Canberra Hospital - Building 10

Schedule of Accommodation
Doc No
Date 25/01/2024
Revision 6.0
Points to Note The Existing POC and SQM estimates are based on information provided to the consulting team over the course of the project. These should be considered as a guide only, additional validation may be required from CHS/ACTHD

	Existing Conditions (GDA)		Comments	Benchmarked against AHFG Service Plan			Comments
Department	**Existing Points of Care**	**Existing Area m2**	**Main Points for Discussion**	**Proposed Points of Care**	**Proposed Area m2**	**New Build Area (Proposed - Existing) m2**	**Main Points for Discussion**
Entry/Reception/Waiting/Commercial/Multifaith			Current B10 FOH = Collection Services' reception/waiting, which is captured in Pathology's existing SQM in B6 SOA summary page	0	473	473	
Inpatients	236	8232	Existing area based on marked up floorplans for B1, 4B, Level 5, Level 7, Level 8, 9A and 10A	257	13082	4,851	
Palliative Care			Existing area not provided				
Outpatients	96	4104	Existing area based on marked up floorplans for B1, Level 2, Level 3 and Building 3 for Rheumatology & Dermatology	119	4546	442	
Sleep Lab	2	85	Based on CHS' marked up floorplan for B1 Level 2 Outpatient Area, assume IDC = 30%	8	384	300	
Discharge/Transit Lounge	18	112	Based on CHS' marked up floorplan for B1 Level 4, assume IDC = 30%	19	394	282	
Clinical Handover			Existing area not provided	0	75	75	
Day Med Services (HITH)	12	387	Based on CHS' marked up floorplan for B1 Level 2, plus 1x IV Access POC from Level 8, assume IDC = 30%	31	814	427	
Dialysis	12	391	Based on CHS' marked up floorplan for B1 Level 8, assume IDC = 30%	13	508	117	
Perioperative Services (WYC Obstetric Theatres)			Existing area not provided	12	1224	1,224	
CSSD			Existing area not provided. Phase 2 Periop services will likely share CSSD with B5	Sterilisation is included in Periop Services			Will either have its own steri service or utilise CSSD in Building 5 Level 4
Medical Imaging	20	2776	1x Mammo, 4x U/S, 4x Xrays, 3x CTs, 2x MRIs, 1x Gamma, 2x SPECT/CT, 1x PET, 1x BMD, 1x Fluoro. GDA based on CHS's marked up floorplan for B12 Level 2 (included circulation)	19	2164	-612	1x Mammo, 4x U/S, 4x Xray, 2x CTs, 2x MRIs, 1x Gamma, 2x SPECT/CT, 1x PET, 1x BMD, 1x Fluoro,
JMO Lounge	0	161	Like-for-like, existing area based on B1 L8 Floorplan, no circulation	0	147	-14	Removed general store from existing
B1 Admin	0	974	Based on CHS' marked up floorplan for B1 Level 10 - 10B and Level 9 - Discharge Liaison, assume IDC = 30%	0	1025	52	Like-for-like, plus additional support areas as STH requested that administrative SOA was to be based on the assumption they are standlone areas (not co-collated) until concept design is finalised
B6 Admin (non-Div Surg)	0	640	Like-for-like, existing NDA provided by CHS, assume IDC = 30%	0	956	316	
MOSCETU	0	186		0	193	8	
PTO	0	34		0	34	0	Like-for-like, existing area provided by CHS
Central Equipment Store	0	228		0	228	0	
Transport Pool	0	20		0	20	0	
VAD	0	0	New service	0	57	57	New service
HIS			Removed from this SOA - to remain in B12	#REF!	#REF!	#REF!	Removed from this SOA - to remain in B12
GDA	396	18,525		#REF!	#REF!	#REF!	
Travel and Plant @ 40%		7,331	Provisional GBA grossing @ 40%		#REF!	#REF!	Provisional GBA grossing @ 40%
GBA		25,659			#REF!	#REF!	

*IDC = Intra-departmental circulation

Canberra Hospital - Building 10

Schedule of Accommodation - Entry - Reception - Waiting
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
MAIN ENTRANCE												
	AIRLE-12	Airlock - Entry, 12m2	Yes			Project specific		1	20	20		Size may vary depending on volume of pedestrian traffic
	N/A	Main Lobby/ Display Space	No			Project specific		1	110	110		Size will depend in scale of health facility and volume of traffic to be directed via the main entry.
	WAIT-30	Waiting	Yes		1	40	40	1	40	40		
	RECL-15	Reception / Clerical	Yes		1	20	20	1	35	35		Assumes separate admissions / cashier
	BWC	Bay - Wheelchair Park	Yes		1	4	4	1	4	4		
	CLRM-5	Cleaner's Room, 5m2	Yes		1	5	5	1	5	5		Optional. May be shared with adjacent service. Add 1m2 if a scrubber is stored in this room
	WCST	Toilet - Staff, 3m2	Yes		1	3	3	2	3	6		
	WCST	Toilet - Public, 3m2	Yes		1	3	3	2	3	6		Male
	N/A	Volunteers Room	No		1	15	15	1	15	15		Optional. Room for Volunteers to meet, work and store belongings.
PUBLIC AMENITIES												
	BATM-2	Bay - ATM	Yes		1	2	2	0	2	0	Can be included in circulation	
	N/A	Bay - Parking Machine	No		1	2	2	0	2	0	Can be included in circulation	Only include if vistors are charged for parking
	BPH	Bay - Public Telephone	Yes		1	4	4	0	4	0	Can be included in circulation	
	BVM-3	Bay - Vending Machine	Yes			3		0	3	0	Can be included in circulation	
	BWD-1	Bay - Water Dispenser	Yes		1	1	1	0	1	0	Can be included in circulation	In absence of vending machine / kiosk
	PAR	Parenting Room	Yes		1	10	10	1	10	10		
	WCAC	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6		
	N/A	Changing Places Toilet	No		1	14	14	1	14	14		includes shower
Net Functional Area				0			129			271		
Circulation						25%	32		25%	68		
Gross Area							161			339		
Commercial & Amenities												
	N/A	Commercial Pharmacy						1	100	100	Actual NDA needs to be confirmed by CHS	
	N/A	Commercial Space	No					0	250	0	ACTHD confirmed this is not required	
	N/A	Support Space	No					0	250	0	ACTHD confirmed this is not required	
CULTURAL and MULTI-FAITH SPACE												
	N/A	First Nations dedicated space						1	25	25		Dedicated ATSI space
	N/A	Multi-faith room	No		1	45	45	1	50	50	Area large enough to accommodate 30/40 people for ritual purposes (EG Mass, Chapel Services, Ceremonies or memorials) – nil straight lines in architecture. Requires entry/exit large enough for bed movement and space for wheelchairs to turn. Including distinct space for people to sit on floor/prostrate if required while others can still sit in chairs.	
	N/A	Wash room	No		1	4	4	1	8	8	Includes a Vestry (Changeroom) for religious purposes (three wardrobes, small table and chairs including small basin) and an Ablutions room (changeroom) with specific washing equipment for Muslims and a wardrobe and space for linen. Requires discreet connection to MFS close to direction of Qibla.	For religious ablutions. Inclusion dependent on need
	STGN-9	Store - General	Yes		1	10	10	1	10	10	Store room for furnishings such as chairs/ altar/ambo (lectern), bookshelf and piano/organ/harp (as we have music therapists who would use such a space).	Optional for volunteers
	CONS	Consult Room	Yes		1	12 (o)	12	1	12	12	Must not be designed as a clinical space: more like a counsellors room.	
	INTF	Interview Room	Yes		1	12	12	1	12	12	Office space nearby MFS (but not connected) for Spiritual and Pastoral Care practitioners	Multipurpose space to be bookable and used by a range of services (e.g. pastoral care, patient advocate etc)
Net Functional Area				0			83			117		
Circulation						15%	12		15%	18		
Gross Area							95			135		
Total NDA				0			212			388		
Total GDA							257			473		

Canberra Hospital - Building 10

Schedule of Accommodation - Acute Services
Date 25/01/2024
Revision 6.0

Allocation of specialities to IPUs is subject to change. Indicative only.

					AusHFG (Adult Acute Inpatient Unit - 28x IPU)			Proposed (28x IPU)				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**		**AusHFG Comments**
Medical IPU 1&2												
Medical IPU 1 - 28 POC - Gen Med & Respiratory												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	3	12	16.5	198	3	16.5	49.5	Reduced by 1x and added 1x Superbari room, and reduced by 6x for the additional respiratory high dependency beds	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18	To be Negatively Pressured	Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	3	1	16.5	16.5	3	16.5	49.5	Increased to 3x Isolation Rooms given this ward caters to Respiratory Patients	If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	3	6	18		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	N/A	Respiratory/Physiology Lab	N/A					0	20	0	Removed	
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90	Reduced by 1x	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7		Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
Respiratory High Dependency Area												
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	6	12	16.5	198	6	16.5	99	9 Beds in pods of 3	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (a)	10	1	5	5	Provision for a desk and require central monitoring	Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
Medical IPU 2 - 28 POC - Mainly Infectious Diseases IPU inc Winter Surge (This ward will be built with PANDEMIC OVERLAY)												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	6	12	16.5	198	6	16.5	99	Reduced by 1x and added 1x Superbari room, further reduced by 2x to allow for 2x I131 Rooms (as below)	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	4	1	16.5	16.5	4	16.5	66	4x Isolation Rooms for Infectious Disease Patients	If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	4	6	24		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90	Reduced by 1x	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7		Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
Location to be further explored	N/A	Radioiodine Therapy Treatment Room	N/A	2	1	20	20	2	20	40	For Iodine 131 thyroid treatment. Need to be shielding design compliant and require appropriate plumbing for safety	
Location to be further explored	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	2	5	10	Located within radiation therapy treatment rooms	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
MEDICAL IPU 1&2 SUPPORT AREAS												
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	2	5	10	Increased to 5m2 for a closed beverage bay	For staff acess to support patient care eg for storage of food, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	8	1	8		Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	4	2	8		At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	4	4	16		Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	2	1.5	3	One per ward	
	BBW	Bay - Blanket/Fluid Warmer	N/A					2	1	2	Added 1x per ward	
	CLRM-5	Cleaners Room	Yes		1	5	5	2	5	10		Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	CLUR-10	Clean Store	Yes		1	10	10	2	15	30	Increased to 15m2 each	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
	STOR-14	Medication Room	Yes		1	14	14	2	14	28		May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	2	20	40	Increased to 20m2 each. Need 2x pan flushers per dirty utility room, to be centrally located.	A second dirty utility may be required depending on travel distances.
	INTF	Interview Room	Yes		1	12	12	2	12	24	Telehealth enabled	Dual egress
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14	One per floor	For minor procedures, number dependent on scope of services and projected utilisation.
	SSTN-14	Staff Station	Yes		1	14	14	2	14	28		
	OFF-CLN	Clinical Workroom	Yes		1	15	15	2	15	30		Locate near staff station
	N/A	Bay - Photocopy/Stationary	Yes		1	3	3	2	3	6		Collocate with Staff Station
	OFF-S9	Office - Single Person	Yes		1	9	9	4	9	36	For NUM and CNC after hours. 2x per ward	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
	STEQ-20	Store - Equipment	Yes		1	20	20	2	20	40		Size dependent on equipment stored, frequency of use and number of bays

	STGN-9	Store - General	Yes		1	9	9	2	9	18	Size needs to be increased - TBC	For storage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	2	4	8	One per ward	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	BFLW-OP	Bay - Flowers (Open)	Yes		1	2 (o)	2	2	2	4	One per ward	Optional. Provision will depend on service profile and anticipated volume of flowers.
	N/A	Bay - PPE (Personal Protective Equipment)	Yes			0.5 (o)		0	0.5	0		Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	0	5	0		Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10	Shared between two wards	May be shared between two Units
	WCPU-3	Toilet - Public	Yes		1	3	3	2	3	6		Number to be determined depending on number of units sharing access to public toilets.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	2	6	12		Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Meeting Room	Yes		1	18 (o)	18	2	25	50	For teaching / learning / meetings. telehealth enabled. Increased to 25m2 each upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
MEDICAL IPU 1&2 STAFF AREAS												
	N/A	Office - Workstation	Yes			4.4		8	4.4	35.2	Increased to 4x workstations per ward	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	SRM-15	Staff Room	Yes		1	15	15	2	20	40	Enlarged to 20m2 to allow extra space for staff lockers as per CHS request. To include a kitchenette	Includes a beverage bay
	PROP-2	Property Bay - Staff	Yes		1	3	3	2	3	6		Capacity for all staff and students located on the IPU
	WCST	Toilet - Staff	Yes		1	3	3	2	3	6		Number depends on staffing
NDA				57			1,901			1,864		
Circulation						38%	722.2		38%	708.4		
GDA							2622.7			2572.6		
Medical IPU 3&4												
Medical IPU 3. 28 POC Gen Med, Neurology and 9x Monitored Stroke Beds												
(8 + 50% x stroke beds) rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECI-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	1	12	16.5	198	1	16.5	16.5	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	N/A	Cardiac Monitored Stroke Beds	N/A	9	1	16.5	16.5	9	16.5	148.5	Increased from 4x (current) to 9x (future) Monitored Stroke Beds. 1:3 nursing ratio. Provision for ceiling hoists required for 50% of stroke beds on top of the 8x rooms with ceiling hoists elsewhere in the ward	
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	2	5	10	For monitoring of stroke beds, to be located directly outside the stroke unit	Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33	2x Isolation Rooms on top of stroke beds	If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90	Reduced by 1x	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7		Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
Medical IPU 4. 28 POC Gen Med												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECI-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	10	12	16.5	198	10	16.5	165	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90		One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
MEDICAL IPU 3&4 SUPPORT AREAS												
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	2	5	10	Increased to 5m2 for a closed beverage bay	For staff acess to support patient care eg for storage of feeds, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	8	1	8		Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	4	2	8		At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	4	4	16		Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	2	1.5	3	One per ward	
	BBW	Bay - Blanket/Fluid Warmer	N/A					2	1	2	Added 1x per ward	
	CLRM-5	Cleaners Room	Yes		1	5	5	2	5	10		Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	CLUR-10	Clean Store	Yes		1	10	10	2	15	30	Increased to 15m2 each	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
	STOR-14	Medication Room	Yes		1	14	14	2	14	28		May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	2	20	40	Increased to 20m2 each. Need 2x pan flushers per dirty utility room, to be centrally located.	A second dirty utility may be required depending on travel distances.
	INTF	Interview Room	Yes		1	12	12	2	12	24	Telehealth enabled	Dual egress
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14	One per floor	For minor procedures, number dependent on scope of services and projected utilisation.
	OFF-CLN	Clinical Workroom	Yes		1	15	15	2	15	30		Locate near staff station
	N/A	Bay - Photocopy/Stationary	Yes		1	3	3	2	3	6		Collocate with Staff Station
	OFF-S9	Office - Single Person	Yes		1	9	9	4	9	36	For NUM and CNC after hours. 2x per ward	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
	STEQ-20	Store - Equipment	Yes		1	20	20	2	20	40		Size dependent on equipment stored, frequency of use and number of bays

	STGN-9	Store - General	Yes			9	9	2	9	18	Size needs to be increased - TBC	orage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	2	4	8	One per ward	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	BFLW-OP	Bay - Flowers (Open)	Yes		1	2 (o)	2	2	2	4	One per ward	Optional. Provision will depend on service profile and anticipated volume of flowers.
	N/A	Bay - PPE (Personal Protective Equipment)	No			0.5 (o)		0	0.5	0		Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	0	5	0		Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10	Shared between two wards	May be shared between two Units
	WCPU-3	Toilet - Public	Yes		1	3	3	2	3	6		Number to be determined depending on number of units sharing access to public toilets.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	2	6	12		Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Meeting Room	Yes		1	18 (o)	18	2	25	50	For Teaching / learning / meetings, telehealth enabled. Increased to 25m2 each upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
MEDICAL IPU 3&4 STAFF AREAS												
	N/A	Office - Workstation	Yes			4.4		8	4.4	35.2	Increased to 4x workstations per ward	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	SRM-15	Staff Room	Yes		1	15	15	2	20	40	Enlarged to 20m2 to allow extra space for staff lockers as per CHS request. To include a kitchenette	Includes a beverage bay
	PROP-2	Property Bay - Staff	Yes		1	3	3	2	3	6		Capacity for all staff and students located on the IPU
	WCST	Toilet - Staff	Yes		1	3	3	2	3	6		Number depends on staffing
NDA				57			1,590			1,806		
Circulation						38%	604.2		38%	686.4		
GDA							2194.2			2492.6		
Medical IPU 5&6												
Medical IPU 5, 28 POC Gen Med.												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	10	12	16.5	198	10	16.5	165	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90		One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
Medical IPU 6 - 28 POC - 12x Palliative Care, 2 x 4 MAPU units, 8x Gen Med (can either be a standalone IPU on a separate floor, or two IPUs on a separate floor with only 4 beds in second IPU functional at the start and the rest as shell space for future expansion)												
Ensure at least 8x rooms are to have provision for ceiling hoists (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	12	14	16.5	231	12	22	264	12x Palliative Care Beds with larger ensuites (accessible), and a fridge in each room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	ENS-ACC	Ensuite - Accessible (Palliative Care Ensuites)	Yes		1	7	7	12	7	84	12x Palliative Care Beds with larger ensuites (accessible), and a fridge in each room	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	N/A	Outdoor area (3.5m2 per patient)	N/A					12	3.5	42	Added - as a requirement for Palliative Care services	
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	4	12	16.5	198	4	16.5	66	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	0	6	29	174	0	29	0		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	8	1	58	58	2	58	116	For MAPU, Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	8	5	40	Reduced by 1x	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	N/A	Counsellor Room	N/A					1	12	12		Counsellor Room - not sure if this counts as a POC. Estimate only - From B10 floorplan - not in AHFG
	N/A	Palliative Care Family Lounge / Prayer Room	N/A					1	25	25	Multipurpose room - can be doubled up as a dining/laundry	Estimate only - From B10 floorplan - not in AHFG
	N/A	Multi-faith / prayer room	No		1	45	45	1	15	15	Multipurpose room - can be doubled up as a dining/laundry	
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies/Gymnasium	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	3	25	75	for palliative care family and conferences	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
MEDICAL IPU 5&6 SUPPORT AREAS												
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	2	5	10	Increased to 5m2 for a closed beverage bay	For staff acess to support patient care eg for storage of feeds, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	8	1	8		Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	4	2	8		At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	4	4	16		Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	2	1.5	3	One per ward	
	N/A	Bay - Ice Machine	N/A					1	1	1	Added 1x for Palliative Care services	
	BBW	Bay - Blanket/Fluid Warmer	N/A					2	1	2	Added 1x per ward	
	CLRM-5	Cleaners Room	Yes		1	5	5	2	5	10		Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	CLUR-10	Clean Store	Yes		1	10	10	2	15	30	Increased to 15m2 each	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
	STDR-14	Medication Room	Yes		1	14	14	2	14	28		May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	2	20	40	Increased to 20m2 each. Need 2x pan flushers per dirty utility room, to be centrally located.	A second dirty utility may be required depending on travel distances.

	INTF	Interview Room	Yes		1	12	12	2	12	24	Telehealth enabled	Dual egress
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14	One per floor	For minor procedures, number dependent on scope of services and projected utilisation.
	SSTN-14	Staff Station	Yes		1	14	14	2	14	28		
	OFF-CLN	Clinical Workroom	Yes		1	15	15	2	15	30		Locate near staff station
	N/A	Bay - Photocopy/Stationary	Yes		1	3	3	2	3	6		Collocate with Staff Station
	OFF-S9	Office - Single Person	Yes		1	9	9	4	9	36	For NUM and CNC after hours - 2x per ward	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
	STEQ-20	Store - Equipment	Yes		1	20	20	2	20	40		Size dependent on equipment stored, frequency of use and number of bays
	STGN-9	Store - General	Yes		1	9	9	2	9	18	Size needs to be increased - TBC	For storage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	2	4	8	One per ward	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	BFLW-OP	Bay - Flowers (Open)	Yes		1	2 (o)	2	2	2	4	One per ward	Optional. Provision will depend on service profile and anticipated volume of flowers.
	N/A	Bay - PPE (Personal Protective Equipment)	No			0.5 (o)		0	0.5	0		Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	0	5	0		Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10	Shared between two wards	May be shared between two Units
	WCPU-3	Toilet - Public	Yes		1	3	3	2	3	6		Number to be determined depending on number of units sharing access to public toilets.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	2	6	12		Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Meeting Room	Yes		1	18 (o)	18	2	25	50	For Teaching / learning / meetings, telehealth enabled. Increased to 25m2 each upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
MEDICAL IPU S&G STAFF AREAS												
	N/A	Office - Workstation	Yes			4.4		8	4.4	35.2	Increased to 4x workstations per ward	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	SRM-15	Staff Room	Yes		1	15	15	2	20	40	Enlarged to 20m2 to allow extra space for staff lockers as per CHS request. To include a kitchenette.	Includes a beverage bay
	PROP-2	Property Bay - Staff	Yes		1	3	3	2	3	6		Capacity for all staff and students located on the IPU
	WCST	Toilet - Staff	Yes		1	3	3	2	3	6		Number depends on staffing
NDA				57			1,890			2,081		
Circulation						38%	718.0		38%	790.9		
GDA							2607.5			2872.1		
Surgical IPU 1&2												
Surgical IPU 1 - 28 POC - Orthopaedics and other Specialties												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	10	12	16.5	198	10	16.5	165	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90		One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	STEQ-20	Store - Equipment	Yes		1	20	20	1	10	10	Added 1x 10m2 equipment storage space next to the bedrooms for storage of mobility aids such as crutches, wheelie frames etc	Size dependent on equipment stored, frequency of use and number of bays
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	
Surgical IPU 2 - 28 POC - Ortho Overflow and Gen Surg												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	10	12	16.5	198	10	16.5	165	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90		One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	LNGE-20	Lounge - Patient / Visitor, 20m2	Yes		1	20	20	1	25	25	CHS requested this to be increased to 25m2	
SURGICAL IPU 1&2 SUPPORT AREAS												
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	2	5	10	Increased to 5m2 for a closed beverage bay	For staff acess to support patient care eg for storage of feeds, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	8	1	8		Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	4	2	8		At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	4	4	16		Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	2	1.5	3	One per ward	
	BBW	Bay - Blanket/Fluid Warmer	N/A					2	1	2	Added 1x per ward	
	CLRM-5	Cleaners Room	Yes		1	5	5	2	5	10		Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	CLUR-10	Clean Store	Yes		1	10	10	2	15	30	Increased to 15m2 each	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
	STOR-14	Medication Room	Yes		1	14	14	2	14	28		May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	2	20	40	Increased to 20m2 each. Need 2x pan flushers per dirty utility room, to be centrally located	A second dirty utility may be required depending on travel distances.
	INTF	Interview Room	Yes		1	12	12	2	12	24	Telehealth enabled	Dual egress
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14	One per floor	For minor procedures, number dependent on scope of services and projected utilisation.
	SSTN-14	Staff Station	Yes		1	14	14	2	14	28		

	OFF-CLN	Clinical Workroom	Yes			15	15	2	15	30		...te near staff station
	N/A	Bay - Photocopy/Stationary	Yes		1	3	3	2	3	6		Collocate with Staff Station
	OFF-S9	Office - Single Person	Yes		1	9	9	4	9	36	For NUM and CNC after hours. 2x per ward	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
	STEQ-20	Store - Equipment	Yes		1	20	20	2	20	40		Size dependent on equipment stored, frequency of use and number of bays
	STGN-9	Store - General	Yes		1	9	9	2	9	18	Size needs to be increased - TBC	For storage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	2	4	8	One per ward	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	BFLW-OP	Bay - Flowers (Open)	Yes		1	2 (o)	2	2	2	4	One per ward	Optional. Provision will depend on service profile and anticipated volume of flowers.
	N/A	Bay - PPE (Personal Protective Equipment)	No			0.5 (o)		0	0.5	0		Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	0	5	0	To be confirmed if required	Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10	Shared between two wards	May be shared between two Units
	WCPU-3	Toilet - Public	Yes		1	3	3	2	3	6		Number to be determined depending on number of units sharing access to public toilets.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	2	6	12		Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Meeting Room	Yes		1	18 (o)	18	2	25	50	For Teaching / learning / meetings, telehealth enabled. Increased to 25m2 each upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
SURGICAL IPU 1&2 STAFF AREAS												
	N/A	Office - Workstation	Yes			4.4		8	4.4	35.2	Increased to 4x workstations per ward	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	SRM-15	Staff Room	Yes		1	15	15	2	20	40	Enlarged to 20m2 to allow extra space for staff lockers as per CHS request. To include a kitchenette.	Includes a beverage bay
	PROP-2	Property Bay - Staff	Yes		1	3	3	2	3	6		Capacity for all staff and students located on the IPU
	WCST	Toilet - Staff	Yes		1	3	3	2	3	6		Number depends on staffing
NDA				57			1,598			1,834		
Circulation						38%	607.1		38%	697.0		
GDA							2204.6			2531.2		
Surgical IPU 3 - 28 POC - General Surg and Other Specialties, including 7x Beds for Future Expansion												
Surgical IPU 3 - 28 POC - General Surg and Other Specialties, including 7x Beds for Future Expansion												
8x rooms are to have provision for overhead lifters (inclusive of the lifters in bari and super bari rooms)												
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10		
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15		
	1BR-ST-A11 BR-ST-A21	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	10	12	16.5	198	10	16.5	165	Reduced by 1x and added 1x Superbari room	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1				1	20	20	Added 1x Superbari Room per ward as CHS requested. To accommodate up to 500kg and negatively pressured. Note the room will be enabled to accommodate VAD patients from time to time, but no room will be specifically designed/purposed for VAD	
	1BR-IS-N11BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	2	1	16.5	16.5	2	16.5	33		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	ANRM	Anteroom	Yes		1	6	6	2	6	12		Provided as part of N Class rooms.
	2BR-ST-A12BR-ST-A22E	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	10	5	29	145	5	29	145		If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
	4BR-ST	4 Bed Room - Inboard Ensuite	Yes	4	1	58	58	1	58	58	Can in future be divided into 2 x 2 Bed Rooms	Can in future be divided into 2 x 2 Bed Rooms
	ENS-ST-A1ENS-ST-A2EN	Ensuite - Standard	Yes		19	5	95	18	5	90		One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
	ENS-ACC	Ensuite - Accessible	Yes		1	7	7	1	7	7	Reduced by 1x	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	2	7	14	Added by 1x	One per 1 Bed Room - Bariatric
	LNGE-20	Lounge - Patient / Visitor, 20m2			1	20	20	1	25	25	CHS requested this to be increased to 25m2	
	GYAH-ID	Individual Treatment / Clinic Spaces	Yes		1	76	76	2	18	36	Flexible for Allied Health Therapies	
	GYAH-GP	Gymnasium, Group Therapy	Yes	0	1	105 (o)	105	1	70	70		Not intended to be a traditional Gym but available therapy space for inpatients on the IPU.
SURGICAL IPU 3 SUPPORT AREAS												
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	5	5	Increased to 5m2 for a closed beverage bay	For staff acess to support patient care eg for storage of feeds, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	4	1	4		Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	2	2	4		At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	2	4	8		Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	1	1.5	1.5	One per ward	
	BBW	Bay - Blanket/Fluid Warmer	N/A					1	1	1	Added 1x per ward	
	CLRM-5	Cleaners Room	Yes		1	5	5	1	5	5		Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	CLUR-10	Clean Store	Yes		1	10	10	1	15	15	Increased to 15m2 each	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
	STDR-14	Medication Room	Yes		1	14	14	1	14	14		May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	1	20	20	Increased to 20m2 each. Need 2x pan flushers per dirty utility room, to be centrally located.	A second dirty utility may be required depending on travel distances.
	INTF	Interview Room	Yes		1	12	12	1	12	12	Telehealth enabled	Dual egress
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14	One per floor	For minor procedures, number dependent on scope of services and projected utilisation.
	SSTN-14	Staff Station	Yes		1	14	14	1	14	14		
	OFF-CLN	Clinical Workroom	Yes		1	15	15	1	15	15		Locate near staff station
	N/A	Bay - Photocopy/Stationary	Yes		1	3	3	1	3	3		Collocate with Staff Station
	OFF-S9	Office - Single Person	Yes		1	9	9	2	9	18	For NUM and CNC after hours. 2x per ward	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
	STEQ-20	Store - Equipment	Yes		1	20	20	1	20	20		Size dependent on equipment stored, frequency of use and number of bays
	STGN-9	Store - General	Yes		1	9	9	1	9	9	Size needs to be increased - TBC	For storage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	1	4	4	One per ward	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	BFLW-OP	Bay - Flowers (Open)	Yes		1	2 (o)	2	1	2	2	One per ward	Optional. Provision will depend on service profile and anticipated volume of flowers.
	N/A	Bay - PPE (Personal Protective Equipment)	No			0.5 (o)		0	0.5	0		Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
	SSTN-10	Staff Station - Decentralised	Yes		2	5 (o)	10	0	5	0		Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10	Shared between two wards	May be shared between two Units
	WCPU-3	Toilet - Public	Yes		1	3	3	1	3	3		Number to be determined depending on number of units sharing access to public toilets.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Meeting Room	Yes		1	18 (o)	18	1	25	25	For Teaching / learning / meetings, telehealth enabled. Increased to 25m2 each upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
SURGICAL IPU 3 STAFF AREAS												
	N/A	Office - Workstation	Yes			4.4		4	4.4	17.6	Increased to 4x workstations per ward	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	SRM-15	Staff Room	Yes		1	15	15	1	20	20	Enlarged to 20m2 to allow extra space for staff lockers as per CHS request. To include a kitchenette.	Includes a beverage bay
	PROP-2	Property Bay - Staff	Yes		1	3	3	1	3	3		Capacity for all staff and students located on the IPU
	WCST	Toilet - Staff	Yes		1	3	3	1	3	3		Number depends on staffing
NDA				29			1,011			994		
Circulation						38%	384.2		38%	377.8		
GDA							1395.2			1371.9		

(Medical/Surgical) IPU 10 SHELL SPACE - 28 POC												
10th INPATIENT WARD SUPPORT AREAS												
	N/A	SHELL SPACE	Yes					1	648	648	SHELL SPACE ONLY	
10th INPATIENT WARD SUPPORT AREAS												
	N/A	SHELL SPACE	Yes					1	209	209	SHELL SPACE ONLY	
10th INPATIENT WARD STAFF AREAS												
	N/A	SHELL SPACE	Yes					1	44	44	SHELL SPACE ONLY	
NDA				44			5,538			900		
Circulation						38%	1344.4		38%	342.0		
GDA							4882.2			1242.1		
Total NDA				257			7989			9480		
Total GDA							11024			13082		

Canberra Hospital - Building 10

Schedule of Accommodation - Sleep Medicine
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
Sleep Disorders Unit - Sleep Labs x3												
	1BR-BA	1 Bed Room - Super Bariatric	Yes	5	1	18	18	5	20	100	Separated into OPU (from IPU), increased from 2 to 6 and from 18m2 to 20m2. Overhead lifters required in all 6 rooms - super bariatric to allow for overnight carers. Need space for bari scales	Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-BA	1 Bed Room - Super Bariatric	Yes	1	1	18	18	1	20	20	Same requirement as above, except this room needs to be negative pressured	Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	6	7	42	Separated into OPU (from IPU), increased from 2 to 6	One per 1 Bed Room - Bariatric
	OFF-WS	Office – Workstation	No			4.4		4	4.4	17.6	Separated into OPU (from IPU), increased from 2 to 6	Number and area allocation will depend on staff profile and local jurisdictional policies.
	CONS-UN	Consult Room - Universal Access	Yes	2	1	17	17	2	17	34		Number to be provided will depend on the patient cohort.
	STGN-9	Store - General	Yes		1	9	9	1	9	9	Separated into OPU (from IPU), increased from 2 to 6	Sized to meet storage needs and operational arrangements.
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	DTUR-S	Dirty Utility - Sub	Yes		1	8 (o)	8	1	8	8		Optional. May include a combined disposal room function. Requirements will depend on service profile, eg these are frequently used for continence and
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	BHW	Bay - Height/Weight	Yes		1	2	2	1	2	2		
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4	Separated into OPU (from IPU), increased from 2 to 6	
	SSTN-14	Staff Station - Sleep lab monitoring booth/station	Yes		1	14	14	1	30	30	Separated into OPU (from IPU), increased from 2 to 6. Enlarged to allow for 6x ppl with 6x computers	
NDA				8			107			279		
Circulation						38%	40.7		38%	105.9		
GDA							147.7			384.5		

Canberra Hospital - Building 10

Schedule of Accommodation - Discharge/Transit Lounge
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
DISCHARGE/TRANSITION LOUNGE												
	RECL-15	Reception/ Clerical, 15m2	Yes		1	15	15	1	15	15	Added a reception area to transition lounge	
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10	Added a waiting room to transition lounge	
	N/A	Discharge Lounge (Chairs)	Yes	10	8	4 (o)	32	10	4	40	Discharge Lounge with 10x Discharge Chairs and 8x Discharge Beds	Optional. Each chair planned at 4m2. In some smaller units, patients may be discharged from Stage 2 recovery.
	1BR-H-12	1 Bed Room - Holding, 12m2 (Discharge Bed)	Yes	8	1	12	32	8	12	96	Discharge Lounge with 10x Discharge Chairs and 8x Discharge Beds	Optional. Each chair planned at 4m2. In some smaller units, patients may be discharged from Stage 2 recovery.
	1BR-IS-P2	1 Bed Room - Isolation - Positive Pressure	N/A	1	1	16.5	16.5	1	16.5	16.5	CHS requested one isolation room for discharge	
	BHWS-B	Bay - Handwashing, Type B	Yes		4	1	4	4	1	4	Added for transition lounge	Located in corridors
	BLIN	Bay - Linen	Yes		2	2	4	2	2	4	Added for transition lounge	At least 1 bay per 15 beds
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	2	4	8	Added for transition lounge	Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	BRES	Bay - Resuscitation	Yes		1	1.5	1.5	1	1.5	0	Added for transition lounge	
	CLRM-5	Cleaners Room	Yes		1	5	5	1	5	5	Added for transition lounge	Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
	STDR-14	Medication Room	Yes		1	14	14	1	14	14	Added for transition lounge	May be provided as a combined Clean Store / Medication Room
	DTUR-14	Dirty Utility	Yes		1	14	14	1	14	14	Added for transition lounge	A second dirty utility may be required depending on travel distances.
	STGN-9	Store - General	Yes		1	9	9	1	9	9	Added for transition lounge	For storage of boxes and non-sterile consumables.
	BMT-4	Bay - Meal Trolley	Yes		1	4 (o)	4	1	4	9	Added for transition lounge	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
	WCPU-3	Toilet - Public	Yes		1	3	3	1	3	3	Added a toilet to Transition Lounge	Number to be determined depending on number of units sharing access to public toilets.
	SSTN-14	Staff Station	Yes		1	14	14	1	14	14	Added for transition lounge	
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6	Added an accessible toilet to Transition Lounge	Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	N/A	Showers - Public	No					3	6	18	Size to be confirmed. Added for transition lounge	
NDA				**19**			**192**			**286**		
Circulation						**38%**	**73.0**		**38%**	**108.5**		
GDA							**265.0**			**394.0**		

Canberra Hospital - Building 10

Schedule of Accommodation - Handover Rooms
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
Health Information Services - 66x workstations in total												
	N/A	Meeting Room	Yes		1	18 (o)	18	3	18	54	For Clinical Handovers - upon CHS request	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
NDA				0			54			54		
Circulation						38%	20.5		38%	20.5		
GDA							74.5			74.5		

Canberra Hospital - Building 10

Schedule of Accommodation - Outpatients
Date 25/01/2024
Revision 6.0

					AusHFG (Ambulatory and Community Health 12 Rooms)			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
ENTRY / RECEPTION / CLERICAL												
	AIRLE-10	Airlock - Entry	Yes		1	10	10	1	10	10		Only provided when located on a stand-alone site or where a dedicated external entry is provided.
	RECL-10	Reception / Clerical	Yes		1	20	20	1	25	25	Increased to 25m2 as a shared reception for all outpatient services	May be decentralised with separate sub-wait areas for each zone.
	PLAP-10	Play Area - Paediatrics	Yes		1	10	10	1	10	10		
	BWC	Bay - Wheelchair Park	Yes		1	4	4	1	4	4		
	N/A	Mask and Hand Sanitiser Bay	No					1	1	1	Area to be allocated for a mask and hand sanitiser bay (including a waste bin) instead of a water dispenser as they are now removed from patient areas across CHS	
	WCPU-3	Toilet - Public	Yes		2	3	6	2	3	6		Number of toilets to align with BCA requirements.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
NDA				0			56			62		
Circulation						25%	14.0		25%	15.5		
GDA							70.0			77.5		
Medical OPU 1&2												
Outpatient Medical Pod 1 - 17 POCs - Respiratory Outpatients												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	0	6	12	72	0	12	0	Removed. Respiratory pod needs to cater for bariatric patients in all PODs	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	12	1	17	17	12	17	204	All Medical OPU Consult rooms are to be fitted with medical gas	Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	0	4	12	48	0	12	0	Removed. Respiratory pod needs to cater for bariatric patients in all PODs	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	3	1	14	14	3	14	42	Essentially respiratory labs for lung function testing	For minor procedures, number dependent on scope of services and projected utilisation.
	1BR-IS-N11BR-IS-N	1 Bed Room - Isolation - Negative Pressure	Yes	1	1	16.5	16.5	1	16.5	16.5	Added for respiratory outpatients to administer inhaled treatments, such as Pentamidine.	
	GYAH-ID	Gymnasium, Individual Treatment (Lung Function Lab)	Yes	1	1	76	76	1	50	50	Added for respiratory outpatients, provision required for medical gas	Individual treatment. Area noted assumes provision of 3 plinths, a 10m walking track, parallel bars, trial steps, 2 exercise equipment items and storage. Refer to standard component for details. This represents a gym within a small hospital. Area requirements for additional equipment and treatment cubicles are noted in Section 5.3 and the standard components. For early planning purposes assume approximately 9m2 per equipment station / plinth.
	WCPT	Toilet - Patient	Yes		1	4	4	0	4	0	Removed, changed to bari toilet instead	Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	2	7	14	Increased to 7m2 to cater for bariatric patients	Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously) for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Outpatient Medical Pod 2 - 15 POCs - Rooms Flexible Design												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	8	6	12	72	8	14	112	Increased to 14m2 as recommended by STH. All Medical OPU Consult rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17	All Medical OPU Consult rooms are to be fitted with medical gas	Number to be provided will depend on the patient cohort.
	N/A	Voluntary Assisted Dying Collaboration & Planning	N/A					1	25	25	Added (new)	
	INTF	Consult/Interview Room	Yes	4	4	12	48	4	14	56	Increased to 14m2 as recommended by STH. All Medical OPU interview rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	2	1	14	14	2	14	28		For minor procedures, number dependent on scope of services and projected utilisation.
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously) for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Medical OPU Pod 1 & 2 Support Areas												
	BRES	Bay - Resuscitation	Yes		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	Yes		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		May be shared with an adjacent service.
	DISP-8	Disposal Room	Yes		1	10 (o)	10	1	10	10		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
	DTUR-5	Dirty Utility - Sub	Yes		1	8 (o)	8	1	8	8		Optional. May include a combined disposal room function. Requirements will depend on service profile, eg these are frequently used for continence and palliative care clinics. Inclusion of pan washer, pan and bottle racks is optional.
	PROP-2	Property Bay - Staff	Yes		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	STPS-8	Store - Photocopy / Stationery	Yes		1	8	8	1	8	8		
	SRM-15	Staff Room	Yes		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	SPECC	Specimen Collection Bay	Yes			9 (o)		1	9	9		Optional. Inclusion is dependent on service scope. 9m2 assumes provision of an open bay. Assume 12m2 for an enclosed specimen collection room.
	MEET-L-20	Meeting Room, Medium	Yes		1	20	20	1	20	20		Use for group activities, education and integrated care case reviews. Number and size is dependent on scope of services and projected utilisation.
	WCST	Toilet - Staff	Yes		3	3	9	3	3	9		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				32			626			893		
Circulation						32%	200.3		32%	285.9		
GDA							826.3			1179.3		
Medical OPU 3&4												

Outpatient Medical Pod 3 - 15 POCs - Rooms Flexible Design												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	8	6	12	72	8	14	112	Increased to 14m2 as recommended by STH. All Medical OPU Consult rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17	All Medical OPU Consult rooms are to be fitted with medical gas	Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	4	4	12	48	4	14	56	Increased to 14m2 as recommended by STH. All Medical OPU interview rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	2	1	14	14	2	14	28		For minor procedures, number dependent on scope of services and projected utilisation.
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously) for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Outpatient Medical Pod 4 - 15 POCs - Rooms Flexible Design												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	8	6	12	72	8	14	112	Increased to 14m2 as recommended by STH. All Medical OPU Consult rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17	All Medical OPU Consult rooms are to be fitted with medical gas	Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	4	4	12	48	4	14	56	Increased to 14m2 as recommended by STH. All Medical OPU interview rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	2	1	14	14	2	14	28		For minor procedures, number dependent on scope of services and projected utilisation.
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously) for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Medical OPU Pod 3 & 4 Support Areas												
	BRES	Bay - Resuscitation	Yes		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	Yes		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		May be shared with an adjacent service.
	DISP-8	Disposal Room	Yes		1	10 (o)	10	1	10	10		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
	DTUR-5	Dirty Utility - Sub	Yes		1	8 (o)	8	1	8	8		Optional. May include a combined disposal room function. Requirements will depend on service profile, eg these are frequently used for continence and palliative care clinics. Inclusion of pan washer, pan and bottle racks is optional.
	PROP-2	Property Bay - Staff	Yes		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	STPS-8	Store - Photocopy / Stationery	Yes		1	8	8	1	8	8		
	SRM-15	Staff Room	Yes		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	SPECC	Specimen Collection Bay	Yes			9 (o)		1	9	9		Optional. Inclusion is dependent on service scope. 9m2 assumes provision of an open bay. Assume 12m2 for an enclosed specimen collection room.
	MEET-L-20	Meeting Room, Medium	Yes		1	20	20	1	20	20		Use for group activities, education and integrated care case reviews. Number and size is dependent on scope of services and projected utilisation.
	WCST	Toilet - Staff	Yes		3	3	9	3	3	9		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				30			534			765		
Circulation						32%	170.7		32%	244.8		
GDA							704.2			1009.7		
Medical OPU 5												
Outpatient Medical Pod 5 - 23 x Cardiology (including Diagnotic Cardiology).												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	PBTR-H-9	Patient Bay – Holding / Examination Plinth	Yes			9		2	9	18	Added two plinths for ECG	
	PBTR-H-9	Patient Bay – Holding / Examination Plinth	Yes			9		2	9	18	Added two plinths for device check	
	CONS	Consult Room	Yes	11	6	12	72	11	14	154	Increased to 14m2 as recommended by STH. All Medical OPU Consult rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17	All Medical OPU Consult rooms are to be fitted with medical gas	Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	6	4	12	48	6	14	84	Increased to 14m2 as recommended by STH. All Medical OPU interview rooms are to be fitted with medical gas	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	3	1	14	14	3	12	36	ECHO Rooms increased from 2x treatment rooms to 3x	For minor procedures, number dependent on scope of services and projected utilisation.
	STRT	Stress Testing		2	1	20	20	2	20	40	Added 2x stress testing rooms	Room for undertaking patient diagnostic stress testing procedures. The Stress Testing room should be located close to patient toilet and change rooms. Acoustic privacy required
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-1P-12	Office - 1 Person, 12m2	Yes		1	12	12	8	12	96	Added 8x 12m2 single offices and removed the previous 1x 9m2 office space	An office to accommodate 1 staff member carrying out computer based and/or administrative tasks in privacy.
	OFF-2P	Office - 2 Person Shared, 12m2	Yes		1	12	12	1	12	12	Cardiothoracic Admin	
	OFF-S9	Office - Single Person	Yes			9		3	9	27	Cardiothoracic Admin	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously) for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		16	4.4	70.4	Cardiology OP Clinical Admin - Relocated from B15	
	OFF-WS	Office – Workstation	No			4.4		10	4.4	44	Allied Health x 10 people	
	OFF-2P	Office - 2 Person Shared, 12m2	Yes		1	12	12	1	12	12	Registrar's Room	
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Medical OPU Pod 5 Support Areas												
	BRES	Bay - Resuscitation	Yes		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		

