

Medical Imaging Clinical Stream Service Development Priorities 2014 - 2018

Leading care, healthier communities



Health
South Western Sydney
Local Health District

Table of Contents

Foreword by Clinical Director	1
Introduction	2
Vision, mission, values and primary purpose	3
Services provided by the Medical Imaging Clinical Stream	3
Service Summary Table.....	4
Demographic and health profile of SWSLHD communities	5
Delivering on priority strategic directions in service development.....	6
Build capacity to effectively service growing demands for health care	6
Redesign of services bringing them closer to people and their communities.....	6
Integrated action with primary care providers and regional primary health organisations	6
Partnering with external providers to deliver public health care.....	6
Enhancing service networks and growing centres of excellence	6
Shared access to unified information for all the health care team	7
An integrated focus on primary prevention for patients and communities	7
Embedding education and research within service delivery	7
Working with facilities on corporate enabling strategies	7
Providing high quality health services	7
Community partnerships	8
Seamless Networks.....	8
Developing our staff	8
Supporting business.....	8
Efficiency and sustainability.....	8
Attachment A Models of care, service development directions and partners	9
Models of Care for the future	9
Attachment B Projected population of SWSLHD communities 2016 and 2021.....	11
Attachment C Growth in demand for inpatient care SWSLHD residents to 2016 and 2021	12

Foreword by Clinical Director

The Medical Imaging service in SWSLHD provides a comprehensive state-of-art, tertiary diagnostic, interventional, therapeutic and consultative services. The strategic objective is to provide a "customer focused" clinical service that is safe and good with no compromise to patient safety, progressive, innovative, efficient and accountable. The welfare of staff and ability to attract, develop and retain highly skilled staff are key priorities.

The Medical Imaging service is a key driver of patient flow for emergency departments and ward inpatients. An improved networking and an imaging hub service delivery model was established 3 years ago, to ensure equity of access, improved afterhours services, meet hospital performance targets and community expectations.

Medical Imaging also facilitates and plays a key role in changing model of care towards "Personalised Medicine", "minimally invasive" therapeutic approaches and the translational approach (from bench to bedside) to conduct research and improve clinical practice and patient outcome.

Introduction

The health services provided by South Western Sydney Local Health District (SWSLHD) are organized both vertically within an area of geography (hospitals and health centres serving defined population catchments) and horizontally across a service or process (clinical streams). Financial, workforce, activity and performance management is vertically integrated at the facility level. Clinical streams primarily focus on:

- Clinical services planning and the development of clinical networks
- Identifying service gaps and reviewing the appropriateness and configuration of services
- Innovation, research and best practice in models of care
- Maintaining and improving patient access to care
- Flexibility and robustness of clinical systems to respond quickly to changing environments
- Improving consistency and quality of care, safety and clinical governance
- Workforce planning, ensuring the right clinical teams in the right place at the right time
- Strengthening partnerships between facilities within a clinical specialty and between clinical services within a facility

Three strategic planning documents guide the future directions of SWSLHD:

- Strategic and Healthcare Services Plan- *Strategic Priorities in Health Care Delivery to 2021*
- Corporate Plan 2013 – 2017 *Directions to Better Health*
- Summary of Strategic Directions

Together these Plans form the basis of aligning all SWSLHD services to achieving the Vision of **Leading Care, Healthier Communities**. SWSLHD facilities have prepared Operational Plans which outline local corporate strategies and actions. This includes the clinical streams with facility management responsibilities i.e. Mental Health, Oral Health, Community Health, Population Health and Drug Health. These Operational Plans outline how SWSLHD strategic and corporate priorities will be achieved within local vertically integrated facilities.

For those Clinical Streams that have not prepared an Operational Plan a high level *Service Development Priorities* plan outlines the priority actions that will be pursued horizontally in areas of Stream responsibility, to assist in achieving SWSLHD service development and corporate strategies. It outlines high priority actions for the Stream in the eight *Priority Strategic Directions in Service Development* from the Strategic & Healthcare Services Plan and for other core areas of Stream focus from the Corporate Plan i.e. providing high quality health services, community partnerships, developing our staff, supporting business and efficiency and sustainability.

