Demonstration of competence to perform all aspects of a kidney transplant in unsupervised situations.
- Immediate post-operative and continuing inpatient care; knowledge of the differential diagnosis of kidney dysfunction in the recipient; interpretation of ancillary tests and images for kidney dysfunction; histologic interpretation of allograft biopsies; surgical management of early and late complications including exploration of the kidney graft, urinary tract reconstruction and transplant nephrectomy; and long term outpatient care.
- Performance of at least 15 procurements from deceased donors as primary surgeon or first assistant, at least 10 of which must be multi-organ.

Maintenance

The maintenance of type 1 kidney transplant surgical skills requires:

- Ideally a minimum of 10 kidney transplantation procedures per year as primary surgeon or first assistant or 30 procedures over 3 years.

VIII. KIDNEY TRANSPLANT SURGEON – Type 2

A surgeon meeting this level of competence will be involved primarily in the more technical aspects of kidney transplantation. Ideally, they would have the same cumulative operative experience, over any period of time, to the dedicated kidney transplant surgeon described above. Where this 'technical' surgery involvement exists it is necessary that the team includes a surgeon who is a fully trained and credentialled transplant surgeon Type 1, as described above, and who oversees the provision of surgical care at the transplant centre.

Training

Such a surgeon will have undertaken training either:

- Through recognised training, arranged by RACS or GSA, or, as a result of experience whilst working in a hospital with an active kidney transplant program.

Maintenance

The maintenance of type 2 kidney transplant surgical skills requires:

- Ideally a minimum of 5 kidney transplantation procedures per year as primary surgeon or 15 procedures over 3 years.

IX. LIVE DONOR NEPHRECTOMY SURGEON

Surgeons who perform live donor nephrectomy will be an integral part of a multi-disciplinary team that meets on a regular basis to make collective decisions about donor patient suitability and which kidney should be donated.

Training

The following training should have been completed:

- Attainment of a thorough knowledge and understanding of the assessment of and selection criteria for live kidney donors as part of specialty training or clinical experience. This includes ethical, medical and surgical considerations to ensure satisfactory donor and recipient outcomes.
- Laparoscopic donor nephrectomy (LDN):
 - a. Appropriate pre-existing surgical experience from other advanced laparoscopic procedures such as nephrectomy, anti-reflux surgery, splenectomy, bariatric surgery, liver and pancreatic resection and colectomy.

- b. DN experience may initially be obtained in a large animal model and/or patients requiring nephrectomy
- c. Under the guidance of a surgical mentor, performance of at least 10 LDN procedures as the primary surgeon
- d. For a newly appointed Consultant LDN Surgeon mentoring by an experienced live donor surgeon for the first 5 procedures is desirable
- e. A satisfactory report from the mentor or training supervisor, to the credentialling body of the hospital/health service, confirming ability to operate independently.

There exists no published literature on the minimum number of procedures to be performed to become proficient in open donor nephrectomy (ODN) or LDN although a learning curve is widely acknowledged. In response to an adverse event, an enquiry initiated by the NSW Department of Health in 2007, and with input from the Australian Society of Urologists, established the above five requirements for the purpose of implementing credentialling guidelines.

Verification of experience should be sought from the individual surgeon's own records based on criteria a-e above.

Maintenance

The maintenance of LDN skills requires a minimum of 5 LDN procedures per year as primary surgeon or 15 procedures over 3 years. Ideally, LDN surgeons will be actively engaged in performing other advanced laparoscopic procedures as part of their other surgical practice. For surgeons not performing other advanced laparoscopic procedures, at least 10 LDN per annum is recommended for maintenance of skills.

ODN is rarely undertaken in Australia. Hence, it is unreasonable to stipulate a minimum training requirement. Equally, there is an expectation that a LDN surgeon has the skills and experience to be able to convert a laparoscopic nephrectomy procedure to an open procedure if necessary.

X. PANCREAS TRANSPLANT SURGEON

Pancreas transplantation in Australia and New Zealand is almost invariably performed in association with a kidney transplant from the same deceased donor and into the same recipient. There are three hospitals in Australia and New Zealand (Westmead, Monash and Auckland) performing this procedure. A major component of the procedure is the back table preparation of the deceased donor pancreas in order to reconstruct the vasculature of the pancreas prior to transplantation.