	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	BMEQ-4	Bay - Mobile Equipment	Yes		2	4	8	1	4	4	Added for cardiology pod only	Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	Yes		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		May be shared with an adjacent service.
	DISP-8	Disposal Room	Yes		1	10 (o)	10	1	10	10		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
	DTUR-S	Dirty Utility - Sub	Yes		1	8 (o)	8	1	8	8		Optional. May include a combined disposal room function. Requirements will depend on service profile, eg these are frequently used for continence and palliative care clinics. Inclusion of pan washer, pan and bottle racks is optional.
	PROP-2	Property Bay - Staff	Yes		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	STPS-8	Store - Photocopy / Stationery	Yes		1	8	8	1	8	8		
	SRM-15	Staff Room	Yes		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	SPECC	Specimen Collection Bay	Yes			9 (o)		1	9	9		Optional. Inclusion is dependent on service scope. 9m2 assumes provision of an open bay. Assume 12m2 for an enclosed specimen collection room.
	MEET-L-20	Meeting Room, Medium	Yes		1	20	20	1	20	20		Use for group activities, education and integrated care case reviews. Number and size is dependent on scope of services and projected utilisation.
	WCST	Toilet - Staff	Yes		3	3	9	3	3	9		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				23			385			851		
Circulation						32%	123.0		32%	272.4		
GDA							507.5			1123.5		
Outpatient Surgical Pod 1 - 15 clinic spaces (includes Registrar Clinics). Rooms Flexible Design												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	8	6	12	72	8	14	112	Increased to 14m2 as recommended by STH	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17		Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	4	4	12	48	4	14	56	Increased to 14m2 as recommended by STH	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	2	1	14	14	2	14	28		For minor procedures, number dependent on scope of services and projected utilisation.
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Outpatient Surgical Pod 2 - 19 clinic spaces. Rooms Flexible Design												
	WAIT-30	Waiting	Yes		1	30	30	1	30	30		Area recommendation is indicative and will depend on the no. of people to be accommodated. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. May be further divided into sub-wait areas for appropriate separation of client cohorts (eg a separated waiting area for families with children) and to facilitate way-finding. Consider infrastructure requirements for patient self-registration and access to education / health promotion resources.
	CONS	Consult Room	Yes	8	6	12	72	8	14	112	Increased to 14m2 as recommended by STH	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation. 14m2 required for child-related services.
	CONS-UN	Consult Room - Universal Access	Yes	1	1	17	17	1	17	17		Number to be provided will depend on the patient cohort.
	INTF	Consult/Interview Room	Yes	4	4	12	48	4	14	56	Increased to 14m2 as recommended by STH	Assume large units are divided into pods. Number dependent on scope of services and projected utilisation.
	TRMT	Treatment Room	Yes	2	1	14	14	2	14	28		For minor procedures, number dependent on scope of services and projected utilisation.
	TRMT-HTS	Treatment Room - Hand Therapy / Splinting	No	1	1	28 (o)	28	1	28	28	For fracture clinic	Optional. Commonly accessed by Occupational Therapy and Physiotherapy staff. Area assumes the provision of two hand therapy tables and associated support areas. Refer to Standard Component for further details. Access to a PC for EMR at the point of care is recommended (this may be wall or desk mounted).
	N/A	Store - Occupational Therapy	Yes		1	14	14	1	14	14	For fracture clinic	Capacity dependent on equipment to be accommodated. May include assessment wheelchairs.
	PLST	Plaster Room	Yes	1	1	18 (o)	18	1	18	18	For fracture clinic	Optional. More commonly provided in ED and Ambulatory Care clinics.
	TRMT-POD	Podiatry Treatment Room	Yes	1	1	14 (o)	14	1	14	14	Associated with Diabetes/Endocrinology GP	Optional. May be multipurpose. Inpatients may be transferred to service. For services requiring multiple podiatry treatment spaces, a series of open bays with one enclosed bays may be appropriate. Note specific design requirements for services providing low frequency ultrasound wound debridement.
	N/A	Orthotics / Prosthetics Workshop	No		1	15 (o)	15	1	15	15		
	AUD-TR	Audiology Testing Room	Yes	1	1	14 (o)	14	1	14	14		
	AUD-CR	Audiology Control Room	Yes		1	8 (o)	8	1	8	8		
	WCPT	Toilet - Patient	Yes		1	4	4	1	4	4		Collocate with specimen collection bay where provided for urine testing. Observed urine testing for drug screening will require appropriate design.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
	BHW	Bay - Height / Weight	Yes		1	2	2	1	2	2		
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	10	10	Increased to 10m2	
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		8	4.4	35.2	Added an extra 7x workstations (on top of the 1x previously for each pod	Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-CLN	Office - Clinical Workroom	Yes		1	12	12	1	15	15	Increased to 15m2	Assume 1 per pod
Outpatient Surgical Pod 1 & 2 Support Areas												
	BRES	Bay - Resuscitation	Yes		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	Yes		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		May be shared with an adjacent service.
	DISP-8	Disposal Room	Yes		1	10 (o)	10	1	10	10		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
	DTUR-S	Dirty Utility - Sub	Yes		1	8 (o)	8	1	8	8		Optional. May include a combined disposal room function. Requirements will depend on service profile, eg these are frequently used for continence and palliative care clinics. Inclusion of pan washer, pan and bottle racks is optional.
	PROP-2	Property Bay - Staff	Yes		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	STPS-8	Store - Photocopy / Stationery	Yes		1	8	8	1	8	8		
	SRM-15	Staff Room	Yes		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	SPECC	Specimen Collection Bay	Yes			9 (o)		1	9	9		Optional. Inclusion is dependent on service scope. 9m2 assumes provision of an open bay. Assume 12m2 for an enclosed specimen collection room.
	MEET-L-20	Meeting Room, Medium	Yes		1	20	20	1	20	20		Use for group activities, education and integrated care case reviews. Number and size is dependent on scope of services and projected utilisation.
	WCST	Toilet - Staff	Yes		3	3	9	3	3	9		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				34			645			876		
Circulation						32%	206.2		32%	280.3		
GDA							850.7			1156.2		

Total NDA				119			2245			3447		
Total GDA							2959			4546		

Canberra Hospital - Building 10

Schedule of Accommodation - Day Med Services (HITH)
Date 25/01/2024
Revision 6.0

					AusHFG (Ambulatory and Community Health 24 Medical Day Spaces)			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
ENTRY / RECEPTION / CLERICAL												
	AIRLE-10	Airlock - Entry	Yes		1	10	10	1	10	10		Only provided when located on a stand-alone site or where a dedicated external entry is provided.
	RECL-10	Reception / Clerical	Yes		1	20	20	1	20	20		May be decentralised with separate sub-wait areas for each zone.
	WAIT-30	Waiting	Yes		2	25	50	1	25	25		
	PLAP-10	Play Area - Paediatrics	Yes		1	10	10	1	10	10		
	BWC	Bay - Wheelchair Park	Yes		1	4	4	1	4	4		
	N/A	Mask and Hand Sanitiser Bay	-					1	1	1	Area to be allocated for a mask and hand sanitiser bay (including a waste bin) instead of a water dispenser as they are now removed from patient areas across CHS	
	WCPU-3	Toilet - Public	Yes		2	3	6	2	3	6		Number of toilets to align with BCA requirements.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	1	6	6		Optional. To be included if not located nearby.
NDA				0			106			82		
Circulation						25%	26.5		25%	20.5		
GDA							132.5			102.5		
MEDICAL DAY TREATMENT/HITH/IVAT												
	TRMT-CHE	Treatment Bay	Yes	18	22	9	198	18	9	162	18x Day Infusion Chairs	Acute treatment spaces. May be arranged in pods of 2-4 chairs, designed to ensure staff have oversight across the unit.
	TRMT-CHE	Treatment Bay	Yes	2	22	9	198	2	9	18	Intravenous Access Team	Acute treatment spaces. May be arranged in pods of 2-4 chairs, designed to ensure staff have oversight across the unit.
	1BR-ST-A11 BR-ST-	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	1	14	16.5	231	1	16.5	16.5		May be used as a Type 5 isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18		Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-IS-N11BR-IS-N	1 Bed Room - Isolation - Negative Pressure	Yes	1	1	16.5	16.5	1	16.5	16.5		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	PBTR-MD	Patient Bay - Medical Day Treatment	-	8	1	9	9	8	9	72		The Patient Bay - Medical Day Treatment may be used for assessment and treatment of non-admitted patients receiving scheduled treatment in either a bed or recliner (e.g. for infusions such as antibiotics and chemotherapy). A staff handwashing basin will be provided for each 4 bays and the Patient Bay will have, wherever possible, clear line of sight to a staff station and close access to a patient toilet. Access to natural light and views is required. Medical Gases may be provided individually to each bay or shared between two bays depending on service requirements.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	1	7	7		One per 1 Bed Room - Bariatric
	BHWS-B	Bay - Handwashing, Type B	Yes		6	1	6	6	1	6		1 between 4 spaces
	BMEQ-4	Bay - Mobile Equipment	Yes		1	4	4	1	4	4		
	SSTN-10	Staff Station	Yes		1	14	14	1	14	14		
	CLUR-8	Clean Store / Medication Room - Sub	Yes		1	12	12	1	12	12		Assumes combined room, however these may be separate rooms depending on clinical requirements and local policies. Assume +4m2 for chemo services to accomodate cytotoxic, blood and medication fridges and additional IV fluids.
	DTUR-S	Dirty Utility - Sub	-		1	12	12	1	12	12		May also include disposal room function. Inclusion of pan washer, pan and bottle racks is optional. Chemo services will include cytotoxic waste.
	WCPT	Toilet - Patient	Yes		3	4	12	1	4	4		
	WCAC	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6		
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	-		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	-		1	5	5	1	5	5	May be shared with an adjacent service	May be shared with an adjacent service.
	CONS	Consult Room	-		1	12 (o)	12	2	12	24		Optional, if service is not collocated with other ambulatory care services.
	PROC	Procedure Room	-			20 (o)		1	20	20	Req provision for medical gases	Optional. Inclusion and number dependent on service scope and utilisation.
	BES	Bay - Emergency Shower	-		1	1(o)	1	0	1	0		Optional, depending on service profile. Includes emergency eye wash. Required for chemo services.
	BRES	Bay - Resuscitation	-		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	BHW	Bay - Height/Weight	-		1	2	2	1	2	2		
	DISP-8	Disposal Room	-		1	10 (o)	10	0	10	0		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
NDA				31			804			450		
Circulation						32%	257.3		32%	143.8		
GDA							1061.3			593.3		
STAFF AREAS												
	OFF-4P	Office - 4 Person Shared, 20m2	-		1	20	20	1	20	20		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-S9	Office - Single Person	-			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	-			4.4		4	4.4	17.6		Number and area allocation will depend on staff profile and local jurisdictional policies.
	STPS-8	Store - Photocopy / Stationery	-		1	8	8	1	8	8		
	MEET-L-20	Clinical Handover/General Purpose Meeting Room, Medium	-		1	20	20	1	20	20		Size will depend on number of people to be accommodated.
	SRM-15	Staff Room	-		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	PROP-2	Property Bay - Staff	-		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	WCST	Toilet - Staff	-		3	3	9	1	3	3		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				0			74			95		
Circulation						25%	18.5		25%	23.7		
GDA							92.5			118.3		

Total NDA				31			984			626		
Total GDA							1286			814		

Canberra Hospital - Building 10

Schedule of Accommodation - Inpatient Dialysis Unit (with some OP Dialysis)
Date 25/01/2024
Revision 6.0

Located next to IPU if it can it be accommodated. Services inpatients in B5, National Capital Private and North Canberra Hospital.

					AusHFG (Ambulatory and Community Health 24 Medical Day Spaces)			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
ENTRY / RECEPTION / CLERICAL												
	AIRLS-10	Airlock - Entry	Yes		1	10	10	0	10	0		Only provided when located on a stand-alone site or where a dedicated external entry is provided.
	RECI-10	Reception / Clerical	Yes		1	20	20	0	20	0		May be decentralised with separate sub-wait areas for each zone.
	WAIT-30	Waiting	Yes		2	25	50	0	25	0		
	PLAP-10	Play Area - Paediatrics	Yes		1	10	10	0	10	0		
	BWC	Bay - Wheelchair Park	Yes		1	4	4	0	4	0		
	N/A	Mask and Hand Sanitiser Bay	No					0	1	0		
	WCPU-3	Toilet - Public	Yes		2	3	6	0	3	0		Number of toilets to align with BCA requirements.
	WCAC	Toilet - Accessible	Yes		1	6 (o)	6	0	6	0		Optional. To be included if not located nearby.
NDA				0			106			0		
Circulation						25%	26.5		25%	0.0		
GDA							132.5			0.0		
Inpatient Haemodialysis												
	1BR-ST-A11 BR-ST-	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	4	12	16.5	198	4	16.5	66	4x inpatient haemodialysis bedrooms	May be used as a Type 5 isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
	1BR-BA	1 Bed Room - Bariatric	Yes	1	1	18	18	1	18	18	Require overhead lifter	Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
	1BR-IS-N11BR-IS-N	1 Bed Room - Isolation - Negative Pressure	Yes	1	1	16.5	16.5	1	16.5	16.5		If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
	N/A	Treatment Bay - Renal Dialysis, Acute Bed Bay	Yes	6		12 (o)		6	12	72	6x Haemodialysis Treatment Bays	Optional. Larger sized bay for high acuity patients within in-centre units. Mix of recliners vs bed bays within these units to be determined based on the patient profile.
	ENS-BA	Ensuite - Bariatric	Yes		1	7	7	1	7	7	For bariatric room, but not necessarily attached	One per 1 Bed Room - Bariatric
	ENS-ST	Ensuite - Standard	Yes		2	5 (o)	10	1	5	5	For isolation room, but not necessarily attached	Optional. Associated with isolation rooms, however these are rarely used for patients on haemodialysis and can be an infection control risk if used sparingly. Requirements will depend on local operational and infection control advice.
	BHWS-B	Bay - Handwashing, Type B	Yes		6	1	6	2	1	2		1 between 4 spaces
	BMEQ-4	Bay - Mobile Equipment	Yes		1	4	4	1	4	4		
	SSTN-10	Staff Station	Yes		1	14	14	1	14	14		
	CLUR-8	Clean Store / Medication Room - Sub	Yes		1	12	12	1	12	12		Assumes combined room, however these may be separate rooms depending on clinical requirements and local policies. Assume +4m2 for chemo services to accomodate cytotoxic, blood and medication fridges and additional IV fluids.
	DTUR-S	Dirty Utility - Sub	Yes		1	12	12	1	12	12		May also include disposal room function. Inclusion of pan washer, pan and bottle racks is optional. Chemo services will include cytotoxic waste.
	WCPT	Toilet - Patient	Yes		3	4	12	0	4	0	2x patient toilets are sufficient for 12 dialysis POC	
	WCAC	Toilet - Accessible, 6m2	Yes		1	6	6	0	6	0	2x patient toilets are sufficient for 12 dialysis POC	
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4		
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		
	STEQ-14	Store - Equipment	Yes		1	14	14	1	14	14		
	STGN-9	Store - General	Yes		1	9	9	1	9	9		Sized to meet storage needs and operational arrangements.
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		May be shared with an adjacent service.
	CONS	Consult Room	Yes		1	12 (o)	12	1	12	12		Optional, if service is not collocated with other ambulatory care services.
	TRMT	Treatment Room	Yes	1	1	14	14	1	14	14		For minor procedures, number dependent on scope of services and projected utilisation.
	BHW	Bay - Height/Weight	Yes		1	2	2	1	2	2		
	BES	Bay - Emergency Shower	Yes		1	1(o)	1	0	1	0		Optional, depending on service profile. Includes emergency eye wash. Required for chemo services.
	BRES	Bay - Resuscitation	Yes		1	1.5 (o)	1.5	1	1.5	1.5		Inclusion will depend on operational policies. May include basic or advanced life support trolleys depending on service profile.
	DISP-8	Disposal Room	Yes		1	10 (o)	10	1	10	10		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
	SPECC	Specimen Collection Bay	Yes			9 (o)		1	9	9		Optional. Inclusion is dependent on service scope. 9m2 assumes provision of an open bay. Assume 12m2 for an enclosed specimen collection room.
	N/A	Daily Disinfection Maintenance of RO System	N/A					1	16	16		Optional. May be shared with an adjacent service or provided as a separate waste compound for the facility eg for standalone community health centres. Other 'back of house' services requirements will require confirmation for stand alone centres.
NDA				13			390			327		
Circulation						32%	124.8		32%	104.6		
GDA							514.8			431.6		
STAFF AREAS												
	OFF-S9	Office - Single Person	Yes			9		1	9	9		Number and area allocation will depend on staff profile and local jurisdictional policies.
	OFF-WS	Office – Workstation	No			4.4		1	4.4	4.4		Number and area allocation will depend on staff profile and local jurisdictional policies.
	STPS-8	Store - Photocopy / Stationery	Yes		1	8	8	1	8	8		
	MEET-L-20	Clinical Handover/General Purpose Meeting Room, Medium	Yes		1	20	20	1	20	20		Size will depend on number of people to be accommodated.
	SRM-15	Staff Room	Yes		1	15	15	1	15	15		Requirements will depend on staff profile and oportunity to share with adjacent services.
	PROP-2	Property Bay - Staff	Yes		1	2	2	1	2	2		Indicative only and space allocation will be dependent on staff numbers and local policies.
	WCST	Toilet - Staff	Yes		3	3	9	1	3	3		Number in accordance with staff profile. Access to an accessible toilet will be required.
NDA				0			54			61		
Circulation						25%	13.5		25%	15.4		
GDA							67.5			76.8		
Total NDA				13			550			388		
Total GDA							715			505		

Canberra Hospital - Building 10

Schedule of Accommodation - Perioperative Services (WYC Obstetric Theatres)
Date 25/01/2024
Revision 6.0

					AusHFG (Operating Unit - 6 ORs)			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
ENTRY / RECEPTION / WAITING												
	RECL-12	Reception/ Clerical, 12m2	Yes		1	12	12	1	12	12	Elective	
	WAIT-10	Waiting, 10m2	Yes		1	10	10	1	10	10	Elective	
	MEET-9	Meeting Room, 9m2	Yes		1	9	9	1	9	9	Elective	may also accommodate office and interview functions
	WCAC	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6		optional; include if no shared facilities available nearby
	WCPU-3	Toilet - Public, 3m2	Yes		1	3	3	1	3	3		optional; include if no shared facilities available nearby
Net Functional Area				0			40			40		
Circulation						30%	12.0		30%	12.0		
Gross Area							52.0			52.0		
PREOPERATIVE HOLDING AREA												
	PBTR-H-9	Patient Bay - Holding, 9m2	Yes		6	9	54	2	9	18		1 per OR; sized for trolleys, but some may be recliner chairs; where patients walk into the procedure areas, a waiting room may be provided instead
	INTF	Interview Room	Yes		1	9	9	2	9	18	Elective	interviews with nursing staff to check details and undertake baseline observations
	SHPT	Shower - Patient, 4m2	Yes		1	4	4	1	4	4	Elective	
	WCAC	Toilet - Accessible, 6m2	Yes		1	6	6	2	6	12	Elective	
	CHPT-D	Change Cubicle - Accessible, 4m2	Yes		1	4	4	2	4	8	Elective	
	N/A	Property Bay - Patient	No		1	1	1	1	1	1	Elective	quarter height lockers assumed
	BHWS-B	Bay - Handwashing, Type B	Yes		2	1	2	2	1	2		refer to AusHFG Part D for further details; accessible from OR and patient holding areas
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		min. 1 per 16 Patient Bay - Holding; corridor location with ready access to Bays
	BBW	Bay - Blanket/ Fluid Warmer	Yes		1	1	1	1	1	1		blanket warmer only
Net Functional Area				0			83			66		
Circulation						40%	33.2		40%	26.4		
Gross Area							116.2			92.4		
OPERATING ROOM AREA												
	ANAE-16	Anaesthetic Preparation Room, 16m2	Yes		6	16	96	3	16	48	THIRD OR IS SHELL SPACE ONLY	refer note 3 in AHFG Periop HPU
	ORGN	Operating Room, General	Yes	3	6	60	360	3	60	180	THIRD OR IS SHELL SPACE ONLY	refer notes 2, 3 and 4 in AHFG Periop HPU
	SCRB-4	Scrub Up, 4m2	Yes		6	4	24	1	6	6	Increased from 4 to 6m2	
	N/A	Exit Bay	No		6	12	72	3	12	36	THIRD OR IS SHELL SPACE ONLY	1 per Operating Room; if shared between 2 rooms, increase to 16m2; area includes approx 1m2 space for AV integration server cupboard which must be temperature controlled
	CLUP-10	Clean-Up Room - Shared, 10m2	Yes		3	10	30	1.5	10	15	Increased from 10 to 15m2	1 per 2 ORs, or 15m2 if shared between 3 ORs; fluid management system dock will not be required to every Clean-Up Room
Net Functional Area				3			582			285		
Circulation						40%	232.8		40%	114.0		
Gross Area							814.8			399.0		
CLINICAL SUPPORT AREAS												
	N/A	Neonatal Storage/Retrieval	No					1	16	16	Added at CHS request post EPT03	
	N/A	Bay - Blanket/ Fluid Warmer	No			0			0			shared with above
	BLIN	Bay - Linen	Yes		3	2	6	1	2	2		1 per 2 Operating Rooms; corridor recess with ready access to Operating Rooms
	BMEQ-4	Bay - Mobile Equipment, 4m2	Yes		3	4	12	1	4	4		1 bay per 2 Operating Rooms; provide power outlets for recharging
	STGN-9	Store - General	Yes		1	20	20	1	20	20		for Non-Sterile/ Deboxing storage
	STSS-20	Store - Sterile Stock	Yes		6	20	120	2	20	40		20m2 per Operating Room; direct relationship to SSU; may be provided as a single area (STSS-CC) or smaller rooms (STSS-20) to support a pair or pod of Operating Rooms
	STGN-9	Store - General	Yes		1	10	10	1	10	10		IV and other fluid storage
	STEQ-20	Store - Equipment	Yes		1	36	36	1	12	12	For major equipment	plan at 6m2 per Operating Room, for major equipment
	STEQ-20	Store - Equipment	Yes		1	30	30	1	10	10	For minor equipment	plan at 5m2 per Operating Room, for minor equipment
	N/A	Anaesthetic Workroom & Biomedical Equipment	No		1	10	10	0	10	0		optional; dedicated space for units of 16 ORs or more
	STGN-9	Store - General	Yes		1	15	15	1	15	15	Can be used for luggage storage	anaesthetic store for consumables
	CLRM-5	Cleaner's Room, 5m2	Yes			5		1	5	5		provide at least 1 room per 1000m2; ready access to all areas of the unit, preferred on perimeter; one room may be sized to accommodate a scrubber
	DISP-10	Disposal Room	Yes		1	10	10	1	10	10		
	BLST	Blood Store	Yes		1	2	2	1	2	2		may be for whole health care facility
	BPATH	Bay - Pathology	Yes		1	9	9	1	9	9		optional; frozen sections etc; may also be used to store freezer to support orthopaedic work
	STDR-10	Medication Room	Yes		1	6	6	1	6	6		
	N/A	Office - Write-up, 3m2	No		3	3	9	1	3	3		optional; 1 per 2 Operating Rooms
	WCST	Toilet - Staff, 3m2	Yes			3		1	3	3		number and location so staff have access close to where they work
Net Functional Area				0			295			167		
Circulation						40%	118.0		40%	66.8		
Gross Area							413.0			233.8		

RECOVERY AREA												
	PBTR-RS1	Patient Bay - Recovery, Stage 1, 9m2	Yes	3	9	9	81	3	9	27	Made S1 Recovery a POC as per CHS preference	1.5 bays per Operating Room
	PBTR-H-6	Patient Bay – Recovery Stage 2	Yes	6	12	6.5	78	6	6.5	39	Removed S2 recovery for periop as patients go straight back to the ward, but provision will be made for 6x recovery bays for MI patients	Stage 2 Recovery. Recommend 3 per theatre / procedure room. May need to be 9m2 should access be required at each side.
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	1	4	4	With a kitchenette	
	SSTN-10	Staff Station, 10m2	Yes		1	10	10	1	10	10		Staff Station Recovery
	CLUR-12	Clean Utility/ Medication Room, 10m2	Yes		1	10	10	1	10	10		direct access from Recovery Area, may be shared with Preoperative Holding Area
	DTUR-10	Dirty Utility, 10m2	Yes		1	10	10	1	10	10		direct access from Recovery Area, may be shared with Preoperative Holding Area
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		1 per 16 spaces
	BBW	Bay - Blanket/ Fluid Warmer	Yes		1	1	1	1	1	1		1 per 16 spaces
	STGN-8	Store - General	Yes			6		1	6	6		large enough for cots, IV poles, blood warmers, etc; low traffic area, access to patient holding large equip and delivery trolleys; wide and shallow preferred
	BRES	Bay - Resuscitation Trolley	Yes			1.5		1	1.5	1.5		access from Operating Rooms and Preoperative Holding Area; number to be determined on local requirements
	BHWS-B	Bay - Handwashing, Type B	Yes		3	1	3	2	1	2		
Net Functional Area				9			199			113		
Circulation						40%	79.6		40%	45.0		
Gross Area							278.6			157.5		
STAFF AREAS - AMENITIES												
	CHST-3S	Change - Staff (Male/Female)	Yes		1	30	30	1	30	30	Includes shower and toilet	indicative only; peak access periods need to be assessed; separate male and female needed
	CHST-3S	Change - Staff (Male/Female)	Yes		1	30	30	1	30	30	Includes shower and toilet	indicative only; peak access periods need to be assessed; separate male and female needed
	SRM-18	Staff Room	Yes		1	20	20	1	20	20		smaller units may share as appropriate; external window desirable
	N/A	Toilet - Accessible, 6m2	No		0	0	0	0	0	0		shared
Net Functional Area				0			80			80		
Circulation						40%	32.0		40%	32.0		
Gross Area							112.0			112.0		
STAFF AREAS - OFFICE AND SUPPORT SPACE												
	OFF-S9	Office - Single Person, 9m2	Yes			9		1	9	9	Added 1x for NUM/ANUM	e.g. Nurse Unit Manager
	N/A	Office - Workstation, 4.4m2	No			4.4		3	4.4	13.2	Increased to 3x	
	STPS-8	Store - Photocopy/ Stationery, 8m2	Yes			8			8		Shared with nearby department	
	MEET-12	Meeting Room, 12m2	Yes			12			12		Shared with nearby department	quantity to be determined by service demand, may be used for educational purposes
Net Functional Area				0			0			22		
Circulation						25%	0.0		25%	5.6		
Gross Area							0.0			27.8		
STERILISATION												
	N/A	Sterilisation Provision for Periop Threatres	N/A					1	120	120	SHELL SPACE	
Net Functional Area				0			0			120		
Circulation						25%	0.0		25%	30.0		
Gross Area							0.0			149.8		

Total GDA				12			1279			892.6		
Total GDA							1787			1224.3		

Canberra Hospital - Building 10

Schedule of Accommodation - Medical Imaging
Date 25/01/2024
Revision 6.0

					AusHFG [Medical Imaging]			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG and General Comments
ENTRY / RECEPTION / CLERICAL												
	WAIT-20	Waiting	Yes		1	20	20	1	20	20		Requirements will depend on the relative mix of outpatient vs inpatient services being provided by the imaging unit. 1.2m2 required per seat, 1.5m2 per wheelchair space.
	BWD-1	Bay - Water Dispenser	Yes		1	1	1	0	1	0		With capacity to fill cups or water bottles. Part of circulation space
	WCAC	Toilet - Accessible	Yes		1	6	6	1	6	6		Numbers will depend on the size of the unit. Toilets need to be consolidated once locations are finalised, could be shared with adjacent departments, also need to provide accessible options
	WCPU-3	Toilet - Public	Yes			3		2	3	6		Numbers will depend on the size of the unit. Toilets need to be consolidated once locations are finalised, could be shared with adjacent departments, also need to provide accessible options
	RECP-20	Reception	Yes		1	20	20	1	20	20		Increased to 20m2 to accommdoate 3-4 customer facing windows. This main reception will do admin for CSB, MI, Weston Creek
	N/A	Office - Workstation	No			5.5		10	4.4	44		Admin for BS, UCH and Community MI (BS currently has no admin space for the satellite MI). 4.4m2 allocated per workstation for admin staff member in CHS Accommodation policy
	OFF-2P	Office - 2 Person Shared	No		1	12	12	1	12	12		For clerical and booking staff and related equipment.
	STPS-8	Store - Photocopier / Stationery	Yes		1	8	8	1	8	8		
	CONS	Consult Room	Yes		1	12	12	0	12	0		Not required
	INTF	Interview Room	Yes		1	12	12	0	12	0		Not required
	BMEQ-4	Bay - Mobile Equipment	Yes		1	4 (o)	4	0	4 (o)	0		To be stored inside the radiographer workroom.
NDA				0			95			116		
Circulation						25%	23.8		25%	29.0		
GDA							118.8			145.0		
GENERAL X-RAY AND FLUOROSCOPY (SCREENING) - 4 X-Ray 1x Fluoro and 1x BMD												
	WAIT-S	Waiting - Sub	Yes		1	10	10	0	10	0		Reception/Waiting to be centralised/consolidated towards the end of MasterPlanning process.
	RECP	Reception			1	10	10	1	9	9		1 x small reception per modality type. Could be 9m2 (single office)
	GENXR	General X-Ray Room	Yes	4	4	38	152	4	38	152		4x Gen X-ray Rooms will be allocated for the new Core MI Service
	N/A	OPG Room	No	0		12		0	12	0		OPG will be in Building 5
	FLUO	Fluoroscopy Room	Yes	1	1	40	40	1	40	40		Room positioned and arranged so that patient/acoustic privacy is optimised. Includes equipment store within room. Needs to have a Type A Basin
	FLUOC	Fluoroscopy Control Room	No		1	12	12	1	12	12		Attached to Fluoroscopy Room.
	N/A	Preparation / Chair Bay (Cannulation Room)	No		1	9	9	1	6	6		Space for a chair and storage with a curtain for privacy for inserting cannula if IV contrast is required.
	ENS-ACC	Ensuite – Accessible	Yes		1	7	7	1	7	7		Dual access from Fluoroscopy Room and corridor.
	STSS-20	Store - Sterile Stock	N/A		1	20	20	1	10	10		For fluoroscopy procedures.
	N/A	BMD Room	N/A	1				1	12	12		Estimated size only (11m2 in current floorplan but needs to enlarge to 14m2), not available in AHFG. Need to have a hand basin, privacy curtain and some storage
	CHPT	Change Cubicle – Patient	Yes		4	2	8	2	2	4		No change rooms needed for BMD
	CHPT - D	Change Cubicle – Accessible	Yes		1	4	4	1	4	4		
	WCPT	Toilet – Patient	Yes		1	4	4	0	4	0		Toilets need to be consolidated once locations are finalised
	BLIN	Bay - Linen	Yes		1	2	2	0	2	0		Linen bays need to be consolidated once locations are finalised
	N/A	Bay – Lead Aprons	No		5	0.5	2.5	0	0.5	0		To be stored inside the radiographer workroom.
	REPR	Reporting Room	No		1	12	12	1	12	12		18m2 room to accommodate 3 Reporting workstations.
	N/A	Radiographer workroom	No		1	30	30	1	10	10		Added back in to accommodate lead approns and bulky equipment for X-ray and CT (if located nearby)
	STEQ-14	Store - Equipment	Yes			9		1	9	9		For a unit with a small number of modalities 9m2 is recommended. For a large, tertiary service up to 20m2 may be required.
NDA				6			323			287		
Circulation						37%	119.3		37%	106.2		
GDA							441.8			393.2		
ULTRASOUND AND MAMMOGRAPHY - 4 US + 1 Mammo												
	WAIT-S	Waiting - Sub	Yes		1	10	10	1	5	5		Reception/Waiting to be centralised/consolidated towards the end of MasterPlanning process.
	RECP	Reception			1	10	10	1	9	9		1 x small reception per modality type. Could be 9m2 (single office)
	BWD-1	Bay - Water Dispenser	Yes		1	1	1	0	1	0		Part of circulation space
	N/A	Patient Locker Bay	No		1	1 (o)	1	0	1 (o)	0		MRI change rooms have 2x L shaped lockers. Other than that inpatients don't need lockers, outpatients' belonging will stay with them throughout the procedure
	ULTR	Ultrasound Room	Yes	3	1	14	14	3	16	48		4x US Rooms will be allocated for the new Core MI Service - one of which is a procedural ultrasound room. Enlarged to 16m2 to accommodate dual-sided scanning. 4 x rooms required to support traininng for both MI and the fetal medicine unit in the CHWC
	ULTR-PR	Ultrasound Room - Procedures	No	1	1	20	20	1	20	20		5x US Rooms will be allocated for the new Core MI Service - one of which is a procedural ultrasound room
	N/A	Preparation / Chair Bay (Cannulation Room)	No		1	9	9	1	6	6		Space for a chair and storage with a curtain for privacy for inserting cannula if IV contrast is required.
	WCAC	Toilet - Accessible	Yes		1	6	6	3	6	18		Changed normal toilet to 1x accessible toilet which doubles up as a change cubicle with bench seats provided. Each US room requires a toilet/change room connected. Option to share between 2 US rooms.
	CLUP-7	Clean-Up Room	Yes		1	7 (o)	7	1	7 (o)	7		For High-Level disinfection unit (i.e., Trophon)
	PBTR-H-9	Patient Bay – Holding / Examination Plinth	Yes			9		2	6	12		Allocated 2x holding bays - not for recovery, only for patient holding and to store mobile examination plinths when not used (usually when an inpatient gets trasnferred for a scan, the exam plinth needs to be moved out of the room for storage elsewhere)
	MAMMO	Mammography Room	Yes	1	1	16	16	1	12	12		1x Mammo Room will be allocated for the new Core MI Service. The change cubicle could be incorproated inside the room with a privacy curtain.
	TRMT	Treatment Room	Yes			14 (o)		0	14	0		Not originally in AHFG for MI (but in floorplan), CHS is happy to go without for now
	CHPT	Change Cubicle - Patient	Yes		4	2	8	0	2	0		Embedded into each accessible toilet - as above. Bench seat to be provided
	CHPT-D	Change Cubicle - Accessible	Yes		1	4	4	0	4	0		Embedded into each accessible toilet - as above. Bench seat to be provided
	N/A	Sonographer Work Room	No			5.5		0	5.5	0		Not required

	CLN-10	Clean Store	Yes			10		1	10	10		For a unit with a small number of modalities 9m2 is recommended. For a large, tertiary service up to 20m2 may be required. Room for supply imprest required for US procedures.
	REPR	Reporting Room	No		1	12	12	1	12	12		3 Reporting workstations. As a guide two workstations will likely be required for two-three ultrasound rooms. An additional reporting station will be required for mammography.
NDA				5			118			159		
Circulation						37%	43.7		37%	58.8		
GDA							161.7			217.8		
MI Day Ward, Patient Holding and Recovery												
	N/A	Preparation / Chair Bay	N/A		1	9	9	0	9	0		Added - not originally in AHFG for Interventional Radiology. Could be chair or inpatient bed. Increased to 4x
	PBTR-H-6	Patient Bay - Holding	Yes		3	6	18	6	6	36		Added - not originally in AHFG for Interventional Radiology
	SSTN-10	Staff Station	Yes		1	10	10	1	10	10		Area required will depend on number of bays allocated.
	WCAC	Toilet - Accessible	Yes		1	6	6	1	6	6		
	BHWS-B	Bay - Handwashing, Type B	No			1		1	1	1		
	CLUR-12	Clean Utility / Medication Room	Yes		1	10	10	1	10	10		Shared with adjacent modality areas.
	DTUR-S	Dirty Utility - Sub	Yes		1	10	10	1	10	10		Shared with adjacent modality areas if nearby
	BLIN	Bay - Linen	Yes			2		1	2	2		
	BBW	Bay - Blanket / Fluid Warmer	Yes			1		1	1	1		
	BBEV-OP	Bay - Beverage, Open Plan	Yes		1	4	4	0	4	0		Small fridge in staff station would meet need
	BRES	Bay - Resuscitation Trolley	Yes		1	1.5	1.5	1	1.5	1.5		
	BMEQ-4	Bay - Mobile Equipment	Yes			4		1	4	4		
NDA				0			69			82		
Circulation						37%	25.3		37%	30.2		
GDA							93.8			111.7		
CT - Interventional												
	WAIT-S	Waiting - Sub	Yes		1	10	10	1	10	10		Reception/Waiting to be centralised/consolidated towards the end of MasterPlanning process. Spoke with clincial team and separate sub receptions and waits will be required for MRI, CT, US and Nuc Med. These will need to have small sub waits. Sub waits will also be used to monitor outpatients post scan, ie patients post scans who need to wait 15 minutes due to having contrast, light sedation
	RECP	Reception			1	10	10	1	9	9		1 x small reception per modality type. Could be 9m2 (single office)
	CTPR	CT Imaging Room (Interventional CT)	Yes	2	3	45	135	2	45	90		1x Interventional CT Room will be allocated for the new Core MI Service. Type A handwash basin
	CTCR	CT Imaging Control Room	Yes		3	12	36	1	20	20		Shared - increased size to 20m2
	N/A	CT Equipment Room	No		3	10 (o)	30	1	10	10		For UPS/communications equip (not for clinical equip) and can be shared between modalities (essentially a plant room)
	REPR	Reporting Room	No		1	12	12	1	12	12		18m2 room to accommodate 3 Reporting workstations.
	CHPT-D	Change Cubicle - Accessible	Yes		1	4	4	1	4	4		One per CT room. CHS requested 2x cubicles per CT
	WCPT	Toilet - Patient	Yes		1	4	4	0	4	0		Toilets need to be consolidated once locations are finalised
	PBTR-H-6	Patient Bay - Holding	Yes		3	6	18	1	6	6		One outside of each CT imaging room.
	N/A	Preparation / Chair Bay (Cannulation Room)	No		1	9	9	1	6	6		Space for a chair and storage with a curtain for privacy for inserting cannula if IV contrast is required.
	N/A	Patient Locker Bay	No		1	1	1	0	1	0		Patient belongings will stay with the patient throughout.
	CLUR-8	Clean Utility / Medication Room - Sub	Yes		1	8	8	1	8	8		Interventional CT will need its own Clean Utility room
	DTUR-S	Dirty Utility - Sub	Yes		1	8 (o)	8	0	8 (o)	0		Centralised amongt all MI modalities
	BHWS-B	Bay - Handwashing, Type B	Yes		1	1	1	1	1	1		Type B handbasin for pateint care and cannulations.
NDA				2			286			176		
Circulation						37%	105.8		37%	65.1		
GDA							391.8			241.1		
Gamma - 2x SPECT/CTs, 1x PET/CT, 1x Gamma												
	WAIT-S	Waiting - Sub	Yes		1	10	10	1	10	10		Reception/Waiting to be centralised/consolidated towards the end of MasterPlanning process. Spoke with clincial team and separate sub receptions and waits will be required for MRI, CT, US and Nuc Med. These will need to have small sub waits. Sub waits will also be used to monitor outpatients post scan, ie patients post scans who need to wait 15 minutes due to having contrast, light sedation
	RECP	Reception			1	10	10	1	9	9		1 x small reception per modality types. Could be 9m2 (single office)
	SPECT-CT	SPECT/CT Imaging Room	Yes	2	2	50	100	2	50	100		2x SPECT/CT Room will be allocated for the new Core MI Service
	STRT	Stress Testing Room	N/A		1	20	20	1	20	20		Estimated size only
	PET-CT	PET-CT Imaging Room	Yes	1	1	50	50	1	50	50		1x PET/CT Room will be allocated for the new Core MI Service
	UTRM	Uptake Room	N/A		5	10	50	5	10	50		CHS MI clinical team requesting 7x uptake rooms (5x chairs and 2x beds). Service requesting 5 chairs. Gallium production on site results in increased patient throughput which requires sufficient number of rooms to support activity.
	UTRM	Uptake Room - bed	N/A					2	14	28		Estimated size only, not available in AHFG, CHS requested 5x uptake rooms (3x chairs and 2x beds)
	SPECT-CT	SPECT/CT Imaging Room - gamma camera	N/A	1	1	50	50	1	30	30		Estimated size only, not available in AHFG
	SPECT-CTCR	SPECT-CT Control Room	Yes		3	12	36	4	12	48		Option to share across modalities
	N/A	CT Imaging Control Room - Shared	Yes		1	20 (o)	20	0	20 (o)	0		Optional. A shared control room may be preferred between two rooms in terms of staffing efficiency and patient throughput. This is an alternative to a dedicated room. Removed
	N/A	CT Equipment Room	No		3	10 (o)	30	1	10	10		Room for plant, UPS, CONS boxes. Required item. This space is needed for all modalities, or can be shared. This is not a room for clincial equipment storage. Also known as a Plant Room during design. Sometimes the equipment can be stored in the room with the scanner if the room is big enough.
	REPR	Reporting Room	No			12		1	12	12		3x reporting workstations (6m2 per workstation)
	CHPT	Change Cubicle - Patient	Yes		2	2	4	0	2	0		Patients can change within the uptake rooms
	CHPT-D	Change Cubicle - Accessible	Yes		1	4	4	0	4	0		Patients can change within the uptake rooms
	WCAC	Toilet - Accessible	Yes		1	6	6	1	6	6		For PET patients only (lead lined)
	PBTR-H-6	Patient Bay - Holding	Yes		3	6	18	2	6	12		One outside of each CT imaging room. Just need two
	N/A	Preparation / Chair Bay (Cannulation Room)	No		1	9	9	1	6	6		Space for a chair and storage with a curtain for privacy for inserting cannula if IV contrast is required.
	N/A	Patient Locker Bay	No		1	1	1	0	1	0		Patients belonging will accompany them throughout