The Strategic and Healthcare Services Plan outlined for each Clinical Stream in the timeframe to 2021, models of care for the future, service development directions and partners in service development. These are included at Attachment A, providing the framework for development of these Service Development Priorities.

Vision, mission, values and primary purpose

The Medical Imaging Clinical Stream is committed to achieving the **SWSLHD Vision** of

Leading care, healthier communities

It is also committed to the **SWSLHD Mission** which is to promote the health of the residents of the District and patients using our health services through the delivery of high quality healthcare.

We do this by providing health services that are population based, patient-centred and involve families and carers.

We use evidence to inform health practices; and consult, communicate, engage and collaborate with patients, local communities, agencies and care providers to improve the way we plan and provide health care services and programs.

We strive to deliver services that are respectful of personal dignity and autonomy; and sensitive to the needs of people from different cultures.

We emphasise learning and reflection and are committed to continuous quality improvement and innovation in delivering efficient and sustainable health care.

Our culture enables excellence and accountability, values our people and supports positive leadership and teamwork.

Staff in the Medical Imaging Clinical Stream upholds the **core values** of

Collaboration

Openness

Respect

Empowerment

Specifically the prime purpose of the Medical Imaging Clinical Stream is to provide a timely, high quality tertiary service in Diagnostic and Interventional Radiology and Nuclear Medicine for all people within SWSLHD.

Services provided by the Medical Imaging Clinical Stream

SWSLHD Medical Imaging provides a comprehensive range of tertiary level six diagnostic, consultative and therapeutic services through four Radiology and two Nuclear Medicine departments. A networked Interventional Radiology services is provided across the District for patients requiring invasive and diagnostic procedures.

Service Summary Table

Specialty or Service	Service Type	Facility or Setting								
		Bankstown	Braeside	Bowral	C'town	Camden	Fairfield	Liverpool	CHC	Other (list)
Medical Imaging	General	√	√	√	√	√	√	√		
	CT	√	√	√	√		√	√		
	Ultrasound	√	√	√	√		√	√		
	MRI	√			√			√		
	Interventional	√			√			√		
	INR							√		
	Fluoroscopy	√	√		√		√	√		
	Nuclear Med	√						√		
	PET							√		
	PACS / RIS	√			√		√	√		

Demographic and health profile of SWSLHD communities

Comprehensive demographic and health status profiles of SWSLHD communities are available at <http://www.swslhd.nsw.gov.au/planning/>. The population of SWSLHD is expected to grow significantly over the period covered by the *Service Development Priorities* plan, with Attachment B outlining the projected population by LGA and age category in 2011, 2016 and 2021.

Aspects of the demographic and health status profile and projected growth of SWSLHD communities of particular importance for the Medical Imaging Clinical Stream include:

- A 55% increase in the year 2011-2021 of people aged 70+ years across the LHD which will have a significant impact on all Medical Imaging service demands
- The population of SWSLHD will grow by 20%, becoming the most populous LHD in NSW
- Demand for Nuclear Medicine services across the District will be increased as the number of people to develop Cancer is increased due to age
- The demand for high end diagnostics is increasing

With population growth, demands on the Medical Imaging Clinical Stream are expected to grow significantly. This will include demands for the provision of care as hospital inpatients, outpatients and care provided in the community. Attachment C illustrates the projected growth in demand from SWSLHD residents for inpatient hospital care by Service Related Group, a combination of DRGs that align with clinical specialties. Aspects of projected demand of particular importance for the Medical Imaging Clinical Stream include:

- Increase in CT and MRI demand and growth in all diagnostic procedures
- Interventional Radiology services for patients who require lifesaving and elective procedures
- Increase in Nuclear Medicine and Radiology services to meet increasing diagnostic demands of clinicians
- Timeliness of outpatient and elective procedures for people in our community

Delivering on priority strategic directions in service development

The SWSLHD Strategic and Healthcare Services Plan- *Strategic Priorities in Health Care Delivery to 2021* identified eight priority strategic directions to underpin service development, enhancing the way health care is delivered and organizations partner for better health in local communities. The following identifies priority areas where the Medical Imaging Clinical Stream will contribute to delivering on the eight strategic directions.

