

### **There is inequitable access for patients to PET-CT in South Australia**

This inequality of access to Positron Emission Tomography-Computed Tomography (PET-CT) in South Australia (SA) 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.

### **SUMMARY POINTS**

- PET-CT is standard of care for many cancers (both common and less common / rare cancers)
- There is inequality of access to PET-CT in SA based on geographic location
- SA has lowest number of PET-CT scanners/capita and fewest PET-CT sites/capita in Australia
- There is further inequality to access to PET-CT in Adelaide with no PET-CT scanner located in SALHN (with no PET-CT south of Anzac Highway)
- Single public PET-CT site in SA (within CALHN)
- Flinders Medical Centre is a 593 bed tertiary hospital within SALHN. This has a large specialist Oncology service (Medical and Surgical)
- The rare and less common cancers include large number of different types of cancers (and make up approx. one third of all cancers). These are managed at FMC, in addition to the common cancers
- The South Australian Sarcoma and Bone Tumour Unit is based at FMC
- 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
- Lack of PET-CT means we cannot offer standard of care to Oncology patients within SALHN
- Secondary effects from lack of PET-CT at FMC are that it is harder to attract and retain staff, impact on general Nuclear Medicine services, potential loss of training site accreditation and inability to participate in research, all of which further impact of patient care
- Lack of PET-CT at SALHN means that public patients in SALHN do not have access to basic standard of care in their cancer management (including, but not limited to, patients with rare and less common cancers)

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## **WHAT IS PET-CT?**

Positron Emission Tomography (PET) is a type of imaging modality that allows functional assessment. This is important as functional changes caused by disease, such as cancer, are often detectable before structural abnormalities become evident. This means that abnormalities can be seen on PET before conventional structural imaging such as CT or MRI.

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.

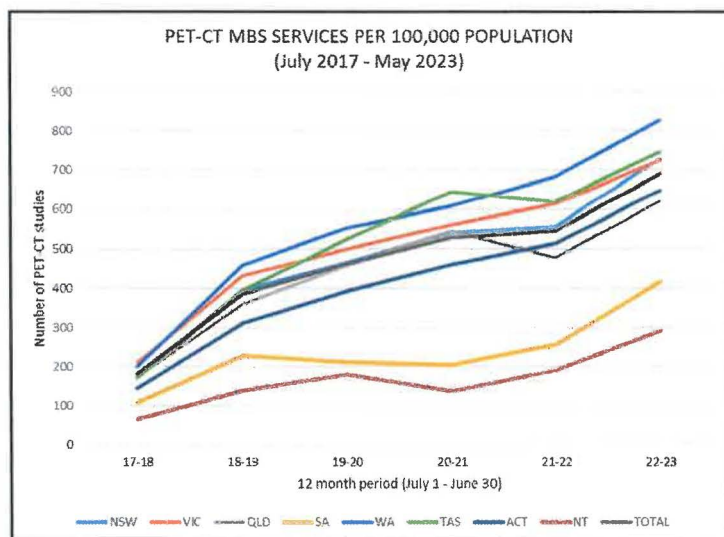
## **INDICATIONS FOR PET-CT**

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.

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 and rare/less common cancers.

## **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

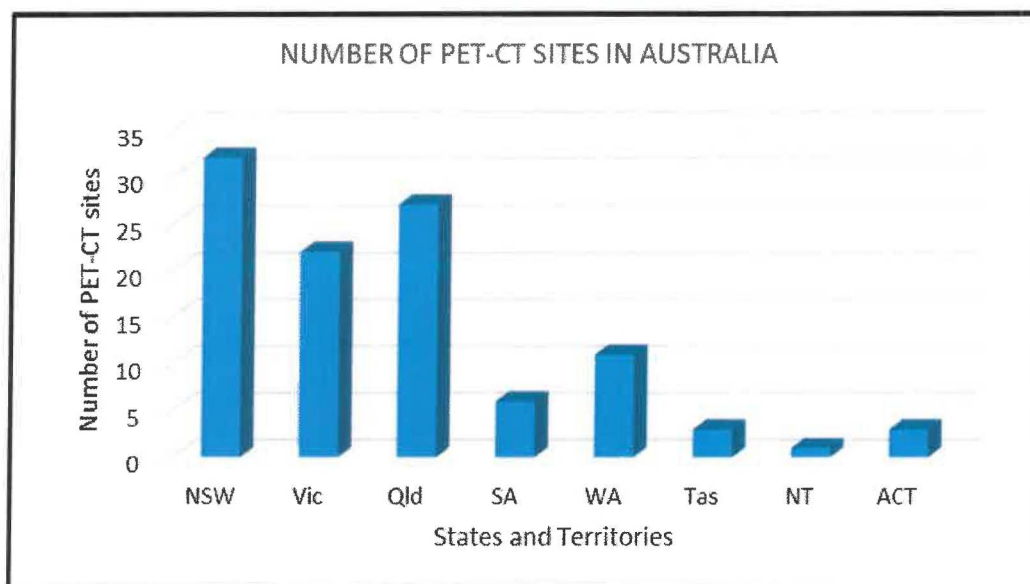
## Submission 45 - Supplementary Submission