	BHW	Bay - Height/weight						1	1	1		Weight and height station - to determine contrast and isotope requirments if required. Share across unit.
	N/A	Nuclear Medicine Hot Lab	No		1	14	14	1	14	14		Hot Lab 14m2 to support the production of isotopes - lead lined
NDA				4			432			406		
Circulation						37%	159.8		37%	150.2		
GDA							591.8			556.2		
MRI - 2 MRI Rooms												Keep MRI soley for MRI due to the safety zoning requirments. BMD moved to another modality
	WAIT-S	Waiting - Sub	Yes		1	10	10	1	10	10		Reception/Waiting to be centralised/consolidated towards the end of MasterPlanning process. Spoke with clincial team and separate sub receptions and waits will be required for MRI, CT, US and Nuc Med. These will need to have small sub waits. Sub waits will also be used to monitor outpatients post scan, ie patients post scans who need to wait 15 minutes due to having contrast, light sedation
	RECP	Reception			1	10	10	1	8	8		1 x small reception per modality types. Could be 8m2
	ANAE-16	Anaesthetic Preparation Room	Yes		3	16	48	0	16	0		Anae Prep room not required. Patient holding space is suffice
	BHWS-B	Bay - Handwashing Type B	Yes		1	1	1	0	1	0		Part of preparation area.
	N/A	MRI Imaging Room	No	2	3	46	138	2	46	92		2x MRIs will be allocated for the new Core MI Service
	N/A	MRI Control Room	No		3	14	42	1	20	20		To have a shared control room rather than 2x separate control rooms, enlarged to 20m2. Need to have clear visibility of any entry door (imaging room, corridor, change cubicles)
	N/A	MRI Equipment Room	No		3	10	30	2	10	20		Used to store MRI plant equipment (staff only, secured, cannot be collated inside the MRI rooms), 10m2 should be ok if for 1 x MRI. Could be shared across MRI modalities
	CLN-10	Clean Store, 10m2	Yes		1	10	10	1	8	8		Clean store room for MRI related consubamables, imprest supply stock stored in wall mounted wire baskets. 8m2 shoudl be big enough.
	N/A	Preparation / Chair Bay (Cannulation Room)	No		1	9	9	1	6	6		Space for a chair and storage with a curtain for privacy for inserting cannula if IV contrast is required. Added one for the MRIs. Could be smaller 7-8m2
	REPR	Reporting Room	No		1	12	12	1	12	12		18m2 room to accommodate 3 Reporting workstations.
	CHPT	Change Cubicle - Patient	Yes		2	2	4	1	2	2		with locker x 1 L shaped
	CHPT-D	Change Cubicle - Accessible	Yes		1	4	4	1	4	4		with locker x 1 L shaped
	WCAC	Toilet - Accessible	Yes		1	6	6	0	6	0		To be shared with nearby modalities
	PBTR-H-9	Patient Bay - Holding	Yes		3	9	27	2	9	18		Increased to 9m2 to accommodate room for 2 holding bay and space to transfer patientt from inpatient bed onto the MRI safe trolley.
	SSTN	Staff Station	Yes		1	8	8	0	8	0		To be shared with nearby modalities
	BLIN	Bay - Linen	Yes		1	2	2	1	2	2		MRI will be a stand-alone unit. Or joinery cupboard to hold linen within the patient holding.
	BMEQ-4	Bay - Mobile Equipment	Yes		1	4	4	1	4	4		E.g. anaesthetic machine. MRI safe wheelchair and other MRI safe equipment
	BRES	Bay - Resuscitation Trolley	Yes		1	1.5	1.5	0	1.5	0		Non-ferrous construction. Cannot be kept in MI
	N/A	Patient Locker Bay	Yes		1	1	1	1	1	1		For inpatientt valuables that did not remain on ward
	WCST	Toilet - Staff	Yes		1	3	3	0	3	0		Not required. To use general staff facilities
NDA				2			371			207		
Circulation						37%	137.1		37%	76.6		
GDA							507.6			283.6		
CLINICAL SUPPORT AREAS												
	CLRM-5	Cleaner's Room	Yes		1	5	5	1	5	5		
	STGN-9	Store - General	Yes			9		1	9	9		For accommodation of consumables such as contrast media. For a unit with a small of modalities 9m2 is recommended. For a large, tertiary service up to 30m2 may be required.
	STEQ-14	Store - Equipment	Yes			9		1	9	9		This will be an equipment bay - open area for storage of mobile X-ray machines and ultrasound machines
	DISP-8	Disposal Room	Yes		1	8	8	1	8	8		Area requirement will depend on size of unit.
NDA				0			13			31		
Circulation						37%	4.8		37%	11.5		
GDA							17.8			42.5		
STAFF WORK AREAS												
	OFF-S12	Office - 2 Person	Yes			12		3	12	36		Requirement will depend on staff profile. Shared - 2 people
	OFF-S9	Office - Single Person	Yes			9		3	9	27		Chief Radiologist, ADDN, staff specialists etc. Number will depend on staff profile.
	MEET- L-20	Meeting Room	Yes		1	20	20	1	20	20		Allocated 2x meeting rooms
NDA				0			20			83		
Circulation						25%	5.0		25%	20.8		
GDA							25.0			103.8		
STAFF AMENITIES												
	SRM-15	Staff Room	Yes			15		1	15	15		Area requirement will depend on the staff establishment. Refer to standard components for capacity requirements. Shared staff room for small units. Depending on the size of service, additional beverage bays may be needed to support staff near to where they work.
	PROP-2	Property Bay - Staff	Yes			2		0	2	0		Built into staff change rooms
	SHST	Shower - Staff	Yes			3 (o)		0	3	0		Built into staff change rooms
	WCST	Toilet - Staff	Yes			3		0	3	0		Built into staff change rooms
	CHST-10	Change Room - Staff (Male / Female)	Yes		2	10	20	2	20	40		Required for facilities with high interventional workload. May support interventional radiology, CT, MRI. Will include showers and WCs. Area requirement will depend on the staff establishment. With Showers, Toilets and Property Bays built in. Enlarged to 20m2 each and need to accommodate accessible staff
NDA				0			20			55		
Circulation						25%	5.0		25%	13.8		
GDA							25.0			68.8		

Total NDA				19			1746			1602		
Total GDA							2375			2164		

Canberra Hospital - Building 10

Schedule of Accommodation - JMO Lounge
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
JMO Lounge												
	N/A	JMO Lounge	No					1	60	60		
	N/A	Overnight Stay - Bedroom	No			10		4	10	40	RMO Bedrooms	
	N/A	Kitchenette	No					1	4	4		
	N/A	Shared Ensuite						1	9	9		
	STGN	Store - General	No		1	9	9	0	9	0	Removed as JMOs now use lockers within wards instead	For other non-sterile / deboxing storage. Increasing use of disposable packs.
NDA				**0**			**9**			**113**		
Circulation						30%	2.7		30%	33.9		
GDA							**11.7**			**146.9**		

Canberra Hospital - Building 10

Schedule of Accommodation - B1 Staff Admin (Core Administrative Support Functions)
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
Building 1 (Level 10B) Staff Relocation, 81 Current Workstations (Assume 81 FTE)												
	N/A	Office - Single Person, 18m2	No		1	18	18	1	18	18	CEO/CMO Office. Reduced to 1x	An office to accommodate 1 staff member carrying out computer based and/or administrative tasks in privacy.
	OFF-1P-12	Office - 1 Person, 12m2	Yes		1	12	12	2	12	24	Deputy CEO/CMO, director or other executive Offices	An office to accommodate 1 staff member carrying out computer based and/or administrative tasks in privacy.
	OFF-2P	Office - 2 Person Shared, 12m2	Yes		1	12	12	4	12	48	Typically Research Fellows, VMDs and any staff referred to in Office C.	Shared office area for 2 persons with two workstations to undertake administrative duties
	OFF-S9	Office - Single Person, 9m2	Yes		1	9	9	8	9	72	Assume 10% of staff require a single person office. Typically for managers, FTE > 0.7	
	OFF-S9	Office - Single Person, 9m2	Yes		1	9	9	4	9	36	wellness and clinical director of training, plus two other new positions	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	62	4.4	272.8	Remaining permanent staff will be allocated a 4.4m2 workstation each	
	OFF-SWS	Office - Workstation, 2.2m2	Yes		1	2.2	2.2	20	2.2	44	Workspace for intermittent use by visiting staff/consultants and is not designed as the primary workplace but a space to attend ad hoc functions.	For staff who travel between facilities and may require workspace to perform administrative functions.
	BBEV-OP	Beverage Bay - Open Plan, 4m2	Yes		1	4	4	1	4	4	When final location is decided, this may become a shared space	If no Staff Room provided
	MEET-12	Meeting Room, 12m2	Yes		1	12	12	2	12	24	When final location is decided, this may become a shared space	For staff, patients and family members o conduct confidential discussions.
	MEET-L-20	Meeting Room, 20m2	Yes		1	20	20	2	20	40	When final location is decided, this may become a shared space	This room is a shared facility and is to be accessed through a booking system
	MEET-L-30	Meeting Room, 30m2	Yes		1	30	30	0	30	0	When final location is decided, this may become a shared space	To attend meetings or can be used as a smallgroup room for Community Health
	MEET-55	Meeting Room, 55m2	No		1	55	55	1	55	55	When final location is decided, this may become a shared space	The provision of nonfixed, stackable seating allows greater flexibility. Can be used as a large group room for Community Health, antenatal classes etc
	N/A	Property Bay Staff	N/A		1	2	2	20	2	40	Estimated based on 1x per 4 staff. When final location is decided, this may become a shared space	Up to 4 staff, intermittently
	STGN	Store - General	No		1	9	9	1	15	15	Enlarged to 15m2. When final location is decided, this may become a shared space	For other non-sterile / debowing storage, increasing use of disposable packs.
	STFS-10	File Store, 10m2	Yes		1	10	10	1	10	10	When final location is decided, this may become a shared space	Personnel Files
	STPS-8	Store - Photocopy / Stationery, 8m2	Yes		1	8	8	1	8	8	When final location is decided, this may become a shared space	
	SRM-15	Staff Room, 15m2	Yes		1	15	15	1	30	30	When final location is decided, this may become a shared space	Optional; includes beverage bay
	WCST	Staff Toilet, 3m2	Yes		1	3	3	4	3	12	When final location is decided, this may become a shared space	
	WCDS	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6	When final location is decided, this may become a shared space	If not available nearby
	N/A	End of Trip Facilities	N/A					1	30	30	EOT facilities include showers and change rooms. When final location is decided, this may become a shared space	
NDA				0			240.6			788.8		
Circulation	25-30%					30%	72.2		30%	236.6		
GOA							312.8			1025.4		

Canberra Hospital - Building 10

Schedule of Accommodation - B6 Staff Admin (non-Div of Surg)
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	**AusHFG Room Code**	**Room / Space**	**SC / SC-D**	**Proposed POCs**	**Qty**	**AHFG m2**	**SubTotal AHFG Area m2**	**Qty**	**Briefed Area m2**	**SubTotal Briefed Area m2**	**Comments**	**AusHFG Comments**
Building 6/23 Admin Staff Relocation (219 Staff in total) - Out of which Division of Surgery will be relocated to new B6 (assume 140 FTE for Div of Surg until next SOA revision)												
	OFF-S9	Office - Single Person, 9m2	Yes		1	9	9	1	9	9	Like for like - COVID @ home	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	3	4.4	13.2	Like for like - COVID @ home	
	OFF-S12	Office - Single Person, 12m2	Yes		1	12	12	1	12	12	Like for like - ADON/DOM	
	OFF-S9	Office - Single Person, 9m2	Yes		1	9	9	1	9	9	Like for like - ADON/DOM	
	OFF-S12	Office - Single Person, 12m2	Yes		1	12	12	1	12	12	Like for like - Rheumatology	
	OFF-S9	Office - Single Person, 9m2	Yes		1	9	9	1	9	9	Like for like - Rheumatology	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	12	4.4	52.8	Like for like - Rheumatology	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	4	4.4	17.6	Like for like - QSIF - CFET	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	5	4.4	22	Like for like - Dermatology	
	OFF-2P	Office - 2 Person Shared, 12m2	No		1	12	12	2	12	24	Like for like - GP Liaison Officer	
	N/A	Office - Single Person, 15m2	Yes		1	15	15	1	15	15	Like for like - Diabetes and Endocrinology	
	OFF-S12	Office - Single Person, 12m2	Yes		1	12	12	3	12	36	Like for like - Diabetes and Endocrinology	
	OFF-3P	Office - 3 Person Shared, 15m2	Yes		1	15	15	1	15	15	Like for like - Diabetes and Endocrinology	Shared office space for 3 persons with three, workstations to undertake administrative duties
	OFF-2P	Office - 2 Person Shared, 12m2	Yes		1	12	12	2	12	24	Like for like - Diabetes and Endocrinology	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	10	4.4	44	Like for like - Diabetes and Endocrinology	
	OFF-S12	Office - Single Person, 12m2	Yes		1	12	12	2	12	24	Like for like - CHWC Diabetes and Endocrinology	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	19	4.4	83.6	Like for like - CHWC Diabetes and Endocrinology	
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	16	4.4	70.4	Like for like - CHWC Diabetes and Endocrinology	
	BBEV-OP	Beverage Bay - Open Plan, 4m2	Yes		1	4	4	1	4	4	When final location is decided, this may become a shared space	If no Staff Room provided
	MEET-12	Meeting Room, 12m2	Yes		1	12	12	1	12	12	When final location is decided, this may become a shared space	For staff, patients and family members o conduct confidential discussions.
	MEET-L-20	Meeting Room, 20m2	Yes		1	20	20	1	20	20	When final location is decided, this may become a shared space	This room is a shared facility and is to be accessed through a booking system
	MEET-L-30	Meeting Room, 30m2	Yes		1	30	30	1	30	30	When final location is decided, this may become a shared space	To attend meetings or can be used as a smallgroup room for Community Health
	MEET-55	Meeting Room, 55m2	Yes		1	55	55	1	55	55	When final location is decided, this may become a shared space	The provision of nonfixed, stackable seating allows greater flexibility. Can be used as a large group room for Community Health, antenatal classes etc
	N/A	Property Bay Staff	N/A		1	2	2	19	2	38	Estimated based on 1x per 4 staff. When final location is decided, this may become a shared space	Up to 4 staff, intermittently
	STGN	Store - General	No		1	9	9	1	9	9	When final location is decided, this may become a shared space	For other non-sterile / deboxing storage. Increasing use of disposable packs.
	STFS-10	File Store, 10m2	Yes		1	10	10	1	10	10	When final location is decided, this may become a shared space	Personnel Files
	STPS-8	Store - Photocopy / Stationery, 8m2	Yes		1	8	8	1	8	8	When final location is decided, this may become a shared space	
	SRM-15	Staff Room, 15m2	Yes		1	15	15	1	15	15	When final location is decided, this may become a shared space	Optional; includes beverage bay
	WCST	Staff Toilet, 3m2	Yes		1	3	3	2	3	6	When final location is decided, this may become a shared space	
	WCDS	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6	When final location is decided, this may become a shared space	If not available nearby
	N/A	End of Trip Facilities	N/A					1	30	30	EOT facilities include showers and change rooms. When final location is decided, this may become a shared space	
NDA				0			333.8			735.6		
Circulation	25-30%					30%	100.1		30%	220.7		
GDA							433.9			956.3		

Canberra Hospital - Building 10

Schedule of Accommodation - MOSCETU
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
MOSCETU												
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	12	4.4	52.8	Like-for-like space is approx 140m2	
	MEET-12	Meeting Room, 12m2	Yes		1	12	12	1	12	12	Like-for-like space is approx 140m2	
	MEET-L-20	Meeting Room, 20m2	Yes		1	20	20	1	20	20	Like-for-like space is approx 140m2	This room is a shared facility and is to be accessed through a booking system
	MEET-L-30	Meeting Room, 30m2	Yes		1	30	30	0	30	0	Like-for-like space is approx 140m2	To attend meetings or can be used as a smallgroup room for Community Health
	BBEV-OP	Beverage Bay - Open Plan, 4m2	Yes		1	4	4	1	4	4	Like-for-like space is approx 140m2	If no Staff Room provided
	SRM-15	Staff Room, 15m2	Yes		1	15	15	1	15	15	Like-for-like space is approx 140m2	Optional; includes beverage bay
	N/A	Property Bay Staff	N/A		1	2	2	3	2	6	Estimated based on 1x per 4 staff. When final location is decided, this may become a shared space	Up to 4 staff, intermittently
	STFS-10	File Store, 10m2	Yes		1	10	10	1	10	10	Like-for-like space is approx 140m2	Personnel Files
	STPS-8	Store - Photocopy / Stationery, 8m2	Yes		1	8	8	1	8	8	Like-for-like space is approx 140m2	
	STGN	Store - General	No		1	9	9	1	9	9	Like-for-like space is approx 140m2	
	WCST	Staff Toilet, 3m2	Yes		1	3	3	2	3	6	Like-for-like space is approx 140m2	
	WCDS	Toilet - Accessible, 6m2	Yes		1	6	6	1	6	6	Like-for-like space is approx 140m2	
	N/A	End of Trip Facilities	N/A					0	0	0	Shared	
NDA				0			123.4			148.8		
Circulation	25-30%					30%	37.0		30%	44.6		
GDA							160.4			193.4		

Canberra Hospital - Building 10

Schedule of Accommodation - Physicians Training Office
Date 25/01/2024
Revision 6.0

					AusHFG			Proposad				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
Physicians Training Office												
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	6	4.4	26.4	Like for like - Shared Offices	
NDA				0			4.4			26.4		
Circulation	25-30%					30%	1.3		30%	7.9		
GDA							5.7			34.3		

Canberra Hospital - Building 10

Schedule of Accommodation - Centralised Equipment Store
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
Centralised Equipment Store												
	N/A	Centralised Equipment Store	NC					1	175	175	Like for like - Estimated Area	
NDA				0			0			175		
Circulation	25-30%					30%	0.0		30%	52.5		
GDA							0.0			227.5		

Canberra Hospital - Building 10

Schedule of Accommodation - Transport Pool
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
Transport Pool												
	N/A	Transport Pool	No					1	15	15	Like for like + 50% - Estimated Area	
	SRM-15	Staff Room	Yes		1	15	15	1	15	15	Added	Includes a beverage bay
NDA				0			0			15		
Circulation	25-30%					30%	0.0		30%	4.5		
GDA							0.0			19.5		

Canberra Hospital - Building 10

Schedule of Accommodation - Voluntary Assisted Dying
Date 25/01/2024
Revision 6.0

					AusHFG			Proposed				
Functional Group	AusHFG Room Code	Room / Space	SC / SC-D	Proposed POCs	Qty	AHFG m2	SubTotal AHFG Area m2	Qty	Briefed Area m2	SubTotal Briefed Area m2	Comments	AusHFG Comments
Voluntary Assisted Dying												
	OFFSWS	Office - Workstation, 4.4m2	No		1	4.4	4.4	10	4.4	44	Added (new) - VAD Admin Offices	
NDA				0			4.4			44		
Circulation	25-30%					30%	1.3		30%	13.2		
GDA							5.7			57.2		

ACT Government | Canberra Health Services

aspex consulting

Canberra Hospital Capital Redevelopment

SERVICE MODEL - CORE SUPPORT SERVICES

Draft v5.0

25 January 2024

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aspexconsulting.com.au

TABLE OF CONTENTS

1. Introduction 6
1.1. Purpose 6
1.2. Approach 7
2. Service Model Context 8
2.1. ACT Health Planning Priniciples 8
2.2. Canberra Health Service Vision and Direction 9
2.3. Overarching Drivers for Change 11
2.4. Systemwide Service Innovation 12
2.5. Clinical Support Service Model Options 13
3. In-Scope Services 16
4. Medical Imaging 18
4.1. Service Description 18
4.2. Role 19
4.3. Patient Pathway 20
4.4. Functional Relationships 21
4.5. Work Processes 23
4.6. Workforce 23
4.7. Opportunities and Challenges For Medical Imaging 24
5. Pharmacy 27
5.1. Description of the Service 27
5.2. Patient Pathway 31
5.3. Work Processes 32
5.4. Workforce 32
5.5. Functional Relationships 33
5.6. Opportunities and Challenges for Pharmacy 34
6. Learning and Teaching 37
6.1. Context 37
6.2. Learning and Teaching Strategy 37
6.3. Current State 38

6.4. A Way Forward 39
7. Research 41
7.1. Context 41
7.2. Research Strategy 41
7.3. Current State 42
7.4. A Way Forward 43
8. Administration and Related Support Services 46
8.1. Long-term relocations in the New Facilities 46
8.2. Non-Permanent Relocations 48
8.3. Administration and Support Functions – Buildings 6 &23 48
8.4. Administration Consolidation 48

INDEX OF FIGURES

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases 6
Figure 2-1: ACT Health Service Planning Principles 8
Figure 4-1: Patient Pathway 21
Figure 4-2: Clinical Core Support Services Adjacencies Matrix – In-Scope Services 22
Figure 5-1: Medication Management Cycle 28
Figure 5-2: ED and Inpatient Pathway in Relation to Pharmacy Service 31
Figure 5-3: Outpatient Pathway in Relation to Pharmacy Service 32

INDEX OF TABLES

Table 3-1: Functional Adjacencies Matrix for Clinical Core Support Services 16
Table 5-1: Indicative Pharmacy Staffing by Workforce Category 33

LIST OF ABBREVIATIONS

ACE	Acute Care for the Elderly
ACHS	Australian Council on Healthcare Standards
ACT	Australian Capital Territory
ACT HSP	ACT Health Services Plan
ADC	Automated Dispensing Cabinets
AI	Artificial Intelligence
AMS	Antimicrobial Stewardship
AR	Augmented Reality
BMD	Bone Mineral Density
BOH	Back of House
CBS	Critical Services Building
CH	Canberra Hospital
CHS	Canberra Health Services
COVID	Corona Virus Infectious Disease
CT	Computed Tomography
DIAS	Diagnostic Imaging Accreditation Scheme
DHR	Digital Health Record
ED	Emergency Department
FDB	Functional Design Brief
FOH	Front of House
GP	General Practitioner
HITH	Hospital in the Home
HSP	Health Services Plan
ICU	Intensive Care Unit
MAPU	Medical Assessment and Planning Unit
MI	Medical Imaging
MDT	Multi-Disciplinary Team
MOSCETU	Medical Officer Support, Credentialing, Employment & Training Unit
MRI	Magnetic Resonance Imaging
MTM	Medication Therapy Management
NDA	Net Departmental Area
NSQHSS	National Safety & Quality Health Service Standards
NSW	New South Wales
PACS	Picture Archiving and Communication System
PACU	Specialist Post Anaesthetic Care Unit
PC2	Physical Containment level 2
PET	Positron Emission Tomography
POC	Points of Care
PTO	Physicians Training Office
RANZCR	Royal Australian and New Zealand College of Radiologists
RFA	Request for Admission
RIS	Radiology Information System
SoA	Schedule of Accommodation
SPECT-CT	Single Photon Emission Computed Tomography
SQM	Square Meter
TIA	Trans Ischemic Attacks
UCH	University of Canberra Hospital
VMO	Visiting Medical Officers
VAD	Voluntary Assisted Dying
VR	Virtual Reality

DISCLAIMER

Please note that, in accordance with our Company's policy, we are obliged to advise that neither the Company nor any employee nor sub-contractor undertakes responsibility in any way whatsoever to any person or organisation (other than ACT Health) in respect of information set out in this report, including any errors or omissions therein, arising through negligence or otherwise however caused.

VERSION CONTROL

VERSION	DESCRIPTION OF CHANGE	ISSUED TO	ISSUED BY	DATE OF ISSUE
1.0	Clinical Support Service Model	CHS	Aspex Consulting	3 July 2023
2.0	Inclusion of Teaching & Research as a Support Function Inclusion of comments from CHS Clinical Liaison and Health Facility Planning team	CHS	Aspex Consulting	18 July 2023
3.0	Inclusion of Additional Teaching and Research material Inclusion of further CHS Clinical Liaison and Health Facility Planning team	CHS	Aspex Consulting	26 July 2023
4.0	Inclusion of Clinical Lead Comments	CHS	Aspex Consulting	7 August 2023
5.0	Inclusion of Updates from EPT05	CHS	Aspex Consulting	25 Jan 2024

1. Introduction

1.1. PURPOSE

This Service Model describes the Core Clinical Support Services that are in-scope for the Phase 2 redevelopment at Canberra Hospital (CH) and outlines how services are planned to be delivered in the future. It is noted that pathology is provided in a separate service model. The core clinical support services are essential to the successful provision of medical and surgical inpatients and outpatients at CH and the broader Canberra Health Services (CHS) services.

This Service Model also describes:

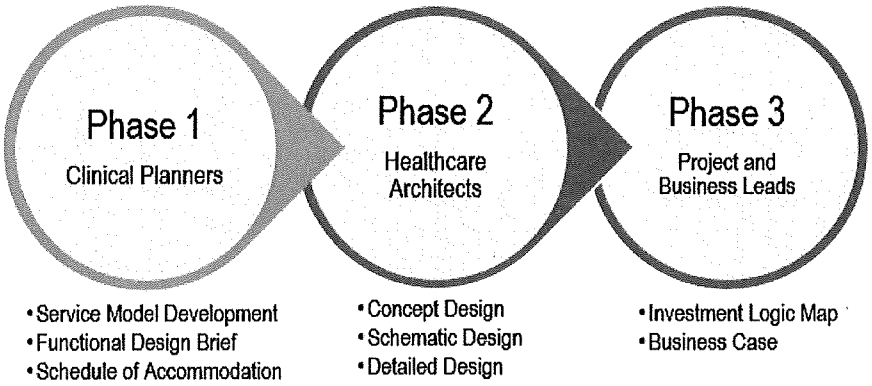
- The impact of Phase 2 Redevelopment Project on the longer-term *Teaching and Research functions* at CHS and the changes appropriate to progress the Clinical Learning and Teaching Strategy (Section 6), and the Research Strategy (Section 7) in the short to medium-term; and
- The *administrative functions* that are related to in-scope services and CSB services, and other administration not included in CSB development. For completeness, administration and support is identified where it is necessary to temporarily relocate whilst more permanent or more appropriate accommodation is determined (Section 8).

The Phase 2 Redevelopment Project intends to replace existing capacity on a *'like-for-like'* basis in new facilities, meaning a replication of existing clinical services that meet contemporary standards and models of care, and capacity such as points of care (POC) [1].

Where appropriate for the purpose of service consolidation, or new evidence, or new technologies that would expand service capacity these have been described and separately identified where they represent an expansion of service; that is not *like-for-like*. This Service Model incorporates the scope and clinical level of service, the care setting, patient pathway, coordination and integration between services, workflow, and work processes, and the (like-for-like) POC with consideration to CH as a whole.

The information in this Service Model will input into the Functional Design Brief (FDB) and the Schedule of Accommodation (SoA), which will be used to inform the new building concept designs. The steps are outlined in Figure 1-1.

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases



[1] A Point of Care is defined as a place where a patient receives definitive care. This would typically include beds, ED cubicles, operating theatres, labour wards, outpatient clinics, chairs for chemotherapy/dialysis amongst others. It would not normally include recovery spaces from theatre, discharge lounges, other general patient spaces that does not deliver definitive care

1.2. APPROACH

This draft Service Model has been developed in partnership with the Canberra Health Services (CHS) Clinical Liaison and Health Facility Planning team in the Capital Project Delivery and Infrastructure and Health Support Services Division.

2. Service Model Context

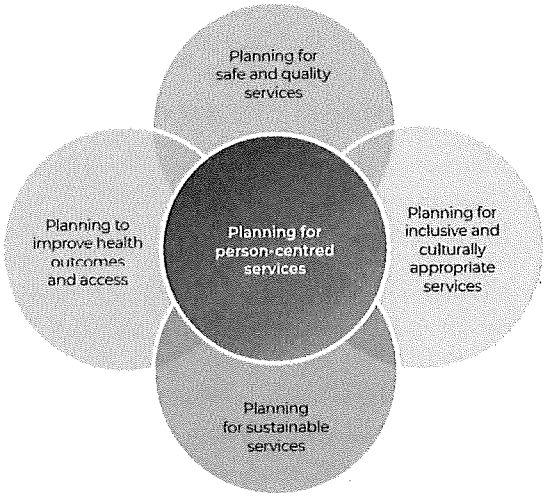
This section provides context within which the Service Model has been developed. It specifically includes:

- ACT Health's planning principles;
- Canberra Health Service's Vision and Service Directions;
- Overarching drivers of change;
- System-wide service innovations; and
- Over-arching service model options for medicine.

2.1. ACT HEALTH PLANNING PRINICIPLES

The following principles underpin the ACT Health Services Plan (ACT HSP) 2022-2030[2]. These principles also accord with the development of this Service Model.

Figure 2-1: ACT Health Service Planning Principles



Person-centred services - The ACT Government consults with consumer and carers so that services are planned to treat consumers with dignity and respect; the ACT Government makes it easier for people to access services equitably, to move between services across the health system, and to partner with health professionals to participate in decisions about the services provided to them.

Inclusive and culturally appropriate services - The ACT Government consults with groups underrepresented in the healthcare system so that services are planned to be inclusive and culturally appropriate and targeted to specific health needs where necessary.

Safe and quality services - Planning is guided by evidence-informed policy directions, and the ACT Government continually strives to plan for services that improve health outcomes, experiences of receiving care, experiences of providing care, and effectiveness and efficiency of care.

2. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Health outcomes and access. Planning is guided by evidence-informed policy directions, with specific focus on at-risk and priority population groups; planning the right service, at the right time, in the right place, by the right team, every time.

Sustainable services - The ACT Government maximises the use and efficient allocation of limited resources by taking a Territory-wide approach to planning services across the ACT public health system, guided by clear role delineations, service levels, and evidence informed policy directions: service planning activities are prioritised based on need.

2.2. CANBERRA HEALTH SERVICE VISION AND DIRECTION

CHS' vision is to ***'Create exceptional health care together'***[3]. Improving the quality of healthcare across the ACT is a key priority for CHS as it aims to be the safest healthcare system in Australia, delivering high-quality, person-centred care that is effective and efficient.

Specifically, CHS will provide health care that is:

- Person-centred: providing care that is respectful, responsive, and focused on the patient's needs;
- Safe: avoiding harm to patients from care that is intended to help them;
- Effective: providing services based on scientific knowledge and which produce a clear benefit;
- Timely: reducing waits and sometimes harmful delays;
- Efficient: avoiding waste and reducing unit costs; and
- Equitable: providing care based on clinical need, and that does not vary in quality because of a person's personal circumstances.

2.2.1. Consumer Principles

A fundamental component of patient-centred care is recognising and understanding the consumer perspective of the service. Central to patient-centred care are the themes of Participation, Communication, Experience and Support. These themes form the basis for Consumer Care Principles, the guiding principles for the Service Model. The Consumer Care Principles are:

- Participation: consumers (and where appropriate their family members and carers) will be equal partners within the multidisciplinary care team, enabling them to be actively involved in their own care;
- Communication: embedding frequent and meaningful communication with consumers, their family members, and carers, about their care for their entire hospital journey, including discharge;
- Experience: care is delivered in a way that supports the consumers' experience of safety and fosters trust; and
- Support: recognising the importance of involving family and carers in the consumer's care and recovery throughout their health journey.

2.2.2. CHS Future Directions

CHS' future service directions are set out in the ACT Health Services Plan, 2022–2030.[4] The desired outcomes from each of the directions are also articulated. These are outlined below.

[3] https://www.canberrahealthservices.act.gov.au/__data/assets/file/0005/1933187/CHS-Exceptional-Healthcare-Framework_V7_DigitalFA.pd. July 2023

4. ACT Government, Health, *ACT Health Services Plan 2022-2030,* available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Addressing key areas of service demand and reform

- Improve health outcomes and access to care, with a particular focus on priority population groups.
- Support access to the services experiencing most significant demand pressures.
- Ensure our services are flexible and inclusive to respond to individual needs and circumstances.
- There is specific reference to enhanced capability for key medical specialties for cardiology, neurology, respiratory, general medicine, rheumatology, and renal services.

Transitions of care

- Improve health outcomes and access to care.
- Make it easier for patients, families, and service providers to navigate the service system.
- Address issues of patients 'falling through the gaps' as they move between services and care settings such as between hospital and the community.
- Break down the barriers and silos between services.

The ACT's role as a local, Territory and regional service provider

- Improve access to care closer to home in a safe and sustainable way.
- Reduce unwarranted variation between services.
- Maximise the efficient use of health resources to meet the needs of the community.

Strengthening core ACT Government funded clinical support services

- Improve patient outcomes and reduce length of stay in hospital.
- Ensure that our clinical support services have the appropriate capacity and capability to support new and expanded clinical services.
- Optimise clinical decision making in determining the most appropriate treatment and care for patients.

2.2.3. Learning, Teaching and Research

Learning, teaching, and research are core clinical support services that is integral to the Phase 2 Redevelopment, which is described in more detail in sections 6 and 7 below.

CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*[5] provides the overarching vision, goals and strategic commitments to clinical learning and teaching. The six Strategic Commitments are:

- Strengthen governance and processes to prioritise and enable learning and teaching.
- Prepare and support the clinical workforce to work safely and effectively at the leading edge of their practice.
- Develop and support the clinical workforce to deliver effective, innovative, evidence-based teaching and point of care clinical supervision.
- Establish collaborative environments that maximise and enable effective, innovative, and efficient learning and teaching.
- Foster and strengthen strategic partnerships for learning and teaching with clinicians, consumers and carers, communities, and academia; and
- Promote, share, and celebrate learning and teaching.

5. CHS, *Clinical Learning and Teaching Strategy 2023 – 2027'*. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf

To achieve these strategic commitments, in a contemporary health precinct, a holistic approach to integrated learning and teaching activities into the clinical areas will be key. For clinicians, access to learning and teaching will be built into the flow of their day. This means rooms available on each unit or a shared area readily accessible to clinical (patient) areas. To complement the integrated clinical spaces, a learning and teaching hub would provide greater opportunities for education.

CHS' *Research Strategy 2021-2025*[6] provides the overarching vision, goals and strategic commitments to embed research in the organisation. The six strategic commitments are to:

- Establish governance and processes to enable and value impactful research;
- Create a workforce which enables a strong research culture;
- Create an environment which enables research activities;
- Create impactful research partnerships with academic partners and industry partners;
- Create impactful research partnerships with consumers and communities; and
- Create a strong communication strategy for CHS research.

2.3. OVERARCHING DRIVERS FOR CHANGE

The above strategic and policy positions articulated by ACT Health and CHS are underpinned by a range of drivers for change. The Territory, like other jurisdictions, are facing increasing challenges that are forcing changes in the way people seek and access services. Some of these challenges which are driving change are described below.

The ACT Health Services Plan (2022 to 2030) provides context within which the Service Model needs to be considered. The *ACT Health Services Plan* indicates that the Territory's population increased by 14% between 2016-2021 and is projected to increase by 9.7% over the decade to 2030. It is also ageing with those in the 70+ age category increased 34% between 2016-21 and is forecast to rise a further 22.7% by 2030, more than doubling the growth rate for the total population. In addition to population growth and ageing, there are particular factors that drive change for the Territory:

Ageing population and increasing chronic disease – the demand for health services is increasing as people live longer with more chronic and multi-morbid conditions. The aged population are high users of health services;

Access for vulnerable population groups – some population groups in Australia experience health inequalities. Aboriginal and Torres Strait Islanders and people from low socioeconomic areas are likely to have poorer health compared to the general population;

Increasing service demand – for elective and emergency surgery, chronic disease, cancer services, and mental health. These have been exacerbated due to the COVID-19 pandemic;

Climate change – has been causing more extreme weather events, such as bushfires and floods. Instances of heat stress, smoke inhalation, food insecurity, and mental health and wellbeing issues are increased for people experiencing extreme weather events; and

COVID-19 – the delivery of healthcare has rapidly changed since the beginning of the COVID-19 pandemic, especially in terms of how and where care is delivered, with a virtual and care closer to home becoming the norm. COVID-19 patients have caused greater pressure on health system capacity, the general wards and for multidisciplinary teams treating people experiencing the effects

[6] CHS Research Strategy (2021-2025. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/file/0007/1933171/CHS_ResearchStrategy-2021-2025_03_V2_DIGITAL-FA-1.pdf

of 'long COVID'. Additionally, workforce availability has been significantly impacted, with burnt out staff choosing to leave their professions and with the usual immigrant workforces being unavailable.

2.4. SYSTEMWIDE SERVICE INNOVATION

The drivers of change result in different responses and innovations. The Territory's health services are exposed to continual external and internal influences which drive innovation in healthcare. The onset of the COVID-19 pandemic accelerated innovation in practice, workforce, technology, and infrastructure. Some of the key innovations that influence this Service Model include:

Care in and closer to people's homes is now the preferred model of care for any chronic, non-urgent care. This has been made possible via the widespread adoption of telehealth and telemonitoring, particularly for diabetes, chronic obstructive pulmonary disease, and renal medicine. Telemonitoring is performed using sensors, other wearable devices, or apps to record data which is relayed to the healthcare team. Changes in condition outside set parameters will also alert healthcare providers in real time.

Increased utilisation of available and emerging technologies. This applies to the current virtual service provision but will also apply to emerging remote clinical treatment and the broader use of artificial intelligence (AI) for diagnosis and patient pathways. AI analyses big data, which are extremely large data sets, to reveal patterns, trends, and associations to predict a diagnosis. From big data a common patient pathway for someone with the same diagnosis can also be obtained. AI in healthcare is currently infantile in Australia.

Patient engagement and partnering in healthcare has been increasing to the point where a patient is now at the centre of their care. Patients provide input into their care planning, treatments and care locations and patients are encouraged to discuss any concerns they may have with their treating team. The other aspect of patient centred care is self-management of their risks and lifestyle whilst they are not in hospital, such as tracking their exercise or diet, alcohol consumption or their use of medications. This further encourages patients to become central to their care.

Social prescribing is treating a person holistically and linking a person undergoing healthcare to social supports as required, to relieve social isolation or other factors that may be impacting on that person's mental health and wellbeing. These supports may range from walking groups to book clubs, to financial aid or housing services. Social prescribing models are well established in the United Kingdom and Canada, and they are becoming more prevalent in Australia.

Value-Based Health Care (Better Value Care) is a contemporary service model designed to develop patient-focused care in a meaningful (structured) way to creates enhanced outcomes (value) to the patient and value to the funder. This is a potentially important, albeit radical model to consider in the development of (a selected number of) clinical services that can be 'clustered to deliver end to end' outcomes for patients. The model transcends current hospital structures that are not designed to deliver value to the patient and where there are only very blunt outcome indicators. Value-based Heath care models go to the issues of clinical practice controlled by the clinicians and make decisions based on improved outcomes, not traditional patient flow through operational silos.

This is an important consideration as it impacts on the organisation and flow of patients that is not only efficient but improves patient outcomes (value). It is potentially a game-changer.

All of these trends are inter-related and can have a major impact on the organisation and service options available.

2.5. CLINICAL SUPPORT SERVICE MODEL OPTIONS

2.5.1. Location

The options need to complement the planned medical and surgery services. The implications for the core clinical support services relocating as part of Phase 2 Redevelopment Project is to locate services where they best suit patient-centred care.

This will generally mean for Medical Imaging, learning and teaching, and for some research, are located as close as practicable to inpatient and outpatient services to reduce patient/carer travel and inconvenience. The final determination will be an 'on balance' decision that considers capital funding, ideal service adjacencies, and the 'yield capacity' of the various buildings.

In this context, service model options for in-scope medical and surgical services accommodation are to:

1. Collocate all inpatients – medical and surgical in the same building, with medical and surgical outpatients in a separate building; or
2. Collocate all medical inpatients and outpatients in the same building and all surgical inpatients and outpatients in another building; or
3. Collocate and consolidate all medical and surgical inpatients and outpatients in the same building.

2.5.2. Models of Care

More specific models that are important to consider this the Phase 2 Redevelopment, and will impact on core clinical services, are:

A 'pull model' from the Emergency Department (ED) for multi-day stay medical patients ensures that there is direct medical consultant/registrar availability to ED, and protocols that will enable transfer of medical patients to a Medical Assessment and Planning Unit (MAPU) or other medical ward to reduce demand pressures in ED. 'Pull models' are currently in operation in hospitals of similar size and clinical capability as CH. The 'pull model' not only assists with patient flow at the front door, but it also facilitates patient flow through to discharge.

A focus on complex discharge and models that support acute care for the elderly (ACE). This is a key complementary strategy for all medical wards and is the principal focus of MAPUs and the holistic management of complex medical patients, usually frail elderly patients. It has a focus on patient flow and minimise 'bed blocking'. It is designed to address those aspects of post-surgery care that a more holistic, reduce post-anaesthetic anxiety/delirium, and has a specific attention to factors that inhibit elderly surgical patients from being discharged.

Providing services closer to home will require a focus on the further development of Hospital in the Home (HITH) as a key strategy. More generally, the HITH model is not a stand-alone strategy. It needs to be developed as part of a broader approach to care models including diversion and substitution of patients. The more challenging service models then extend these above into a Better Value Care model as described above.