Build capacity to effectively service growing demands for health care

- Establish Interventional Radiology at Campbelltown and Bankstown Hospitals and ensure quality outcomes in service delivery
- Build a networked integrated model of care for ultrasound
- Establish Nuclear Medicine services at Campbelltown Hospital
- Increase capacity for after-hours radiology service

Redesign of services bringing them closer to people and their communities

- Establish timely services for diagnostic imaging in the community
- Development of patient flow models and network linkages to ensure equity of access for specialised services such as MRI, Interventional Radiology and Nuclear Medicine across the SWSLHD

Integrated action with primary care providers and regional primary health organisations

- Develop critical test result notification for GP's and specialist doctors within the community.
- Collaborate with Primary Health Networks to develop IT solutions for patient results.
- Collaborate with rural services to ensure timely care for patients requiring emergency intervention for Interventional Radiology.
- Engage GP's and Primary Health Networks in integration of holistic care for patients who require Medical Imaging stream services.

Partnering with external providers to deliver public health care

- Work with the NSW Health pillars to ensure consistency and best practice
- Maintain and strengthen professional links with professional bodies including Royal Australian and New Zealand College of Radiologists and the Australian and New Zealand Association of Nuclear Medicine Specialists
- Engage with Universities to assist, participate and develop research in all facilities across the Medical Imaging stream

Enhancing service networks and growing centres of excellence

- Establish a District Interventional Radiology service with enhancement of services at Bankstown and Campbelltown Hospitals
- Establish an imaging hub reporting model across SWSLHD based on sub-specialisation and/or body region
- Engage with facilities and professional bodies to ensure a Registrar Network that includes Liverpool, Campbelltown and Bankstown Hospital

Shared access to unified information for all the health care team

- Enhance PACS/RIS system to version 5.0 to ensure timely reporting by Radiologists across the District
- Provide real time access to imaging services for immediate and emergency patients
- Strengthen ABF reporting and review current revenue processes
- Develop Medical Imaging stream web page for both staff and patient information

An integrated focus on primary prevention for patients and communities

- Improved links with GP's to facilitate care management plans that are integrated and patient centred
- Improved screening services such as breast screening for early detection of diseases

Embedding education and research within service delivery

- Improved clinical research through links with the Ingham Institute, UNSW and UWS for all stream specialities
- Participate in international clinical trials to improve evidence for best practice care
- Promote professional development programs for training Medical Radiation Scientists in all areas of medical imaging
- Promote support for translational research models from bench to bedside and personalised medicine

Working with facilities on corporate enabling strategies

The SWSLHD Corporate Plan 2013 – 2017 *Directions to Better Health* identified eight areas of corporate action where organizational values and vision can be included in the day to day operation of health services. The corporate areas of action are underpinned by the eight priority strategic directions identified in the SWSLHD Strategic and Healthcare Services Plan. Implementation of the corporate actions is primarily the responsibility of facilities and the way this will be achieved is outlined in each facility's Operational Plan.

Medical Imaging Clinical Stream will work with facilities on corporate actions which have close alignment to the areas of focus of the Streams. The earlier identification of priority areas where the Medical Imaging Clinical Stream will contribute to delivering on the eight strategic directions also identifies the Stream's contribution to three corporate action areas – seamless networks; research and innovation; and enhancing assets and resources. The Medical Imaging Clinical Stream will also contribute to delivering on the remaining five corporate areas of action – providing high quality health services; community partnerships; developing our staff; supporting business; and efficiency and sustainability. The following identifies priority areas where the Medical Imaging Clinical Stream will contribute to delivering on these five areas of corporate action.

Providing high quality health services

- Increase Nuclear Medicine Services at Campbelltown to meet increasing demand.
- Enhance Interventional radiology services at Campbelltown and Bankstown Hospitals and ensure quality outcomes
- Maintain neuro-radiology services at Liverpool as part of the state-wide service model

- Enhance MRI services across SWS LHD in line with the increased demand
- Develop ED based radiology services across the LHD
- Provide best available tertiary level imaging services

Community partnerships

- Medical Imaging website development for patients and staff access to information

Seamless Networks

- Improve after hour access to real time reports for Emergency Departments across SWSLHD.
- Web based dissemination of medical imaging reports to referring Doctors under the framework of various e-Health initiatives

Developing our staff

- Provide a Registrar Network across Liverpool, Campbelltown and Bankstown Hospitals.
- Provide cross credentialing of Radiologists across speciality services across Liverpool, Campbelltown, Bankstown and Fairfield Hospitals
- Promote career opportunities and professional development locally
- Work with the Ministry of Health to influence state wide awards including Sonography.