Surgeons undertaking pancreas transplantation should comply with following training and maintenance criteria.

Training

The following training should have been completed:

- met the requirements for kidney transplantation surgery, and

- performed at least 10 supervised pancreas back table preparation procedures and at least 10 pancreas implantation procedures as the primary surgeon or first assistant, and
- performed at least 15 multi-organ procurements from deceased donors as primary surgeon or first assistant, at least 5 of which must include pancreas procurement and back table separation of the liver from the pancreas.

Maintenance

The maintenance of pancreas transplant surgical skills requires:

- Ideally ongoing regular performance of pancreas transplant surgery with or without regular pancreas retrieval.

XI. LIVER TRANSPLANT SURGEON

A liver transplant surgeon must be competent in the surgical evaluation of potential liver transplant recipients, procurement of suitable livers or liver segments for transplantation, implantation of livers and surgical post-operative care. This is likely to be in partnership with a transplant hepatologist.

Training

A liver transplant surgeon should have completed at least one of the following:

- At least two years of post-fellowship training and have received a certificate of transplant surgery training from the Transplant Section of the Royal Australasian College of Surgeons or General Surgeons Australia or will have undertaken equivalent training. This may be in conjunction with either post-fellowship training in hepatobiliary/upper GI surgery or transplantation of other abdominal organs; or
- Equivalent training in an overseas training program acceptable to the credentialing body who may seek advice from RACS or GSA in this regard;
- Cumulative experience that matches the following minimum liver transplant numbers within a three year period in a transplant centre that conducts and reports appropriate clinical outcome audit processes.

The training experience in liver transplantation should include the following:

- Management of patients with end stage liver disease; knowledge of the differential diagnosis of liver dysfunction in the allograft recipient; interpretation of ancillary tests for liver dysfunction
- Performance of at least 40 liver transplants as primary surgeon or first assistant.
- Performance of at least 15 liver procurements from deceased donors as primary surgeon or first assistant.
- Competence to perform all aspects of a liver transplant in unsupervised situations as assessed by the training supervisor.

Maintenance

The maintenance of liver transplant surgical skills requires:

- Ongoing interest and commitment to liver transplant surgery

XII. LIVE DONOR HEPATECTOMY SURGEON

Surgeons who perform live donor hepatectomy will:

- Have an appointment in a liver transplant program that fulfils the institutional requirements for provision of living donor liver transplantation (LDLT) as defined by the Australian Health Ministers' Advisory Council Adult-to-Adult LDLT National Policy Framework, Australian Health Ministers Advisory Committee Technical Advisory Group, December 2006. (Refer to http://www0.health.nsw.gov.au/policies/gl/2008/pdf/GL2008_019.pdf).
- Gained a thorough knowledge and understanding of the assessment and selection criteria for live liver donors including ethical, medical and anatomical considerations to ensure satisfactory donor and recipient outcomes.

Training

- Have extensive and ongoing experience at a consultant level performing ablative liver resection, including at least 100 procedures as primary or supervising surgeon.
- Have gained experience with in-situ liver splitting in deceased donors.
- Have performed at least 5 live donor hepatectomies as primary surgeon, as well as observing donor hepatectomy procedures performed by an experienced donor hepatectomy surgeon."
- . This experience may be gained in several ways by:
 - a. working with an established surgeon performing live donor hepatectomy,
 - b. performing, in appropriately selected cases, ablative hepatectomy in an identical manner to live donor hepatectomy, or
 - c. performing in situ liver split procedures.

Maintenance

The maintenance of liver transplant surgical skills requires:

- Ongoing interest and commitment to live donor hepatactomy surgery

XIII. HEART AND LUNG TRANSPLANT SURGEON

Heart and Lung transplantation is a multifaceted specialty with units in Australia and New Zealand providing heart and lung transplantation including:

- Orthotopic Cardiac Transplantation
- Heterotopic Cardiac Transplantation

- Double Lung Transplantation
- Single Lung Transplantation
- Cardiac Mechanical Assist Devices
- Combined Heart and Lung Transplantation (only performed at three of the five units)

A heart and lung transplant surgeon must be competent in the assessment of end stage heart and lung disease patients for heart or lung transplantation, decisions about the procurement of suitable organs, the transplant surgery and the post-operative care.