A specific policy commitment will require the development of an inpatient palliative care service. The bed-based palliative care service would deliver an improved care environment for inpatients who have palliative care needs. This service would complement the community palliative model currently in place and potentially the 'feasibility study' by government for a secular Hospice.

Bariatric care. Bariatric services manage a patient cohort who are likely to have more comorbidities and more severe comorbidities, which makes them even more vulnerable than non-bariatric patients. The task of caring for the bariatric patients is therefore more challenging as it puts workers at risk of injuries during repositioning and nursing care activities that assist patients in meeting their daily activity needs, including hygiene, bathing, ambulation, and dressing changes. The rates of overweight persons within the broader population are variable. However, for Victoria and NSW there are expected rates of ~11% of the population over 40 years being obese[7]. The population rates often do not translate to hospital admissions, but when they do, the patient is more problematic to manage. There are specific models of care developed for bariatric patient care across CHS.

The Service Model is to make provision for bariatric facilities as they are being designed and constructed and minimise any retrospective fit outs. This means for beds, chairs, patient therapy tables, equipment such as hoists, clinic facilities and patient amenities. *Whilst there is no benchmark for bariatric provision it is expected that for all clinical support and examination areas there will need to be (at least) one POC able to manage bariatric patients.*

Clinical learning, teaching, simulation, and research capability. The service model is to integrate learning, clinical teaching and research fully and effectively as core functions in patient care areas. This is consistent with the *CHS Clinical Learning and Teaching Strategy 2023-2027*; and *CHS Research Strategy 2021-2025.*

The development of teaching and research are embodied in the design of the new facilities through a **tiered approach**, this is the proposition for learning/teaching and for research in sections 6 and 7, where:

- Tier 1 is teaching/learning as part of the spaces designed where patients are treated/managed including outpatient rooms, ward areas and clinical examination spaces. The key concept here is embedding. These developments would bring CH up to contemporary standards and practices common in newly developed tertiary hospitals;
- Tier 2 is teaching/learning spaces on wards and proximal to patient treatment areas that enable review, collegiate discussions, and virtual learning experiences through meeting/ consultation rooms. This would also provide suitable teaching space associated with formal training for accreditation in clinical specialties; and
- Tier 3 is teaching/learning spaces that are for more formal education away from patient areas that, for an academic tertiary hospital, could be expected to have larger auditorium spaces, academic administration space, teaching demonstration spaces (such as the gross anatomy museum), hi-fidelity simulation spaces for different clinical settings, and consumer experience spaces used for teaching and learning. This could also enable national and international research and large conferences to be held at Canberra Hospital, potentially creating new revenue streams.

  The tier 3 type services may be well suited in a separate teaching, learning and conference hub on campus that remains clinically connected. This would be undertaken in collaboration with academic institutions.

For research, the design approach is identical with:

- **Tier 1.** Embedded research into patient treatments (such as clinical drug trials, testing of new equipment/techniques etc). Whilst this does not usually require additional patient space, it does require the incorporation of the function (e.g., the clinical trials) and related spaces into the core design;

7. Victorian Population Health Survey, 2015 approximately 29% of the adult population over 40 years are overweight persons and 11% of the population are obese. This translates to ~80,000 to 90000 for CHS catchment population over 40 years.

- **Tier 2.** Research spaces proximal towards other clinical support areas that necessitate treating clinicians to be hands-on with the research. One example would be genomic research and newly developing clinical areas such as CAR-T cell therapies; and
- **Tier 3.** Research space that may be at pre-clinical stage, or specific commercialisation research can be away from patient areas. The tier 3 type research may be well suited in a separate facility that remains clinically connected and would benefit from being on-campus. This would/should be undertaken in collaboration with academic institutions.

All of these are integral to CHS' role and form part of the Phase 2 redevelopment.

3. In-Scope Services

The clinical support services requiring relocation in Phase 2, include:

- Medical Imaging (Core Medical Imaging for CH);
- Pharmacy;
- Staff Administration;
- Learning and Teaching;
- Research;
- Front of House (FOH); and
- Back of House (BOH).

Adjacencies

Clinical core support services have a close relationship with all clinical inpatient and outpatient services at CH, with detailed internal functional relationships shown in Table 3-1 below.

The main inter-relationships between each of the clinical services is with medical imaging, learning/teaching, and research.

Table 3-1: Functional Adjacencies Matrix for Clinical Core Support Services

Relationship Matrix	Medical Imaging - CSB	Pharmacy	Health Information Services	Learning and Teaching	Research	Cardiology	Cardiology Diagnostics	Dermatology	Respiratory and Sleep	Infectious Diseases	Winter Surge/COVID ward	Endocrinology and Diabetes	Gastroenterology	Hepatology	Palliative Care	Renal Medicine (incl Dialysis)	Rheumatology	Neurology and Stroke	General Medicine	Day Medical (& HITH)	Addiction Medicine	Outpatients	Clinical Trials	General Surgery	Endoscopy	Orthopaedics	Ophthalmology	ENT / Head and Neck	Maxillofacial surgery	Plastic Surgery	Trauma Surgery
Medical Imaging -New Core	3	-	-	3	3	3	-	-	3	3	3	-	3	3	3	3	3	3	3	3	-	3	-	3	3	3	3	3	3	3	3
Pharmacy		x	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Health Information Services			x	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Learning and Teaching				x		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Research					x	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Legend

1	Directly adjacent (Horizontal / Vertical)	2	Easily accessible (less than 3 minutes)	3	Accessible (3 - 5 minutes)

More specifically, there are five main considerations for core clinical support services:

- Reasonable proximity between new Core MI service and other clinical services on campus. The level 3 proximity is to enable reasonable access and convenience for inpatients and outpatients on campus.
- The main pharmacy service at CH needs to take into consideration how its workforce and operational hours can best support the 24/7 nature of the services in CSB building. However, there is no absolute requirement for close functional adjacencies.
- Learning & teaching, and research are currently not well developed across any of the main clinical services, and this service model would see a Level 3 adjacency that is reasonably close for all clinical services, meaning that learning and teaching spaces would be incorporated in all patient areas. This means Tiers 1 and 2 services.
- Notwithstanding the above, campus based clinical core support services will:
  - Generate maximum operational (both clinically and workforce) efficiencies, especially specialities that generate demand for these services frequently, and/or urgently;

- Minimise travel distances for staff and consumers, and
- Support/facilitate a multi-disciplinary Service Model.

Proximity of clinical support services is a critical component to address during the design phase.

As indicated, not all clinical support functions need to have a close proximal relationship with clinical services. Nevertheless, there needs to be easy (clear and direct) access for staff and for patients to get to and from clinical core support services.

4. Medical Imaging

Consistent with the principles of service delivery,

the service model locates the core medical imaging (MI) service that best delivers accessible and convenient patient-centred care to the most patients.

4.1. SERVICE DESCRIPTION

4.1.1. Clinical Capability

MI operates at a Level 6 clinical capability/functionality to support most tertiary level services provided by CH, across a range of clinical specialties. It is critically important that MI continues to operate at the highest clinical capability level as many most specialist medical and surgical services depend on MI being able to consistently function at Level 6[8].

A Level 6 service means the provision of a comprehensive range of modalities that include those such as diagnostic, interventional MI, and nuclear medicine, the detailed description of which is provided in the Clinical Support Services Service Model Appendix A2. Also essential to a functioning Level 6 service is a Picture Archive and Communication System (PACS) and Radiology Information System (RIS). MI currently utilises AGFA Enterprise Imaging for the PACS component with EPIC Radiant as the RIS component.

4.1.2. Current Locations

There are currently three MI sites across CHS with four in operation by mid-2024 with the opening of Building 5. Not all sites offer all modalities:

- *Main Medical Imaging Unit*, Building 12 Level 2 CH. (Some of these MI services will transfer across to the new Building 5);
- *Satellite Medical Imaging Unit* in Building 5 - Critical Services Building (CSB), supporting the new ED, Intensive Care Unit, Operating Theatres and CSB inpatient wards (opening mid 2024).
- *University of Canberra Hospital (UCH) Medical Imaging*, a dedicated MI department at the UCH, which services UCH campus patients and some community referrals. UCH operates at Level 2[9] clinical capability with X-ray; and
- *Weston Creek Imaging Service*, Weston Creek Community Health Centre. This is a new MI service to support community referrals closer to home. Services include X-ray, Ultrasound and CT.

The MI day ward service provides preparation and post-recovery care for outpatient adults requiring light sedation as part of their diagnostic imaging procedure (i.e., Angiography, CT and MRI). The Service Model for the safe recovery of patients after light sedation is in the recovery bays within imaging day ward, then discharged home. Patients requiring general anaesthetics for MRI will have their scanning procedures completed in Building 5. The proposed model of care for fluoroscopy

8. NSW Ministry of Health, NSW Health Guide to the Role Delineation of Clinical Services, Fourth Edition, October 2019, available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF.
9. NSW Health Guide to the Role Delineation of Clinical Services, 2021. Available: https://www.health.nsw.gov.au/services/publications/role-delineation-of-clinical-services.PDF

patients requiring a general anaesthetic is still to be determined as part of the Building 5 CSB commissioning.

4.1.3. In-Scope MI Modalities

This MI Service incorporates the (residual) MI in Building 12 not transferring to Building 5, CSB. The transferring in-scope MI is referred to as the new Core MI service. Modalities transferring out of Building 12 to a new location include some services that would represent an expansion to current modalities. The proposed Core MI service includes:

- Four general X-ray machines;
- Four Ultrasound machines (one procedural);
- Two procedural Computed Tomography (CT) machines;
- Two Magnetic Resonance Imaging (MRI) machines;
- One Fluoroscopy machine
- One Positron Emission Tomography (PET) / CT;
- Two Single Photon Emission Computed Tomography (SPECT / CT);
- One Gamma Camera;
- One Mammography machine; and
- One Bone Mineral Density (BMD) scanner.

Each of the core in-scope modalities are accompanied by supporting functions such as reception and patient amenities, plant rooms, reporting rooms, control rooms, hot labs, cannulation bays, uptake rooms, stress test room, clean store, medication, dirty utility, High Level Disinfection Unit Room (for ultrasound), and patient change/waiting/recovery areas, amongst other support facilities.

4.2. ROLE

The Core MI service to be relocated will operate extended business hours. The in-scope MI is intended to support:

- All inpatient demand that is not associated with the CSB (during extended business hours);
- All outpatient demand; and
- General community referrals.

The new Core MI service will operate as a 'booked or planned' MI service with some unplanned walk-ins from the community for X-rays. The service will **not** need to respond to the Building 5 inpatient/emergency/ICU demand except in situations where Building 5 requests patient examinations at the Core MI service.

The Core MI services will provide main reception capacity for overseeing booking and scheduling of inpatients and outpatients, supported by a patient kiosk or similar technology that can efficiently process patients on arrival. This means that the service can operate with maximum efficiency and not have emergency examination interrupt daily workflow. The booking system would be structured for the time necessary based on the modality and the types of examination required. There are standard booking slots for different examinations. There may also be additional time for examinations with students.

As the Core MI service, it will need to be accessible to the broader community as well as inpatients and outpatients. MI will operate a single centralised booking system that will include Building 5, University of Canberra Hospital, and Weston Creek Medical Imaging Service. There is also potential to include the future service at North Canberra Hospital site. It is expected that the Core MI services will operate only during extended business hours. All MI demand required by IPUs outside of the planned operating hours would be managed by Building 5's satellite MI services.

CHS provides a consumer-centred digital health environment that delivers on the principle of the "One Person, One Record" and enables clinicians to access and utilise a record that supports the Service Model, clinical workflows and other clinical guidelines and practices across disciplines, and physical locations. For Medical Imaging, EPIC Radiant provides both clinical and administrative needs from workflow, referral, vetting, protocolling, scheduling appointments, completing scans, complication tracking after invasive procedures.

The central booking staff and MI management and administrative staff are in-scope and included in the planned area. However, it is noted that much of this function does not need to be within the MI space. It could be located elsewhere on campus. This means that the Core MI service can be more flexible but will need to operate within the expected functional adjacencies outlined in Table 3-1, support effective wayfinding and operate with a higher level of efficiency than the CSB service.

The future role for MI will also include learning & teaching, and research. Of particular importance will be the Tiers 1 and 2 learning & teaching and research, and the increasing role of AI in the examinations and reading of images. This will be important to the design of the MI area.

The MI service would continue to develop and implement quality and risk management programs that support tertiary level services across CHS and is accredited against the Australian Council on Healthcare Standards (ACHS) and National Safety and Quality Health Service Standards (NSQHSS).

MI diagnostic services also have quality assurance requirements for standards of practice which includes meeting the requirements of the *Radiation Protection Amendment Act 2022,* maintaining Diagnostic Imaging Accreditation Scheme (DIAS), which is required for the provision of Medicare eligible rebates. Radiologists are also expected to actively participate in Royal Australian and New Zealand College of Radiologists (RANZCR) quality, research, and Accreditation programs. RANZCR Accreditation enables the recruitment and retention of appropriately qualified and skilled staff across CHS.

4.3. PATIENT PATHWAY

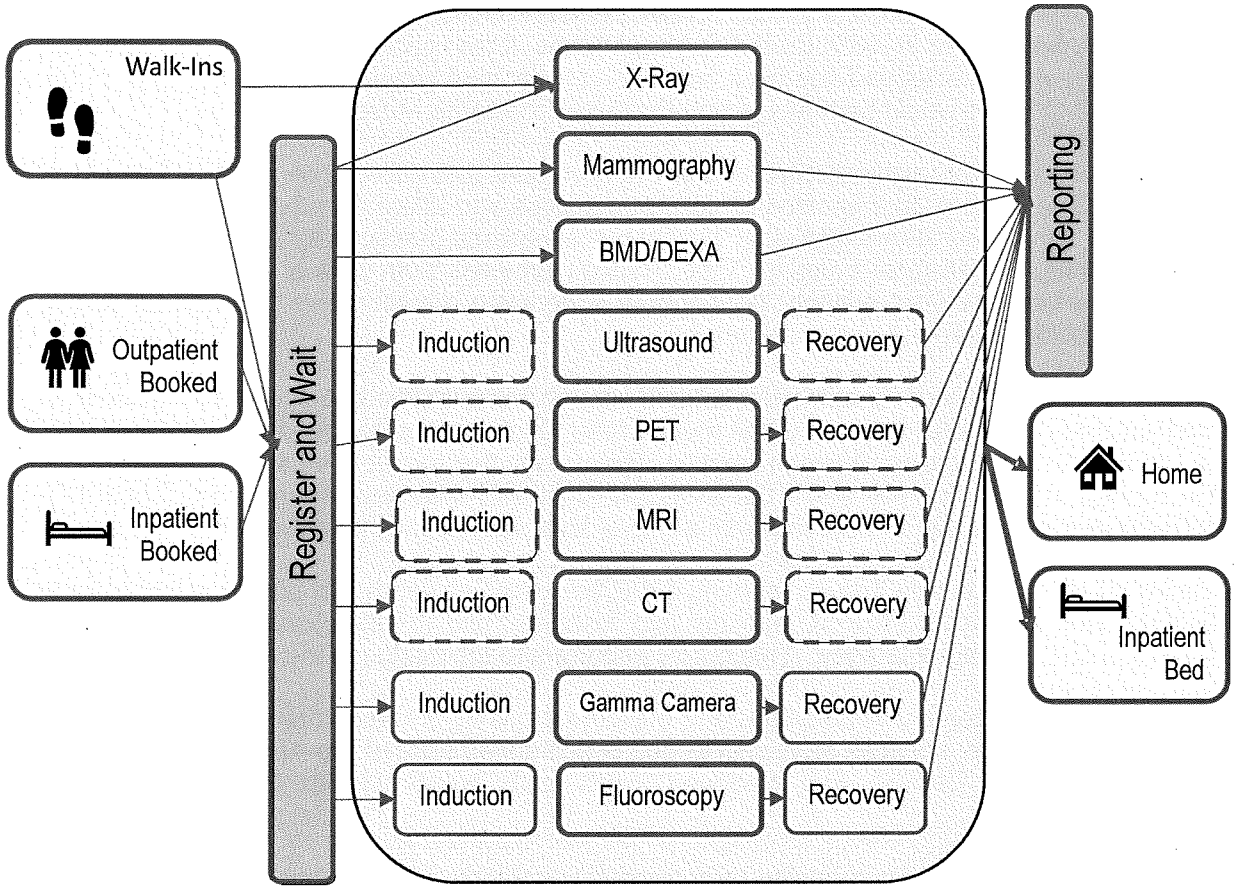
The patient pathway for the Core MI in-scope services is more complex than the patient pathway for the satellite Building 5 imaging service.

Patients, whether public or private, are **booked** (with the exception of walk-in general X-rays which and some unplanned outpatient appointments). All patients – with the exception of walk-ins for general x-ray - will have a scheduled time slot for the required examination for each modality.

On arrival the patient/relative/staff will register the patient against the booked time slot. This will occur at reception, by a receptionist or by electronic kiosk.

The patient pathway for inpatients and outpatients, and public or private, is essentially the same. The main difference is the arrival source and the destination after imaging. (See Figure 4-1 below).

Figure 4-1: Patient Pathway



It is noted that for some imaging examinations, it is necessary to have an induction (of contrast of various types, including radiation induction for some nuclear medicine and PET/CT examinations). These are identified in the following figure as dotted lines. Imaging that requires an induction will often require some level of recovery or observation post examination. Nuclear medicine examinations will require a gamma camera imaging and may also involve the combination of other modalities principally CT-SPECT.

For some imaging examinations, and for some patient cohorts, anaesthesia, or oral sedation (anxiolysis medication) is required. For patients requiring general anaesthesia, this FDB includes these patients being managed as a Request for Admission (RFA) in the MI in building 5, which is closer to the Specialist Post Anaesthetic Care Unit (PACU) for patient recovery.

Patients who may require oral sedation will be identified at the time of booking. The requirement of oral sedation may be noted on the referral, from previous procedures or upon communication with the patient.

Patient departure for inpatients is back to the IPU and for outpatients/community patients, the departure is to home. Some patients may be transferred to the unit from UCH.

4.4. FUNCTIONAL RELATIONSHIPS

Internal

MI as a clinical core support service is expected to be used extensively by the different inpatient and outpatient units. The following functional relationship diagram indicates that MI is important to locate where there is good access to all parts of the campus.

The new Core MI in-scope services may also refer patients to CSB modalities in periods of heavy use and over-booking, or the reverse.

Figure 4-2 identifies relative adjacencies for MI. This indicates that access to MI is pivotal to the efficient provision of inpatient and outpatient examinations across the campus. It has important links with Centenary Hospital for Women and Children, outpatients (particularly fracture clinic/orthopaedics), Building 19 Canberra Region Cancer Centre services and in Buildings 2 and 3. In many respects, it will be difficult to site the core MI service in any location without compromising ideal functional adjacencies for some clinical services.

Figure 4-2: Clinical Core Support Services Adjacencies Matrix – In-Scope Services

Relationship Matrix	Medical Imaging - CSB	Pharmacy	Health Information Services	Learning, Teaching & Research	Cardiology	Cardiology Diagnostics	Dermatology	Respiratory and Sleep	Infectious Diseases	Winter Surge/COVID ward	Endocrinology and Diabetes	Gastroenterology	Hepatology	Palliative Care	Renal Medicine (incl Dialysis)	Rheumatology	Neurology and Stroke	General Medicine	Day Medical (& HITH)	Addiction Medicine	Outpatients	Clinical Trials	General Surgery	Endoscopy	Orthopaedics	Ophthalmology	ENT / Head and Neck	Maxillofacial surgery	Plastic Surgery	Trauma Surgery
Medical Imaging -New Core	3	-	-	3	3	-	-	3	3	3	-	3	3	3	3	3	3	3	3	-	3	-	3	3	3	3	3	3	3	3

Legend

1 Directly adjacent (Horizontal / Vertical) 2 Easily accessible (less than 3 minutes) 3 Accessible (3 - 5 minutes)

There is preference in the Phase 2 Redevelopment that would locate the core MI with inpatients and/or outpatients to ensure patient-centred care imperatives. There are particular patient advantages where patient travel on-campus can be minimised, especially for those less ambulant, which means MI needs to be a reasonably short distance from inpatients, and from patient car parking/taxi/public transport, with 'direct paths' between services.

CH will work in partnership with UCH and the North Canberra Hospital to provide hospital MI services to meet the demand of all Canberra residents. As required, transfers from UCH, Weston Creek and the North Canberra Hospital may also occur if the patient requires a modality or examination that requires a Level 6 facility, or particular medical expertise (for example gamma camera or PET examination).

Develop facilities that can support an academic tertiary level teaching and research capability, and fully integrate and embed learning, teaching, and research into the clinical operations of CHS, which means as close as practical to the points of patient care delivery in IPUs, outpatients and clinical support services.

External

As a booked service, the new Core MI services is available to the community, including all referrals by general practitioners (GPs) and specialists, Walk-in Centre referrals not eligible for CHS community imaging (such as bariatric, complex cannulation, and non-ambulant patients), and in many cases by allied health professionals.

CHS has clinical learning, teaching and research partnerships, as well as the core in-house services, with professional groups and education providers for a range of undergraduate and graduate

medical, specialist, nursing, and allied health professions. It is also expected that MI will retain existing training and research activity with the ANU Medical School, UC, ACU, Charles Sturt University, and the CIT.

4.5. WORK PROCESSES

4.5.1. Hours of operation

The Core MI service will operate extended business hours, which is intended to support:

- All inpatient demand that is not associated with Building 5 satellite MI (during extended business hours);
- All outpatient demand; and
- General community referrals.

The extended business hours will be expected to be at least 8am to 8pm on weekdays and some limited hours on weekends for more common (diagnostic) modalities.

The MRI, fluoroscopy, gamma camera and other examinations that require induction are not proposed to be undertaken on the weekend or after-hours (except in the unlikely event that they were urgently required).

After hours emergency and urgent MI examinations would be managed by the satellite MI service in Building 5, not the Core MI service.

4.5.2. Patient transfer and movement

Inpatients and non-ambulant outpatients will generally require transport to and from MI by IPU support/nurse (for inpatients) or self-transfer/family (for outpatients).

There will be a reception area that acts as a central point of MI patient coordination. The reception area will have a general patient wait space. This will be the main waiting area for many modalities, whilst patients may also be directed to sub-wait spaces, particularly where there is a need for induction services. The IPU nurse will handover clinical information about the patient to the MI nurses via face-to-face, telephone, Digital Health Record or clinical documentation. Along with induction services comes the need for patient recovery or observation areas.

4.6. WORKFORCE

Staff and skills mix for the new Core MI service will ensure the following considerations:

- Expected planned demand (by type of examinations) by modality, by time of day will inform efficient rostering of staff for radiologists, radiographers, nursing, allied health, and IPU support staff;
- Planned adjustments of operating hours based on demand provides a more managed response to the effective operation of the MI service;
- Planned adjustments to specialist mix; and
- Enhanced planning of training opportunities in quieter periods.

The workforce will comprise:

- Radiologists, with different interest and modality specialisations, to manage the examinations, review, report images, and participate in research and case meetings. Supporting the consultants would also be Registrars and Junior Medical Officers;
- Chief and Deputy Chief Radiographer;
- Clinical Educator;
- Radiographers (MI Technologists and sonographers), with specialised skills across the modalities;
- Nurses where there are interventional services delivered;
- IPU staff provide 24/7 clinical support by way of manual handling, assisting with skin care and other patient needs, provide internal transport services for the transfer of patients throughout the hospital campus;
- Administration, IPU clerks, technical and other support staff; and
- MI operational management staff including the Clinical Director.

In addition, a future workforce would be in a position to support more learning, teaching, and research positions, particularly in newer modalities, and AI learning.

It is acknowledged that staffing will fluctuate over the course of time and over the course of a day. The indicative staffing above represents a basis for determining support staff spaces and patient/staff flow.

4.7. OPPORTUNITIES AND CHALLENGES FOR MEDICAL IMAGING

4.7.1. Workforce

The MI services at CH may be segregated by the development of the Satellite MI Site at CSB, which means strategies would need to be further considered to reduce the potential for staff isolation and to maintain perceptions of team coherence. These strategies will need to be planned and discussed with staff prior to transitioning to the CSB, and the new Building 10.

4.7.2. Technology-Driven opportunities

Like many areas in healthcare where technology plays a major part, MI has many potential opportunities. Not all of these opportunities are likely to present themselves in the short to medium-term.

Whilst it is possible that there will be technology leaps for MI, technology advancements at CH are most likely to be incremental in their application. This has been evident over recent years with leveraging current technologies that can be hybridised to enable a broader range of services that provide higher quality diagnostics for a range of clinical conditions. For example, hybridisation PET-CT, and for many cancers where nuclear medicine (gamma cameras) is used in combination with CT (SPECT), amongst others.

Other more future focused technologies that are likely to impact MI include:

- **Molecular Probes and Targeted Imaging**. This group of technologies is an extension of the gamma camera and SPECT technologies that can use custom-designed molecular probes to enhance the sensitivity and specificity of MI by targeting specific disease biomarkers. As a result, they can facilitate earlier disease detection, better tumour characterisation, and enable personalised treatment modalities.

This is an example of incremental developments as the replacement PET includes a module (provision by Eckert & Ziegler) that has radioactive labelling of molecules in PET examinations.

- **Portable and Point-of-Care Imaging**. Like other clinical support functions, integration of imaging technology into hand-held devices (such as an iPad) are becoming a major part of the clinical diagnostics. This enables collection of images from point of care locations (and from patients at home). Compact imaging systems provide value by generating quick and efficient diagnosis to aid decision making. This technology has the potential for broad application of MI in non-traditional MI settings.
- **AI and Machine Learning.** AI and machine learning algorithms are being integrated into all areas of healthcare, if not every industry around the world. Their value to MI can be substantial, from assisting (and potentially automating part of) image analysis, interpretation, and diagnosis, to improving the diagnosis accuracy and efficiency. Initially, AI may be used as an aid to Radiologists.

  There is opportunity to implement AI assisted technology into operations as much as possible to increase clinical throughput while reducing labour intensive radiologist processes of review and reporting.
- **Ultra-High Field Imaging**. MRI scanners with higher magnetic field strengths (such as 7 Tesla and beyond) can substantially enhance the visualisation of fine anatomical details and subtle pathological variations/changes. They provide improved signal-to-noise ratio, spatial resolution, and have the potential to enable more accurate diagnosis for clinicians.
- **Augmented Reality (AR) and Virtual Reality (VR)**. AR and VR technologies are being implemented into many different industries to achieve an enhanced user experience through both immersive and interactive environments. These technologies are particularly valuable (and revolutionising) for MI and medical education, surgical planning, and intraoperative guidance. 3D visualisation not only gives a much more enhanced representation compared with human sight, but also enhances spatial understanding which can be particularly beneficial to clinical practice.

4.7.3. Design and Practice Opportunities

There would appear to be three main areas of focus to improve the operations of MI.

- **Ground floor access**. A key design feature for MI is to be located on the ground floor where it is not land-locked by any other services. This will support the best access for patients, and for large imaging equipment to be removed and replaced with minimal disruption to other services.
- **Capacity to undertake the MI bookings and administration** for CSB, UCH and Weston Creek sites.
- **Provision for holding and uptake rooms** consistent with increased procedures and Gallium production on-site. This increases the space requirements that is not like-for-like.
- **Provision for sufficient ultrasound rooms** to support required undergraduate and graduate clinical learning and teaching requirements. This increases the space requirements that is not like-for like.
- **Future building design**. It is expected that MI modalities will continue to become more efficient and more clinically valuable as has been observed over the past few decades when a 4-slice CT was 'a wonder'.

  A tangential development for the future is to reduce the 'table time' of patients in order to get higher examination volumes from the equipment across most modalities. The future design may want to enable the capacity to wheel in two patient trolleys to the CT scanning rooms at the

same time. This would enable staff to undertake a timelier 'slide-off' and 'slide-on' of simultaneously booked non-ambulatory patients and reduce waiting time between imaging procedures.

The design implications are potentially significant regarding radiation safety (partly addressed by modality manufacturers) and 'expendable' adjoining space, which means that spaces adjacent to modality rooms may need to be developed more flexibly to accommodate this future development.

- **Enhanced business opportunities**. A continuation of the same theme is to continue to develop CHS' MI service to support the viability of clinical services, including opportunity to expand the volume of community referrals. This can support the development of new machines, new services and deliver a more accessible MI service to the community. It is a key concept behind Weston Creek.

4.7.4. Operational Challenges

There will be operational challenges for MI whether MI is collocated with the MI services in CSB, or whether MI is located close to where most patients will be receiving services, that is as an inpatient or outpatient.

To consolidate MI with the planned CSB services will generate operational efficiencies for MI and may not result in patient-centred care.

There would appear to be operational challenges associated with the separation of the current MI with two sites; the CSB site and the new (yet to be determined) site for the new Core in-scope services.

- Two sites have the challenge of fragmenting staffing and skills for a service that is currently experiencing significant difficulty attracting and retaining staff. The workforce challenges for MI are also nationwide challenges that are expected to continue for several years.
- Two sites reduce the operational efficiency of MI, especially for the planned and unplanned services at the new Core in-scope service. It is expected to adversely impact service volumes, the FTE required and therefore FTE per examination.
- Having two sites that are not sufficiently proximal will result in the duplication of some support functions, and result in a larger footprint than would otherwise be achievable.

5. Pharmacy

Consistent with the principles of service delivery,

the service model is to consolidate the core pharmacy functions in one location that can generate operational efficiencies, knowledge transfer and leverage scope of practice of pharmacists;

and

ensure that pharmacists travel to and/or virtually participate in direct patient-centred care, including being an active part of multi-disciplinary team planning, undertaking medication histories and support contemporary use of medications.

5.1. DESCRIPTION OF THE SERVICE

The Pharmacy Service is a core clinical support function that supports the provision and quality (safe and effective) use of medicines throughout the health service.

5.1.1. Clinical Capability

The Pharmacy service at CHS operates at a Level 6 clinical capability. It is critically important that Pharmacy continues to operate at the highest clinical capability level as many other clinical services depend on Pharmacy being able to consistently function at Level 6[10].

A Level 6 service means the provision of a comprehensive range of pharmacy functions that includes but not restricted to:

- Clinical pharmacy advice and support to all health service providers at CH in matters relating to quality use of medications in patient care;
- 24-hour on-call arrangements;
- Medication distribution to inpatient, outpatient, and discharged patients;
- Medication distribution to CHS health care locations in the community;
- Sterile manufacturing of cytotoxic medications for inpatients and approved outpatients, and clinical reviews of cytotoxic medicines;
- Pharmacological support for clinical trials;
- Sterile and non-sterile compounding, including infusions, ophthalmological preparations, and total parenteral nutrition;
- Provision of specialised pharmacy services for renal dialysis, drug and alcohol, oncology, and cystic fibrosis;
- Support of contemporary practice with pharmacy as part of a Multi-Disciplinary Team (MDT), particularly for clinical areas with complex or poly-pharmacy patients;
- Medication information distribution and promoting medication safety in the health service; and
- Quality and risk management programs in line with current NSQHS Standards as appropriate.

A description of a Level 6 Pharmacy is provided in Appendix A3.

10. NSW Ministry of Health, NSW Health Guide to the Role Delineation of Clinical Services, Fourth Edition, October 2019, available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF.

5.1.2. Current Location

There are four pharmacies across CHS:

- Main Pharmacy and dispensary, Building 1 Level 3 (street level);
- (Specialist) Oncology Pharmacy, Building 19, Level 4, Canberra Region Cancer Centre. Whilst this pharmacy is not accessible to general patients, pharmacists visit clinics to provide services to oncology patients alongside their treating physicians/specialists;
- Justice Health Pharmacy Level 2 Building 3;
- Northside Hospital; and
- University of Canberra Hospital Pharmacy.

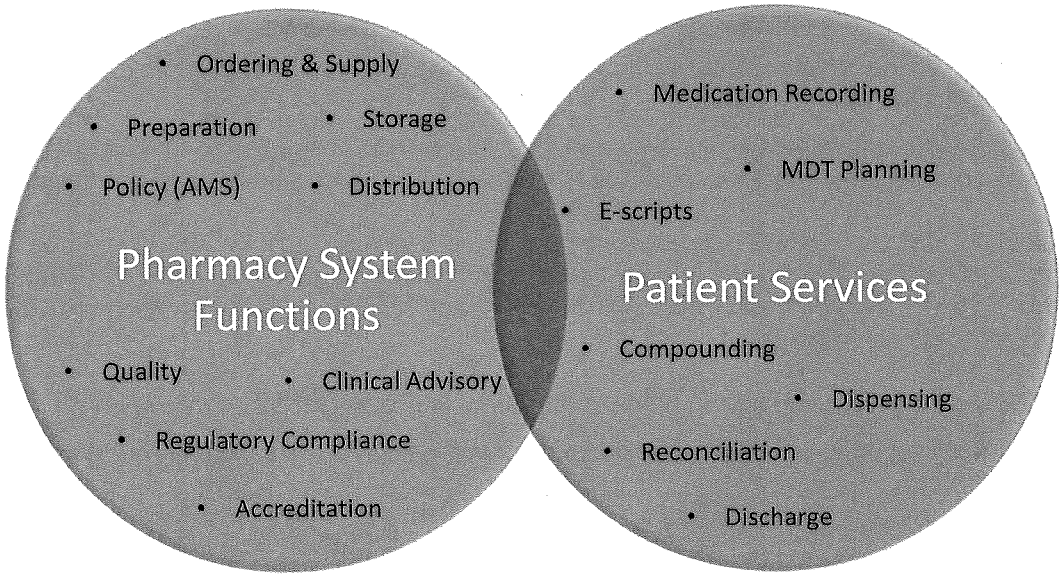
The main pharmacy in B1 is the in-scope Pharmacy service for this Service Model as it represents the criterion of 'like-for-like' relocation.

Nevertheless, the proposition is to use the Phae 2 Redevelopment Project to consolidate the three CH campus pharmacy sites as in-scope services.

5.1.3. Medication Management Cycle

The medication cycle can be important in ensuring that key facets of pharmacy that impact on facility design are captured as outlined in Figure 5-1. These can be separated into pharmacy system functions and patient service functions. The two are inter-related.

Figure 5-1: Medication Management Cycle



- Ordering and Supplies (inventory) includes:
  - Ordering of drugs and other medication-related supplies. Much of the ordering occurs manually. Increasingly, more of the ordering process will be electronic, based on a 'deliver on time' imprest system from suppliers/contractors. This includes pre-packaged (ready to use) medication-related supplies as well as 'bulk' ingredient supplies that require compounding or processing to suitable dosages.
  - It will be essential that medication use is electronically captured (through an integrated pharmacy system such as CHS's product of choice – *MerlinMAP,* integrating with EPIC

digital health record [DHR]) and so ensure an efficient automated tracking – and ordering - system in the future.

- Medication Inventory. In addition to the stock control and the reliance on an imprest system to deliver timely medicines for all clinical purposes, the on-site storing of medications is expected to change, with reduced space due to an efficient imprest system, and increased space needs due to the ever-increasing range and type of pharmaceutical products that need to be available. Therefore, it is expected that overall inventory space will not reduce.

  Pharmaceutical products have different storage requirements including some that are refrigerated (at different temperatures). Others will also require temperature monitoring, even if not refrigerated.

  There are regulatory requirements for the secure storage of restricted (scheduled) medications that are applicable within the pharmacy, at satellite pharmacies and, of course, in patient areas.

  The storage of pharmaceuticals and medication-related products does mean that inventory systems are an important tool to reduce risks associated with non-compliance, as well as medication error (for example similar looking medications). These risks are ever-present and would be reduced in the future with the development of robotics into the dispensing functions of pharmacies. (see below)

- Dispensing includes ensuring that medications as prescribed are dispensed to the right patient at the right location, and with relevant safety advice and patient information.

- Distribution of Medication. The current distribution is mainly by pharmacy staff delivering to designated wards and other patient areas (by hand, trolley or tugs). Distribution can also occur by patient pick-up at pharmacy, and CH staff collecting medications.

  The nature of the medications, including half-life', toxicity and restriction of the medication influences the method of distribution.

  The distribution systems are likely to change significantly in the future. There are low tech systems such as pneumatic tubes and ADCs as well as robotics and AI (as per Section 5.6.2)

- Medication Histories includes reviews of patient medications. Ideally, all patients arriving at hospital would have their medications reviewed, particularly for assessed high risk patients such as day surgery, oncology, addiction medicine, ED, and MAPU; or high-risk medicines (such as narrow therapeutic index).

- Therapeutic Drug Monitoring and Medication Safety, including for admitted patients:
  - For allergies, adverse reactions, patient comorbidities (such as renal/liver function, age, weight etc);
  - Drug interactions and dosage;
  - AMS policy compliance;
  - Reconciliation of all transactions of prescribed medicines; and
  - Accurate and accounted/reconciled recording of scheduled medicines. The reconciliation function ensures that the intended therapies (considering usual community-based care and the patient's condition) is the prescribed therapy and that all changes to the therapy are clearly documented and communicated to the patient (and the care team), reducing unintentional changes to patient's medicine regimen. This supports continuity of care and reduces medication errors.

- Preparation and Compounding includes the production and supply of customised medications to patients when ready-made preparations are not commercially available. This service is currently provided from the main pharmacy (Building 1) and Canberra Regional Cancer Centre (Building 19). The new facility in oncology will enhance the quality and scope of the compounding service.

- Multi-Disciplinary Team patient planning includes contributing to, and supporting patient planning/decision-making, provide advice on medication prescribing and address medicine-related issues.

- Discharge that includes:
  - Provision of current medicines list, highlighting relevant information to facilitate continuity of care (e.g. any medication changes and reason for change)
  - Provision of medication counselling and patient education; and
  - Communication to support patient through transition points and improve coordination (e.g. to community or aged care settings).

  Discharge is often a critical point in the patient flow that can be adversely impacted by a number of factors such as inaccurate prescriptions, and untimely prescriptions, and distribution of medications. This will continue to be a challenge. New and more efficient ways of dispensing to discharged patients will be part of overall enhanced patient experience and operational efficiency. (see below)

- Clinical advisory services include advisory pharmacy services to other CHS sites and public hospitals in the region.

- Clinical Trials. Pharmacy at CH plays an important role in clinical trials including:
  - Dispensing and/or compounding, storage, education and advisory of drugs used within these trials;
  - Creation of randomisation and blinding within the trials;
  - Monitoring of adverse events that may arise during the process; and
  - Management of compliance including regulatory and ethical considerations and documentation of all necessary processes in relation to the trial.

- Quality, regulatory compliance and accreditation includes:
  - Electronic drugs of addiction recording: Maintaining an electronic drugs of addiction (Schedule 8) drugs or Controlled Drugs register. Procurement of electronic registers for controlled medicines management are approved but not yet implemented;
  - Stewardship programs for high-risk medicines;
  - Drug use evaluations;
  - Specific compliance frameworks for accreditation, Pharmacy Board of Australia, TGA and AHPRA;
  - Quality and risk management programs in line with NSQHS Standards; and
  - Health authorities policies in relation to the use of pharmaceuticals including *anti-microbial Stewardship (AMS),* which optimises antimicrobial use within clinical practice that minimises the risk of antimicrobial resistance whilst maximising patient outcome.

5.1.4. Training and Research

Learning/Teaching functions are provided by Pharmacy for pharmacy and medical undergraduates.

CHS has six strategic commitments in relation to teaching and learning that is outlined in Section 6 below and applies to pharmacy as it does to any other clinical service.

A cornerstone is to build learning and teaching into the flow of the clinician's day. This means rooms available on each unit or a shared area readily accessible to clinical (patient) areas (Tier 1 and 2 spaces). To complement the integrated clinical spaces, a learning/teaching hub would provide greater opportunities for education.

5.1.5. Research

The research role for pharmacy will be significant as will participation in research, the most obvious being clinical trials but there are many more roles that pharmacy can develop, such as cutting-edge clinical models (such as CAR T-cell therapies and other specific MTM therapies) that are tailored to the individual patient.

5.1.6. Administration

Pharmacy administration is incorporated in the central pharmacy location. Administration includes all CHS pharmacy services including the satellite service at UCH.

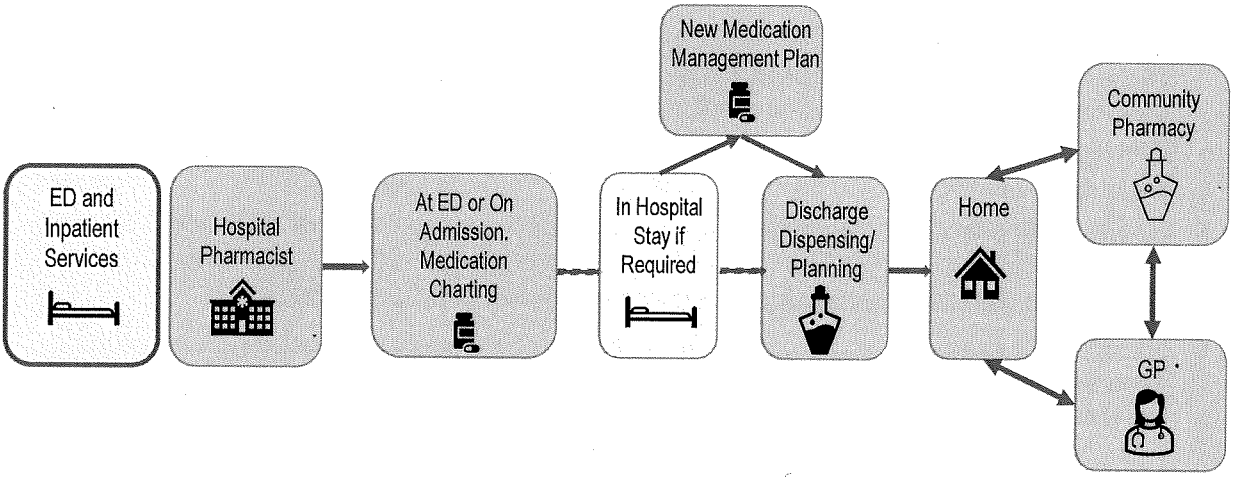
Administration functions are estimated to be approximately 219 sqm NDA.

5.2. PATIENT PATHWAY

The respective patient pathways for inpatients and outpatients at CH in relation to the pharmacy service is shown in Figure 5-2 and Figure 5-3 and described below.