Supporting business

- Collaborate with the ACI to develop an ABF model for Medical Imaging services
- Implement PACS/RIS 5.0 to improve efficiencies, timeliness of reporting in SWSLHD and flexible service delivery model
- Implement Universal Viewer to allow at- home access for radiologists for real time reporting

Efficiency and sustainability

- Strengthen governance for District services
- Implement network based reporting based on sub-specialisation and/or body region
- Enhancing capability, understanding and responsiveness to Activity based funding (ABF) and Imaging business models
- Implementing new models of care around Interventional Radiology and Ultrasound across the LHD
- Workforce planning and management
- Asset management to ensure continuity of access

Attachment A Models of care, service development directions and partners

Models of Care for the future

- Provide a networked imaging service to permit scheduled transfers of patients in a timely manner from all facilities
- Meet clinically relevant waiting times for the provision of imaging services for inpatients and outpatients
- Strengthen, enhance and staff appropriately ED based radiology services e.g. in X ray, CT and ultrasound
- Provide a real-time consultant reporting model which includes after-hours access; requiring a major re-map and redesign of clinical service delivery models and work practices, supported by staff enhancements. Alternatively, service provision via off-site teleradiology from consultant's home, but there are currently major limitations for a frontline service such as reliability, capacity of home PC network and logistics of report generation
- Establish an Imaging hub reporting model across SWSLHD based on sub-specialisation and/or body region; to replace the current facility and modality based reporting model, particularly for increasingly complex CT and MRI. This service delivery model will improve redundancy, back-up in difficult cases and peer review process, and improve the overall efficiency of service delivery. This will also match the increasingly stringent accreditation and re-credentialing requirements by professional colleges and Medicare authorities.
- The imaging hub model can provide redundancy and cover for smaller hospitals such as Fairfield which can struggle to attract suitable radiologists, and a platform for peer review
- Establish a Registrar network across SWSLHD
- Explore networking opportunities: e.g. paediatric, MRI, ultrasound and breast imaging; enabling sharing of expertise, protocols, economy of scale in procurement, and the medical and technical workforce
- For interventional radiology, provide comprehensive facilities at Liverpool, Campbelltown and Bankstown hospitals, with shared medical workforce.
- Foster and strengthen a Translational approach (from bench to bedside) to provide clinical care and conduct research. Medical imaging plays a crucial role in "Personalised Medicine" and theranostics i.e. finding the right target for the right patient, and not purely based on epidemiology data.

Service Development Directions

- Enhance IT infrastructure, including a functional PACS and RIS platform, with a universal work list to support a LHD-wide imaging hub reporting model, and registrar network in SWSLHD.
- Consolidate an ED based radiology service delivery model, with real-time reporting after-hours
- Enhancement of interventional radiology services at Bankstown and Campbelltown hospitals.
- Maintain and enhance the provision of Interventional neuroradiology located at Liverpool as part of the state-wide service.
- As part of the Campbelltown Hospital redevelopment, provide an on-site Nuclear medicine and PET service
- Realign medical imaging services to match surgical redesign and service developments across SWSLHD

- Provide a molecular imaging based research and theranostics approach for treatment delivery i.e. linking diagnostics and therapy; an increasing focus of research directions within the Cancer Services stream and the Ingham Institute of Applied Medical Research. This will require close collaboration with the Medical Imaging Clinical Stream, investment in infrastructure, workforce planning to meet demand and establishment of a sustainable funding model

Partners in Service Development

Service developments in imaging will need to proceed in close collaboration with a range of service partners, including in the following areas:

- In funding and performance monitoring with Governmental authorities e.g. in refining the ABF funding model to apply to outpatient services; addressing competitive impacts; enhancing asset management planning (it is considered that there is a lack of accurate data and no robust costing model in Medical Imaging at state-wide level); addressing access and turnaround time (TAT) to imaging services which are crucial to meeting NEAT targets (note that from July 2013 imaging TAT indicators are to be included in LHD performance management frameworks and that SWSLHD has been engaged as a test site in the state-wide Cerner Data source pilot program to extract Medical Imaging performance parameters)
- In establishment of appropriate business processes e.g. asset management plans, networking, workforce planning, accountability (note the NSW Ministry of Health is reviewing business modelling for capital investment required for rapidly evolving medical imaging), exploring public-private-partnership models
- With GPs and community members in IT connectivity; web and social media communication; engagement with the community for support, advocacy for more resources and in fund raising
- In strategies to conduct high quality research, properly resourced and with academic chair leadership in radiology/nuclear medicine; addressing competing clinical, academic and research demands from different clinical streams and academic institutions; with defined mechanisms in place to ensure that the benefits/ research output feed back to the imaging service
- In strategic planning for major growth areas in imaging-guided therapy planning and therapeutics: cancer theranostics, cardiac disease, neurosciences and Alzheimer's disease.
- in external collaboration with universities, government bodies (e.g. CI, ANSTO) and vendors as a reference site and part of world-wide knowledge sharing network

Attachment B Projected population of SWSLHD communities 2016 and 2021

Population projections	SWSLHD			Bankstown		
	2011	2016	2021	2011	2016	2021
0 - 4 yrs	63,172	73,317	80,383	14,291	15,979	16,546
5 - 14 yrs	125,198	133,606	149,714	26,276	27,861	30,526
15 - 44 yrs	371,889	400,104	428,701	79,512	81,425	84,949
45 - 69 yrs	246,607	274,788	298,218	51,713	55,762	59,348
70 - 84 yrs	57,062	68,380	87,866	15,071	15,663	18,409
85+ yrs	11,835	15,942	19,065	3,988	4,834	4,971
All ages	875,763	966,137	1,063,947	190,851	201,523	214,749

Population projections	Camden			Campbelltown		
	2011	2016	2021	2011	2016	2021
0 - 4 yrs	4,678	6,110	8,585	11,118	13,499	15,095
5 - 14 yrs	9,326	12,974	15,932	21,558	22,983	26,739
15 - 44 yrs	25,499	38,139	47,235	65,809	71,687	77,402
45 - 69 yrs	15,115	21,298	27,282	44,008	47,798	50,674
70 - 84 yrs	3,045	4,685	7,030	7,307	10,037	14,549
85+ yrs	776	1,204	1,614	1,373	1,830	2,310
All ages	58,439	84,409	107,680	151,173	167,834	186,768

Population projections	Fairfield			Liverpool		
	2011	2016	2021	2011	2016	2021
0 - 4 yrs	12,736	14,680	15,085	14,407	17,017	18,882
5 - 14 yrs	26,337	26,318	28,653	28,611	30,359	34,330
15 - 44 yrs	84,114	84,237	86,146	84,603	92,302	100,482
45 - 69 yrs	56,978	61,545	64,396	49,085	56,654	63,815
70 - 84 yrs	13,826	15,627	19,228	9,809	12,367	16,091
85+ yrs	2,488	3,527	4,367	1,573	2,512	3,353
All ages	196,479	205,933	217,875	188,088	211,212	236,953

Population projections	Wingecarribee			Wollondilly		
	2011	2016	2021	2011	2016	2021
0 - 4 yrs	2,696	2,482	2,510	3,246	3,551	3,680
5 - 14 yrs	6,171	5,997	5,864	6,919	7,114	7,669
15 - 44 yrs	14,361	14,211	13,966	17,991	18,103	18,522
45 - 69 yrs	16,229	16,928	16,997	13,479	14,803	15,706
70 - 84 yrs	5,490	6,690	8,123	2,514	3,311	4,436
85+ yrs	1,179	1,433	1,675	458	603	776
All ages	46,126	47,741	49,134	44,607	47,485	50,789

Source: NSW Department Planning and Infrastructure, New South Wales State and Local Government Area Population Projections: 2014 Final

Attachment C Growth in demand for inpatient care SWSLHD residents to 2016 and 2021

Projected separations of SWSLHD residents at all hospitals by Service Related Group

