

NEUROSURGICAL SOCIETY OF AUSTRALASIA INC

GUIDELINES FOR A SUSTAINABLE SPECIALIST NEUROSURGICAL SERVICE

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Neurosurgical Society of Australasia Inc
College of Surgeons' Gardens
250 - 290 Spring Street
EAST MELBOURNE VIC 3002
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RESIDENT NEUROSURGICAL SERVICES

1. Definition of an acceptable specialist service

It is essential for neurosurgical services to satisfy the five dimensions of a sustainable specialist service identified as being succession, economic, social, administrative and resources.¹ These guidelines will focus primarily on the resource considerations.

An acceptable neurosurgical service would be expected to treat, as a minimum, the following:

- Head injuries inclusive of an intensive care unit treatment
- Intracranial and spinal tumours
- Spinal degenerative diseases
- Cerebrovascular diseases

We would also expect more specialist services to be available in major units such as complex spinal surgery, epilepsy, paediatric services, complex cerebrovascular surgery, movement disorders and neuro-interventional radiology.

2. Population catchment requirements for resident practice

The Neurosurgical Society of Australasia Inc recommends a minimum population catchment size of 350,000 to sustain a viable neurosurgical unit.² This calculation is based on the recommendation that each neurosurgical unit have a minimum of two full time equivalent consultant neurosurgeons, and that there ideally be at least one consultant neurosurgeon per 175,000 population.

However, considerations such as recreational leave, sickness, on call requirements and adequate time off would suggest that a catchment size of 425,000 and a minimum of three full time equivalent consultant neurosurgeons would be preferable.

3. Factors influencing population catchment requirements for a resident practice

The population catchment requirements outlined in these guidelines are indicative only and should be taken into consideration with the factors influencing population catchments applicable to the specific location.

The factors that potentially increase population catchment requirements are as follows:

- Ageing of the population catchment
- Patient expectations / knowledge
- Changing clinical techniques and technologies
- Increasing level of specialisation
- Changes in public policy relating to degenerative conditions
- Increased organisational responsibilities by neurosurgeons thereby reducing clinical time

The factors that potentially decrease population catchment requirements are as follows:

- Public health resource allocation
- Increased introduction of managed care
- Life style changes to improve population health
- Increased productivity in hospitals
- Neurosurgical practice case mix trends
- Changing clinical techniques and technologies

¹ Australian Medical Workforce Advisory Committee (2004), Sustainable Specialist Services: A Compendium of Requirements – 2004 Update, AMWAC Report 2004.4, Sydney, p. 20

² Note that this differs to the AMWAC recommendation for a catchment size of 250,000 as quoted at Australian Medical Workforce Advisory Committee (2004), Sustainable Specialist Services: A Compendium of Requirements – 2004 Update, AMWAC Report 2004.4, Sydney, p. 112

4. Neurosurgeons and cases required for a sustainable resident practice

The recommendations in these guidelines are based on surgically active neurosurgeons that are providing full clinical services to the public. Surgically active, is defined as a 'surgeon who is actively involved in clinical work including operative and consultation work.'³

The Neurosurgical Society of Australasia Inc recommends a minimum of two surgically active full time consultant neurosurgeons with a minimum of 135 major neurosurgical cases per year per neurosurgeon to sustain a viable neurosurgical unit.

However, considerations such as recreational leave, sickness, on call requirements and adequate time off would suggest that a minimum of three surgically active full time neurosurgeons, with a minimum of 135 major neurosurgical cases per year per neurosurgeon would be preferable.

Major neurosurgical cases exclude peripheral nerve and endovascular cases and those of a minor nature including but not limited to external ventricular drains, intracranial pressure monitoring, meningeal biopsy, muscle biopsy and tracheostomy.

These recommendations are based on ensuring that there is an adequate case load for the maintenance of skills and to ensure that patient care is not compromised but overworked surgeons. The adverse possibilities of having less than two full time clinically active neurosurgical consultants include:

- isolation from colleagues
- unreasonable on-call expectation
- difficulty taking leave for recreational leave
- difficulty complying with continuing professional development requirements
- difficulties in gaining regular locum relief
- travel to attend regular peer review meetings

The adverse possibilities of having an oversupply of neurosurgeons include:

- deskilling to the lack of an appropriate operative caseload per surgeon
- a decline in patient outcomes due to deskilling
- increased potential for the performance of unnecessary surgery

The Neurosurgical Society of Australasia Inc has published information on the current neurosurgical workforce, future requirements and other workforce factors.⁴ It is not within the scope of these guidelines to address these issues.