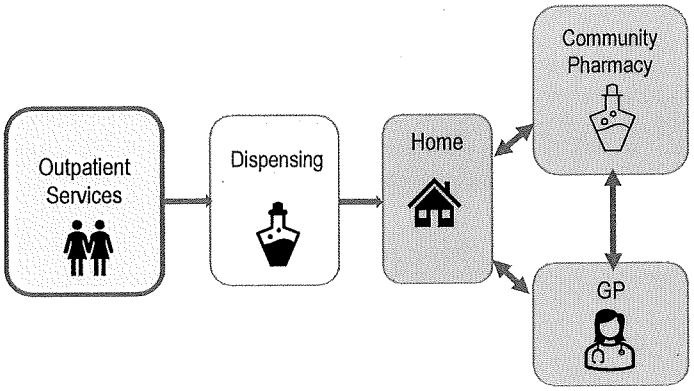
For inpatients, a hospital pharmacist will visit the patient while they are admitted. The patient's current medications will be discussed, and any changes to medications after treatment, if known. Discharge pharmacy services include dispensing of medication (with a default supply equivalent to the quantity outlined under the Pharmaceutical Benefits Scheme) and arranging services with the patient's local community pharmacy.

Figure 5-2: ED and Inpatient Pathway in Relation to Pharmacy Service



For outpatients, some medications may be dispensed by the hospital at the time of the specialist outpatient service. Most often these are medications that are usually only available at hospital pharmacies. Otherwise, scripts are dispensed at the patient's community pharmacy of choice.

Figure 5-3: Outpatient Pathway in Relation to Pharmacy Service



5.3. WORK PROCESSES

5.3.1. Hours of operation

Pharmacy services currently operate from 8.30am-4.30pm Monday to Friday with extended hours (emergency service) from 4:30pm-7.00pm, and on Saturdays and Sundays from 9.00am-4:30pm. There is:

- A remote clinical pharmacy service (5pm to 1am weekdays and 2pm to 10pm Saturdays);
- A limited pharmacy service for surgery that commences at 7am;
- An emergency on-call pharmacy service for all other times; and
- A plan to move towards a 24-hours, 7 days service model in the future.

5.3.2. Care planning

The Pharmacy service of the future will support/contribute to the patient care plan for each multi-day stay patient, and some high risk same-day patients.

The care plan will outline the medication management before and after treatment, and post-discharge medication regime including attendance interval at local GP/community pharmacy for ongoing monitoring and follow up assessment(s).

Patients and carers are counselled about any required change in current medication, as well as newly added medication after procedure, including any potential adverse effects.

5.4. WORKFORCE

Staff and skills mix for the main Pharmacy Service would ensure consideration of the range of general and specialised pharmacy skills, experience, and core competencies to manage the range of pharmacy services expected of a Level 6 service[11].

In addition, a future workforce would be able to support more teaching and research positions, particularly in new clinical practices, individual therapies, and safer use of medicines.

11. NSW Ministry of Health, NSW Health Guide to the Role Delineation of Clinical Services, Fourth Edition, October 2019, available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF.

It is acknowledged that staffing will fluctuate over the course of time and over the course of a day. The indicative staffing above represents a basis for determining support staff spaces and patient/staff flow.

Table 5-1: Indicative Pharmacy Staffing by Workforce Category

Staff Category
Clinical Director of Pharmacy
Deputy Directors
Clinical Specialist Pharmacists
Senior and other pharmacists
Pharmacy technicians
Pharmacy Students/Residents/Interns
Pharmacy Informatics Officer
Administrative Support

5.5. FUNCTIONAL RELATIONSHIPS

Pharmacy has functional relationships with **all clinical services at CH and other campuses**.

There are some clinical relationships that are stronger and more prominent than others, which may have influence over the following:

- Automated Dispensing Cabinets (ADCs); and/or
- Regularly assigned pharmacists to patient planning meetings and clinical areas; and
- IPU rounds for newly admitted patients.

Notwithstanding the critical and close clinical support provided by pharmacy, the central pharmacy does not need to be proximal to other clinical services.

External relationships include:

- Healthcare providers (e.g., GPs, specialists, and allied health practitioners): providing medication management such as drug selection, tailored patient (medication) service, advice about drug interactions, dosage requirements/adjustments, and alternative therapies;
- Regulatory Agencies (such as Pharmacy Board of Australia, TGA and AHPRA) to ensure ongoing compliance;
- Health Authorities in relation to regulatory regimes and AMS;
- Research Institutions and Universities;
- Medicines procurement and distribution services;
- Quality and risk management programs in line with NSQHS Standards current as appropriate;
- Aboriginal programs and services including relevant referral pathways; and
- Community pharmacies.

5.6. OPPORTUNITIES AND CHALLENGES FOR PHARMACY

5.6.1. Location and Configuration of Pharmacy Services

As noted above, the main pharmacy in B1 is the in-scope pharmacy service for this Service Model as it represents the provision of 'like-for-like'.

The proposition is that the three CH campus pharmacy sites be consolidated and form part of the in-scope services. The proposition is based on the greater synergies and benefits that would accrue from consolidation of the satellite pharmacy functions. The consolidation benefits include:

- Bringing together limited specialist pharmacy knowledge/expertise;
- Enables better use of pharmacists to operate at the top of their scope of practice, more of the time;
- Knowledge transfer and training of pharmacists can be better developed and coordinated; and
- Provides greater flexibility in the use of pharmacy resources.

Consideration has also been given to the dis-benefits of consolidation. The main reason for developing satellite pharmacies is to bring pharmacy closer to the clinical teams and develop greater depth of pharmacy expertise in specific clinical areas. This major benefit of satellites does not hold as true in the contemporary pharmacy context as most pharmacists can operate virtually and have input into patient care, patient planning meetings, virtual medication histories and secure remote dispensing through ADCs etc.

Similarly, whilst pharmacy need to be well-integrated in the care teams, the functional adjacencies indicates that pharmacy department does not need to be in close proximity to the wards or outpatients. On the basis that pharmacy is not proximal, then there needs to be ICT virtual connectivity, and efficient methods of sending dispensed medications across the campus, particularly to avoid delayed discharge.

On balance, the consolidation option is considered to provide more advantages in the short and longer-term than the current continuation of the three sites on campus.

5.6.2. Technology-Driven Opportunities

There are opportunities for pharmacy services to more suitably utilise existing technologies that are not currently available at CH. These include:

- Automated Dispensing Cabinets. These pharmacy-loaded cabinets would normally be located at relevant POC across the campus, usually wards, and provide a controlled means of distribution (particularly for Schedule 4 and Schedule 8 medications) that can be automatically tracked and updates the DHR.

  CH currently has a Pyxis machine ED (which will move to Building 5 CSB), an iDose in Building 7 and is looking to *significantly expand on the use of ADCs across campus. This would include the new in-scope buildings.*

  The benefits of ADCs are to monitor the use of (highly restricted) drugs, who accesses the drugs, reduced paperwork for nurses, automatic imprest, and reduced dispensing time of pharmacists. The value of ADCs is broadly accepted across the pharmacy sector, and particularly useful in clinical areas that use higher volumes of S4 and S8 drugs, including critical care, palliative care, mental health amongst others.

- Robotics is becoming more commonplace in larger public hospital pharmacies across Australia. Robotics identify the correct medication and dosage, collects and dispensing, reducing human error in the selection, and dispensing of medications, saving the time of pharmacists, automatic stock control, and improving operational efficiency by requiring reduced floor space.

  A Single Dose Dispensing robot is seen as a viable option for CH. These systems are best considered when undertaking capital redevelopments as is the case with CH Pharmacy. There are particular benefits of this type of robot including after-hours (say 11pm to 4am) dispensing to prepare for what the wards require the next day and have the right logistics in place for delivery into the wards. These types of robots are not common in Australia at this time. CH would be one of the early adopters of a unit-dose dispensing robot for pharmacy.

  A compounding robot may not be as close to bringing to fruition but has not only the benefit of being more precise in compounding, and eliminates OH&S considerations for pharmacy staff.

- Data Analytics and Decision Support appears to be an underutilised tool for the pharmacy service and can be better leveraged to analyse patterns in medication prescription and utilisation, and for optimising medication management. Advanced analytics would be incorporated into an iPharmacy solution as noted above.

- Pharmaco-genomics and Medication Therapy Management (MTM) Programs
  - Pharmacogenomics complements the burgeoning growth on individualised medical care that would require tailored medications to individual patient needs and offers opportunities for further CH to collaborate in trials and provide pharmacists with an emerging area of career opportunities.
  - MTM programs involve the development of personalised medication regimes through medication reviews, drug assessments, patient consultation via a multidisciplinary team-based approach. These are leading edge pharmacy services. Such developments would provide a strong recruitment and retention factor for CH.

- Community Pharmacy roles. CH could develop a strong presence that supports clinical liaison pharmacy services in the community (that would not compete with commercial pharmacies) by providing a medication review and advisory service.

5.6.3. Extension of Operations

There are also opportunities in the future that do not require additional technology as much as a change in the 'operating model' for pharmacy. These changes are expected to be incremental and respond to:

- **Enhanced engagement** as an integral part of MDTs;
- **Telehealth (and Tele-pharmacy).** The traditional modes of pharmacy dispensing have been challenged during COVID-19. The increase in remote patient care and monitoring that build on programs such as HITH and other home-based services will necessitate consideration of expanding ways of prescribing for areas such as at-home chemotherapy and other oncology services.

  Tele-pharmacy would enable CH to play a more prominent role in advising clinical services at rural and remote hospitals and health services where communities are underserved. In other regional services, this has meant expanding the core of pharmacists to support an outreach role, which in turn provides greater operational scale, and supports additional training. Design of Tier 1 and Tier 2 spaces will be important.
- **Increased specialisation of pharmacist roles** in specialist units; and

- **Extension of hours** to move toward a 24-hour service provision. The dispensary is currently operating 8.30am to 7pm on a weekday and this is expected to be extended. A 24/7 dispensing service is feasible with robotics.

6. Learning and Teaching

This section considers the learning and teaching functions of CHS in the context of the Phase 2 Redevelopment Project. Learning and teaching, are clinical support functions that are integral to the future operations of CHS.

Consistent with the principles for learning and teaching identified in section 2.2.3 above,

> The objective of the service model is to:
>
> Develop facilities that can support an academic tertiary level teaching and research capability;
>
> and
>
> Fully integrate and embed learning, teaching, and research into the clinical operations of CHS, which means to embed learning, teaching, and research as close as practical to the points of patient care delivery in wards, outpatients and clinical support services.

6.1. CONTEXT

CHS has a current strategy that set the direction for learning and teaching; *The Canberra Health Services, Clinical Learning and Teaching Strategy 2023 – 2027.*

CHS Office of Research and Education has been tasked to develop and implement the strategy across the organisation to strengthen CHS' position as tertiary academic teaching health service and fully integrate learning, teaching and research as core functions.

As an academic teaching health service, CHS takes a multidisciplinary approach to clinical learning and teaching, providing learners with the exposure to complex patients, rare diseases and learning and teaching that allows them to work and learn from all disciplines involved, including the consumers and carers themselves.

- Learning and teaching programs: The health service offers diverse programs, including medical, nursing, and allied health professional training. These programs emphasise evidence-based practice, interprofessional collaboration, and the acquisition of clinical skills.
- Clinical placements: The health service provides clinical placements for students, enabling them to gain practical experience under the guidance of experienced healthcare professionals.
- Continuing education: The health service promotes lifelong learning among its staff by offering professional development opportunities, conferences, and workshops.

6.2. LEARNING AND TEACHING STRATEGY

CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*[12] provides the overarching vision, goals and strategic commitments to clinical learning and teaching. The six Strategic Commitments are:

- Strengthen governance and processes to prioritise and enable learning and teaching.
- Prepare and support the clinical workforce to work safely and effectively at the leading edge of their practice.

12. Canberra Health Service, *Clinical Learning and Teaching Strategy 2023 – 2027'*. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf

- Develop and support the clinical workforce to deliver effective, innovative, evidence-based teaching and point of care clinical supervision.
- Establish collaborative environments that maximise and enable effective, innovative, and efficient learning and teaching.
- Foster and strengthen strategic partnerships for learning and teaching with clinicians, consumers and carers, communities, and academia.
- Promote, share, and celebrate learning and teaching.

At the core of the strategies is a pathway to strengthen CHS as a tertiary level academic teaching health service. The current state strategy is one of early foundational steps toward a strong learning culture that embeds a person-centred approach, is learning-focused and evidence-based, and is adaptive to changing healthcare requirements. It is supported by leaders who prioritise and take responsibility for delivering quality learning and teaching outcomes.

The Phase 2 Redevelopment is intended to support the core strategies and enable next steps on the pathway.

6.3. CURRENT STATE

The learning and teaching function is ubiquitous across CHS, although as noted above it continues to develop as an academic tertiary level teaching service.

There are nevertheless some specific issues for the current state that will form a 'platform' for considering teaching and research in the context of Phase 2.

The current state:

- **Teaching integrated with clinical management.** Formal undergraduate and post-graduate teaching that occurs for medicine, nursing and all allied health services, for all clinical service types, is expected to continue, (supported by embedded facilities as identified above).
- **Teaching as a Requirement of Accreditation**. Virtually all clinical subspecialties that are in-scope for redevelopment require evidence of teaching as part of their accreditation. Of particular note are:
  - Medical Imaging, which currently has:
    - Designated teaching areas (consistent with the in-house training program for MI technologists; and
    - Sufficient space within modalities and viewing rooms that are able to accommodate trainees as needed.
  - Pharmacy training spaces;
  - Pathology, which is required to have a teaching program, however this is mainly focused on medical staff. Pathology has provision for:
    - Multi-microscope teaching spaces on benches on different floors;
    - Allied health staff including developing scientists have no current access to dedicated educators or access to training rooms; and
    - Other registrar teaching space, albeit confined.
- **General undergraduate and post-graduate teaching** across the inpatient and outpatient services for in-scope clinical specialties. In many respects teaching space is 'included' in the bedside and clinic points of care for students.

More broadly, there are no designated teaching areas on wards or in outpatients that can be used for teaching that are features of a contemporary hospital design, currently we only have an auditorium in building 2 with limited access and functionality and there is little to no access elsewhere on campus that meets the growing needs of medical, nursing and the allied health workforce.

6.4. A WAY FORWARD

In the context of CHS policy to actively support its teaching function as a core service, the Phase 2 Redevelopment Project provides an opportunity to further develop these strategies.

The way forward can be marked by different 'signposts' of progress toward an academic tertiary teaching hospital. Learning and teaching is proposed to progressively develop:

- **Governance structures** that enable a multidisciplinary centralised approach that enables monitoring and reporting on quality learning and teaching outcomes. CHS will progressively support more academic staff, whether academic clinicians or dedicated clinical staff. It requires continual fostering of leadership, accountability, knowledge exchange and academic engagement.
- **Learning and teaching** that takes a multidisciplinary approach and provides planned exposure to complex patients, rare diseases and learning and teaching that allows them to work and learn from all disciplines involved, *including the consumers and carers themselves*. They need this multidisciplinary approach to become extraordinary clinical experts. The role requires a diversity of facilities and spaces consistent with the tiered analysis above.
- **Health consumers and carers** who are actively engaged in learning and teaching with respect to:
  - Sharing lived experience;
  - Family and carer involvement in the future treatment plans;
  - Consumer-centred simulation, which is where CH would employ consumers and carers to participate as simulated patients or participate in debriefing sessions offering feedback on healthcare interactions and communication in the learning and teaching environment; and
  - Evaluating effectiveness holistically.

The most important considerations for learning and teaching for the Phase 2 Redevelopment Project include:

- ***Collaboration and Interprofessional Learning*** that include learning and teaching spaces in or close to patient treatment spaces. These spaces bring together individuals from various disciplines, such as doctors, nurses, pharmacists, and allied health professionals, fostering opportunities for multidisciplinary education and teamwork.
- ***Experiential learning*** such as simulation spaces and clinical skills labs. These are hands on learning away from patient treatment spaces.
- ***Networking and knowledge exchange*** that are most likely to have dedicated spaces for sharing experiences, networking and foster informal information exchange.
- ***Technology integration*** where CH would champion technology enabled infrastructure that incorporates advanced technologies that enhance educational experiences. These may include state-of-the-art audio-visual equipment, virtual reality simulations, telemedicine capabilities, and digital resources.

  By integrating technology, healthcare professionals can access up-to-date information, engage in interactive learning experiences, and explore innovative approaches to patient care.

As part of the vision of the *Clinical Learning and Teaching Strategy* a dedicated facility (or facilities) that provides teaching and learning hub with hi-fidelity, consumer-centred simulation laboratories and mobile-simulation capability for teaching across all typical patient settings, with specific access to tutorial, seminar rooms, multi-media spaces and amphitheatres. With the intention of generating revenue in the future from such a learning and teaching hub.

To achieve CHS' strategic commitments in the context of a contemporary health precinct, training space/facilities are to be embedded in the patient care/treatment areas, and for clinicians, built into the flow of the clinical day.

For the design of the new facilities is will mean a **tiered approach**, where:

- Tier 1 is teaching/learning as part of the spaces designed where patients are treated/managed including outpatient rooms, ward areas and clinical examination spaces. The key concept here is **embedding**. These developments would bring CH up to contemporary standards and practices common in newly developed tertiary hospitals;
- Tier 2 is teaching/learning spaces on wards and **proximal to patient treatment areas** that enable review, collegiate discussions, and virtual learning experiences through meeting/ consultation rooms. This would also provide suitable teaching space associated with formal training for accreditation in clinical specialties; and
- Tier 3 is teaching/learning spaces that are for more formal learning and teaching away from patient areas that, for an academic tertiary hospital, could be expected to have larger auditorium spaces, academic administration space, teaching demonstration spaces (such as the gross anatomy museum), hi-fidelity simulation spaces for different clinical settings, and consumer experience spaces used for teaching and learning. This could also enable national and international research and large conferences to be held at Canberra Hospital, potentially creating new revenue streams.

  The tier 3 type services may be well-suited in **a separate teaching, learning and conference facility on campus** that remains clinically connected. This would be undertaken in collaboration with academic institutions.

The tier 1 and 2 teaching/learning elements are proposed to be designed into the 'fabric' of the new facilities.

7. Research

This section considers the research role of CHS in the context of the Phase 2 Redevelopment Project. Research is an important clinical support functions to the future operations, and reputation of CHS.

Consistent with the principles identified in section 2.2.3 above and repeated from the Learning and Teaching section (above),

> The objective of the service model is to:
>
> Develop facilities that can support an academic tertiary level teaching and research capability;
>
> and
>
> Fully integrate and embed learning, teaching, and research into the clinical operations of CHS, which means to embed learning, teaching, and research as close as practical to the points of patient care delivery in wards, outpatients and clinical support services.

7.1. CONTEXT

CHS has a current strategy that sets the direction of research; *The Canberra Health Services, Research Strategy 2021-2025.*

The CHS Office of Research and Education has been tasked to develop and implement the strategy across the organisation to strengthen CHS' position as tertiary academic teaching health service and fully integrate learning, teaching, and research as core functions.

As an academic teaching health service, CHS takes a multidisciplinary approach to clinical learning and teaching, providing learners with the exposure to complex patients, rare diseases and learning and teaching that allows them to work and learn from all disciplines involved, including the consumers and carers themselves.

- Learning and teaching programs: The health service offers diverse programs, including medical, nursing, and allied health professional training. These programs emphasise evidence-based practice, interprofessional collaboration, and the acquisition of clinical skills.
- Clinical placements: The health service provides clinical placements for students, enabling them to gain practical experience under the guidance of experienced healthcare professionals.
- Continuing education: The health service promotes lifelong learning among its staff by offering professional development opportunities, conferences, and workshops.

7.2. RESEARCH STRATEGY

The *Research Strategy* outlines the vision for research to "*create an inclusive research community, which aims to deliver exceptional healthcare*", with the primary goal being collaborative research as a core strategic aim of the organisation, enabling academic partnerships to co-create exceptional patient care.

To achieve this vision, the strategy document also sets forth six strategic commitments that reflect CHS's strong aspirations to embed and grow research:

- Establish governance and processes to enable and value impactful research;
- Create a workforce which enables a strong research culture;
- Create an environment which enables research activities;
- Create impactful research partnerships with academic and industry partners;
- Create impactful research partnerships with consumers and communities; and
- Create a strong communication strategy for CHS research.

A robust research strategy is seen to have the potential to be a major plank in the development and growth of CHS as a health care provider and ***recruitment strategy for workforce.***

The development of research as part of the Phase 2 Redevelopment Project can assist on the path to achieving the strategy, most notably to deliver a large research capacity as a stepping stone to a longer-term research and teaching precinct on CH campus.

7.3. CURRENT STATE

A research ethos is not embedded in the culture of the organisation. Research tends to be ad hoc and subject to the clinical interests of individual clinicians and the capacity of the clinical divisions to support the research.

There are nevertheless some specific issues for the current state that will form a 'platform' for considering research in the context of Phase 2, including research:

- Wet labs on Levels 5 and 6 of Building 10 that, by agreement, are managed by ACT Health.

  The total area that is managed by ACT Health is approximately 1,808sqm Net Departmental Area[13] (NDA) (between 2,100-2,200 sqm GDA) across two levels.

  The current range of dedicated in-scope research projects include research in cancer, cardiology, gastroenterology, macrophage biology, endocrinology, paediatrics, and immunology.

  It is understood that many of these projects are completing their natural cycle and not all space is being effectively utilised;
- The current research space is Physical Containment level 2 (PC2) certified[14] and that all activity on these floors also need to be PC2 compliant;
- It is also recognised that the current space is not of a contemporary design that results in inefficient research; and
- The 'animal house' in the basement of Building 10 associated with ANU research utilising approximately 121 sqm NDA (163 sqm GDA).

All the above research area is in-scope for the project criterion of 'like-for-like'.

At present ACT Pathology occupies some of the research space on a 'loan' basis whilst not being used for ACT Health research third parties. This is estimated to be 262 sqm NDA:

- Anatomical Pathology (40sqm); and
- Immunology and Infectious Immunoassay (222sqm).

13. Same as "net functional area".
14. https://www.ogtr.gov.au/sites/default/files/files/2021-07/guidelines_for_certification_of_a_physical_containment_level_2_laboratory.docx, March 2013.

The implication is that the current research space that is being 'loaned' is required for core pathology functions and has been incorporated into core space requirements in the Pathology Service Model. This implies that more than 'like-for-like' space will be required by about 262sqm plus circulation and plant whilst retaining all of the current ACT Health research space of 1,808sqm.

Notwithstanding the current position, there are important issues that will need to be addressed that have timelines outside of the Phase 2 planning. These are:

- The strategic value of, and ongoing need for, an animal house for research, or if an animal house is needed, whether the facility is needed as a breeding or housing facility. The working assumption for this service model is that the animal house will be in-scope and on campus.
- The relationship between the ACT Government and ANU announcement of a new 'science and research' facility and CHS's research aspirations is not clear. The newly announced facility could potentially have very significant impact for research at CH, and the problematic issues of clinicians participating in research that is not on-campus and not integrated with clinical practice.
- The relationship with ANU's John Curtin School of Medical Research where a considerable body of pre-clinical research is currently undertaken and their needs for integrated research facilities located at Canberra Hospital.

7.4. A WAY FORWARD

The most important considerations for learning and teaching for the Phase 2 Redevelopment Project are similar to learning and teaching, and include:

- ***Collaboration and Interprofessional research*** that include research spaces in or close to patient treatment spaces. These spaces bring together individuals from various disciplines, such as doctors, nurses, pharmacists, pathology scientists, and allied health professionals, fostering opportunities for multidisciplinary research projects.
- ***Networking and knowledge exchange*** that are most likely to have dedicated spaces for sharing experiences, networking and foster informal information exchange.
- ***Technology integration*** where CH would champion technology enabled infrastructure that incorporates advanced technologies that enhance educational experiences. These may include state-of-the-art audio-visual equipment, virtual reality simulations, telemedicine capabilities, and digital resources. By integrating technology, healthcare professionals can access up-to-date information, engage in interactive learning experiences, and explore innovative approaches to patient care.

In the longer-term, the strategies envisage a dedicated facility (or facilities) that provides a research capability. From the descriptions, it is expected that the research would include some of what it does now, such as clinical trials but also new research that covers a range of categories including:

- Cutting edge clinical research (in a clinical environment such as diagnostic genomics);
- Primary and translational research needing wet labs;
- Clinical trials;
- Therapy and clinical practice research;
- Trialling of new equipment/devices; and
- Broader public health/epidemiological research with different CHS patient cohorts.

Research spaces are complex to define, design and deliver. Current research at CHS is highly dependent on individual clinician researchers and divisional capabilities to support them. The research strategy is designed to build greater ***consistency and rigour*** around CHS sponsored research.

The research environment is made even more complex for CHS by the recent ACT Government announcement of a new major investment in a science and research facility in Canberra associated with the ANU.

Although the environment is evolving, there are key options and working assumptions on which research would be supported and jointly developed with third party academic institutions. There is again a tiered approach to research, where:

- **Tier 1.** Embedded research into patient treatments (such as clinical drug trials, testing of new equipment/techniques etc). Whilst this does not usually require additional patient space, it does require the incorporation of the function (clinical trials) and related spaces into the core design;
- **Tier 2.** Research spaces proximal towards other clinical support areas that support clinicians engage with research and have access to appropriate facilities, (i.e. wet lab access or sample processing facilities for preclinical research activities). One example would be genomic research and newly developing clinical areas such as CAR-T cell therapies; and
- **Tier 3.** Research space, or specific commercialisation research can be away from patient areas. The tier 3 type research may be well-suited in a separate facility that remains clinically connected and would benefit from being on-campus. It is critical that this development be undertaken in collaboration with academic institutions.

Like teaching and learning, the tier 1 and 2 research elements are proposed to be designed into the 'fabric' of the new facilities.

It is important to acknowledge that the type and extent of research can be significant, and whilst core to the functioning of a tertiary level health service, usually needs to operate within defined parameters. Defining the parameters can be problematic for research governance structures within a large academic hospital. This service model can offer for consideration a basis for 'internal fees' or rental costs of space.

It is becoming increasingly common for research precincts/areas in organisations[15] to support research projects on the basis of their contribution to the organisation's sustainability, especially for newly built facilities.

It is important to note that there are different arrangements that apply across major health services, and the nature of the arrangements are usually influenced by:

- The strategic importance of the research to the health service;
- The alternative uses of the facility (that is the opportunity cost); and
- Whether the organisation incurred construction/refurbishment costs.

Hence, the following general 'rental' formulae is indicative only:

> *The building costs or heavy refurbishment costs of the research space (per sqm) that may or may not include FFE [say, as an example, $6,000sqm).*
>
> *Divided by amortised rate of 15 years being the typical time before a major refurbishment is required (but could equally be 10 years or 20 years) [$6,000/15=$400 per sqm];*
>
> *Multiplied Sqm required [say 500sqm x $400 per sqm per annum = $200,000 per annum]*
>
> *Multiplied by a determined margin, usually between 5% and 15% [$200,000 x 10% = $220,000]*
>
> *Apply GST if applicable [$220,000 x 10% = $242,000 per annum]*
>
> *Divided by 12 months to determine a monthly 'charge' [$242,000/12 = $20,167].*

15. Such as Walter & Eliza Hall, Royal Brisbane Hospital, Peter MacCallum Cancer Institute, Royal Prince Alfred, and The Alfred Hospital Burnet Building

It is important that this project provide advice on the proposed research space that can/should be developed as part of Phase 2. The default position is to replicate the current (~2,000 sqm) actual research space utilised on Levels 5 and 6 of Building 10.

8. Administration and Related Support Services

This section describes administration and other support services that are in-scope for relocation to the new facilities, that are not included elsewhere.

The administration components fall into three categories:

- *Administration for in-scope services that are relocating for the long-term* as part of Phase 2 as well as administration of services in the CSB, not included in Building 5 for the long-term.
- Administration services that are in Buildings 1, 3, 10 and 12 that will need to be relocated on campus, but not for the long-term.
- Administration services that are in Buildings 6 and 23 that need to be relocated on campus, but not in the new facilities. These relocations are generally temporary or short-term transitions.

8.1. LONG-TERM RELOCATIONS IN THE NEW FACILITIES

These administrative services include:

- ***Emergency Department (ED) Administration***. ED Administration and clinical learning spaces have not been included as part of the CSB development. It is currently located in Building 1 adjacent to current ED in Building 12. The area is approximately 301 sqm NDA (391 sqm GDA). *ED Administration would ideally be located as close as practicable to the new ED.*

- ***Intensive Care Unit (ICU) Administration.*** ICU administration and learning spaces were not included in Building 5. The service is currently located in Building 12. The area is approximately 686 sqm NDA (891 sqm GDA).

- ***Infection Control Administration***. Infection Control Administration is currently located in Building 4 and will transition to the new clinical buildings for location synergy with Pathology and Pharmacy. The current space is approximately 94 sqm NDA (122 sqm GDA)

- ***Junior Medical Officer Lounge*** and RMO sleep over facilities are transferring to new clinical buildings on the basis that the JMOs are required to be close to wards. The space for JMO/RMO is on Level 8 of Building 1 and is approximately 122 sqm NDA (159sqm GDA).

- ***Building 1 Admin.*** The current space is approximately 749 NDA (973 sqm GDA). Clinical administration in the current Building 1 (Level 9 and Level 10) includes offices for a wide variety of functions including Division of Surgery; Division of Medicine; COVID @ Home; Quality and Safety; Pain Management, Medico-legal, Risk and Policy; Consumer Liaison/feedback; Patient Flow, Discharge Liaison and Planning; as well as Art Curator Storage.

- ***Medical Officer Support, Credentialing, Employment & Training Unit (MOSCETU).*** MOSCETU is currently located in Building 2 and will transition to the new clinical buildings for location synergy with JMO, and Physicians Training Office. The area is approximately 143 sqm NDA (186 sqm GDA).

- **Physicians Training Office (PTO)**. PTO will transition to the new clinical buildings for location synergy with JMO, and MOSCETU. The area is approximately 26 sqm NDA (34 sqm GDA).

- **Voluntary Assisted Dying (VAD) Admin**. VAD will be a new service in the new clinical buildings. It is a territory wide service for people who are at the end of their life, who meet strict eligibility criteria and request access to VAD. The service places the needs of a person (requesting the service) at the centre of care, providing consistent pathways and coordination

of care for the person, their family, and the treating healthcare team & staff within the health service. The proposed admin space for VAD is approximately 44 sqm NDA (57 sqm GDA) non-clinical (not on ward), on top of approximately 25 sqm NDA (35 sqm GDA) clinical (on ward).

- ***Medical Imaging***. CH's core MI service is currently located in Building 12 Level 2. It will be partially relocated to the new satellite MI service in Building 5 CSB, with the remaining moving to the new inpatient and outpatient building(s). MI office area currently occupies approximately 254 sqm NDA (318 sqm GDA).

- ***Pharmacy*** is currently located Level 2, Building 1. The administration area is approximately 219 sqm NDA (274 sqm GDA).

- ***ACT Pathology's*** office/administration space is currently located in Building 10 Level 1. The area comprises approximately 381sqm NDA (461 sqm GDA) and will be moving to the new Building 6.

- ***Clinical Handover*** is a new function that needs to be located within, or in close proximity to inpatient services. It is proposed that this service is approximately 54 sqm NDA (75 sqm GDA) in size.

- ***Teaching and Learning***. The ANU Medical School is located in Building 4 which contains teaching facilities and a library for medical students. The ANU building is currently in scope of the Phase 2 redevelopment, subject to value management.

- ***Research – Pre-Clinical***
  - *Building 10 Basement Support Functions/Staff Areas.* Area is approximately 83sqm GDA.
  - *Building 10 Basement 'Animal House', 163 sqm GDA*;
  - B10 Level 5 research area is 897 sqm NDA (1,076 sqm GDA) although the space is currently underutilised.
  - B10 Level 6 research area is 911 sqm NDA (1,093 sqm GDA) and is also currently underutilised[16].

- ***Multifaith space***
  - This area is currently in Building 3 Level 2. This service is important to provide spiritual resources for patients and staff. This service does not need to be directly adjacent to clinical areas but for ease of location, central to a main thoroughfare;
  - A suitable area large enough for:
    - 30/40 people for ritual purposes (Mass, Chapel Services, Ceremonies, memorials, combined);
    - Two prayer rooms to accommodate 20 people each, this would enable men and women to use the separate rooms concurrently and a wardrobe and space for linen. Requires discreet connection to MFS close to direction of Qibla;
    - Male facilities – ablutions (including toilet/ feet, face, and hand washing), change rooms with lockers; and
    - Female facilities – ablutions (including toilet/ feet, face, and hand washing), change rooms with lockers.
  - Entry/exit large enough for bed movement and space for wheelchairs to turn. Including distinct space for people to sit on floor/prostrate if required while others can still sit in chairs.
  - Store room for furnishings such as chairs/altar/lectern, bookshelf, and piano/organ/harp (as we have music therapists who would use such a space).

16. Currently part of Building 10 level 6 is being used by ACT Pathology. Research activity is expected to continue to build into the future.

- Vestry for religious purposes (three wardrobes, small table and chairs including small basin).
- Consultation room nearby (preferably next to MFS and not connected to it) for private conversation. Must not be designed as a clinical space; more like a counsellor's room.
- Office space nearby MFS (but not connected) for Spiritual and Pastoral Care practitioners.

8.2. NON-PERMANENT RELOCATIONS

These include storage and archive services that can, but do not necessarily need to be in prime clinical space.

- Pathology Archive Room. This area stores pathology specimens required to be retained. It is also referred to as the 'Block and Slide' room. The archive room is currently located in the Basement of Building 10 and has an area of approximately 210 sqm NDA (252 sqm GDA). Out of this, 50 sqm NDA will need to relocate into the new facility (those of a shorter-term nature that need to remain on site), with the remaining preferably located off site while CHS transitions into a fully digital hospital.
- Art Curator Storage. This is currently located in Level 10B Building 1. The area is 14 sqm NDA (19 sqm GDA).

Non-permanent relocations sum to 211 sqm GDA.

8.3. ADMINISTRATION AND SUPPORT FUNCTIONS – BUILDINGS 6 &23

These administration functions are identified for temporary relocation as a means of evacuating and demolishing Buildings 6 and 23. There are no relocating staff that are expected to be permanently accommodated in the new facilities.

The scope is estimated to be:

- **General B6/23 Admin**: 85 offices (single and shared) and workstations. The current space is approximately 493 NDA (640 sqm GDA). Clinical administration includes offices for a wide variety of functions including COVID @ Home, Assisted Director of Nursing/Director of Medicine offices, Rheumatology and Dermatology, Diabetes and Endocrinology[17], GP Liaison, and Quality and Safety (QSII – CFET); and
- **Department of Surgery Administration**: 136 offices (single and shared) and workstations. The current space is approximately 1,128 sqm NDA (1,466 GDA)

8.4. ADMINISTRATION CONSOLIDATION

The nature of Phase 2 Redevelopment Project has highlighted a service model issue that may warrant further investigation and development.

It is noted that many of the administrative functions are:

- Highly fragmented across the campus. This reflects more an act of history as CH has developed/evolved over many decades; and
- Most of the administration spaces are accommodated in areas that were not designed for administration.

17. Including Diabetes and Endocrinology services at Centenary Hospital of Women and Children.

Although not in-scope for this project, there would appear to be benefits from a review as how to best consolidate/cluster administrative functions in purpose-built facilities that could:

- Generate operational efficiencies (systems, space, equipment, and expertise);
- Provide greater flexibility in using administrative staff, across priority projects;
- Generate improved 'cross-program' business intelligence and broaden the operational knowledge of the organisation amongst administrative staff; and
- Provide a stronger organisational culture, rather than a more siloed 'service specific allegiance'.

A1. Guiding documents and Canberra Hospital Role Delineation

Current Plans, Strategies and Frameworks considered:

- ACT Health Services Plan (2022 to 2030) [18].
- CHS Partnering with Consumers Framework 2020-2023[19];
- CHS Clinical Learning and Teaching Strategy 2023-2027[20]; and
- CHS Research Strategy 2021-2025[21].

Canberra Hospital Role Delineation

The Role Delineation for clinical services[22] were provided by ACT Health from the ACT Health Services Plan, 2022 – 2030.

	2021		
Service	**Canberra Hospital**	**UCH**	**CPHB**
Core services			
Anaesthesia and recovery	6	NPS	4
Operating Suite	6	NPS	4
Intensive Care Service	6	NPS	4
Nuclear Medicine	6	NPS	4
Radiology and Interventional Radiology	6	2	5
Pathology	6	2	5
Pharmacy	6	2	5
Emergency medicine			
Emergency Medicine	6	NPS	4
Medicine			
Acute Stroke Services	5	NPS	4
Cardiology and Interventional Cardiology	6	NPS	4
Chronic Pain Management Services	4	3	NPS
Clinical Genetics	4	NPS	NPS
Dermatology	5	NPS	3
Drug and Alcohol Services	5	NPS	1
Endocrinology	6	NPS	3

18. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.
19 Canberra Health Services, May 2022, Partnering for Exceptional Care - Partnering with Consumers Framework 2020–2023, available at https://www.canberrahealthservices.act.gov.au/__data/assets/file/0008/1933181/CHS-Partnering-for-Exceptional-Care-Framework_V4_DigitalFA.pdf
20 Canberra Health Services, April 2023, Clinical Learning and Teaching Strategy 2023 – 2027, available at https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf
21 Canberra Health Services, November 2021, Research Strategy 2021-2025, available at https://www.canberrahealthservices.act.gov.au/__data/assets/file/0007/1933171/CHS_ResearchStrategy-2021-2025_03_V2_DIGITAL-FA-1.pdf
22. NSW Ministry of Health, Fifth Edition, December 2021, NSW Health Guide to the Role Delineation of Clinical Services.

Gastroenterology	6	NPS	4
General and Acute Medicine	6	NPS	4
Geriatric Medicine	6	5	4
Haematology	6	NPS	3
Immunology	6	NPS	4
Infectious Diseases	6	2	5
Gastroenterology	6	NPS	4
General and Acute Medicine	6	NPS	4
Geriatric Medicine	6	5	4
Haematology	6	NPS	3
Immunology	6	NPS	4
Infectious Diseases	6	2	5
Oncology — medical	6	NPS	2
Oncology — radiation	6	NPS	NPS
Palliative Care	4	NPS	2, CHH 6
Rehabilitation Medicine	2	6	2
Renal Medicine	6	NPS	2
Respiratory and Sleep Medicine	6	NPS	3
Rheumatology	5	NPS	2
Sexual Assault Services	4	NPS	1
Sexual Health	5	NPS	NPS
Surgery			
Burns	4	NPS	2
Cardiothoracic Surgery	5	NPS	NPS
ENT Surgery	6	NPS	4
General Surgery	6	NPS	4
Gynaecology	6	NPS	4
Neurosurgery	6	NPS	NPS
Ophthalmology	5	NPS	3
Oral Health	6	NPS	NPS
Orthopaedic Surgery	6	NPS	4
Plastic Surgery	5	NPS	4
Urology	6	NPS	4
Vascular Surgery	6	NPS	4
Child and family health services			

Maternity	6	NPS	5
Neonatal	5	NPS	3
Paediatric Medicine	5	NPS	2
Surgery for Children	4	NPS	2
Youth Health	4	NPS	NPS
Mental Health			
Adult Mental Health	5	2	4
Child and Youth Mental Health	4	NPS	NPS
Older Persons Mental Health	4	NPS	4

A2. Level 6 Radiology & Interventional Radiology

The NSW Guide to Role Delineation of Clinical Services provides the service scope and requirements, as well as the workforce requirements, of services from Level 1 to Level 6. The new Core MI service at CH is a Level 6 service. See below for these requirements.

6. RADIOLOGY AND INTERVENTIONAL RADIOLOGY

Level	Service Scope	Service Requirements	Workforce	Minimum Core Services: Anaes	Op Suite	CSU	ICS	Nur Med	Radiology	Pathology	Pharmacy
NPS	No planned service.										
1	Mobile service with a limited range of x-ray capability, dependent on radiographer/ remote operator qualifications and availability, and mobile unit capacity.	Formal links to higher level networked radiology service for consultation, image reporting and patient transfer. May have image processing capacity. May have access to Picture Archiving and Communication System (PACS)/Radiology Information System (RIS). Referral pathways to relevant Aboriginal programs and services. Quality and risk management programs in line with current National Safety and Quality Health Service (NSQHS) Standards.	Radiologist available off-site for reporting. Appropriately licensed remote x-ray operator/s^, able to provide limited radiography services in rural and remote areas of NSW if radiographer not available to attend. Refer to **Appendix IV: Nursing and Midwifery Workforce**. May have on-site Medical Radiation Scientist (MRS) (Diagnostic Radiographer). Aboriginal hospital liaison roles available, preferably both male and female.	-	-	-	-	-	-	-	-
2	Provide low risk diagnostic radiology service as part of ambulatory and inpatient care.	*As for Level 1.* In addition, dedicated room. Access to PACS/RIS.	Radiologist available for consultation and reporting in business hours. Refer to **Appendix IV: Nursing and Midwifery Workforce**. MRS (Diagnostic Radiographer) access on-site. Aboriginal hospital liaison roles available, preferably both male and female.	-	-	-	-	-	-	-	-
3	*As for Level 2.* In addition, provide comprehensive range of general examinations; may include ultrasound.	*As for Level 2.* In addition, a Bucky table. Mobile unit available for wards, operating suite and emergency medicine. May have access to an ultrasound facility. May have access to Computed Tomography (CT).	*As for Level 2.* In addition, radiologist available for consultation and reporting 24 hours. May have MRS (Diagnostic Radiographer) available 24 hours. Staff available for patient transfers.	-	-	-	-	-	-	-	-
4	*As for Level 3.* In addition, provide 24 hour diagnostic radiology services, including urgent x-rays, Computed Tomography (CT) and ultrasound. Provide access to basic diagnostic angiography service; may be networked. Provide access to a basic interventional radiology (IR) service, including some Royal Australian and New Zealand College of Radiologists (RANZCR) Tier A* procedures such as CT-guided biopsy, ultrasound-guided biopsy, drainage, spinal injections.	*As for Level 3.* In addition, general x-ray and ultrasound facilities and access to CT scanner. Mobile image intensifier for operating theatre.	*As for Level 3.* In addition, certified and credentialed interventional radiologist available for any interventional procedure. Medical officer available 24 hours. Sonographer. MRS (Diagnostic Radiographer) available 24 hours.	3	3	3	-	-	-	-	3

5	*As for Level 4.* In addition, provide access to 24 hour complex diagnostic radiology services. Provide access to an intermediate level IR service, including RANZCR Tier A* procedures such as peripherally inserted central catheter (PICC) lines, insertion of ports, nephrostomy. Provide access to some Tier B* procedures (e.g. embolisation) for selected complex major surgical procedures. May provide CT perfusion scanning.	*As for Level 4.* In addition, all modalities available including full ultrasound service. Basic digital subtraction angiography (DSA) suite for interventional services. CT scanner on-site. Access to Magnetic Resonance Imaging (MRI).	*As for Level 4.* In addition, clinical head of service. May have medical officer in radiology with three or more postgraduate years of experience as part of a networked arrangement; may be in training with the RANZCR.	4	4	-	4	-	-	4	4
6	*As for Level 5.* In addition, provide access to comprehensive 24 hour IR service, including RANZCR Tier B* procedures. Provide CT perfusion scanning. Paediatric IR provided by specialist children's hospital. May provide MRI guided IR. May provide trauma IR. May provide interventional neuroradiology (INR).	*As for Level 5.* In addition, single-plane and/or biplane DSA suite. MRI scanner on-site.	*As for Level 5.* In addition, medical officer/s in radiology with three or more postgraduate years of experience; may be in training with the RANZCR. Chief MRS (Diagnostic Radiographer). May have access to clinical imaging educator/tutor.	5	5	-	5	-	-	5	5

A3. Level 6 Pharmacy Services

The NSW Guide to Role Delineation of Clinical Services provides the service scope and requirements, as well as the workforce requirements, of services from Level 1 to Level 6. The pharmacy service at CH is a Level 6 service. See below for these requirements.

