

Equitable access to diagnosis and treatment for individuals with rare and less common cancers, including neuroendocrine cancer

I am a Nuclear Medicine Specialist with South Australian Medical imaging (SAMI). I work at Flinders Medical Centre which is a large tertiary referral hospital and the largest hospital in the Southern local health network (SALHN) in Adelaide.

My concern is that of inequitable access for patients to PET-CT medical imaging in South Australia

This inequality of access to Positron Emission Tomography-Computed Tomography (PET-CT) in South Australia is dependent on geographic location in the state on a background of overall low numbers of scanners/capita in SA relative to the remainder of Australia. The PET-CT scanners are expensive which is likely a main factor of SA Health / local health networks unwillingness to commission PET-CT scanners in other SA tertiary hospitals. Additionally, majority of the scans performed are out-patient scans and so do not directly contribute to issues of bed block and ramping in the hospitals. Public hospitals executives appear mainly focussed on addressing issues of ramping and managing overflowing emergency departments as this is what the media are focused on. Unfortunately other important issues such as good cancer management therefore are not given the air time they deserve. Funding is required. There needs to be direction to federal and state government and local health networks that allocation of funding should also be dependent on ensuring that it is improving the equality of access and diversity of medical imaging. Funding needs to be set aside for growth and development of nuclear medicine at all major hospital sites that provide tertiary Oncology care.

WHAT IS PET-CT?

Positron Emission Tomography (PET) is a nuclear medicine technology that uses short-lived radioisotopes to enable the non-invasive imaging of metabolic functions within the body. While computed tomography (CT) and magnetic resonance imaging (MRI) primarily provide information about anatomical structure, PET can image and quantify biochemical and/or physiological function. This is important because functional changes caused by disease, such as cancer, are often detectable before any structural abnormalities become evident. Positron Emission Tomography-Computed Tomography (PET-CT) combines the PET with a CT scan that allows very accurate anatomical localisation of the abnormal metabolic activity.

PET-CT was first developed 2000 and is now considered core imaging in a tertiary Nuclear Medicine Department.

INDICATIONS FOR PET-CT

PET-CT is standard of care in many cancers. Broader applications of PET-CT include cardiology, neurology (especially evaluation of patients with dementia) and immunology/infectious diseases however the main use is with oncology.

PET-CT is used in aiding in diagnosis of gastro-entero-pancreatic neuroendocrine tumour if it is suspected on the basis of biochemical evidence with negative or equivocal conventional imaging, or assessing whether there are distant metastases in a patient being considered for surgery (MBS item 61647).

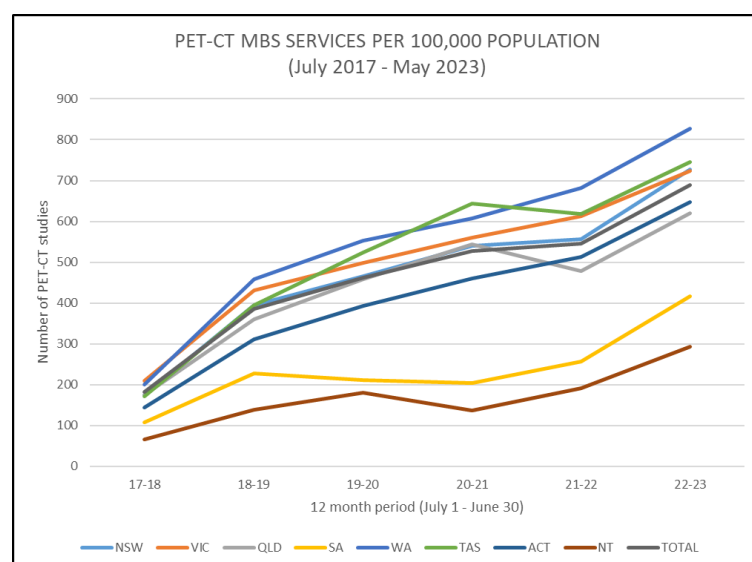
In November of 2022, a new PET-CT item was introduced for patients with rare or uncommon cancer (less than 12 cases per 100,000 persons per year) in patients who are suitable for active therapy and there is at least a 10% likelihood that the PET study result will inform a significant change in management for the patient (MBS item 61612).