5. Infrastructure required for a sustainable resident practice

A sustainable resident practice in neurosurgery requires specialised infrastructure. It is the opinion of the Neurosurgical Society of Australasia Inc that population catchments less than 350,000 cannot practically support a viable neurosurgical unit. It is acknowledged that the specialised infrastructure requirements make the viability of neurosurgical services outside urban centres difficult.

In instances where the population catchment is less than 350,000 a service may only be established if patient access is compromised and where there are sufficient infrastructure and support services.

³ McCulloch, Glenn (2006) Australian Neurosurgical Workforce, Neurosurgical Society of Australasia Inc, June 2006 p. 2

⁴ The current publication is McCulloch, Glenn (2006) Australian Neurosurgical Workforce, Neurosurgical Society of Australasia Inc, June 2006. A revised publication, inclusive of Australian and New Zealand workforce information is due for release in 2010.

The minimum infrastructure requirements for a sustainable resident practice are as follows:

- Eight dedicated neurosurgical beds
- Dedicated theatres and intensive care beds
- Image intensification
- Cavitron ultrasonic aspirator
- EEG and EMG
- CT with 24 hour access
- Digital subtraction angiography
- MRI access
- Stereotactic equipment (frame based and frameless)
- Neuro-navigational facilities
- Modern operating microscopes
- Operative ultrasound
- Research facilities

The minimum support services and staff for a sustainable resident practice are as follows:

- A minimum of two neurosurgeons
- Skilled nurses with neurosurgical experience
- Neuro-radiology and interventional radiology
- Medical neurology
- Neuro-oncology
- Neuro-physiology
- Neuropsychology and neuropsychiatry
- Accident and emergency
- Rehabilitation services
- Intensive care unit
- Neuropathology access
- Evidence of a regular surgical audit of diagnosis and outcome
- Neuro-anaesthetics
- Multidisciplinary expertise such as plastic surgery, ophthalmology and orthopaedics

The minimum surgery/office facilities and equipment for a sustainable resident practice are as follows:

- Dedicated secretarial support
- Adequate office space for the unit and secretarial support
- Consulting and examination area
- Computer equipment for billing, appointments and internet
- Appropriate library facilities

Rural neurosurgical units should have dedicated contact lines to urban major centres to obtain advice when required in emergencies and appropriate arrangements for the transfer of patients where required.

VISITING NEUROSURGICAL SERVICES

6. Population and catchment requirements for a regular visiting service

The population and catchment requirements for a regular visiting service are dependent on numerous factors including appropriate patient access to other major centres and the level of service required. The Neurosurgical Society of Australasia Inc recommends a minimum population catchment size of 65,000 to sustain a viable regular visiting service.⁵ A regular visiting service would be once a month.

⁵ Note that this differs to the AMWAC recommendation for a catchment size of 250,000 as quoted at Australian Medical Workforce Advisory Committee (2004), Sustainable Specialist Services: A Compendium of Requirements – 2004 Update, AMWAC Report 2004.4, Sydney, p. 112

7. Infrastructure required for sustainable visiting service

A sustainable visiting practice in neurosurgery, for consultancy only, requires the following infrastructure, equipment, support services and staff. As previously noted, the specialised infrastructure requirements make the viability of neurosurgical services outside urban centres difficult thereby limiting such services to consultancy. It is the recommendation of the Neurosurgical Society of Australasia that effective patient transfer services be utilised.

The infrastructure and equipment requirements for a sustainable visiting service are as follows:

- MRI access
- CT access

The support services and staff for a sustainable visiting service are as follows:

- Neuro-radiology
- Medical neurology
- Rehabilitation services
- Neurophysiology

The surgery/office facilities and equipment for a sustainable visiting service are as follows:

- Adequate office space and secretarial support
- Consulting and examination area
- Computer equipment for billing, appointments and internet
- Explanation aides
- Basic examination equipment