8. PHARMACY

Level	Service Scope	Service Requirements	Workforce
NPS	No planned service.		
1	Service provided by LHD/SHN network or external pharmacy. Drugs supplied to patients/clients on individual prescription and/or through an imprest system in accordance with NSW Health PD2013_043 *Medication Handling in NSW Public Health Facilities.*	Access to medicines procurement and distribution service. Access to patient and staff medicines education. Access to therapeutic guidelines. Access to drug and therapeutics committee or equivalent. Referral pathways to relevant Aboriginal programs and services. Quality and risk management programs in line with current *National* Safety and Quality Health Service (NSQHS) Standards as appropriate.	Pharmacist available for consultation, advice and support (may include virtual care). Aboriginal hospital liaison roles available, preferably both male and female.
2	*As for Level 1.* In addition, provide on-site clinical pharmacy service (e.g. patient medicines information, medication chart review, staff education).	As for *Level 1.* In addition, access to information technology to support integrated pharmacy management system. May have dedicated pharmacy space.	Allocated pharmacist resource (may be via LHD/SHN network).
3	*As for Level 2.* In addition, provide administration and pharmacy management support. May provide medicines procurement, dispensing and distribution services.	As for *Level 2.* In addition, dedicated pharmacy space. May have processes to provide medications that require compounding (may be networked or external arrangement).	Pharmacist on-site. May have pharmacy support staff (e.g. pharmacy technician, stores person).
4	*As for Level 3.* In addition, provide medicines procurement, dispensing and distribution services. Drug and therapeutics committee or equivalent. May support specialised services (e.g. renal dialysis).	As for *Level 3.* In addition, department of pharmacy. Provide service during business hours with access out of hours. Processes to provide medications that require compounding (may be networked or external arrangement). Access to clinical trial and research support. May provide administration and pharmacy management support to other health facilities or services. May supply to other health facilities or services not on-site.	*As for Level 3.* In addition, service director. Pharmacy support staff (e.g. pharmacy technician, pharmacy assistant, stores person).

5	*As for Level 4.* In addition, provide support for clinical specialty services (e.g. oncology, haematology), quality improvement, and medication safety and stewardship services. Provide support for clinical trial and research activities.	As for *Level 4.* In addition, processes for sterile manufacturing and cytotoxic drugs where clinically necessary (may be networked or external arrangement). May provide support for electronic medication management and distribution systems. May provide networked support to lower level pharmacy services within the LHD/SHN (e.g. advice, purchasing assistance).	*As for Level 4.* In addition, pharmacist appointed as clinical pharmacy educator. Senior pharmacy technician/s. May have clinical specialist pharmacist roles (e.g. oncology, haematology). May have pharmacist management roles (e.g. distribution service, mental health, cytotoxic production unit, aseptic production unit). May have pharmacist medication safety quality improvement role. May have pharmacist stewardship role such as antimicrobial stewardship (AMS). May have pharmacist health informatics role.
6	*As for Level 5.* In addition, provide advanced level support for wide range of highly specialised services (e.g. cystic fibrosis, cancer services, transplantation including bone marrow transplant, neonatology). Active involvement in clinical trials and research activities (e.g. contribute to Human Research Ethics Committee, extensive numbers of clinical trials). Active involvement in supporting electronic medication management and medication safety quality improvement activities. May provide specialist medicines information services. May have pharmacy automation.	*As for Level 5.* In addition, 24 hour on call access to pharmacy service. Provide networked support to lower level pharmacy services within the LHD/SHN.	*As for Level 5.* In addition, clinical specialist pharmacist roles. Senior pharmacists. May have chief pharmacist information officer role.

ACT Government | Canberra Health Services

aspex consulting

Canberra Hospital Capital Redevelopment

DRAFT SERVICE MODEL
MEDICAL SPECIALTIES

Final

25 January 2024

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TABLE OF CONTENTS

1. Introduction **9**
1.1. Purpose 9
1.2. Approach 9
2. Service Model Context **10**
2.1. ACT Planning Priniciples 10
2.2. Canberra Health Service Vision and Service Direction 11
2.3. Overarching Drivers for Change 13
2.4. Systemwide Service Innovation 14
2.5. Medical Models of Care 14
3. In-Scope Services **17**
3.1. Service Model Principles 18
3.2. Overarching Service model 18
3.3. Functional Adjacencies 18
4. General Medicine **20**
4.1. Service Description 20
4.2. Patient Pathway 20
4.3. Work Processes 21
4.4. Workforce 22
4.5. Clinical and Non-Clinical Service Support Functions 23
4.6. Functional Relationships and Adjacencies 23
4.7. Challenges and Opportunities 23
5. Medical Assessment and Planning Unit **25**
5.1. Service Description 25
5.2. Patient Pathway 25
5.3. Work Processes 26
5.4. Workforce 26
5.5. Clinical and Non-Clinical Service Support Functions 26
5.6. Functional Relationships and Adjacencies 27
5.7. Challenges and Opportunities for MAPU 27
6. Respiratory and Sleep Medicine **28**

6.1. Service Description 28
6.2. Patient Pathway 29
6.3. Work Processes 30
6.4. Workforce 31
6.5. Clinical and Non-Clinical Service Support Functions 31
6.6. Functional Relationships and Adjacencies 31
6.7. Challenges and Opportunities for Respiratory 32
7. Endocrinology and Diabetes 35
7.1. Service Description 35
7.2. Patient Pathway 36
7.3. Work Processes 37
7.4. Workforce 37
7.5. Clinical and Non-Clinical Service Support Functions 37
7.6. Functional Relationships and Adjacencies 38
7.7. Challenges and Opportunities for Endocrinology 38
8. Gastroenterology and Hepatology 39
8.1. Service Description 39
8.2. Patient Pathway 40
8.3. Work Processes 40
8.4. Workforce 41
8.5. Clinical and Non-Clinical Service Support Functions 41
8.6. Functional Relationships and Adjacencies 41
8.7. Challenges and Opportunities 42
9. Neurology and Stroke 43
9.1. Service Description 43
9.2. Patient Pathway 43
9.3. Work Processes 44
9.4. Workforce 45
9.5. Clinical and Non-Clinical Service Support Functions 45
9.6. Functional Relationships and Adjacencies 45
10. Cardiology Ambulatory and Diagnostic Services 47
10.1. Service Description 47
10.2. Patient Pathway 48
10.3. Work processes 48

10.4. Workforce 48
10.5. Clinical and Non-Clinical Service Support Functions 49
10.6. Functional Relationships 49
11. Renal Medicine 50
11.1. Service Description 50
11.2. Patient Pathway 51
11.3. Work Processes 52
11.4. Workforce 52
11.5. Clinical and Non-Clinical Service Support Functions 53
11.6. Functional Relationships and Adjacencies 53
11.7. Challenges and Opportunities for Renal 53
12. Infectious Diseases 54
12.1. Service Description 54
12.2. Patient Pathway 54
12.3. Work Processes 55
12.4. Workforce 56
12.5. Clinical and Non-Clinical Service Support Functions 56
12.6. Functional Relationships and Adjacencies 56
12.7. Challenges and Opportunities for Infectious Diseases 57
13. Rheumatology 58
13.1. Service Description 58
13.2. Patient Pathway 59
13.3. Work Processes 59
13.4. Workforce 60
13.5. Clinical and Non-Clinical Service Support Functions 60
13.6. Functional Relationships and Adjacencies 60
13.7. Challenges and Opportunities for Rheumatology 61
14. Palliative Care / Comfort Interventional Care 62
14.1. Service Description 62
14.2. Patient Pathway 62
14.3. Work Processes 63
14.4. Workforce 63
14.5. Clinical and Non-Clinical Support Functions 64
14.6. Functional Relationships 64

15. Hospital in the Home 65
15.1. Service Description 65
15.2. Patient Pathway 66
15.3. Work Processes 66
15.4. Workforce 67
15.5. Clinical and Non-Clinical Service Support Functions 67
15.6. Functional Adjacencies 67
15.7. Challenges and Opportunities for HITH 68
16. Dermatology 69
16.1. Service Description 69
16.2. Patient Pathway 69
16.3. Work processes 69
16.4. Workforce 70
16.5. Clinical and non-clinical support functions 70
16.6. Functional Adjacencies 70
16.7. Challenges and opportunities 71
17. Mental Health Short Stay Unit 72
17.1. Service Description 72
17.2. Client Pathway 73
17.3. Work processes 73
17.4. Workforce 74
17.5. Clinical and non-clinicalSupport Functions 74
17.6. Functional Adjacencies 74
17.7. Challenges and opportunities 75
18. Discharge / Transit Lounge 76
18.1. Service Description 76
18.2. Patient Pathway 76
18.3. Work processes 76
18.4. Workforce 76
18.5. Clinical and Non-clinical support Functions 76
18.6. Functional Adjacencies 77
18.7. Challenges and opportunities 77
19. Support Services 78
19.1. Clinical Support Services 78

19.2. Non-Clinical Support Services 78

INDEX OF FIGURES

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases 9
Figure 2-1: ACT Health Service Planning Principles 10
Figure 3-1: Matrix of Functional Adjacencies for In-Scope Acute Medicine Units 19
Figure 4-1: General Medicine patient pathways 21
Figure 5-1: MAPU patient pathway 25
Figure 6-1: Respiratory inpatient pathway 29
Figure 6-2: Respiratory Physiology Lab, Sleep Lab, and Cystic Fibrosis Clinic pathways 30
Figure 7-1: Endocrinology inpatient pathway 36
Figure 7-2: Endocrinology Outpatient and Diabetes Service patient pathways 36
Figure 8-1: Gastroenterology and Hepatology inpatient pathway 40
Figure 9-1: Neurology and stroke pathway 44
Figure 10-1: Cardiology diagnostics laboratory patient pathway 48
Figure 11-1: Renal haemodialysis patient pathway 51
Figure 11-2: Renal inpatient pathway 51
Figure 12-1: Infectious Diseases patient pathway 55
Figure 13-1: Rheumatology patient pathway 59
Figure 15-1: HITH patient pathway 66
Figure 16-1: Dermatology patient pathway 69
Figure 17-1: MHSSU client pathway 73
Figure 18-1: Discharge Lounge patient pathway 76

INDEX OF TABLES

Table 3-1: Canberra Hospital In-Scope Medical Services 17

LIST OF ABBREVIATIONS

ACE	Acute care for the Elderly
ACTHSP	ACT Health Services Plan
AI	Artificial Intelligence
AMHU	Adult Mental Health Unit
ASA	Australian Sleep Association
AMS	Anti-Microbial Stewardship
ANU	Australian National University
CCU	Coronary Care Unit
CH	Canberra Hospital
CHS	Canberra Health Services
CKD	Chronic Kidney Disease
COPD	Chronic Obstructive Pulmonary Disease
COVID	Corona Virus Infectious Disease
CPAP	Continuous Positive Airway Pressure
DORSS	Domiciliary Oxygen and Respiratory Support Scheme
ECG	Electrocardiography
ECHO	Extended Community Healthcare Outcomes
ED	Emergency Department
EEG	Electroencephalography
ERCP	Endoscopic Retrograde Cholangiopancreatography
FDB	Functional Design Brief
FTE	Full-Time Equivalent
GEHU	Gastroenterology & Hepatology Unit
GI	Gastrointestinal
GORD	Gastroesophageal Reflux Disease
GP	General Practitioner
HITH	Hospital in the Home
HIV	Human Immunodeficiency Virus
HWA	Health Workforce Australia
IBS	Irritable Bowel Syndrome
IBD	Inflammatory Bowel Disease
ICU	Intensive Care Unit
ID	Infectious Disease
MAPU	Medical Assessment and Planning Unit
MDT	Multi-Disciplinary Team
MERS	Middle East Respiratory Syndrome
MET	Medical Emergency Team
MHSSU	Mental Health Short Stay Unit
NATA	National Association of Testing Authorities
NGO	Non-Government Organisation
NIV	Non-invasive ventilation
NSW	New South Wales
POC	Points of Care
PsA	Psoriatic Arthritis
RACP	Royal Australasian College of Physicians
RITH	Rehabilitation-in-the-Home
SoA	Schedule of Accommodation
SU	Stroke Unit
TIA	Transient Ischemic Attacks
tPA	Post-thrombolysis
UC	University of Canberra
UCH	University of Canberra Hospital

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VERSION CONTROL

VERSION	DESCRIPTION OF CHANGE	ISSUED TO	ISSUED BY	DATE OF ISSUE
1.0	Medical inpatient and outpatient Service Model	CHS	Aspex Consulting	3 July 2023
2.0	Inclusion of comments from CHS Clinical Liaison and Health Facility Planning team Addition of Discharge Lounge	CHS	Aspex Consulting	16 July 2023
3.0	Inclusion of comments from CHS Clinical Liaison and Health Facility Planning team Future Directions for Sleep Laboratory	CHS	Aspex Consulting	18 July 2023
4.0	Revisions to Palliative Care, Renal, and Respiratory. Clinical Lead comments	CHS	Aspex Consulting	24 July 2023
FINAL	Incorporation of all feedback from ACTHD	CHS	Aspex Consulting	24 January 2024

1. Introduction

1.1. PURPOSE

This Service Model focuses on acute medical inpatient and outpatient services that are in-scope for the Phase 2 redevelopment at the Canberra Hospital (CH) and outlines *how* services are planned to be delivered in the future.

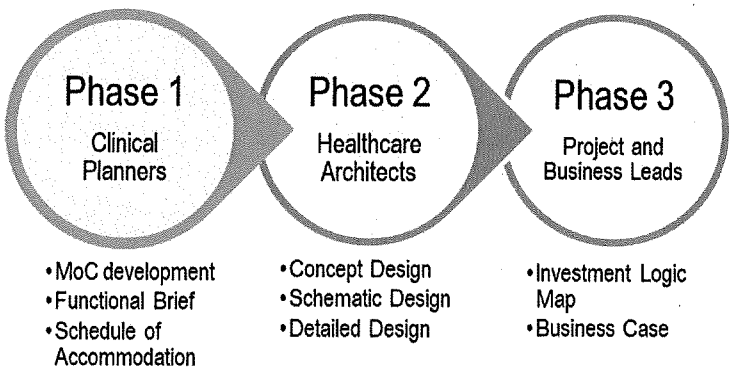
This Service Model describes each medical sub-speciality in-scope for the Phase 2 redevelopment.

Phase 2 involves redevelopment of *like-with-like* services and points of care (POC) [1] into the new facilities. However, this will not necessarily be *like-with-like space*, as new evidence, new technologies, changes in clinical practice, or more efficient or innovative ways of working may result in contemporary *like-with-like services*.

This Service Model incorporates the scope and clinical level of service, the care setting, patient pathway, coordination and integration between services, workflow, and work processes, and the (indicative) POC.

The information in this Service Model will input into the Functional Design Brief (FDB) and the Schedule of Accommodation (SoA), which will be used to inform the new building concept designs. The steps are outlined in Figure 1-1.

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases



1.2. APPROACH

This Service Model has been developed in partnership with the Canberra Health Services (CHS) Clinical Liaison and Health Facility Planning team in the Capital Project Delivery and Infrastructure and Health Support Services Division.

[1] A Point of Care is defined as a place where a patient receives definitive care. This would typically include beds, ED cubicles, operating theatres, labour wards, outpatient clinics, chairs for chemotherapy/dialysis amongst others. It would not normally include recovery spaces from theatre, discharge lounges, other general patient spaces that does not deliver definitive care

2. Service Model Context

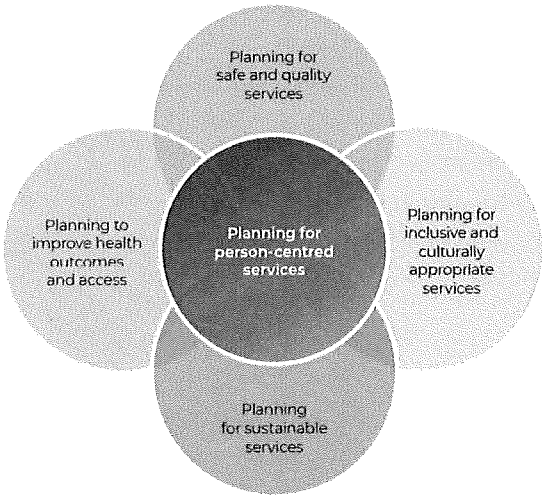
This section provides context within which the Service Model has been developed. It specifically includes:

- ACT Health's planning principles;
- CHS' future directions;
- Overarching key drivers of change;
- System-wide service innovations; and
- Service model options.

2.1. ACT PLANNING PRINICIPLES

The following principles underpin the *ACT Health Services Plan* (ACT HSP) 2022-2030[2]. These principles also accord with the development of this Service Model.

Figure 2-1: ACT Health Service Planning Principles



Person-centred services - The ACT Government consults with consumer and carers so that services are planned to treat consumers with dignity and respect; the ACT Government makes it easier for people to access services equitably, to move between services across the health system, and to partner with health professionals to participate in decisions about the services provided to them.

Inclusive and culturally appropriate services - The ACT Government consults with groups underrepresented in the healthcare system so that services are planned to be inclusive and culturally appropriate and targeted to specific health needs where necessary.

2. ACT Government, Health, *ACT Health Services Plan 2022-2030,* available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Safe and quality services - Planning is guided by evidence-informed policy directions, and the ACT Government continually strives to plan for services that improve health outcomes, experiences of receiving care, experiences of providing care, and effectiveness and efficiency of care.

Health outcomes and access - Planning is guided by evidence-informed policy directions, with specific focus on at-risk and priority population groups; planning the right service, at the right time, in the right place, by the right team, every time.

Sustainable services - The ACT Government maximises the use and efficient allocation of limited resources by taking a Territory-wide approach to planning services across the ACT public health system, guided by clear role delineations, service levels, and evidence informed policy directions: service planning activities are prioritised based on need.

2.2. CANBERRA HEALTH SERVICE VISION AND SERVICE DIRECTION

CHS' vision is to ***'Create exceptional health care together'***[3]. Improving the quality of healthcare across the ACT is a key priority for CHS as it aims to be the safest healthcare system in Australia, delivering high-quality, person-centred care that is effective and efficient.

Specifically, CHS will provide health care that is:

- Person-centred: providing care that is respectful, responsive, and focused on the patient's needs;
- Safe: avoiding harm to patients from care that is intended to help them;
- Effective: providing services based on scientific knowledge and which produce a clear benefit;
- Timely: reducing waits and sometimes harmful delays;
- Efficient: avoiding waste and reducing unit costs; and
- Equitable: providing care based on clinical need, and that does not vary in quality because of a person's personal circumstances.

Consumer Principles

A fundamental component of patient-centred care is recognising and understanding the consumer perspective of the service. Central to patient-centred care are the themes of Participation, Communication, Experience and Support. These themes form the basis for Consumer Care Principles, the guiding principles for the Service Model. The Consumer Care Principles are:

- Participation: consumers (and where appropriate their family members and carers) will be equal partners within the multidisciplinary care team, enabling them to be actively involved in their own care;
- Communication: embedding frequent and meaningful communication with consumers, their family members, and carers, about their care for their entire hospital journey, including discharge;
- Experience: care is delivered in a way that supports the consumers' experience of safety and fosters trust; and
- Support: recognising the importance of involving family and carers in the consumer's care and recovery throughout their health journey.

[3] https://www.canberrahealthservices.act.gov.au/__data/assets/file/0005/1933187/CHS-Exceptional-Healthcare-Framework_V7_DigitalFA.pd. July 2023

2.2.2. CHS Future Directions

CHS' future service directions are set out in the *ACT Health Services Plan*, 2022–2030.[4] The desired outcomes from each of the directions are also articulated. These are outlined below.

Addressing key areas of service demand and reform

- Improve health outcomes and access to care, with a particular focus on priority population groups.
- Support access to the services experiencing most significant demand pressures.
- Ensure our services are flexible and inclusive to respond to individual needs and circumstances.
- **There is specific reference to enhanced capability for key medical specialties for cardiology, neurology, respiratory, general medicine, rheumatology, and renal services**.

Transitions of care

- Improve health outcomes and access to care.
- Make it easier for patients, families, and service providers to navigate the service system.
- Address issues of patients 'falling through the gaps' as they move between services and care settings such as between hospital and the community.
- Break down the barriers and silos between services.

The ACT's role as a local, Territory and regional service provider

- Improve access to care closer to home in a safe and sustainable way.
- Reduce unwarranted variation between services.
- Maximise the efficient use of health resources to meet the needs of the community.

Strengthening core ACT Government funded clinical support services

- Improve patient outcomes and reduce length of stay in hospital.
- Ensure that our clinical support services have the appropriate capacity and capability to support new and expanded clinical services.
- Optimise clinical decision making in determining the most appropriate treatment and care for patients.

2.2.3. Learning, Teaching and Research

CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*[5] provides the overarching vision, goals and strategic commitments to clinical learning and teaching. The six Strategic Commitments are:

- Strengthen governance and processes to prioritise and enable learning and teaching.
- Prepare and support the clinical workforce to work safely and effectively at the leading edge of their practice.
- Develop and support the clinical workforce to deliver effective, innovative, evidence-based teaching and point of care clinical supervision.
- Establish collaborative environments that maximise and enable effective, innovative, and efficient learning and teaching.

4. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.
5. ACT Government, *Clinical Learning and Teaching Strategy 2023 – 2027'*. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf

- Foster and strengthen strategic partnerships for learning and teaching with clinicians, consumers and carers, communities, and academia.
- Promote, share, and celebrate learning and teaching.

To achieve these strategic commitments, and to develop a contemporary health precinct, a holistic approach to integrated education, training and research activities into the clinical areas will be key. For clinicians, access to teaching and learning will be built into the flow of their day. This means rooms available on each unit or a shared area readily accessible to clinical (patient) areas. To complement the integrated clinical spaces, a teaching and learning hub would provide greater opportunities for education.

Refer to the Clinical Support Service Model for more information on Learning, Teaching and Research.

2.3. OVERARCHING DRIVERS FOR CHANGE

The above strategic and policy positions articulated by ACT Health and CHS are underpinned by a range of drivers for change. The Territory, like other jurisdictions, are facing increasing challenges that are forcing changes in the way people seek and access services. Some of these challenges are driving change are described below.

The ACT Health Services Plan (2022 to 2030) provides context within which the Service Model needs to be considered. The *ACT Health Services Plan* indicates that the Territory's population increased by 14% between 2016-2021 and is projected to increase by 9.7% over the decade to 2030. It is also ageing with those in the 70+ age category increased 34% between 2016-21 and is forecast to rise a further 22.7% by 2030, more than doubling the growth rate for the total population. In addition to population growth and ageing, there are particular factors that drive change for the Territory:

Ageing population and increasing chronic disease – the demand for health services is increasing as people live longer with more chronic and multi-morbid conditions. The aged population are high users of health services;

Access for vulnerable population groups – some population groups in Australia experience health inequalities. Aboriginal and Torres Strait Islanders and people from low socioeconomic areas are likely to have poorer health compared to the general population;

Increasing service demand – for elective and emergency surgery, chronic disease, cancer services, and mental health. These have been exacerbated due to COVID-19;

Climate change – has been causing more extreme weather events, such as bushfires and floods. Instances of heat stress, smoke inhalation, food insecurity, and mental health and wellbeing issues are increased for people experiencing extreme weather events; and

COVID-19 – the delivery of healthcare has rapidly changed since the beginning of the COVID-19 pandemic, especially in terms of how and where care is delivered, with virtual care in the home becoming the norm. COVID-19 patients have caused greater pressure on health system capacity, especially in intensive care units and for multidisciplinary teams treating people experiencing the effects of 'long COVID'. Additionally, workforce availability has been significantly impacted, with burnt out staff choosing to leave their professions and the usual immigrant workforces being unavailable.

2.4. SYSTEMWIDE SERVICE INNOVATION

The drivers of change result in different responses and innovations. The Territory's health services are exposed to continual external and internal influences which drive innovation in healthcare. The onset of the COVID-19 pandemic accelerated innovation in practice, workforce, technology, and infrastructure. Some of the key innovations that influence this Service Model include:

Care in and closer to people's homes is now the preferred model of care for any chronic, non-urgent care. This has been made possible via the widespread adoption of telehealth and telemonitoring, particularly for diabetes, chronic obstructive pulmonary disease, and renal medicine. Telemonitoring is performed using sensors, other wearable devices, or apps to record data which is relayed to the healthcare team. Changes in condition outside set parameters will also alert healthcare providers in real time.

Increased utilisation of available and emerging technologies. This applies to the current virtual service provision but will also apply to emerging remote clinical treatment and the broader use of artificial intelligence (AI) for diagnosis and patient pathways. AI analyses big data, which are extremely large data sets, to reveal patterns, trends, and associations to predict a diagnosis. From big data a common patient pathway for someone with the same diagnosis can also be obtained. AI in healthcare is currently infantile in Australia.

Patient engagement in healthcare has been increasing to the point where a patient is now at the centre of their care. Patients provide input into their care planning, treatments and care locations and patients are encouraged to discuss any concerns they may have with their treating team. The other aspect of patient centred care is self-management of their risks and lifestyle whilst they are not in hospital, such as tracking their exercise or diet, alcohol consumption or their use of medications. This further encourages patients to become central to their care.

Social prescribing is treating a person holistically and linking a person undergoing healthcare to social supports as required, to relieve social isolation or other factors that may be impacting on that person's mental health and wellbeing. These supports may range from walking groups to book clubs, to financial aid or housing services. Social prescribing models are well established in the United Kingdom and Canada, and they are becoming more prevalent in Australia.

Value-Based Health Care (Better Value Care) is a contemporary service model designed to develop patient-focused care in a meaningful (structured) way to creates enhanced outcomes (value) to the patient and value to the funder. This is a potentially important, albeit radical model to consider in the development of (a selected number of) clinical services that can be 'clustered to deliver end to end' outcomes for patients. The model transcends current hospital structures that are not designed to deliver value to the patient and where there are only very blunt outcome indicators. Value-based Heath care models go to the issues of clinical practice controlled by the clinicians and make decisions based on improved outcomes, not traditional patient flow through operational silos.

This is an important consideration as it impacts on the organisation and flow of patients that is not only efficient but improves patient outcomes (value). It is potentially a game-changer.

All of these trends are inter-related and can have a major impact on the organisation and service options available.

2.5. MEDICAL MODELS OF CARE

More specific models that are important to consider for the Phase 2 Redevelopment are:

A 'pull model' from the Emergency Department (ED) for multi-day stay medical patients ensures that there is direct medical consultant/registrar availability to ED, and protocols that will enable transfer of medical patients to a Medical Assessment and Planning Unit (MAPU) or other medical ward to reduce demand pressures in ED. 'Pull models' are currently in operation in hospitals of similar size and clinical capability as Canberra Hospital (CH). The 'pull model' not only assists with patient flow at the front door, but it also facilitates patient flow through to discharge.

A focus on complex discharge and models that support acute care for the elderly (ACE). This is a key complementary strategy for all medical wards and is the principal focus of MAPUs and the holistic management of complex medical patients, usually frail elderly patients. It has a focus on patient flow and minimise 'bed blocking'. It is designed to address those aspects of post-surgery care that a more holistic, reduce post-anaesthetic anxiety/delirium, and has a specific attention to factors that inhibit elderly surgical patients from being discharged.

Providing services closer to home will require a focus on the further development of Hospital in the Home (HITH) as a key strategy. More generally, the HITH model is not a stand-alone strategy. It needs to be developed as part of a broader approach to care models including diversion and substitution of patients. The more challenging service models then extend these above into a Better Value Care model as described above.

A specific policy commitment will require the development of an inpatient palliative care ward. The bed-based palliative care unit will provide care for patients who have increasing complexity of needs. This service would complement the community palliative care model currently in place and the existing 27 bed Hospice.

Bariatric care. Bariatric services manage a patient cohort who are likely to have more comorbidities and more severe comorbidities, which makes them even more vulnerable than non-bariatric patients. The task of caring for the bariatric patients is therefore more challenging as it puts workers at risk of injuries during repositioning and nursing care activities that assist patients in meeting their daily activity needs, including hygiene, bathing, ambulation, and dressing changes. The rates of overweight persons within the broader population are variable. However, for Victoria and NSW there are expected rates of ~11% of the population over 40 years being obese[6]. The population rates often do not translate to hospital admissions, but when they do, the patient is more problematic to manage. There are specific models of care developed for bariatric patient care across CHS.

The Service Model is to make provision for bariatric facilities as they are being designed and constructed and minimise any retrospective fit outs. This means for beds, chairs, patient therapy tables, equipment such as hoists, clinic facilities and patient amenities. *Whilst there is no benchmark for bariatric provision it is expected that for medical wards there will need to be (at least) two POC able to manage bariatric patients.*

Clinical learning, teaching, simulation, and research capability. The service model integrates learning, clinical teaching, and research fully and effectively as core functions in patient care areas. This is consistent with the CHS *Clinical Learning and Teaching Strategy*, 2023 to 2027; and *CHS Research Strategy*, 2021 to 2025.

The development of teaching and research are embodied in the design of the new facilities through a **tiered approach**, where:

- Tier 1 is teaching/learning as part of the spaces designed where patients are treated/managed including outpatient rooms, ward areas and clinical examination spaces. The key concept here

6. Victorian Population Health Survey, 2015 approximately 29% of the adult population over 40 years are overweight persons and 11% of the population are obese. This translates to ~80,000 to 90000 for CHS catchment population over 40 years.

is embedding. These developments would bring CH up to contemporary standards and practices common in newly developed tertiary hospitals;

- Tier 2 is teaching/learning spaces on wards and proximal to patient treatment areas that enable review, collegiate discussions, and virtual learning experiences through meeting/ consultation rooms. This would also provide suitable teaching space associated with formal training for accreditation in clinical specialties; and
- Tier 3 is teaching/learning spaces that are for more formal education away from patient areas that, for an academic tertiary hospital, could be expected to have larger auditorium spaces, academic administration space, teaching demonstration spaces (such as the gross anatomy museum), hi-fidelity simulation spaces for different clinical settings, and consumer experience spaces used for teaching and learning. This could also enable national and international research and large conferences to be held at Canberra Hospital, potentially creating new revenue streams.

  The tier 3 type services may be well suited in a separate teaching, learning and conference hub on campus that remains clinically connected. This would be undertaken in collaboration with academic institutions.

3. In-Scope Services

This medical service model has the following in-scope inpatient and outpatient services as well as clinical support services. These are described in Table 3-1.

The ACT Health Directorate uses the NSW Role Delineation Framework[7] to classify the level of clinical capability for each clinical service, as well as for the required core support services. Role delineation defines the level of clinical complexity for each specialty service provided at a particular facility or setting which will enable the workflow to be directed to the most appropriate facility. Role delineations describe the minimum service requirements, staffing, core support services and other elements necessary for the clinical service to be delivered safely. Levels range from Level 1 (least complex) to Level 6 (most complex). Clear role delineation helps to ensure that planned services can be delivered safely. (Refer to Appendix 1A).

Table 3-1: Canberra Hospital In-Scope Medical Services

Inpatient Specialty Service	Inpatient (Clinical Level)	Outpatients	Anaesthetics	Op Suite	Close Observation	ICU	Nuclear Med	Medical Imaging	Pathology	Pharmacy
Cardiology Diagnostics	6	x								
Dermatology	5	x	4	4	4	4	4	4	5	4
Respiratory and Sleep	6	x	6	6	-	5	5	5	5	5
Infectious Diseases	6	x	6	6	-	6	4	6	6	6
Winter Surge/COVID	-									
Endocrinology & Diabetes	6	x	5	5	-	5	-	5	5	5
Gastroenterology	6	x	5	5	-	5	5	5	5	6
Hepatology	6	x								
Palliative Care	4		2	2	3	-	-	2	3	3
Renal Medicine (incl Haemodialysis)	6	x	6	6	-	6	5	6	6	5
Rheumatology	5	x	4	4	-	4	4	4	4	5
Neurology and Stroke	5	x	5	5	-	5	4	5	5	5
General Medicine	6	x	5	5	-	5	5	5	6	6
HITH	-	x						3	5	5
Clinical Trials		x						6	6	6

7. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

3.1. SERVICE MODEL PRINCIPLES

The main service model principle for medical services is for close (proximal) location of as many in-scope *medical sub-specialty* inpatient units with their respective medical sub-specialty outpatient services. This means location within the same building/facility to enable maximum operational efficiencies within and between medical sub-specialties, and support/facilitate a multi-disciplinary Service Model.

Ideally, this could also mean a Service Model that has reasonably close access to:

- Clinical core support services, particularly medical imaging, pharmacy, and pathology; and
- Surgical inpatient and outpatient services.

Consistent with the above principle, the aims of the Service Model are to have **timely and efficient site access.**

Staff travel across the hospital should be minimised wherever possible, by clustering complementary services together. Staff should not have to travel through clinical units to get to their destination. This may require linkways such as aboveground bridges and underground tunnels.

Patient travel, particularly for services with a proportion of non-ambulant patients, should be able to access the service close to where their care is being provided. This might mean a drop-off point outside the dialysis unit, for example.

3.2. OVERARCHING SERVICE MODEL

Consistent with the principles for service development in the Territory:

the service model is to enhance patient-centred care through the consolidation and collocation of acute medicine (sub-specialty) inpatient units in the same building as their respective outpatient service.

Consolidation and collocation that enables greater care continuity, critical mass of expertise, knowledge transfer, effective operation of Multi-Disciplinary Teams (MDTs), staff flexibility within and between sub-specialties, and reduced staff travel.

3.3. FUNCTIONAL ADJACENCIES

Figure 3-1 provides an overview of the functional adjacencies for in-scope acute medical services with each other and with clinical support functions. There are few functional adjacencies that require close proximal relationships within three minutes. Those that do require close proximity include:

- Cardiology (and cardiothoracic) outpatients with cardiology diagnostics;
- Infectious Diseases with the Winter Surge capacity/COVID;
- Dialysis close to the renal medicine IPU;
- Clinical trials with research capacity;
- Teaching and learning close to all patient sub-specialties; and
- Pharmacy services accessible by inpatient and outpatient services.

Figure 3-1: Matrix of Functional Adjacencies for In-Scope Acute Medicine Units

Relationship Matrix	Medical Imaging - CSB	Pathology	Pharmacy	Health Information Services	Cardiology Diagnostics	Dermatology	Respiratory and Sleep	Infectious Diseases	Winter Surge/COVID ward	Endocrinology and Diabetes	Gastroenterology	Hepatology	Palliative Care	Renal Medicine (incl Dialysis)	Rheumatology	Neurology and Stroke	General Medicine	Day Medical (& HITH)	Addiction Medicine	Clinical Trials	General Surgery	Endoscopy	Orthopaedics	Ophthalmology	ENT / Head and Neck	Maxillofacial surgery	Plastic Surgery	Outpatient clinics (med and surg)	Teaching, training and research
Medical Imaging - New Core In-Scope MI	3	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1
Pathology		x	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1
Pharmacy			x	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-
Health Information Services				x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardiology Diagnostics					x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Dermatology						x	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Respiratory and Sleep							x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Infectious Diseases								x	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Winter Surge/COVID ward									x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Endocrinology and Diabetes										x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Gastroenterology											x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Hepatology												x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Palliative Care													x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Renal Medicine (incl Haemodialysis)														x	-	-	-	1	-	-	-	-	-	-	-	-	-	2	3
Rheumatology															x	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Neurology and Stroke																x	-	-	-	-	-	-	-	-	-	-	-	2	3
General Medicine																	x	1	-	-	-	-	-	-	-	-	-	2	3
Day Medical (& HITH)																		x	-	-	-	-	-	-	-	-	-	2	3
Addiction Medicine																			x	-	-	-	-	-	-	-	-	-	3
Clinical Trials																				x	-	-	-	-	-	-	-	-	1
General Surgery																					x	-	-	-	-	-	-	2	3
Endoscopy																						x	-	-	-	-	-	2	3
Orthopaedics																							x	-	-	-	-	2	3
Ophthalmology																								x	-	-	-	2	3
ENT / Head and Neck																									x	1	2	2	3
Maxillofacial surgery																										x	-	2	3
Plastic Surgery																											x	2	3
Outpatient clinics (med and surg)																												x	3
Teaching, Traning and Research																													x

Legend
1 directly adjacent (Horizontal / Vertical)
2 easily accessible (less than 3 minutes)
3 accessible (3 - 5 minutes)

4. General Medicine

4.1. SERVICE DESCRIPTION

General Medicine cares for patients with diagnosed and undiagnosed medical conditions, or those with multiple medical conditions and there is no clear subspecialty admitting team, or adults who would benefit from a period of investigation and management prior to discharge home.

General medicine is a Level 6 service.[8]

There are 32 inpatient PoC, although not all are currently utilised. General Medicine would also accommodate a future (reinstated) MAPU of 6-8 beds. Outpatient clinics operate five days a week.

The admission criteria for general medicine are adults over the age of 16 years of age.

Examples of patient cohorts are:

- Inpatients from the Adult Mental Health Unit (AMHU) who require urgent medical treatment under a generalist medical model. This does not include patients requiring surgical intervention;
- Those who require toxicology treatment for acute toxicity or overdose or those with an alcohol and other drug related illness requiring medical stabilisation;
- Those with an eating disorder who require a multi-disciplinary approach and strict adherence to individual specific care plans;
- Step down for patients from intensive care unit (ICU) with acute illness for conditions such as intentional overdose or sepsis and require close clinical monitoring on arriving to the ward. These patients may require multiple medical consults and intense allied health input over a long period of time;
- Those with chronic pain who require ketamine infusions for opioid management and stabilisation as part of chronic illness and pain management; or
- Delirium of uncertain aetiology, weight loss for investigation, functional decline, sepsis, and patients from community aged care with multi-system illness not requiring a dementia specific unit for management.
- When required, General Medicine also admits patients under other specialties when there is a hospital demand for bed. This includes patients under the specialties of cardiology, respiratory, renal, infectious disease, neurology, dermatology, and rheumatology.

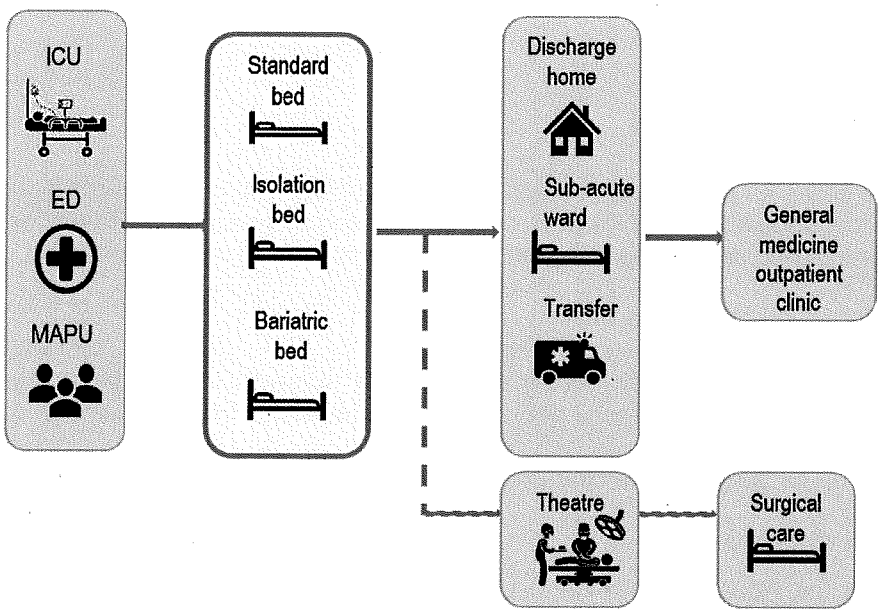
The General Medicine Unit has been used as an infectious threat response unit for COVID 19, and potentially used for Ebola, Middle East Respiratory Syndrome (MERS), and other pandemic response.

4.2. PATIENT PATHWAY

The general medicine patient pathways are depicted below in Figure 4-1.

8. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

Figure 4-1: General Medicine patient pathways



Patients admitted to General Medicine usually present in one of the three following ways, from:

- ED;
- A direct admission from the community or an elective list;
- Transfer from another inpatient unit;
- Medical Assessment and Planning Unit (which has not been operational since COVID); or
- ICU as step-down care.

There may also be instances of transfer from other CHS healthcare facilities such as North Canberra Hospital, University Canberra Hospital (UCH), Adult Mental Health Unit (AMHU) and the Alcohol and other Drugs (AOD) withdrawal inpatient unit, or a non CHS health care facility such as a private hospital.

Patient discharge may be to subacute services (rehabilitation, geriatric evaluation and management or palliative care), HITH, to home, an alternative living facility, or to a surgical team for a procedure. Follow-up care may be provided through the general medicine outpatient clinic, the patient's GP, subacute services in the home, such as Transition Care or Rehabilitation-in-the-Home (RITH), or Community Health Services.

4.3. WORK PROCESSES

The medical inpatient units support adults of all acuity, frailty, and disability and those living with co-morbidities. The work processes that support patients admitted to General Medicine are described below.

4.3.1. Hours of operation

General Medicine admits and cares for patients 24 hours a day, 7 days a week.

Ward clerks are available from 8am to 4pm Monday to Friday. An after-hours ward clerk is contactable outside of these hours.