In Oncology there is proven cost effectiveness with PET-CT in evaluation of solitary pulmonary nodules, staging of lung cancer, lymphoma, recurrent colorectal cancers and head and neck cancers. Medicare rebatable oncology PET scan indications include lymphomas, head and neck cancers, non-small cell lung cancers, melanoma, sarcomas, gynaecological malignancies, gastro-oesophageal cancers, colorectal cancers and more recently use in breast and prostate cancers.

Patients in South Australia do not have equitable access to PET-CT service.

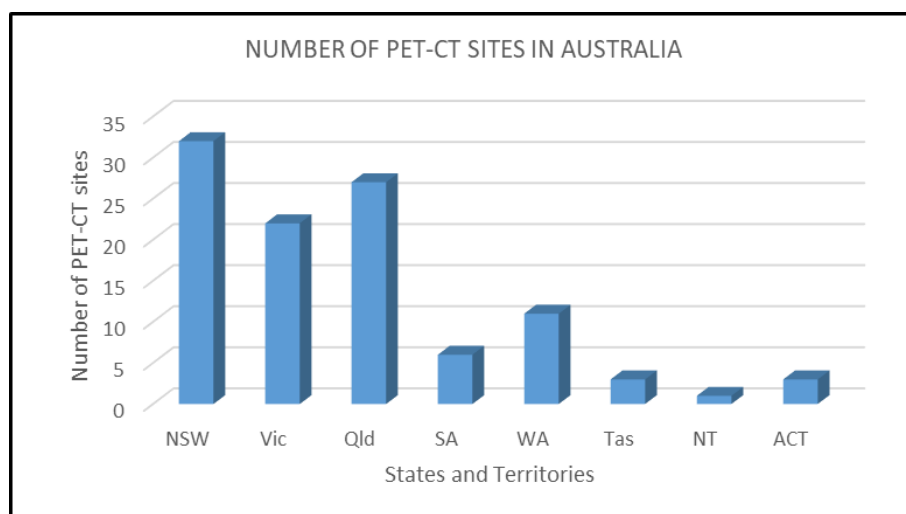
PET-CT IN AUSTRALIA

• PET-CT MEDICARE SERVICES

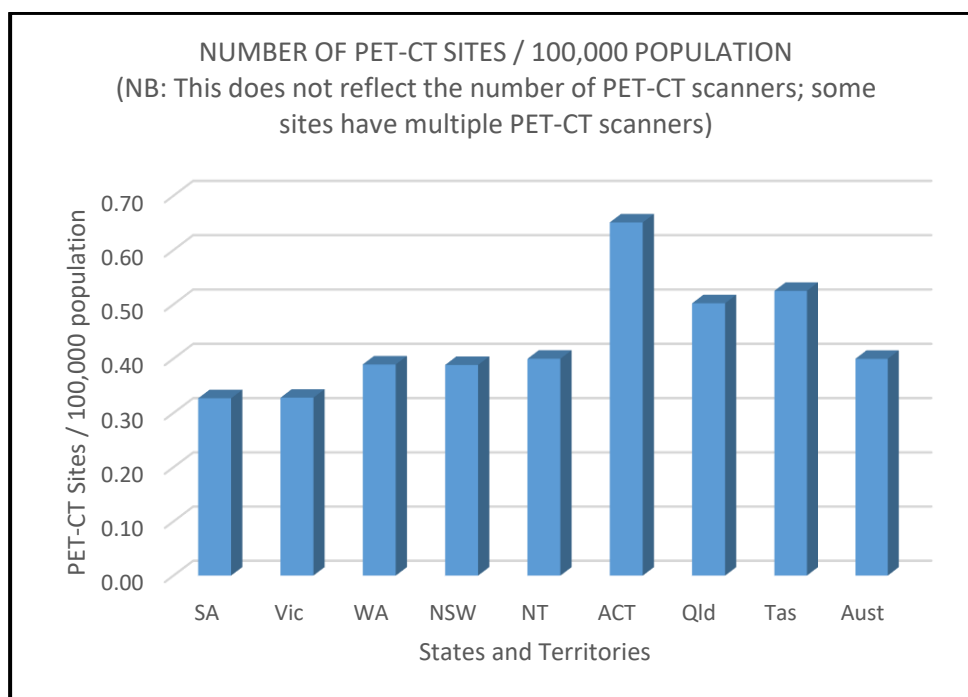


- There has been nearly a 400% increase in number of PET-CT studies performed in Australia per capita over a 6 year period between July 2017 and June 2023.
- SA has markedly lower PET-CT MBS services / capita, overall nearly 50% lower than national average.
- These MBS figures reflect services processed by Medicare
- Important to note that Darwin Hospital had PET-CT commissioned 2019 and prior to that time patients were travelling interstate for PET-CT scans

- **PET-CT SITES IN AUSTRALIA**



- There are 105 PET-CT sites in Australia (appendix A)
- SA has 6 PET-CT sites (1 public and 5 private)
- SA and Victoria have the lowest number of PET-CT sites in Australia / capita (Appendix B)
 - Important to note that many of the tertiary hospital sites have more than one PET-CT scanner (eg. in Victoria, Peter McCallum has 4 PET-CT scanners and Austin 3 PET-CT scanners)
 - The total number of PET-CT scanners at those 2 tertiary hospitals in Victoria is equivalent to the entire number of PET-CT scanners in SA (including public and private scanners)
 - Therefore, SA has the lowest number of PET-CT scanners / capita in Australia
- AUSTRALIAN PRINCIPAL REFERRAL HOSPITALS
 - 29 principal referral hospitals in Australia (Appendix C)
 - All of these with the exception of 6 have PET-CT on site
 - Of those 6
 - One is currently having PET-CT commissioned as part of a major cancer centre redevelopment (Concord)
 - Two have PET-CT at hospital sites within the same local health network (Monash, Vic and Prince Charles, Qld)
 - One hospital is regional (Wollongong)
 - FMC, which has no PET-CT site in the local health network (SALHN)



PET-CT IN SOUTH AUSTRALIA

- There are 7 PET-CT scanners in Adelaide (2 public and 5 private)