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- **PET-CT SITES IN AUSTRALIA**

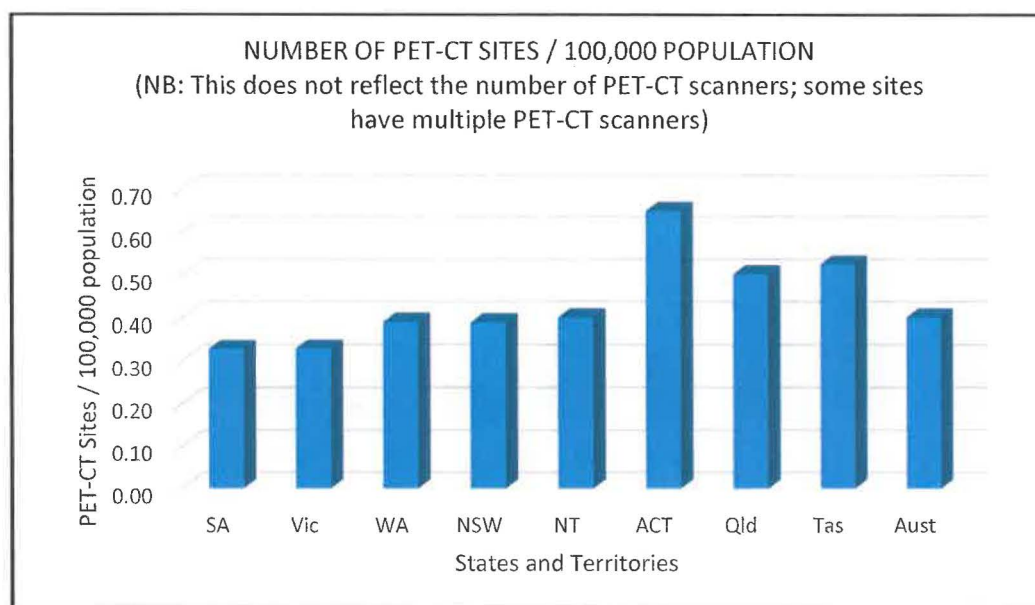


- There are 105 PET-CT sites in Australia (appendix A)
- SA has 6 PET-CT sites (1 public and 5 private)
- SA and Victoria have the lowest number of PET-CT sites in Australia / capita (Appendix B)
  - Important to note that many of the tertiary hospital sites have more than one PET-CT scanner (eg. in 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 5 have PET-CT on site
  - Of those 5
    - 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)

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#### **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 2<sup>nd</sup> PET-CT scanner commissioned 2017
- No PET-CT is located within SALHN catchment and no PET-CT is located south of Anzac Highway (Appendix D)
- SALHN has a population of 387,666 (as per 2023 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 PET-CT (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

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## **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

Austin Hospital  
Barwon Health University Hospital Geelong  
Bendigo Radiology Nuclear Medicine  
Cabrin 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  
QScan Southport  
Queensland Children's Hospital  
Queensland X-Ray Cairns PET/CT  
Queensland X-Ray Greenslopes Private Hospital  
Queensland X-Ray Mater Hyde Park



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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

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## 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>

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## 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                           | QM              | 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:

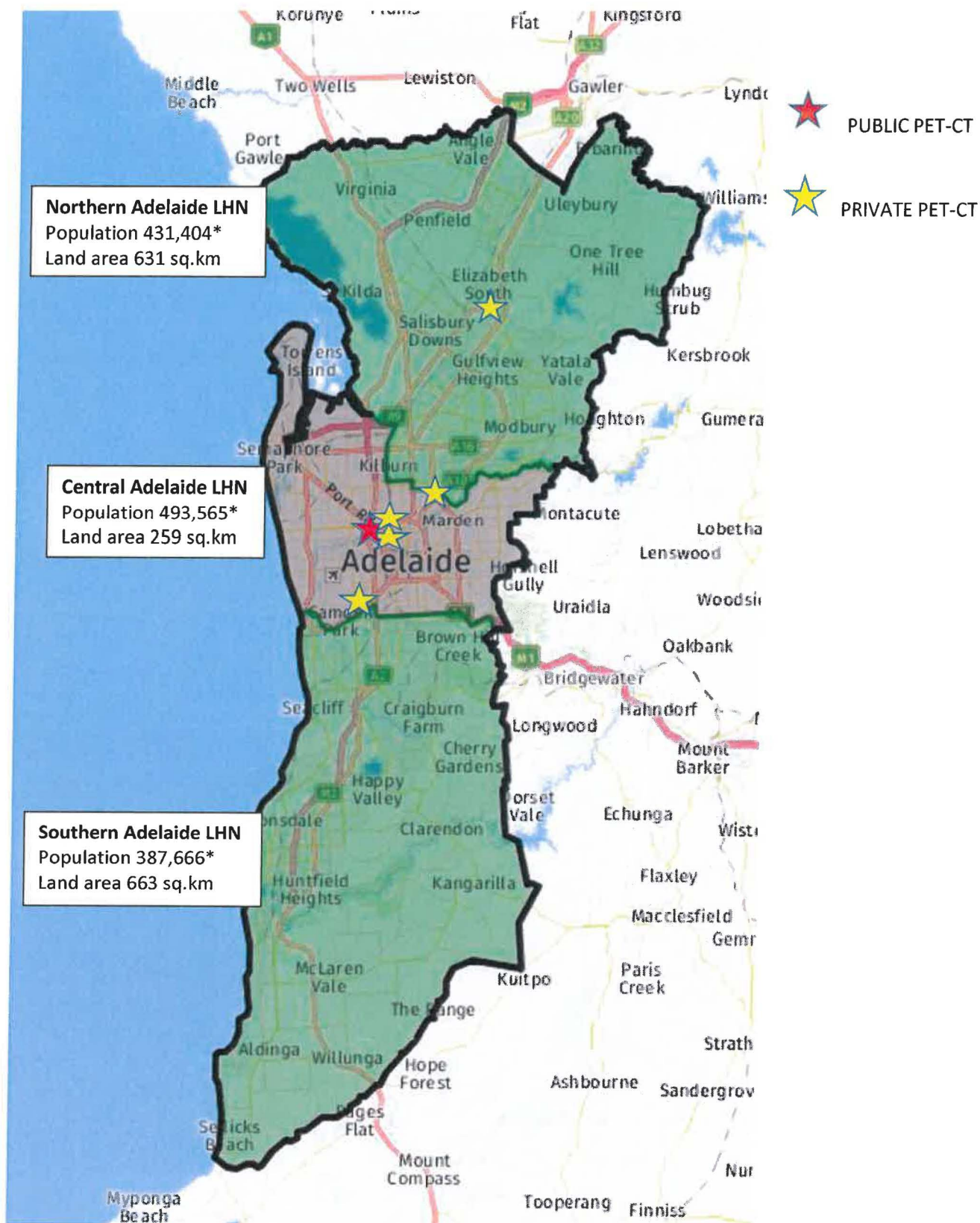
- 24-hour emergency department
- ICU
- all or most of the following specialised units: cardiac surgery, neurosurgery, infectious diseases, bone marrow transplant, organ (kidney, liver, heart, lung or pancreas) transplant and burns units.



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## APPENDIX D

### Location of PET-CT sites in South Australian Metropolitan Local Health Networks (LHN)



\* As per 2023 ABS ERP

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## APPENDIX E

### Rare and less common cancers types eligible for FDG PET study of initial staging (Item 61612)

- Adrenocortical carcinoma
- Advanced thyroid cancer
- Anal cancer
- Gallbladder and extrahepatic bile ducts (cancer of the)
- Gastrointestinal stromal tumours (GIST)
- Kaposi sarcoma
- Langerhans cell histiocytosis (LCH)
- Liver cancer
- Merkel cell cancer
- Mesothelioma
- Multiple myeloma
- Muscle invasive bladder cancer
- Neuroendocrine cancer [NEC] grade 2 and above
- Neuroendocrine neoplasms (neuroendocrine tumours [NETs])
- Ovarian cancer and serous carcinomas of the fallopian tube
- Pancreatic cancer
- Parathyroid cancer
- Penile cancer
- Peritoneal cancer
- Pheochromocytoma/paraganglioma ([PPGL] malignant or syndromic)
- Placenta cancer
- Primary brain cancer
- Small cell lung cancer
- Small intestine (cancer of the)
- Stomach cancer
- Testicular cancer
- Thymic epithelial neoplasm
- Unknown primary site (cancer of)
- Uterine cancer
- Vaginal cancer
- Vulvar cancer
- Wilms tumour