Service Related Group	2010-11	2016-17	% Δ to 10-11	2021-22	% Δ to 10-11
Acute Care					
11 Cardiology	10,655	11,897	11.66%	13,769	29.23%
12 Interventional Cardiology	4,346	5,219	20.09%	6,176	42.11%
13 Dermatology	783	820	4.70%	915	16.89%
14 Endocrinology	1,154	1,376	19.27%	1,586	37.43%
15 Gastroenterology	18,573	21,836	17.57%	25,079	35.03%
16 Diagnostic GI Endoscopy	14,184	16,345	15.24%	19,089	34.58%
17 Haematology	1,645	1,958	19.02%	2,199	33.66%
18 Immunology and Infections	2,067	2,252	8.96%	2,537	22.73%
19 Oncology	1,573	2,155	37.02%	2,565	63.04%
20 Chemotherapy	2,396	3,200	33.55%	4,021	67.80%
21 Neurology	6,695	7,536	12.57%	8,634	28.97%
22 Renal Medicine	2,383	2,666	11.87%	3,201	34.34%
23 Renal Dialysis	42,543	53,799	26.46%	64,444	51.48%
24 Respiratory Medicine	12,471	13,878	11.28%	15,769	26.45%
25 Rheumatology	1,032	1,368	32.57%	1,587	53.81%
26 Pain Management	1,380	1,362	-1.27%	1,559	12.98%
27 Non Subspecialty Medicine	10,686	12,256	14.69%	14,257	33.41%
41 Breast Surgery	1,615	1,833	13.47%	2,047	26.77%
42 Cardiothoracic Surgery	936	981	4.76%	1,094	16.89%
43 Colorectal Surgery	4,585	5,209	13.60%	5,823	27.00%
44 Upper GIT Surgery	4,486	4,862	8.39%	5,433	21.11%
46 Neurosurgery	4,129	4,617	11.82%	5,299	28.35%
47 Dentistry	3,098	3,607	16.45%	4,150	33.94%
48 ENT & Head and Neck	8,485	9,511	12.10%	10,676	25.82%
49 Orthopaedics	18,859	21,466	13.82%	24,743	31.20%
50 Ophthalmology	9,314	12,210	31.10%	15,496	66.37%
51 Plastic and Reconstructive Surgery	5,446	6,101	12.02%	7,023	28.95%
52 Urology	9,662	11,015	14.00%	12,665	31.08%
53 Vascular Surgery	2,669	2,781	4.20%	3,245	21.59%
54 Non Subspecialty Surgery	14,553	15,876	9.09%	17,819	22.44%
61 Transplantation	56	49	-12.73%	53	-4.86%
62 Extensive Burns	52	68	31.06%	75	44.15%
63 Tracheostomy	342	444	29.71%	519	51.81%
71 Gynaecology	10,690	11,634	8.83%	12,771	19.47%
72 Obstetrics	17,434	19,566	12.23%	21,132	21.21%
73 Qualified Neonate	2,739	2,981	8.83%	3,342	22.01%
74 Unqualified Neonate	10,623	12,145	14.33%	13,300	25.20%
75 Perinatology	617	578	-6.33%	657	6.47%
81 Drug and Alcohol	1,828	1,975	8.04%	2,126	16.31%
99 Unallocated	413	413	0.00%	413	0.00%
Total Acute all Hospitals	267,197	309,846	15.96%	357,288	33.72%
Sub and Non Acute Care					
84 Rehabilitation	12,153	17,395	43.14%	22,580	85.80%
85 Psychogeriatric Care	142	133	-6.46%	160	13.00%
86 Palliative Care	1,477	1,835	24.26%	2,095	41.87%
87 Maintenance	583	888	52.35%	1,106	89.77%
Total Sub and Non Acute all Hospitals	14,355	20,252	41.08%	25,943	80.72%
Grand Total all Hospitals	281,552	330,097	17.24%	383,231	36.11%



South Western Sydney Local Health District

Liverpool Hospital Eastern Campus

Locked Mail Bag 7279

Liverpool BC NSW 1871

Tel. (612) 8738 6000

Fax. (612) 8738 6001

www.swslhd.nsw.gov.au

© South Western Sydney Local Health District

ISBN 978 1 74079 184 7



Health

South Western Sydney
Local Health District