- There is only a single public PET-CT site in SA [Royal Adelaide Hospital (RAH) / Central Adelaide local health network (CALHN)]
- CALHN have had PET since 2001, with a 2nd PET-CT scanner commissioned 2017
- The 2 public PET-CT are working at capacity and can be prolonged waiting times
- No PET-CT is located south of Anzac Highway
- SALHN does not have a public PET-CT
- SALHN has a population of 381,668 (as per 2022 ABS ERP) which is 79% that of CALHN population
- CALHN has 2 PET-CT scanners; SALHN has none
- SALHN patients do not have equitable access to PET-CT
- There is increasing demand for PET-CT scans in tertiary / principal hospitals (MBS figures reflect services processed by Medicare and do not reflect PET-CT performed on public patients in public hospitals)
- As SALHN does not have what is now a core part of a tertiary Nuclear Medicine department, it is harder to attract and retain staff, thereby further impacting on patient care.
- Exposure to PET-CT is also a requirement of Nuclear Medicine and Radiology specialist training programs in Australia and the lack of onsite PET-CT at major hospitals is likely to impact on future training site accreditation, further impacting on recruitment and ultimately patient care.

SUMMARY POINTS

- PET-CT useful in management of neuroendocrine tumours and rare and uncommon cancers in addition to more widespread use in Oncology.
- Significant increase in demand and use of PET-CT in Australia
- SA well below the national average of PET-CT services / capita
- SA has the lowest number of PET-CT scanners / capita in Australia
- SA has marked inequality to access based on geography (2 public scanners are at a single public hospital site in the CBD and there are no scanners (public or private) in the SALHN.
- FMC is the only one of 2 principal referral hospitals within a major Australian city not to have a public PET-CT within the local health network
- The lack of an onsite facility can result in delay in diagnosis and treatment of patients managed within that local health network. Patients do not have equal access to what is considered core nuclear medicine imaging because they live in South Australia and primarily because they are treated within the Southern Adelaide local health network
- More funding needs to be provided with specific direction to government and local health networks that funding should be directed towards Nuclear Medicine services – including PET-CT