General medicine outpatient clinics provide ongoing monitoring and treatment. Access to outpatients is by appointment, with initial appointment triaged based on the most urgent condition.

4.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services required.

4.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy with Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

4.3.4. Patient transfer and discharge

Due to the complexity of the general medicine patient cohort, patients require intense allied health, case conferences and family meeting input as part of discharge planning.

Patients may require transfer to other clinical services within CHS. Transfers may be temporary and relate to medical imaging or interventional cardiology or radiology labs. Some patients may also be transferred to theatre for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital or the UCH for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

4.4. WORKFORCE

The workforce requirements for a Level 5/6 service include a general physician available 24 hours per day, a medical officer on-site 24 hours per day and a post graduate trainee with three or more post graduate years who may be in training with the RACP.[9]

The general medical registrar may also cover some of the medical sub-specialities overnight, depending on the rostered requirements. Nursing staff will be rostered for 24 hours per day according to the patient ratios. Administrative staff will support the unit.

9. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

4.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

4.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

The key internal and external functional relationships for General Medicine are:

Internal:

- ED;
- Other acute and subacute medical inpatient units;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Hospital in the Home;
- Alcohol and Drug Service;
- Acute Chronic Pain Service;
- Psychiatry;
- Stomal Therapy;
- Outpatients;
- ICU;
- Allied health;
- Language services;
- Food services;
- Spiritual Support Services;
- Environmental services; and
- Mortuary.

External:

- GPs;
- Community specialist consultants;
- Residential Aged Care facilities;
- Ambulance and non-emergency patient transfer services.

The principal functional adjacency for General Medicine is for the general acute ward to be proximal to the medical day ward, accessible in 3-5 minutes.

4.7. CHALLENGES AND OPPORTUNITIES

Recognising and reversing Frailty. Identifying that an older person has frailty, or has the risk of frailty, is important as this patient cohort are more vulnerable to being unable to cope with everyday activities and acute stressors as well as having poorer outcomes such as impaired life function, need for nursing care and death.[10] Frailty is defined as a clinically recognisable state of increased vulnerability resulting from ageing-associated decline in reserve and function across multiple physiological systems.[11]

Frailty has been operationally defined by Fried et al. as meeting at least three out of five criteria indicating compromised energetics: low grip strength, low energy, slowed waking speed, low physical activity, and/or unintentional weight loss.[12] Alternatively, the "frailty index" is considered the more sensitive predictor of adverse health outcomes, which involves counting the number of deficits

10. Takatori K, Matsumoto D. Social factors associated with reversing frailty progression in community-dwelling late-stage elderly people: An observational study. PLoS One. 2021 Mar 3;16(3):e0247296. doi: 10.1371/journal.pone.0247296. PMID: 33657160; PMCID: PMC7928521.
11. Xue QL. The frailty syndrome: definition and natural history. Clin Geriatr Med. 2011 Feb;27(1):1-15. doi: 10.1016/j.cger.2010.08.009. PMID: 21093718; PMCID: PMC3028599.
12. Xue QL. The frailty syndrome: definition and natural history. Clin Geriatr Med. 2011 Feb;27(1):1-15. doi: 10.1016/j.cger.2010.08.009. PMID: 21093718; PMCID: PMC3028599.

accumulated over time, including disability, diseases, physical and cognitive impairments, psychosocial risk factors, and geriatric syndromes (e.g. falls, delirium, and urinary incontinence) for a score out of 40.

Reversibility of frailty applies not only to physical frailty but also to mental and psychological frailty, including mild cognitive impairment and social frailty, with intervention of exercise based social activities.[13] Routine frailty assessments for older adults (65 – 75+ years) can help to identify people with, or at risk of, frailty requiring intervention.

Acute Care for the Elderly. Directly related to the above is the recognised programs developed within health services that can translate indexes and tools into actions and tasks. ACE programs are designed to ensure that there are needs of elderly acute patients that transcend their acute condition that need to be addressed if the patient is to recondition, recover and restore functional independence at least to the level at pre-admission.

13. Takatori K, Matsumoto D. Social factors associated with reversing frailty progression in community-dwelling late-stage elderly people: An observational study. PLoS One. 2021 Mar 3;16(3):e0247296. doi: 10.1371/journal.pone.0247296. PMID: 33657160; PMCID: PMC7928521

5. Medical Assessment and Planning Unit

5.1. SERVICE DESCRIPTION

A Medical Assessment and Planning Unit (MAPU) provides care for shorter-stay medical emergency inpatients who have presented through the ED. In the MAPU, patients will be clinically assessed and screened for risk. The MAPU facilitates patient flows through the ED, reduces delays in comprehensive assessment, diagnoses and determines a definitive care pathway earlier than would be normal practice.[14]

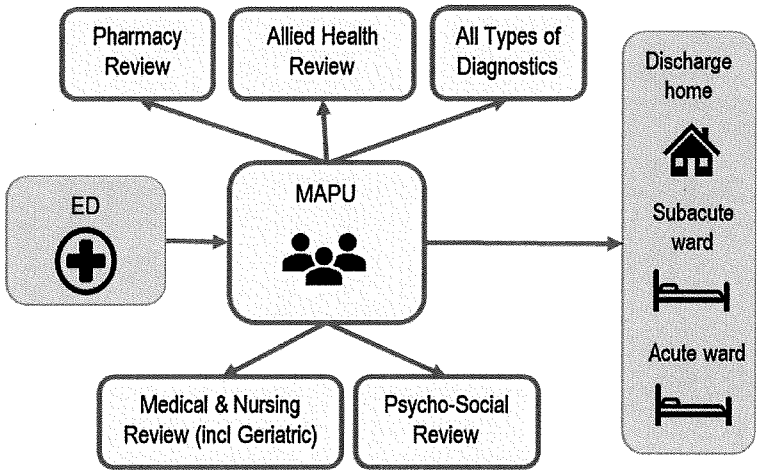
CH was operating a MAPU prior to 2020. However, with the COVID-19 pandemic, MAPU beds were required for COVID patients, and the MAPU ceased operating. The MAPU originally had eight POC. The intent in this Service Model is for the MAPU to become once again operationalised in the redevelopment. It will also be important that the MAPU functions as a genuine MAPU and not simply as more acute medical beds.

5.2. PATIENT PATHWAY

Patients entering the MAPU arrive through the ED. Often patients in MAPU require diagnostic tests, so they may be transferred to Medical Imaging and/or bloods taken and almost certainly have a pharmacy review.

Some MAPU patients will receive definitive care and be discharged home from the MAPU, whilst many patients will transfer to an acute medical ward, or to subacute services.[15] Refer to Figure 5-1 below for the patient pathway.

Figure 5-1: MAPU patient pathway



14. Victorian Department of Health, *The role of Medical Assessment and Planning Units in Victorian Health Services*, October 2011. Available: https://www.health.vic.gov.au/sites/default/files/migrated/files/collections/research-and-reports/t/the-role-of-medical-assessment-and-planning-units-in-victorian-health-services---pdf.pdf
15. Victorian Department of Health, *The role of Medical Assessment and Planning Units in Victorian Health Services*, October 2011. Available: https://www.health.vic.gov.au/sites/default/files/migrated/files/collections/research-and-reports/t/the-role-of-medical-assessment-and-planning-units-in-victorian-health-services---pdf.pdf

5.3. WORK PROCESSES

5.3.1. Hours of operation

The MAPU operates 24 hours a day, 7 days a week as part of another acute medical ward, usually general medicine.

5.3.2. Care planning

This is a particular role of MAPU. The MAPU team will expediently establish a care plan for each patient based on a comprehensive assessment and diagnostics. The care plan comes from a MDT with particular expertise in frail elderly complex patients.

5.3.3. Conditioning

Allied health is part of the treatment team in MAPU. They will provide bed-based therapy as soon as possible after admission to support early rehabilitation, conditioning, and patient mobility.

5.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary and relate to medical imaging or interventional cardiology or radiology labs. Patients may also be transferred to the North Canberra Hospital for subacute care. Patients will also be discharged home or to alternative living facilities from the MAPU.

5.4. WORKFORCE

Medical specialists are responsible for patients admitted to MAPU and should be available 24 hours a day. In some cases, and by agreement with protocols, ED may have admitting rights directly to MAPU. This is dependent on the Service Model of choice for CH. Nurses are responsible for ongoing patient care.

Multidisciplinary teams in the MAPU include physiotherapists, occupational therapists, nutritionists, psychologists, and social workers. Presently, these categories of staff tend to be only available during business hours which works against the philosophy and Service Model of a MAPU[16].

Nursing and medical staff will generally have expertise in the care of complex frail patients. Particular skills will often include gerontic and geriatric medicine.

5.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

16. Victorian Department of Health, *The role of Medical Assessment and Planning Units in Victorian Health Services*, October 2011. Available: https://www.health.vic.gov.au/sites/default/files/migrated/files/collections/research-and-reports/t/the-role-of-medical-assessment-and-planning-units-in-victorian-health-services---pdf.pdf

5.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

The key internal and external functional relationships for MAPU are:

Internal:

- Emergency Department;
- Subacute inpatient units;
- All Allied Health categories;
- Medical Specialties;
- Medical Imaging;
- Pharmacy;
- Pathology; and
- Language services.

External:

- GPs and community medical specialists;
- Residential Aged Care facilities
- Ambulance and non-emergency patient transfer services

The principal functional adjacency for MAPU is with General Medicine. Indeed, it is incorporated within the General Medicine ward.

5.7. CHALLENGES AND OPPORTUNITIES FOR MAPU

Key opportunities and challenges are the same as for General Medicine (Section 4).

In addition, there is the challenge of re-establishing a viable MAPU capable of meeting its clinical objectives.

6. Respiratory and Sleep Medicine

6.1. SERVICE DESCRIPTION

Respiratory medicine at CH is a Level 6 service.[17] Respiratory medicine involves the diagnosis and treatment of disorders of the respiratory system (for example, the lungs, trachea, and diaphragm). Disorders include, but are not limited to, asthma, chronic obstructive pulmonary disease (COPD), tuberculosis, emphysema, pneumonia, cystic fibrosis, and pulmonary hypertension.

Respiratory is part of a larger service including the Sleep Medicine Unit, the Respiratory diagnostic laboratories, and a Cystic Fibrosis Clinic. Respiratory also manage a Tuberculosis Clinic.

Sleep Medicine provides Specialist appointments for assessment and management of sleep disorders by a sleep physician. This service is provided as an outpatient appointment at CH and is also available for inpatients at CH.

The Sleep Medicine service also provides hospital (type 1) and home based (type 2) sleep studies and positive airway pressure acclimatisation. Sleep studies are conducted and analysed by sleep scientists and reported by sleep physicians. This service is only for the adult patient cohort. There is no paediatric sleep laboratory service.

The Sleep Disorders Unit (Sleep Lab) provides diagnostic reports and tests for people experiencing issues with their sleep, usually resulting from airway problems. The current Service Model has overnight as well as day only sleep disorder services. The service also caters for inpatients or outpatients with type two respiratory failure and patients with suspected sleep disordered breathing who are pregnant. Primary insomnia is not managed by the respiratory and sleep team however referrals to exclude sleep disordered breathing or restless leg syndrome in patients presenting with insomnia will be accepted.

The respiratory outpatient clinics provide multidisciplinary respiratory care for interval care, acute episodes, and post-acute care.[18] A home ventilation or home oxygen service is also offered.

The Respiratory Physiology Laboratory provides diagnostic tests for people with breathing problems. The range of tests performed in the Respiratory Physiology Laboratory include:

- Spirometry
- Static Lung Volume Measurements
- Gas Transfer
- Bronchial Provocation Testing
- 6 Minute Walk Tests
- Cardiopulmonary Exercise Testing
- Hypoxic Challenge Testing[19]

Bronchoscopy and Endobronchial Ultrasounds are also offered to assist in diagnosis.

17. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF
18. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF
19. https://www.canberrahealthservices.act.gov.au/services-and-clinics/services/respiratory-physiology-laboratory-and-sleep-disorders-unit-sleep-lab

The Cystic Fibrosis clinic provides specialist, multidisciplinary care for adults living with cystic fibrosis.

Respiratory and Sleep Medicine currently operates both inpatient and outpatient clinics five days a week including:

- Acute Respiratory Day Program;
- Overnight Sleep labs;
- Day only ambulatory sleep medicine;
- Outpatient clinic, including 1 physiology lab.

An investigation is underway to determine if further overnight sleep laboratories are required, and whether any, or all, can be situated in the community.

6.2. PATIENT PATHWAY

The inpatient pathway for respiratory patients is shown in Figure 6-1 below.

Patients admitted to respiratory usually present from the Emergency Department or from the ICU for step-down care. A small percentage of patients will be a transfer from another CHS inpatient unit. There may also be instances of transfer from another health care facility.

The Sleep Laboratory currently conducts diagnostic and treatment titration sleep studies. Home based sleep studies can be performed for diagnostic purposes provided the patient is mobile, fairly independent and does not have severe obesity. Those who are suspected to have respiratory failure, have underlying unstable medical problems, neuromuscular disease, intellectual disability, or those with BMI>50 will require an attended sleep study in hospital. Patients from a correctional facility are also required to attend the hospital for a diagnostic sleep study. Treatment titration sleep studies cannot be performed at home due to the need for the sleep scientist to adjust PAP settings during the sleep study.

Figure 6-1: Respiratory inpatient pathway

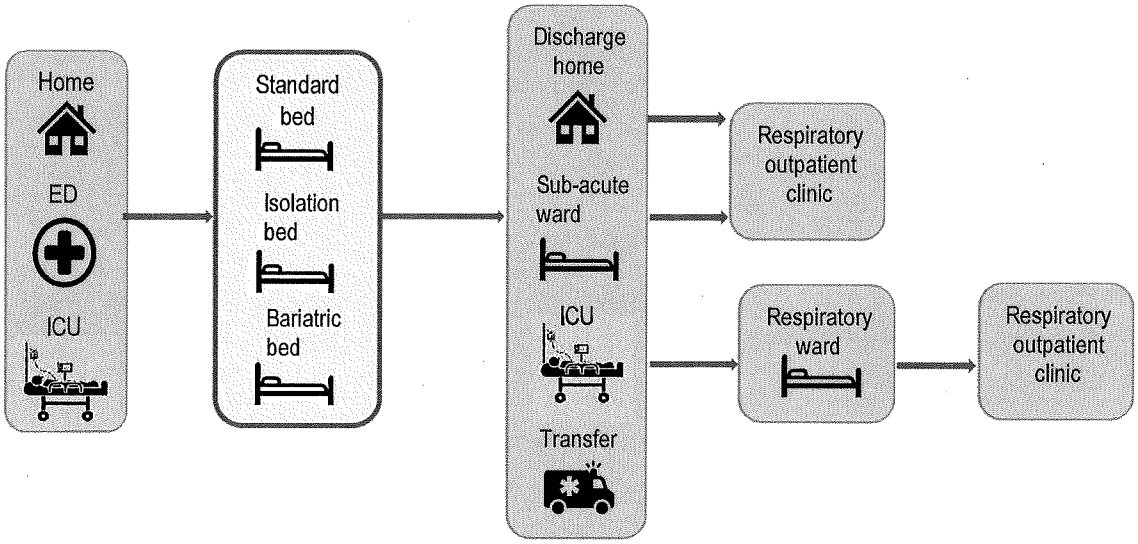
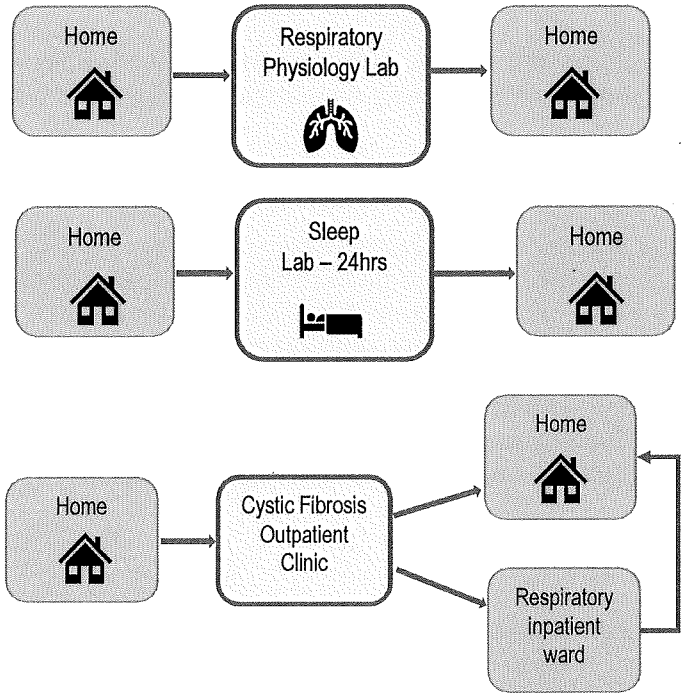


Figure 6-2: Respiratory Physiology Lab, Sleep Lab, and Cystic Fibrosis Clinic pathways



Patient discharge may be to subacute services (rehabilitation, geriatric evaluation and management or palliative care), to home or an alternative living facility, or to ICU with clinical deterioration. Follow-up care may be provided through the respiratory outpatient clinic.

The sleep laboratory admits patients from home for an overnight stay. The respiratory physiology laboratory is an ambulatory service.

6.3. WORK PROCESSES

6.3.1. Hours of operation

Respiratory Medicine admits and cares for patients 24 hours a day, 7 days a week; and outpatient clinics provide ongoing monitoring and treatment.

The Sleep Laboratory operates 24 hours a day, as patients are admitted for overnight observation. The Physiology Laboratory operates during business hours only.

6.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

6.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

6.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary such as to medical imaging. Some patients may also be transferred to theatre for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

6.4. WORKFORCE

The workforce required to operate a Level 6 respiratory inpatient and sleep medicine service includes respiratory medicine physician, a sleep medicine physician, or a dual trained physician as Head of Unit. Additional physicians should also be available during hours. Medical officers with at least three years of post-graduate training, which may be with the RACP, are required onsite for 24 hours per day, although this medical officer may cover several sub-specialities. Allied health and dedicated nursing staff support is also required.[20] Nursing staff will be rostered for 24 hours per day according to the patient ratios. Administrative staff will support the unit.

6.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

6.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Medical acute and subacute Inpatient wards;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Coronary Care Unit (CCU);
- Electrophysiology;
- Obesity management services;
- Antenatal outpatient services;
- Allied health;
- Language services;
- ACT Equipment Scheme.

External:

20. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

- GPs and community medical specialists;
- Residential Aged Care facilities;
- Ambulance and non-emergency patient transfer services.

Ideally the general medicine beds would be close to the overnight respiratory and sleep medicine service.

The day sleep disorder service could be close to other day ambulatory services.

6.7. CHALLENGES AND OPPORTUNITIES FOR RESPIRATORY

Structure of Clinical Centres

The nature and practice of Sleep Medicine are very different to Respiratory Medicine:

- Respiratory medicine is predominantly outpatient practice rather than inpatient practice. A significant proportion of services can be delivered in the community setting;
- Sleep Medicine inpatients often have high care requirements due to presence of respiratory failure and severe co-morbidities. Severe obesity and severe neuromuscular diseases are very common in Sleep medicine inpatients. Most of these patients will require non-invasive ventilation (NIV) in hospital.
- Sleep Medicine is a laboratory-based discipline with well-established standards set out by the Australian Sleep Association (ASA) / the National Association of Testing Authorities (NATA).[21]
- Sleep medicine has high rates of Medicare Billing with significant potential to generate income if the unit is structured well with appropriate administrative support.

Sleep Medicine may benefit being a standalone unit. The current mixed Respiratory/Sleep model does not work well, and it is difficult to gauge demand and supply of services. The Lead Physician in Sleep Medicine has no mandate over the other physicians practising Sleep Medicine and has significant difficulty ensuring that acceptable standards of practice and level of engagement is being adhered to meet NATA standards for accreditation. Some staff physicians are disengaged from the service and not able to provide timely and quality service at present. Other hospitals such as Sir Charles Gairdner Hospital in Perth have used this standalone model for years with success.

Location of Sleep Medicine Services

Home based sleep studies can be provided in a Community Health Care setting. Set up of monitoring equipment will occur at the Centre and the patient will return to their usual residence for the study. The draw-back of this approach is that Sleep Scientists rostered for the evening shift cannot attend to both home-based sleep study patients in the community health centre and at the hospital on the same night.

Complex sleep studies for suspected respiratory failure or parasomnia as well as Continuous Positive Airway Pressure (CPAP) and NIV treatment will need to be conducted in the hospital setting with medical backup. This facility needs to have infrastructure to manage patients with severe obesity and those who are immobile. Some of the complex patients may benefit from having nursing support in addition to scientist attendance during sleep study.

The majority of sleep medicine inpatients are those who have type 2 respiratory failure for a variety of reasons who are commencing on Non-invasive ventilation. There is also a need to provide

21. National Association of Testing Authorities in Australia (NATA) is Australia's peak body responsible for accrediting labs and inspection/calibration services, producing certified reference materials, and providing proficiency testing schemes.

ventilator support for some patients with tracheostomy who require very slow weaning. These patients should be nursed in a special nursing area to improve efficiency and safety of delivering NIV in the ACT. This will allow the development of nursing expertise with delivery of timely quality care and reduce frustration of the Sleep Physicians managing the care.

The ideal location of Sleep Medicine Service is in a quiet corner within the CH with some access to the Medical Emergency Team (MET) when required. Co-location of sleep laboratory and sleep clinic will allow both areas to share facilities such as clinic rooms (e.g., physician consultation during the day, patient PAP education in the afternoons and set up of home-based sleep studies in the evenings), cleaning areas, thermo-disinfector, and storage areas.

This allows central storage of all equipment such as CPAP/NIV machines and all the masks and accessories and eliminates the need for repeated travel between two areas by Sleep Scientists during the clinic sessions, which affects the efficiency of the clinic operation.

In summary, the ideal configuration of Respiratory and Sleep Medicine is:

- Sleep Clinic in CH to accommodate complex sleep patients with significant disabilities.
- Sleep Clinic in the community health centre setting to provide services closer to the patients' homes, reduce congestion in the hospital and increase capacity to meet community demand.
- Development of specific Sleep Medicine Outpatient service to service areas of unmet needs with collaboration with other Departments within ACT Health to provide timely service for those who need rapid access, such as high-risk pregnant women, patients with new onset cardiac arrhythmias. This would be a similar model to the currently operational Obesity Management Service.
- Six-Bed Hospital-based Sleep Laboratory with adequate sleep scientist and administration support allocation to meet the demands of the service and provide a more efficient service and have the ability of providing training to novice sleep scientist with minimal supernumerary staffing. This facility will be primarily used for diagnosis of complex sleep disorders as well as titration of positive airway pressure therapy.
- Home-based sleep studies for diagnosis of sleep disordered breathing in stable ambulatory patients. This can be provided through the hospital-based sleep laboratory or as a community-centre based service.
- Respiratory failure unit with 4-6 beds with bariatric equipment for management of acute non-invasive ventilation patients and for ICU patients requiring long-term ventilation via tracheostomy or slow ventilator weaning as a transition strategy to a stabilised ward environment and ultimately to rehabilitation.

Workforce

The Sleep Laboratory will need to increase its hospital-based sleep study activity to 6 nights per week within the next 12 months in order to meet the current demand. This will require recruitment of additional 3.0 FTE sleep scientist. The sleep laboratory staffing has been difficult to recruit and retain in the last 6 years since the Sleep Laboratory opened at the Canberra Hospital. It is essential that the sleep laboratory staffing allocation includes ongoing trainee position that are ready to step-in in the event of staff resignation as it has proved difficult to recruit trained sleep scientists within the Canberra community and it takes 12 months for a novice sleep scientist to become independent in all aspects of Sleep Science.

Sleep Medicine should establish a trainee Sleep Medicine Physician position in the near future. Recruitment of Respiratory and Sleep Physicians to Canberra has proved to be difficult in the last 10 years. This will allow provision of inpatient care for NIV patients as well as Sleep Medicine Outpatient consultations and Sleep Study Reporting under supervision. This position would be

suitable for final year Advanced Trainees in Respiratory and Sleep Medicine and potentially attract future Physicians to Canberra and surrounding areas. Further recruitment of sleep physicians is essential to meet the demand and ensure that Sleep Medicine is able to provide timely service and minimise risk to the organisation.

Ideally administration for ACT government funded CPAP and NIV devices to provide a seamless transition from CPAP/ NIV acclimatisation in both inpatient and ambulatory settings.

Non-invasive ventilation service

There is a need to establish a Respiratory Failure unit within ACT Health to manage patients who require non-invasive ventilation in the ward environment. Current delivery of NIV within a General Medical Ward environment is suboptimal and at timely delivery of the service with adequate medical oversight is a major issue. Lack of equipment maintenance is also an issue in the current ward environment. Establishment of a Respiratory Failure Unit within the Canberra Hospital will facilitate development of a nursing workforce with expertise in NIV delivery in the acute setting. This service should be serviced by Sleep Medicine Physicians who are experts in this area and able to provide a continuum of service with transition to patient self-managed domiciliary NIV when required. This can be provided with an open ward design with 4 beds with the option of 1-2 isolation rooms with equipment to manage immobile bariatric patients up to 400kg in weight. The unit will need to be supported by the Sleep Medicine Physician Trainee and Resident Medical Officer. There is currently no provision of dedicated ambulatory NIV service to manage unexpected problems for long term NIV patients and this need to be developed in the long run as the number of patients receiving NIV in the community is increasing. Current arrangements of contacting usual Sleep Physician or presenting to the Canberra Hospital Emergency Department in the event of NIV device malfunction can be prevented if there is a dedicated Non-invasive Ventilation Coordinator position. The Non-invasive Ventilation Coordinator position would suit an experienced nurse or sleep scientist who has sufficient knowledge to troubleshoot NIV device by telephone or in person, able to facilitate rapid replacement of devices if required and provide patient education prior to discharge and assist with transition to self-managed home NIV therapy.

There is a requirement for adequate Sleep Medicine Physicians to run an NIV service at the Canberra Hospital and provide outreach NIV support to the University of Canberra Public Hospital with establishment of a Sleep Medicine Physician Trainee position and a Non-invasive Ventilation Coordinator.

Domiciliary Oxygen and Respiratory Support Scheme (DORSS)

The current DORSS are administered through the ACT Equipment Service. Staff at DORSS do not have specific experience in clinical delivery of domiciliary oxygen, CPAP or NIV. ACT Health relies on the use of contractors for delivery of such services and at times Physicians face significant challenges to have timely delivery of devices that meet the patient's clinical needs. It is hard to ensure adequate education has been provided to these patients on provision of devices when contractors and at times subcontractors are used to deliver this service. The delivery of ACT government funded CPAP and NIV devices may be better provided through the Sleep Medicine Services with dedicated administration staff and utilisation of sleep scientists to provide education.

7. Endocrinology and Diabetes

7.1. SERVICE DESCRIPTION

Endocrinology and Diabetes involves the diagnosis and treatment of conditions of the endocrine system (glands which produce hormones).

Endocrinology services provide education, assessment, diagnosis, treatment, and management of endocrine disorders. These include diabetes and its complications, thyroid, pituitary and adrenal disease, neuroendocrine conditions, endocrine tumours, disorders of growth and puberty, congenital and acquired endocrine dysfunction, lipid and nutritional abnormalities, metabolic bone disease, osteoporosis, menopause, and other endocrine disorders. Endocrine disorders affect many body systems across all age groups, and often require lifelong management.

The CHS Endocrinology and Diabetes Service provides acute and ambulatory outpatient services to health care consumers over the age of 16 in the ACT and surrounding NSW region. This includes treatment and education to patients with diabetes and their carers. Patients may be offered care through inclusion in clinical trials where appropriate. Endocrinology specialists provide clinical advice on request from other hospital-based specialities, other hospitals and GPs in the ACT and surrounding region.

Diabetes educators provide diabetes self-management education and care across the continuum for children, adolescents, adults, and women during pregnancy for people who have diabetes.

Services provided include:

- Group programs and individual appointments for people with newly diagnosed diabetes;
- Individual appointments for people with diabetes with complex care needs including ambulatory initiation of insulin and other diabetes injectable medication (CH, Gungahlin, and Tuggeranong Community Health Centres);
- Insulin pump initiation and stabilisation;
- Continuous glucose monitoring;
- Paediatric service for infants and children up to 18 years (Paediatric Endocrine and Diabetes Service);
- Transition Service (Youth and Adolescent Service for ages 16-23 years);
- Specialised satellite multidisciplinary diabetes services which include Diabetes Nurse Educators, Specialist Diabetes Medical Practitioners and Allied Health Practitioners within community settings (Gungahlin and Tuggeranong Health Centres). There is future requirements for Diabetes Nurse Practitioners; and
- Diabetes Education Pregnancy Service for women planning pregnancy, gestational diabetes, type 1, and type 2 diabetes during pregnancy.

Endocrinology inpatient POC are collocated with Respiratory and Rheumatology inpatients.

The outpatient service involves a multidisciplinary team comprising an Endocrinologist, Diabetes Nurse Educator, Dietitian and Social Worker. These clinics are provided in the ambulatory outpatient setting at CH:

- Diabetes Endocrinologist clinic;

- Individual and group appointments for diabetes;
- Insulin initiation and stabilisation;
- Continuous glucose monitoring; and
- Pre-diabetes group education.

Endocrinology outpatient clinics operate five days a week.

7.2. PATIENT PATHWAY

The patient pathway for endocrinology inpatients is shown in Figure 7-1 below. A patient may step down from ICU and be admitted to the endocrinology ward, or a patient may have escalating care requirements and be transferred from the ward to the ICU.

Figure 7-1: Endocrinology inpatient pathway

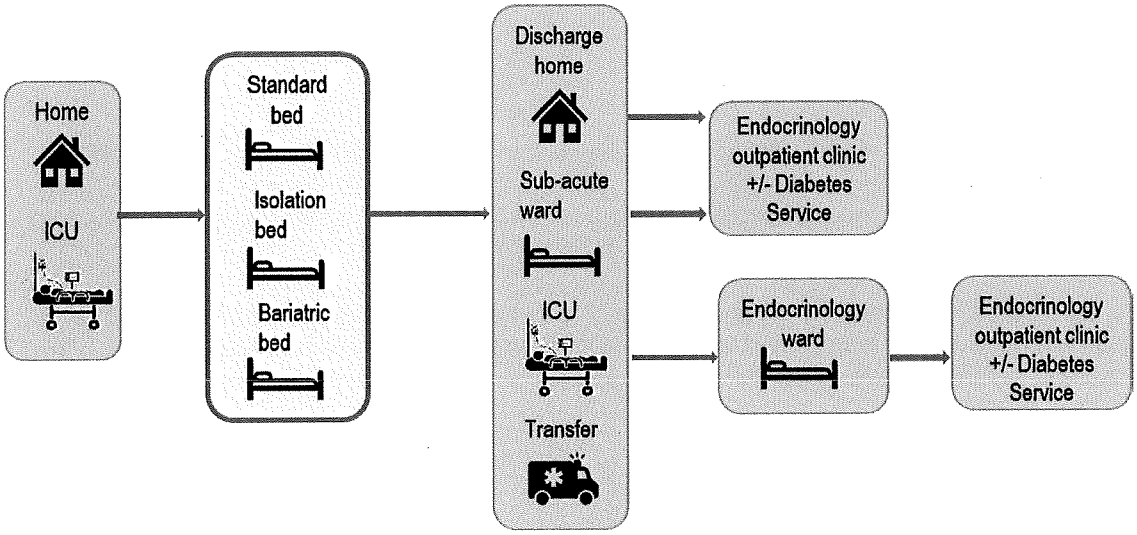
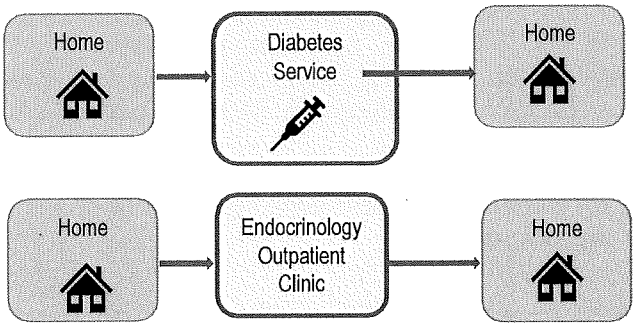


Figure 7-2: Endocrinology Outpatient and Diabetes Service patient pathways



Patients admitted to Endocrinology usually present through the Emergency Department. There may also be instances of transfer from another health care facility.

Patient discharge may be to subacute services (rehabilitation, geriatric evaluation and management or palliative care), to home or an alternative living facility. Follow-up care and monitoring takes place through the endocrinology outpatient clinic and/or the Diabetes service.

7.3. WORK PROCESSES

7.3.1. Hours of operation

Endocrinology admits and cares for patients 24 hours a day, 7 days a week. Endocrinology medicine outpatient clinics provide ongoing monitoring and treatment.

7.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

7.3.3. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary, such as to medical imaging. Some patients may also be transferred to theatre for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

7.4. WORKFORCE

The workforce requirements for a Level 6 service include a consultant Endocrinologist as Head of Unit, and a consultant Endocrinologist on-call 24 hours per day. A registrar should be onsite 24 hours per day. During the day, Endocrinologists, and medical officers with at least three years of post-graduate training, which may be with the RACP, should be onsite. Allied Health professionals for Endocrinology should include social workers, physiotherapists and or occupational therapists. Specialist diabetes nurses will also form part of a Level 6 team, as will an exercise physiologist and psychologist.[22] Ward nursing staff will be rostered for 24 hours per day. Administrative staff will support the unit.

The FTE nursing workforce for Endocrinology are combined with Respiratory and Rheumatology inpatients as these services are all in one unit.

7.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

22. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

7.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Other inpatient acute and subacute medical wards;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Allied health; and
- Language service.

External:

- GPs and community medical specialists;
- Residential Aged Care facilities
- Ambulance and non-emergency patient transfer services

7.7. CHALLENGES AND OPPORTUNITIES FOR ENDOCRINOLOGY

Endocrinology ECHO. (Extension for Community Healthcare Outcomes) is a telemonitoring program which increases capacity and capability for complex disease management in areas with low rates of medical specialists per population.[23]

The format includes a hub (specialist endocrinologist) and spokes (geographically dispersed primary care providers) linked through regular audio-visual meetings where the primary care providers present local cases for discussion and progressively build expertise. This enables the reach of endocrinology far beyond the specialist capacity.[24]

The ECHO project concept would also apply to other specialties where regional access is limited, such as specialist palliative care.

23. Bouchonville MF, Paul MM, Billings J, Kirk JB, Arora S. Taking Telemedicine to the Next Level in Diabetes Population Management: a Review of the Endo ECHO Model. Curr Diab Rep. 2016 Oct;16(10):96. doi: 10.1007/s11892-016-0784-9. PMID: 27549110.
24. Shivani Agarwal, Michelle L. Griffith, Elizabeth J. Murphy, Carol Greenlee, Jeffrey Boord, and Robert A. Gabbay; for the Innovative Models of Diabetes Care Taskforce of the Endocrine Society, "Innovations in Diabetes Care for a Better "New Normal" Beyond COVID-19", 2021

8. Gastroenterology and Hepatology

8.1. SERVICE DESCRIPTION

Gastroenterology and Hepatology Unit (GEHU) is a Level 6 service at CH.[25] GEHU involves a wide range of digestive system diseases and disorders (of the bowel, intestines, stomach, oesophagus, liver, and pancreas). Conditions treated include polyps and cancer of the colon, Chron's disease, Gastroesophageal Reflux Disease (GORD), Irritable Bowel Syndrome (IBS), Celiac disease, liver cancer, peptic ulcers, pancreatitis, cirrhosis, hepatitis, non-alcoholic fatty liver disease, obesity, and biliary cholangitis.

Inpatient services include the following:

- General gastroenterology consultative and endoscopic services for persons with upper/lower gastrointestinal (GI) tract symptoms and digestive diseases, including liver and biliary tract disease;
- Inpatient care of patients with gastroenterological diseases; and
- Services for clients with Hepatitis C and liver cirrhosis through the hepatology service.

Gastroenterology clinics care for people with problems with the liver, people who have Inflammatory Bowel Disease, and post-procedural patients. The main functions of the outpatient clinics are:

- Specialist consultation and examination;
- Clinics for patients with viral hepatitis, liver disease, inflammatory bowel disease (IBD), inherited gastrointestinal cancer and complex gastrointestinal disorders;
- Support and follow up for participants in the National Bowel Cancer Screening Program;
- Endoscopic service (gastroscopy, endoscopy), colon cancer screening, gastrointestinal bleeding, interventional endoscopy *(refer to the Surgical Service Model for more information)*;
- Endoscopic ultrasound and endoscopic retrograde cholangiopancreatography (ERCP) for examination of the duodenum (beginning of small bowel), gallbladder, liver, and pancreas for the selection of patients for day case treatment or in-patient procedures;
- Pre-operative / procedural assessment;
- Follow up and monitoring the condition of patients after day case procedures or inpatient procedures; and
- Discharging patients from the care of the hospital with referral, if necessary, to other health care providers.

For the Gastroenterology procedural service and sterilisation requirements, refer to the Surgical Service Model for more information.

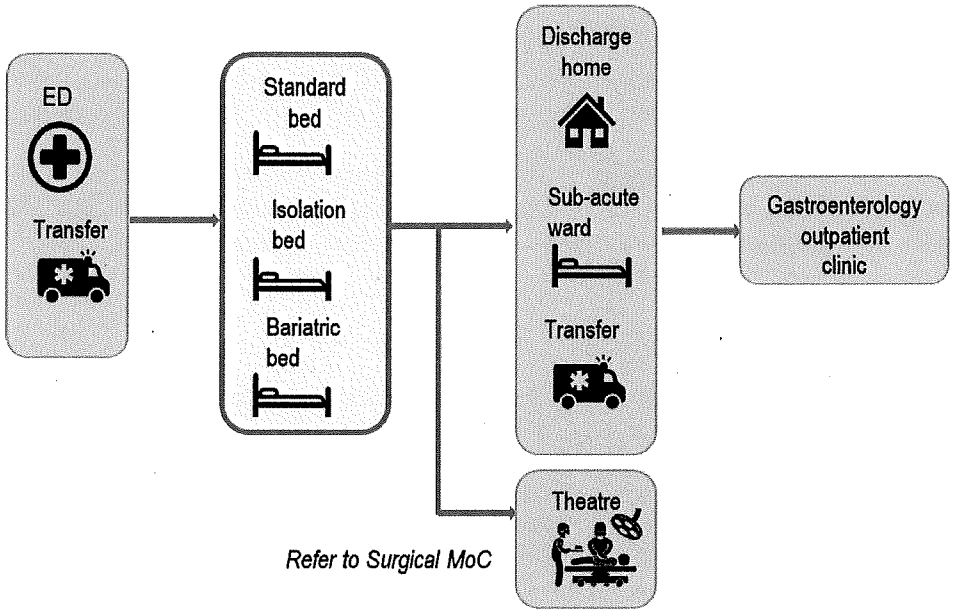
GEHU has both inpatient and outpatient clinics which operate five days a week. The outpatient clinics will ideally be co-located with the GEHU procedural service.

25. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

8.2. PATIENT PATHWAY

The patient pathway for Gastroenterology and Hepatology inpatients is shown in Figure 8-1 below. Services fall into one of three categories, ambulatory outpatient clinics, day only procedures where patients arrive and discharge on the same day, and overnight admissions in the inpatient unit. *Note the day only procedure patient pathway is described in the Surgical Service Model.*

Figure 8-1: Gastroenterology and Hepatology inpatient pathway



Patients admitted to GEHU usually present through the Emergency Department, transfer from another health care facility, or through direct GP referral.

Patient discharge may be to subacute services (rehabilitation, geriatric evaluation and management or palliative care), to home, or an alternative living facility. Follow-up care and monitoring takes place through the GEHU outpatient clinic.

8.3. WORK PROCESSES

8.3.1. Hours of operation

GEHU admits and cares for patients 24 hours a day, 7 days a week. Ambulatory outpatient clinics provide ongoing monitoring and treatment.

8.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

8.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

8.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary, such as to medical imaging. Some patients may also be transferred to theatre or the endoscopy suite for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

8.4. WORKFORCE

The workforce requirements to support a Level 6 service include a gastroenterologist or dual trained general physician on-call 24 hours per day, a medical officer with at least three years of post-graduate training, which may with the RACP, on-site 24 hours per day. During the day, Gastroenterologists, and medical officers with at least three years of post-graduate training, which may be with the RACP, should be onsite.[26] Nursing staff will be rostered for 24 hours per day according to the patient ratios. A multi-disciplinary approach is adopted for both inpatients and outpatients. Administrative staff will support the unit. An on-call arrangement is in place for endoscopy medical and nursing after-hours.

8.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

8.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

The GEHU-related services are 'scattered' across four locations, including the endoscopy suites, liver clinics, Irritable Bowel Disease and general clinics in Building 1 Level 2, gastroenterology offices in Building 2 Level 3, Staff offices on Building 1 Level 10B, and General Outpatients department Building 1 Level 2. There can be operational efficiencies with collocation.

Internal:

- ED;
- Palliative Care;
- Chronic Disease Management;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Allied health; and
- Language services.

26. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities
- Ambulance and non-emergency patient transfer services

There are no particular adjacencies that would be ideal for gastroenterology and hepatology.

8.7. CHALLENGES AND OPPORTUNITIES

An innovative Service Model that can improve access to health services, meet growing demand and have services closer to home, is the introduction of Nurse Endoscopists. Specialist medical staff (gastroenterologists, general surgeons, and colorectal surgeons) can manage and treat more patients, and improve their access, as Nurse Endoscopists can be delegated appropriate cases.[27]

Health Workforce Australia (HWA) launched the Expanded Scopes of Practice Program in February 2012, which has evolved over the last 10 years to a functioning program of training of Nurse Endoscopists. The program has been successful in innovatively increasing medical specialist workforce productivity, recruitment, and retention.