Training

A heart and lung surgeon will have completed one of the following:

- Two-year fellowship training in an Australia and New Zealand post(s) in accordance with the RACS Guideline and have obtained a Certificate upon completion of appropriate length of training and caseload at heart lung transplant hospitals. One of the two years must be a post-fellowship year in a dedicated transplant fellow position

Or

- Equivalent training elsewhere

Training experience should include the following:

- a. Regular clinic participation for care of transplant recipients before and after transplantation as part of a multi-disciplinary care team to gain practical knowledge of management of patients with end stage heart and or lung disease and of patients following transplantation; the selection of recipients for transplantation; donor selection; tissue typing and histocompatibility; immediate post-operative and continuing inpatient care; the use of immunosuppressive therapy including knowledge of the side effects of the drugs and complications of immunosuppression; knowledge of the differential diagnosis of allograft dysfunction in the allograft recipient; histologic interpretation of allograft biopsies; interpretation of ancillary tests for cardiac and lung dysfunction; surgical management of late complications; and long term outpatient care.
- b. Performance of at least 5 cardiac transplants as primary surgeon
- c. Performance of at least 5 single or bilateral lung transplants as primary surgeon
- d. After assessment by supervising surgeon, be deemed capable of performing all aspects of a heart or lung transplant in unsupervised situations.
- e. Performance of at least 15 procurements from deceased donors as primary surgeon, at least 5 of which must be multi-organ.

In addition, heart and lung transplant surgeons must have experience in all aspects of mechanical assist surgery.

This involves:

- i. Assessment of the patient and the decision making required in placing a uni and/or biventricular devices.
- ii. Post-operative management of mechanical assist devices.
- iii. Long-term outpatient care.
- iv. Implantation and explanation of such devices.

Surgeons that do not possess post-fellowship training may perform heart and lung transplantation in the setting where the surgical team includes a surgical head who is a fully trained and credentialed transplant surgeon, as described above, and who oversees the provision of surgical care at the transplant centre.

Maintenance

The maintenance of heart and lung transplant surgical skills requires:

- A minimum of 5 heart and/or lung transplantation procedures per year as primary surgeon or first assistant or mechanical assist procedures (VAD/ECMO) over 3 years.

XIV. ONGOING ACCREDITATION OF ALL TRANSPLANT SURGEONS (irrespective of organ and procedure)

To maintain expertise and knowledge in transplant surgery, and irrespective of their role in the transplant centre, an individual surgeon:

- Should have a regular commitment to and participation in transplantation surgery and should meet the minimum ongoing requirements as outlined in the organ section(s) relevant to their practice.
- Attend a minimum of the equivalent of one full day of CME approved meeting per annum with appropriate transplantation content.
- Meet the RACS requirements for Continuing Professional Development with specific attention to content relevant to transplantation.

The fulfillment of ongoing accreditation requires documentation to be provided by the transplant surgeon, and confirmation by the surgical head of the transplant centre. Review should take place on a 3 yearly basis.

XV. VERSION CONTROL

Version number	Major Changes	Release Date

Table 1: Membership of the working party that developed the Consensus Statement on Guidelines for the Credentialling of Transplant Surgeons.

Chairperson	Richard Allen
Kidney transplantation representative	Richard Allen
Living Donor Surgeons representative	Bulang He
Liver transplantation representative	Michael Fink
Heart/Lung transplantation representative	Emily Granger
Pancreas and islet transplantation representative	Henry Pleass
TSANZ Project Officer	Iman Ali

Table 2: List of organisations invited to submit comments on the draft Guidelines

Australasian Transplant Coordinators Association
Australian Liver Association
Australian and New Zealand Paediatric Nephrology Association
Australian and New Zealand Society of Nephrology
The Cardiac Society of Australia and New Zealand
Consumer Health Forum of Australia
Gastroenterological Society of Australia
Gift of Life Foundation
Kidney Health Australia
National Aboriginal Community Controlled Health Organisation (NACCHO)
National Health and Medical Research Council Australian Health Ethics Committee
National Renal Transplant Leadership Team and National Renal Transplant Service of New Zealand
Organ and Tissue Authority
Royal Australasian College of Surgeons
The Thoracic Society of Australia and New Zealand
Transplant Nurses' Association
Transplantation Society of Australia and New Zealand