APPENDIX A

PET-CT Sites in Australia (105) – Public and private

<https://www.health.gov.au/topics/diagnostic-imaging/mri-and-pet-locations/PET-Australia>

(PET-CT site numbers as per 8 May 2023)

PET units in New South Wales (32)

Alto Imaging
Castlereagh Imaging Nepean Health Hub
Castlereagh Imaging Waratah Private Hospital
Hunter Imaging Group Gateshead
Hunter Imaging Group Metford
Hunter New England Imaging John Hunter Hospital
Hunter New England Imaging Waratah
I-MED Radiology Albury Base Hospital
I-MED Radiology Coffs Harbour
I-MED Radiology Miranda
I-MED Radiology Wagga Wagga
Lismore Base Hospital
Liverpool Hospital
Lumus Imaging Highfields
Lumus Imaging Wollongong PET
Macquarie Medical Imaging Macquarie University Hospital
Mater Hospital
Nepean Hospital
North Shore Radiology and Nuclear Medicine
Prince of Wales Hospital
PRP Imaging Gosford
PRP Imaging Westmead
Qscan Kingswood
QScan Westmead
Royal North Shore Hospital
Royal Prince Alfred Hospital
San Radiology & Nuclear Medicine Sydney
Adventist Hospital
South East Radiology Standish Medical Centre
St George Hospital
St Vincent's General Hospital
Western Cancer Centre Dubbo
Westmead Hospital

PET units in Victoria (22)

Lumus Imaging St Vincent's Northside Hospital
Princess Alexandra Hospital
QScan Annerley
Qscan Mackay
Qscan North Lakes
QScan Southport
Queensland Children's Hospital

Austin Hospital
Barwon Health University Hospital Geelong
Bendigo Radiology Nuclear Medicine
Cabrini Health
Casey Radiology
Epworth Medical Imaging Epworth Freemasons Hospital
Frankston Private Radiology
I-MED Radiology Epworth Eastern Hospital Box Hill
I-MED Radiology Traralgon Latrobe Regional Hospital
Lake Imaging St John of God Hospital Ballarat
Lake Imaging St John of God Hospital Geelong
Lumus Imaging Bridge Road
Lumus Imaging Epping
Lumus Imaging Knox Private Hospital
Melbourne Theranostic Innovation Centre (MTIC)
Moorabbin Hospital
Peter MacCallum Cancer Centre
Royal Melbourne Hospital
St Vincent's Hospital Melbourne
The Alfred Hospital
The Royal Children's Hospital
Western Private Hospital

PET units in Queensland (27)

Buderim Private Medical Imaging
Cairns Hospital
Gold Coast University Hospital
Herston Imaging Research Facility Royal Brisbane Women's Hospital
I-MED Radiology Bundaberg
I-MED Radiology Caboolture
I-MED Radiology Ipswich
Lumus Imaging Kawana
Queensland X-Ray Cairns PET/CT
Queensland X-Ray Greenslopes Private Hospital
Queensland X-Ray Mater Hyde Park

Queensland X-Ray Mater Private Hospital
Queensland X-Ray St Andrew's Toowoomba
Private Hospital
South Coast Radiology Southport
South Coast Radiology John Flynn Hospital
Sunshine Coast University Hospital
The Royal Brisbane and Women's Hospital
Townsville Hospital
Wesley Medical Imaging
Wide Bay Nuclear Medicine

PET units in Western Australia (11)

Perth Radiological Clinic Joondalup
Perth Radiological Clinic Midland Public Hospital
Qscan Midland
Qscan Rockingham
Sir Charles Gairdner Hospital
SKG Radiology St John of God Hospital
Fiona Stanley Hospital
Murdoch PET CT Service Genesis Care Building
Perth Radiological Clinic Hollywood Medical
Centre
Envision Medical Imaging
Apex Radiology

PET units in Tasmania (3)

I-MED Radiology St Vincent's Hospital
Qscan Hobart
Royal Hobart Hospital

PET units in South Australia (6)

Benson Radiology City West
Dr Jones & Partners Medical Imaging SAHMRI
Dr Jones & Partners Tennyson Specialist Centre
Qscan Windsor Gardens
Radiology SA Calvary Central Districts Hospital
Royal Adelaide Hospital

PET units in Australian Capital Territory (3)

Canberra Imaging Group Garran
Qscan Canberra
The Canberra Hospital

PET units in Northern Territory (1)

Royal Darwin Hospital

APPENDIX B

PET-CT sites / capita in Australian states and territories*

Australian states / territories	Population	PET-CT sites	Number of PET-CT sites / 100,000 population
New South Wales	8238800	32	0.39
Victoria	6704300	22	0.33
Queensland	5378300	27	0.50
South Australia	1834300	6	0.33
Western Australia	2825200	11	0.39
Tasmania	571600	3	0.52
Northern Territory	250100	1	0.40
Australian Capital Territory	460900	3	0.65
Australia	26268400	105	0.40

*National, state and Territory population, Australian Bureau of Statistics

Population as per 31 Dec 2022

<https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release#states-and-territories>

APPENDIX C

AIHW Australian Hospital Peer Groups

<https://www.aihw.gov.au/reports/hospitals/australian-hospital-peer-groups/summary>

(Release date 16 Nov 2015)

Table D1: Principal referral hospitals

Hospital	State/Territory	Remoteness area	Previous peer group
Austin Hospital [Heidelberg]	Vic	Major cities	Principal referral hospitals
Canberra Hospital & Health Services	ACT	Major cities	Principal referral hospitals
Concord	NSW	Major cities	Principal referral hospitals
Flinders Medical Centre	SA	Major cities	Principal referral hospitals
Geelong Hospital	Vic	Major cities	Principal referral hospitals
Gold Coast Hospital	Qld	Major cities	Principal referral hospitals
John Hunter	NSW	Major cities	Principal referral hospitals
Liverpool	NSW	Major cities	Principal referral hospitals
Monash Medical Centre [Clayton]	Vic	Major cities	Principal referral hospitals
Nepean	NSW	Major cities	Principal referral hospitals
Prince of Wales	NSW	Major cities	Principal referral hospitals
Princess Alexandra Hospital	Qld	Major cities	Principal referral hospitals
Royal Adelaide Hospital	SA	Major cities	Principal referral hospitals
Royal Brisbane & Women's Hospital	Qld	Major cities	Principal referral hospitals
Royal Darwin Hospital	NT	Outer regional	Principal referral hospitals
Royal Hobart Hospital	Tas	Inner regional	Principal referral hospitals
Royal Melbourne Hospital [Parkville]	Vic	Major cities	Principal referral hospitals
Royal North Shore	NSW	Major cities	Principal referral hospitals
Royal Perth Hospital Wellington Street Campus	WA	Major cities	Principal referral hospitals
Royal Prince Alfred	NSW	Major cities	Principal referral hospitals
Sir Charles Gairdner Hospital	WA	Major cities	Principal referral hospitals
St George	NSW	Major cities	Principal referral hospitals
St Vincent's Darlinghurst	NSW	Major cities	Principal referral hospitals
St Vincent's Hospital [Fitzroy]	Vic	Major cities	Principal referral hospitals
The Alfred	Vic	Major cities	Principal referral hospitals
The Prince Charles Hospital	Qld	Major cities	Principal referral hospitals
The Townsville Hospital	Qld	Outer regional	Principal referral hospitals
Westmead	NSW	Major cities	Principal referral hospitals
Wollongong	NSW	Major cities	Principal referral hospitals

Principal referral hospitals

Definition

Principal referral hospitals are public acute hospitals that provide a very broad range of services, have a range of highly specialised service units, and have very large patient volumes. The term 'referral' recognises that these hospitals have specialist facilities not typically found in smaller hospitals.

The hospitals in this group are listed in Table D1 at Appendix D.

Selection methodology

The selection of *Principal referral hospitals* was guided by evidence of the following service units:

- 24-hour emergency department
- ICU
- all or most of the following specialised units: cardiac surgery, neurosurgery, infectious diseases, bone marrow transplant, organ (kidney, liver, heart, lung or pancreas) transplant and burns units.