The program was also developed to address increasing demand for endoscopic procedures, in particular colonoscopy, after the implementation of the National Bowel Cancer Screening Program. This would appear to be a suitable contemporary model for CHS.[28]

27. Austin Health, *Why should we utilise Nurse Endoscopists?* Updated 2023. Available: https://www.austin.org.au/WhyNurseEndoscopists/
28. Austin Health, *Why should we utilise Nurse Endoscopists?* Updated 2023. Available: https://www.austin.org.au/WhyNurseEndoscopists/

9. Neurology and Stroke

9.1. SERVICE DESCRIPTION

The ***Neurology and Stroke*** inpatient services at CH are a Level 5 service.[29]

Neurology involves non-surgical care for people with disease of the nervous system and brain. Conditions include general neurology, stroke, Transient Ischemic Attacks (TIA), movement disorders, neuro-ophthalmology, severe epilepsy, severe migraine, Parkinson's disease, Multiple Sclerosis, Motor Neurone Disease, and peripheral neuropathy.[30] Acute stokes are out of scope for the redevelopment as they are treated in the Critical Services Building in ED and the Endovascular suites.

Canberra Hospital also includes an allied health led investigation service in the Neurophysiology unit. The Neurophysiology Unit monitors brainwaves and nerves to diagnose conditions. Investigations include:[31]

- Electroencephalography (EEG) and Sleep-deprived EEG;
- Nerve conduction studies;
- Electromyography; and
- Brainstorm, Visual and Somatosensory Evoked Potentials.

The Neurology inpatient unit currently has 14 beds (PoC), of which four are 24/7 monitored acute stroke beds in a Stroke Unit (SU). This will increase to 9 monitored stroke beds in the redevelopment. Neurology currently shares a 28-bed ward with respiratory, endocrinology and renal. Currently, this is the only medical ward that can receive patients with a tracheostomy from ICU.

Neurology outpatients includes:

- General clinics for a range of neurological conditions (such as epilepsy, Parkinsons Disease, dementia etc); and
- Stroke/TIA follow up clinic.[32]

Long-term specialised rehabilitation requirements are referred to subacute ambulatory services at the University of Canberra Hospital.

9.2. PATIENT PATHWAY

CHS is part of an ACT/NSW stroke network service. Patients with acute stroke will either transfer into Stroke Unit from ED, direct from another hospital, other inpatient area or from an interventional suite post endovascular clot retrieval. Occasionally patients are intubated for airway support and these patients will be transferred to ICU from ED or interventional suite.

29. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF
30. Cleveland Clinic, *Neurologist*, updated 2023. Available: https://my.clevelandclinic.org/health/articles/22277-neurologist
31. ACT Government, Canberra Health Services, *Neurophysiology*. Available: https://www.canberrahealthservices.act.gov.au/services-and-clinics/services/neurophysiology
32. The stroke clinic is currently in Building 15.

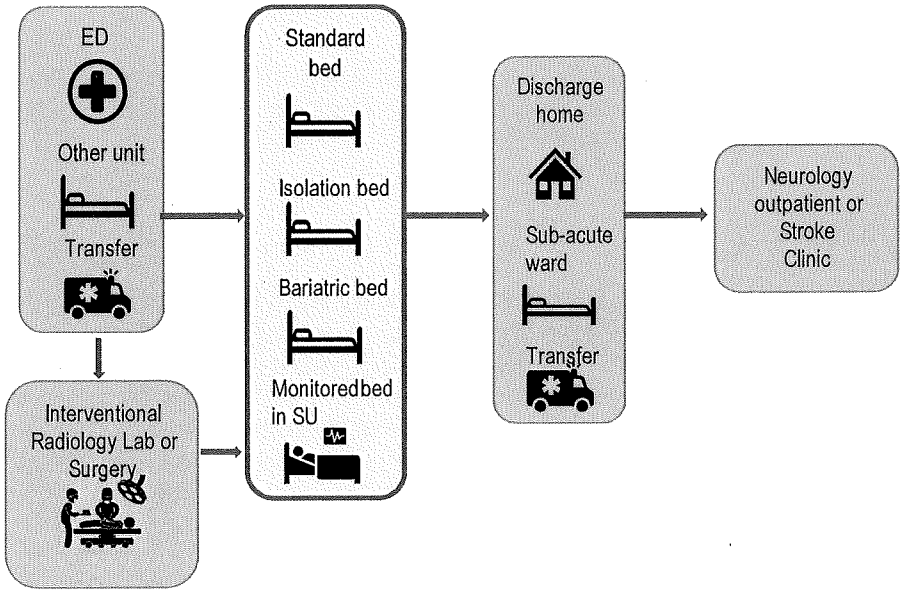
CHS has a dedicated stroke team who are activated through a 'stroke call'. This is led by specialised stroke nursing and medical staff which are notified of stroke and review patients in ED or another ward within CHS. Decisions regarding timing of transfers out of the Stoke Unit are made in collaboration with medical teams and nursing leadership and are dependent on acuity and bed demand.

There are four acute stroke monitored beds at CH, which will increase to 9 in the redevelopment.

Patient discharge may be to subacute services (rehabilitation, geriatric evaluation and management or palliative care), to home or an alternative living facility, or to a surgical team for a procedure.

Follow-up care may be provided through the general medicine outpatient clinic, or through a surgical clinic if a procedure occurred.

Figure 9-1: Neurology and stroke pathway



Refer to Surgical Service Model

9.3. WORK PROCESSES

9.3.1. Hours of operation

Neurology admits and cares for patients 24 hours a day, 7 days a week. The Neurology outpatient clinics provide ongoing monitoring and treatment five days a week.

9.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the unit. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the

community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

9.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

9.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary, such as to medical imaging. Some patients may also be transferred for surgery and to ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

Patients will also be discharged home or to alternative living facilities from the ward or from the Discharge Lounge. Follow-up care may be provided through the Neurology outpatient clinics, the patient's GP, RITH, and Community Health Centres.

9.4. WORKFORCE

The workforce required to support a Level 5 Neurology inpatient service is a Neurologist available on-call 24 hours per day. A Neurosurgeon should also be on-call 24 hours per day. There should also be a medical officer with three or more post-graduate years of training, which may be with the RACP, on-call 24 hours per day, as well as a medical officer in Neurology on during the day. Allied Health support includes physiotherapists, occupational therapists, speech pathologists, social workers, and a dietitian.[33] Nursing staff will be rostered for 24 hours per day according to the patient ratios of 1:3 for general beds and 1:2 for acute stroke monitored beds. Administrative staff will support the unit.

The acute stroke nurses are responsible for assessment of hyperacute stroke patients in the Emergency Department or inpatient areas of CH along with the medical teams. They are involved in the initiation of reperfusion therapies (thrombolysis/endovascular clot retrieval) in collaboration with clinicians in the emergency department, radiology, and neurology.

9.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

9.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Other Inpatient acute and subacute wards;

33. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

- Neurosurgery;
- Interventional Radiology Suite / Hybrid operating theatre;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Allied health;
- Language services.

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities; and
- Ambulance and non-emergency patient transfer services.

10. Cardiology Ambulatory and Diagnostic Services

10.1. SERVICE DESCRIPTION

Canberra Hospital Cardiology Department provides level 6 inpatient (out of scope), outpatient and ambulatory diagnostic tertiary health services to ACT and Southern NSW Local Health District residents. This includes cardiac rehabilitation services and patient education.

Cardiology diagnostics involves a range of Allied Health, and Cardiology Physician led diagnostic investigations, including Electrocardiography (ECG), Stress Electrocardiography (Exercise stress test), ambulatory electrocardiography (Holter monitoring) and Echocardiography.

The cardiology services work closely with the cardiothoracic surgeons in diagnosing and developing care plans.

Key areas of focus include valve disease, coronary artery disease, heart failure, arrhythmia, hypertension, and electrophysiology.

An ECG traces the heart and rhythm. Exercise stress tests require patients to walk on a treadmill, or pedal on a stationary bike, with increasing intensity, to help diagnose blockages or narrowing of arteries, or coronary heart disease. Holter monitoring involves a patient wearing the monitor for 24 to 48hrs to assess the effectiveness of cardiac medication and any irregularity in heart rhythm. An echocardiogram is an ultrasound test to observe heart valves and pumping action, to observe any heart muscle damage, valve dysfunction and the measurements of the heart structure.

The ***outpatient clinics for cardiology and cardiothoracic*** patients provide diagnosis and management for discharged patients.

The Cardiology clinics include:

- Heart Function Service including rehabilitation;
- Pacemaker and Defibrillator Clinic;
- Cardiac Pre-admissions Clinic;
- Cardiac Rehabilitation Program;
- Cardiology Research Trials Clinic; and
- Advanced Care Planning Service – Chronic Care Program.

There is medical telephonic advice available for GPs and specialists in other hospitals.

The Nursing staff provide initial education to all patients with coronary artery disease, including post heart attack and stenting, surgical patients post coronary artery bypass grafts, providing guidelines on resuming normal activities after discharge.

Cardiology and cardiothoracic outpatient clinics will have 23 PoC, comprising:

- 11 general consultation rooms;
- 1 universal access consultation room;
- 6 consult/interview rooms;
- 3 treatment rooms; and

- 2 stress testing rooms.

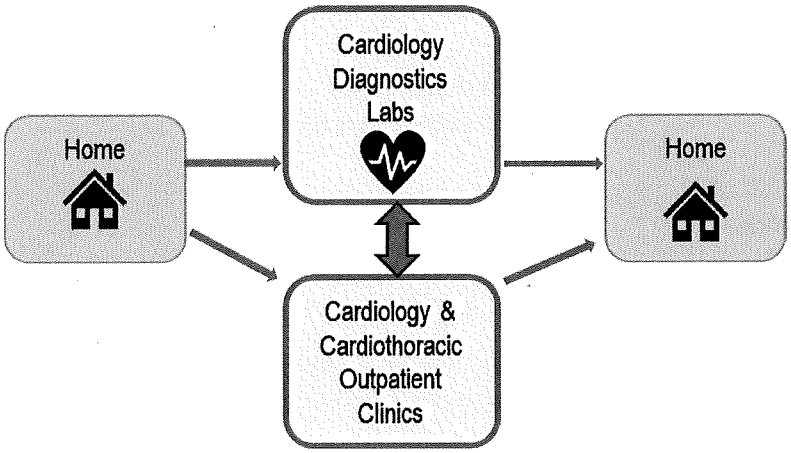
It is noted that Cardiology inpatients, the CCU, Cardiac Catheter Laboratories, and Cardiothoracic Surgery will operate from the CSB (Building 5). Therefore, all in-scope cardiology-related services are ambulatory.

10.2. PATIENT PATHWAY

The Cardiology Diagnostic Laboratory is an ambulatory service, thereby people arrive from home (or their alternative living facility), have their diagnostic tests, and return home again.

In the case of Holter monitoring, the patients must wear the monitor overnight (at home), for continual monitoring for 24 to 48 hours. Therefore, the patient will need to re-present to the Cardiology Diagnostic Laboratory following monitoring period to return the monitor.

Figure 10-1: Cardiology diagnostics laboratory patient pathway



10.3. WORK PROCESSES

10.3.1. Hours of operation

The Cardiology diagnostics laboratory operates during business hours, 8am to 5pm.

10.3.2. Patient referral

Patients may require referral to Cardiothoracic Surgery or Interventional Cardiology for a procedure. The Cardiology Diagnostic Laboratory will be part of the assessment for surgery as well as general cardiac conditions. Alternatively, patients may be required to have follow-up diagnostic testing for monitoring and testing.

10.4. WORKFORCE

The workforce to support the Cardiology Diagnostics laboratory are echo sonographers and cardiac electrophysiologists during business hours. Cardiologists review all studies.

10.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

10.6. FUNCTIONAL RELATIONSHIPS

Internally, the ambulatory cardiology services have the closest relationship with:

- Interventional cardiology, coronary care, and cardiac surgery;
- Cardiac rehabilitation inpatients and community programs at North Canberra Hospital

There are also typical relationships with the main support services such as:

- ED;
- Inpatient cardiology (critical care and procedural beds)'
- Cardiothoracic services;
- Allied Health;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Allied health;
- Language services.

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities; and
- Ambulance and non-emergency patient transfer services.

The ideal positioning of Cardiology diagnostics and outpatients would be as close to the CSB as possible, to minimise cross campus travel time of Cardiologists and cardiothoracic surgeons.

11. Renal Medicine

11.1. SERVICE DESCRIPTION

Renal Medicine is a Level 6 service at CH.[34] Renal medicine involves the diagnosis and management of renal related medical conditions, hypertension, and electrolyte disorders. Conditions include acute haemodialysis and therapeutic plasma exchange, chronic kidney disease, and renal weight management.

CH provides comprehensive inpatient and outpatient care for people with all forms of kidney disease including hypertension, dialysis, pre and post care of renal transplantation, acute renal failure, and management of the complications of chronic kidney failure. Mobile intermittent haemodialysis is a service provided to the ICU and other areas where the patient is not stable enough to be transported to the haemodialysis unit.

The Renal Department at the CH is the hub of the Renal Network[35], providing governance across the entire network. The Renal Department manages patients with acute kidney injury (including after hour emergencies for dialysis), and chronic kidney disease (CKD), as well as the care of patients requiring investigation and renal biopsies related to their renal impairment.

Nurses are qualified in managing renal specific treatments, including peritoneal dialysis. The ward patients are treated by a Nephrologist assigned on a rotational basis and supported by an Advanced Trainee registrar and junior medical team. The service contributes to research in the areas of vasculitis, vaccination, sleep disordered breathing and micronutrient deficiencies as well as quality improvement surveillance of patients with renal disease.

Nephrologists also provide a consultative service for patients in ICU, Coronary Care or Surgical inpatient units. Patients that require haemodialysis will generally remain with the primary unit and travel to the haemodialysis unit when required during their inpatient stay.

Satellite haemodialysis units are located across the ACT and Southern NSW. The dialysis in the CH on Level 8 of Building 1 has 12 chairs that accommodate all general ward dialysis and will book community patients to improve utilisation of the unit if required. The 12 chairs include four single rooms with negative pressure and six open bays.

Outpatient renal clinics are conducted from Building 15 via telehealth and face-to-face in multiple hospitals and health centres across the ACT and Southern NSW. CH Renal Medicine provides specialised renal support to lower-level services.

Clinic structure is primarily face to face consultations with additional telehealth consultations available to other Renal Network sites. There are renal clinics for:

- CKD management;
- General nephology management;
- Transplant clinics (with transplant surgeons);
- Urgent Registrar review clinic;

34. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

35 The Renal Netork includes ACT and south eastern NSW.

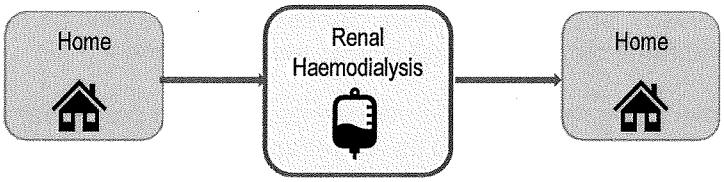
- Post inpatient-stay clinic;
- Renal Supportive Care Clinic;
- Rural Outreach Clinics;
- Telemedicine clinics to outreach clinics;
- Glomerulonephritis clinic; and
- Renal Research clinics.

The general renal inpatients ward has eight POC, along with the 12 dialysis chairs/beds.

11.2. PATIENT PATHWAY

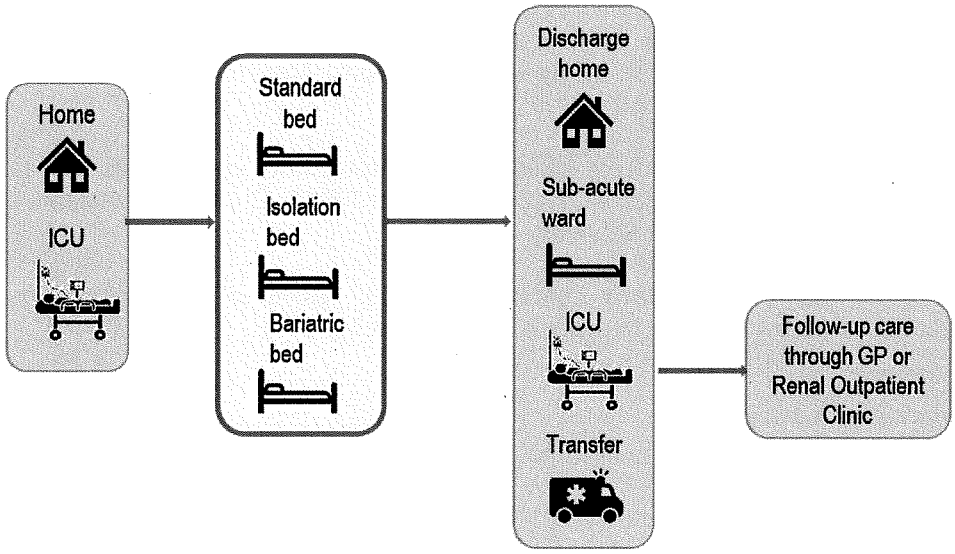
For renal haemodialysis patients, an initial assessment is performed prior to commencement of treatment by a Nephrologist. If the patient meets the criteria for haemodialysis, a routine, scheduled maintenance treatment plan will be established. This service is a same-day admission for planned care only. The patient pathway for renal haemodialysis patients is shown in Figure 11-1 below.

Figure 11-1: Renal haemodialysis patient pathway



The patient pathway for general renal inpatients is shown in Figure 11-2 below. A patient may step down from ICU and be admitted to the renal ward, or a patient may have escalating care requirements and be transferred from the ward to the ICU. Patients may also be admitted directly from HITH if they have deteriorated clinically.

Figure 11-2: Renal inpatient pathway



11.3. WORK PROCESSES

11.3.1. Hours of operation

Renal admits and cares for inpatients 24 hours a day, 7 days a week. Renal haemodialysis operates Monday to Saturday from 8.30am to 6.30pm. Renal medicine outpatient clinics provide ongoing monitoring and treatment.

11.3.2. Care planning

People requiring hospital care may be a admitted under a Nephrologist to the Renal Medical Ward. During the day this ward also accommodates patients from other clinical areas who require dialysis. There are currently 10 acute stations providing dialysis services to patients admitted to hospital including Therapeutic Plasma Exchange.

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

For haemodialysis patients, an initial assessment by a Nephrologist will determine suitability for haemodialysis. This may be performed in the unit, or at a patient's home.

11.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

11.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary, such as to medical imaging. Some patients may also be transferred to theatre for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

11.4. WORKFORCE

To support a Level 6 renal service there should be a Nephrologist as Head of Unit, as well as physicians available within business hours. A registrar or JMO should also be rostered during business hours, preferably someone with at least 3 years of post-graduate training, which may be

with the RACP. Nurses are rostered for two shifts a day: 8.30am to 5pm and 10am to 6.30pm. After hours, on-call medical and nursing staff are available from 6.30pm to 8.30pm.[36]

11.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

11.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Other Inpatient acute and subacute wards;
- Medical Imaging;
- Pharmacy;
- Pathology;
- Outpatients;
- ICU;
- Allied health;
- Language services

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities
- Ambulance and non-emergency patient transfer services

Ideally, there would be proximity of location for the renal inpatient service and dialysis.

11.7. CHALLENGES AND OPPORTUNITIES FOR RENAL

Renal Medicine as a discipline is changing like many others. One of the most obvious changes over the last decade has been the intermittent roller coaster expansion-contraction of home-based dialysis. It is expected that home-based dialysis (along with evening dialysis) will expand, particularly as the technology improves further and the patient monitoring in homes improves with the potential for real-time interventions.

36. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

12. Infectious Diseases

12.1. SERVICE DESCRIPTION

Infectious Diseases (ID) at CH is a level 6 role delineated service.

Infectious diseases service is concerned with prevention, education, diagnosis, management, and treatment of patients with infections. They also lead the Antimicrobial Stewardship program (AMS) across all hospital campuses and contribute to the management of communicable disease outbreaks, infectious threats, and pandemic responses. The clinical service involves diagnosis and management of patients with complex infections, including severe sepsis and infections in the immune-compromised, interpretation of laboratory results, travel medicine, infections due to multi resistant bacteria, Human Immunodeficiency Virus (HIV) medicine and extrapulmonary tuberculosis.

The service provides care to all age groups through hospital outpatient clinics, inpatient care and through a consultation service to community health facilities. The service works closely with other clinical specialties to provide care and advice as appropriate.

The ID service works in close collaboration with other hospital-based services such as clinical microbiology, pharmacy, and many clinical specialties. Staff provide telephone advice and an infection control advice. There is a 24-hour, 365-day phone consultation service provided to GPs and community nurses in ACT and Southern NSW local Health District by the ID consultants based at CHS.

There is also collaboration with external organisations such as the Australian Government Department of Health, Australian National University Research School of Population Health, and local and national organisations, such as the Public Health Laboratory Network, the National Surveillance Committee for Notifiable Disease Surveillance, and the Australian Group for Antimicrobial Resistance

Infectious Diseases provide a consultative service for patients admitted to other specialities who have infections, as well as patients with undiagnosed illness and high fever. There are usually also a small number of people admitted to Infectious Diseases who have complex infections, such as Influenza and COVID-19.[37] However, during the winter months, the prevalence of Flu and COVID-19 increases, and a Winter Surge strategy is required to manage a higher influx of infectious disease patients during this time. Overflow of patients to dedicated Winter Surge beds is usually required. Severely unwell infectious patients will be admitted to ICU in an isolation bed.

Post-COVID, there are five Infectious Diseases beds.

12.2. PATIENT PATHWAY

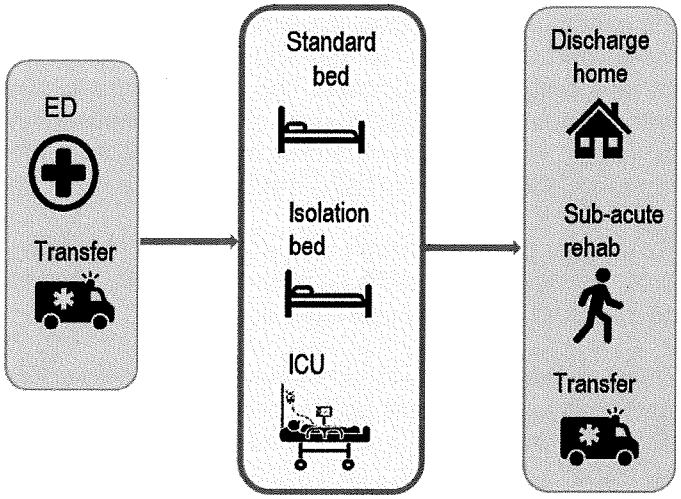
Infectious disease patients are admitted through the ED or may be transferred from another health facility or another CH ward.

37. ACT Government, Canberra health Services, *Infectious Diseases Unit.* Available: https://www.canberrahealthservices.act.gov.au/services-and-clinics/services/infectious-diseases-unit

Patients hospitalised with COVID-19, the Flu or other infectious disease will all have different recovery times based on any pre-existing conditions. Physical, psychological, or cognitive changes can last for weeks or months.[38] Rehabilitation may be required for muscle weakness, difficulty swallowing, fatigue, or difficulty performing daily tasks.[39]

The pathway for infectious patients will require barrier nursing and the provision of several (approximately four) negative pressure single rooms and ensuites.

Figure 12-1: Infectious Diseases patient pathway



12.3. WORK PROCESSES

The infectious diseases unit supports adults of the full range of mild to aggressive infections and for all acuity, frailty, and disability and those living with co-morbidities. The work processes that support patients admitted to Infectious Diseases are described below.

Staff caring for infectious patients must use personal protective equipment (gloves, gowns, masks, and goggles or face shields) to minimise any risk of transmission of the condition.

12.3.1. Hours of operation

Infectious Diseases admits and cares for patients 24 hours a day, 7 days a week.

Infectious Diseases outpatient clinics provide ongoing monitoring and treatment. Access to outpatients is by appointment, with initial appointment triaged based on the most urgent condition.

12.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary

38. The Johns Hopkins University, The Johns Hopkins Hospital, and Johns Hopkins Health System, *Coronavirus: Recovery after a Hospital Stay*, 2020. Available: https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-recovery-after-a-hospital-stay
39. The Johns Hopkins University, The Johns Hopkins Hospital, and Johns Hopkins Health System, *Coronavirus: Recovery after a Hospital Stay*, 2020. Available: https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-recovery-after-a-hospital-stay

staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

12.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

12.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary and relate to medical imaging or interventional labs. Some patients may also be transferred to theatre for planned or unplanned surgical procedures, or to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi, or ambulance dependent on discharge destination.

12.4. WORKFORCE

The workforce requirements for a Level 5/6 service include a general physician or specialist infectious diseases physician available 24 hours per day, a medical officer on site 24 hours per day and a post graduate trainee with three or more post graduate years who may be in training with the RACP.[40]

The general medical registrar may also cover some the medical sub-specialities overnight, depending on the rostered requirements. Nursing staff will be rostered for 24 hours per day according to the patient ratios. Administrative staff will support the unit.

12.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

12.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Other Inpatient acute and subacute wards;
- Medical Imaging;
- Pharmacy;
- Pathology;
  - Outpatients;
  - ICU;
  - Allied health;

40. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

- Language services.

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities; and
- Ambulance and non-emergency patient transfer services

Ideally, infectious diseases services would be proximal to the winter surge and COVID beds.

12.7. CHALLENGES AND OPPORTUNITIES FOR INFECTIOUS DISEASES

Of course, the COVID pandemic has promoted infectious diseases to the forefront of prevention, treatment, and management across health care more broadly.

It is expected that specific design principles and capacity requirements are built into the infectious disease wards including more isolation rooms, negative pressure and barrier nursing and isolation of areas as required.

13. Rheumatology

13.1. SERVICE DESCRIPTION

Rheumatology at CH is a Level 5 service.[41] Rheumatology is a specialty of medicine for musculoskeletal and systemic autoimmune conditions commonly referred to as rheumatic diseases. Rheumatology services provide treatment to alleviate pain, prevent disease progression and joint damage, maintain, or improve joint mobility and assist with managing other associated existing medical conditions. A significant portion of the service is focused on the management of osteoarthritis, osteoporosis, and spinal pain.

The rheumatology inpatient beds are collocated with endocrine and respiratory inpatient PoC and utilise very few bed-days.

Rheumatologists also provide an inpatient consultative service to other specialities and provide support to lower-level services.

The rheumatology outpatient clinic, which is currently located in Building 7, will become part of the outpatient clinics in the redevelopment.

Rheumatology Outpatient services include assessment, treatment, clinical management, and specialised services for all residents of the ACT community and neighbouring regions of NSW, particularly Queanbeyan and South Eastern NSW, and include:

- Rheumatology Biologic Clinic;
- Outpatient clinic is for patients with inflammatory arthritis undergoing biological Disease-Modifying Anti-Rheumatic Drugs therapy;
- General Rheumatology Clinic;
- Rheumatology related conditions, i.e., suspected inflammatory Arthritis (Rheumatoid Arthritis, Psoriatic Arthritis, Ankylosing Spondylitis, Connective tissue disease);
- Rheumatology Early Arthritis Clinic;
- Clinic aimed at identifying and treating patients with early inflammatory arthritis, i.e., early morning stiffness and swelling, raised inflammatory markers, psoriasis, inflammatory bowel disease or family history of inflammatory arthritis, or positive rheumatoid;
- Outpatient clinic Rheumatology MINERVA Clinic;
- Outpatient clinic for people with likely early inflammatory rheumatic disease who have a willingness to participate in research programs consisting of clinical trials; and
- Paediatric Rheumatology Clinic.

Outpatient clinic aimed at identifying and treating children and adolescents with early inflammatory arthritis and connective tissue disease who are aged less than 18 years of age.

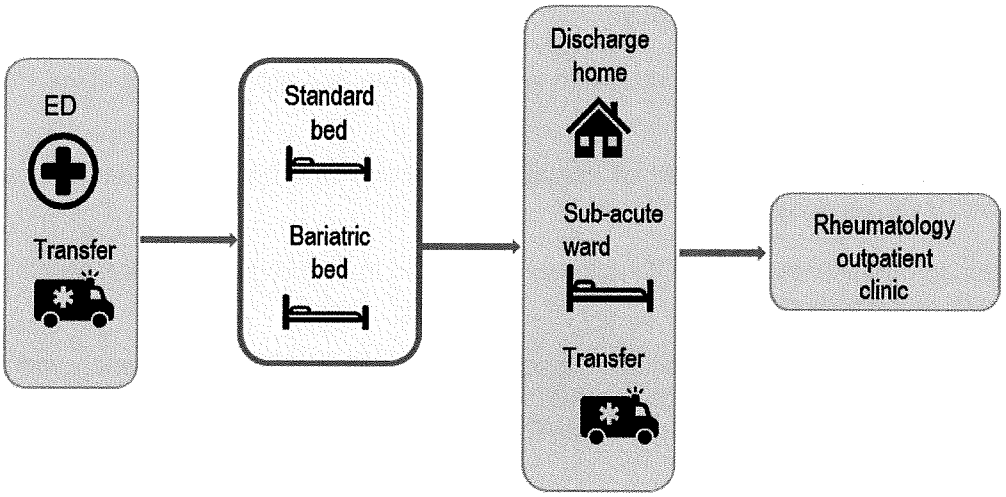
41. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

13.2. PATIENT PATHWAY

The patient pathway for Rheumatology inpatients is shown in Figure 13-1 below. Patients requiring overnight or ongoing acute care are admitted to a General Medical unit under the care of a Rheumatology physician.

A patient may step down from ICU and be admitted to the General Medical unit, or a patient may have escalating care requirements and be transferred from the ward to the ICU. Follow-up care and monitoring is through the Rheumatology outpatient clinic.

Figure 13-1: Rheumatology patient pathway



13.3. WORK PROCESSES

13.3.1. Hours of operation

Rheumatology admits and cares for patients 24 hours a day, 7 days a week. Rheumatology medicine outpatient clinics provide ongoing monitoring and treatment.

13.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the unit. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

13.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

13.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Transfers may be temporary, such as to medical imaging. Some patients may also be transferred to the ICU for more intensive monitoring or management. Patients may also be transferred to the North Canberra Hospital for subacute care.

If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

A Rheumatology Advanced Practice Nurse provides clinical care and education as well as coordinating investigations and appointments for patients with inflammatory arthritis undergoing biological Disease-Modifying Anti-Rheumatic Drugs therapy. Follow up care may be provided through a GP, Dermatologist, or a Community Service.

13.4. WORKFORCE

The workforce to support a Level 5 service includes a Rheumatologist as well as a medical officer with at least 3 years of post-graduate experience, which may be with the RACP. On-site coverage for 24 hours per day is required, however, this could be a medical officer covering multiple sub-specialities overnight. Allied Health professionals with specific skills in musculoskeletal conditions should also be available to patients on the ward.

The Rheumatology nursing workforce is shared with Respiratory and Endocrinology and is provided in sections 6.4 and 7.4.

13.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

13.6. FUNCTIONAL RELATIONSHIPS AND ADJACENCIES

Internal:

- ED;
- Dermatology;
- Medical Imaging;
- Pharmacy;
- HITH;
- Pathology;
- Outpatients;
- ICU;
- Allied health;
- Language services.

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities
- Ambulance and non-emergency patient transfer services

13.7. CHALLENGES AND OPPORTUNITIES FOR RHEUMATOLOGY

The Territory Government has committed to the develop rheumatology services and to realign the expected clinical capability levels. On this basis, it will be important that the service is able to clearly articulate the future scope and inter-relationships between rheumatology at the clinical level determined.

14. Palliative Care / Comfort Interventional Care

Palliative care is 'practiced' in many inpatient settings at CH. To date, there has been no dedicated palliative care inpatient service. The Territory Government has committed to the development of an inpatient palliative care service at CH.

> "Introduce more end-of-life treatment and care options, including a palliative care ward at the Canberra Hospital, enhanced after hours palliative care, palliative care respite facility for carers and a scoping study for a secular hospice".[42]

Provision has been made in this Service Model for a new dedicated palliative care service in the redevelopment. The number of inpatient POC would be determined following a demand analysis that differentiates service volumes for community-based care and a secular hospice as noted above. For the purposes of this Service Model, a 12-bed unit has been planned.

The Service Model for palliative care will be quite different from other inpatient medical services.

14.1. SERVICE DESCRIPTION

Palliative care provides treatment, care, support, and symptom management of conditions that are life-limiting, with no realistic prospect of cure.

Palliative care is principally client-driven, respecting the rights and wishes of individuals in relation to care and treatment, regardless of their setting. Palliative care has been described as caring for the patient's clinical, emotional, social, and spiritual needs[43].

There are two main types of patients that are admitted to a palliative care ward:

- Patients who are in their end stage of their clinical condition and choose not to die at home; and
- Patients admitted for symptom management and stabilisation of condition, who are then suitable for discharge.

Contemporary practice is that care and treatment occur principally in a home/community setting, not in a hospital.

14.2. PATIENT PATHWAY

Patients are admitted to the ward from:

- Emergency Department;
- From other acute and subacute wards; and
- Directly from the community settings

The Service Model should include direct admission from the community for known/existing patients without first having to present to ED. This requires protocols that are supported by the palliative care physicians, and a clinical capability on the ward to admit 24/7. Such models enable earlier provision

[42] Parliamentary and Governing Agreement, Item 12.3, p23.
[43] Palliative Care Australia

of treatment and stabilisation of conditions than would result from the usual process of admission through ED.

Palliative care can be a subspecialty that is introduced late in the patient's progression of their illness, especially for cancers. Introducing the palliative care team early in the process can be beneficial in developing rapport with the team, improving the quality of the patient's life and support for families. Therefore, the preferred Service Model is for a 'pull model' where the palliative care team participates in patient meetings, identifies patients that are likely to be requiring palliative care and works with the currently treating team to 'pull' patients to palliative care. It is often not in the experience of many physicians to provide timely introduction to palliative care in the absence of a 'pull' model.

Discharge should be under the clinical care of the community palliative care program or a hospice, or to home.

14.3. WORK PROCESSES

14.3.1. Hours of operation

Palliative Care admits and cares for patients 24 hours a day, 7 days a week.

14.3.2. Care planning

The treating team establishes a care plan for each patient that incorporates the necessary elements of the community palliative care plan. The care plan outlines the care pathway for their inpatient stay, (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway is documented, noting additional services required.

There is a particular focus on the drug therapy and other 'conditioning requirements' delivered by allied health and nursing team.

It would be rare for internal patient transfers to other areas of CH, even ICU.

14.4. WORKFORCE

The nature and level of workforce required for the inpatient is expected to be fully integrated with the community palliative care services (and the secular hospice). Contemporary practice suggests that both medical, nursing, and allied health staff may be inter-changeable across service settings. This facilitates improved patient integration and timely care as noted above.

As this is a new service, there is no current staffing profile. The workforce profile would typically include:

- Palliative care physicians (and possibly general physicians);
- Specialised palliative care nurses;
- Nurse Practitioners;
- Various allied health disciplines as needed, which could include practitioners specialising in palliative care; and
- Administrative staff.

14.5. CLINICAL AND NON-CLINICAL SUPPORT FUNCTIONS

Inpatient (or any) palliative care service is expected to have strong relationships with a very broad range of services.

The service model for palliative care needs to be structured so that it enables flexibility.

Palliative care will require ready access to traditional support services, particularly pharmacy and pathology, but also medical imaging. If possible, processes/protocols be established that provide for early/priority access to these services as required. There are also strong connections with other clinical services including social work, psychology, and counselling.

There are connections in contemporary models with:

- Spiritual Support;
- Volunteer groups that specialise in patient and family support.

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

14.6. FUNCTIONAL RELATIONSHIPS

As an inpatient service, the strongest relationship is with oncology but also with other chronic and degenerative conditions.

Within the CH, the palliative care team can also:

- Contribute to patient meetings and instigate a pull system;
- Lead 'advance care planning' of patients more broadly; and
- Interface with community palliative care, HITH and with outpatient clinics of other specialties where specialist palliative care expertise can contribute to a patient's treatment plan.

The adjacencies of palliative care with other clinical inpatient services are not as important as a setting that can provide an inviting, quiet, home-like, and pleasing aesthetics. Functionally, the palliative care ward can be relatively isolated from other units and should not have passing traffic. Ideally, the palliative care ward should be able to be accessed after-hours without traversing hospital corridors.

The design of the facility will provide for individual rooms that are sufficiently large for family to sleep over, and facilities that operate as close to a home circumstance as possible.

The palliative care ward has no principal adjacency requirements, however, will be frequently serviced by the clinical ward pharmacist.

15. Hospital in the Home

15.1. SERVICE DESCRIPTION

Hospital in the Home (HITH) is a clinical service that substitutes traditional inpatient care in a hospital ward setting with the provision of individualised acute treatments by health care professionals in the patient's home or hospital care setting. HITH is available to adults and delivered 24 hours, seven days per week with on-call provisions after business hours. The Women's and Children's Service are planning a paediatric HITH service in the future.

Patients admitted to the HITH service are classified as inpatients and are considered acute care admissions, but medically stable enough to be treated at home. Patients admitted under HITH require medical and nursing care that is more intensive and / or specialised than could be supported by community-based nursing services, an Outpatient Clinic, community nursing or General Practitioner (GP).

HITH services are provided in patient's home, but can also take place in settings such as clinics, schools, workplaces and / or the HITH unit located at CH. The setting depends on the initial clinical and risk assessment, the HITH Model of Care, patient preference, and available resources. HITH services also occur via telehealth and / or telemonitoring where the risk assessment and patient preference allows.

Attendance to the HITH unit may also be advised for medical review and treatment episodes / procedures that cannot be completed safely outside the hospital setting (i.e., first dose of a parental medication) and patient utilisation of pharmacy, medical imaging, physiotherapy, occupational therapy, social work, psychology, podiatry, and dietician, if required.

As the HITH service sits within the CHS General Medicine governance structure, HITH unit location within the CH is optimal for close collaboration and integrated care with other services and specialities. Access to after-hours on-call medical workforce and opportunities to take part in an established teaching, training, and quality review programs.

Common conditions managed through HITH include:

- Cellulitis;
- Pneumonia, COVID and other respiratory conditions;
- Deep vein thrombosis;
- Chronic obstructive pulmonary disease (COPD);
- Complex wounds;
- Perioperative anticoagulant management; and
- Urinary tract infections.

A future range of services could become much broader.

Atypically, CH also makes extensive provision of day hospital facilities to deliver HITH, that is 11 inpatient PoC located on Level 2 in Building 1, which is set to expand to 31 PoC in the new building to incorporate 18 day infusion chairs and 2 intravenous access chairs. This could be seen as anomalous for a HITH program. In any HITH program there will be cause to 'call in' patients to review

their condition, particularly if there are signs of deterioration and/or a requirement to provide diagnostic test, specimen collection or pharmacy review.

The HITH may benefit from a re-evaluation that would aim to prevent a significant volume of patients coming to hospital to service 11 beds/chairs. This may require strategic and substantial strengthen of the clinical capability of HITH staff, supported by ICT that can deliver real-time and broad ranging clinical information of the patient at home.

15.2. PATIENT PATHWAY

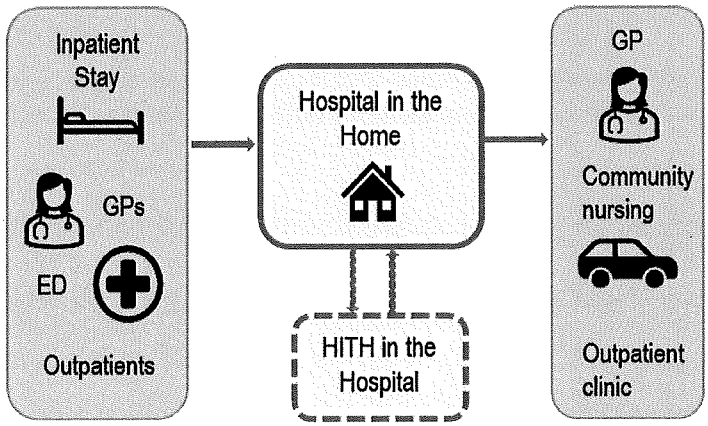
Patients enter HITH as a diversion/substitution service where clinical outcomes can be achieved without having to admit the patient, or without the need to continue to have the patient in an inpatient bed. Referrals to HITH should be able to be generated from:

- ED;
- Outpatients;
- After becoming stable whilst an inpatient stay and meet the criteria of the service.

A well-developed model with clear admission criteria will also take referrals from GPs.

Discharge from HITH occurs once the patient's care needs can be met through GPs, community-based nursing, or outpatient clinics.

Figure 15-1: HITH patient pathway



15.3. WORK PROCESSES

15.3.1. Hours of operation

HITH operates 24 hours a day, 7 days a week. Nursing care is currently provided during business hours only, but patients can access after-hours on-call medical staff.

A future HITH model could be available with active intake and care for expanded business hours.\

15.3.2. Care planning

The HITH team will establish a care plan for each patient admitted to the HITH. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

15.3.3. Conditioning

Allied health appointments may form part of the HITH service to provide patients with mobility and strengthening exercises. These appointments are available through HITH in the Hospital.

15.3.4. Patient transfer and discharge

Patients discharged from HITH may require follow-up care through their GP or Community Nursing. Patients may also be monitored through specialist outpatient clinics.

15.4. WORKFORCE

HITH is predominantly staffed by nurses who visit patients in their home (or in other community settings). However, medical staff from General Medicine and allied health professionals support patients in the service.

The number of staff in HITH is a function of volume and the technology available at the time. Hence, the FTE for HITH will vary. It will nevertheless be important for the service to be able to maintain its core capability.

15.5. CLINICAL AND NON-CLINICAL SERVICE SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

15.6. FUNCTIONAL ADJACENCIES

HITH has a broad range of inter-relationships within CH. Indeed, almost all clinical units should have a liaison and referral with HITH. Currently, integrated care occurs with:

- ED;
- Pathology;
- Medical Imaging;
- Oncology inpatients;
- Specialist outpatient clinics;
- Geriatric Rapid Acute Care Evaluation;
- Rapid Assessment of the Deteriorating Aged at Risk;
- CHS Community Nursing;
- CHS Community Allied Health;

- CHS Chemo at Home and Paediatrics at Home;
- Residential Aged Care Facilities; and
- GPs.

15.7. CHALLENGES AND OPPORTUNITIES FOR HITH

All HITH programs suffer from two perennial issues:

- Enhancing the scope of services that can be delivered safely in the home with efficiency; and
- The experience and clinical capability of the HITH staff to function at higher levels (and preferably much higher levels) than the traditional 'district or community' nursing.

The opportunity is to break the mould and to strategically reposition HITH. HITH will be a critically important service of CHS in managing future demand and enabling care closer to home; key planks of government policy. This will require HITH to significantly broaden its range and acuity of services including conditions that today may be 'unthinkable'. These may include, for example:

- Acute cardiology patients;
- Acute stroke patients;
- Medical imaging at home;
- Almost all chronic conditions including respiratory, rheumatology; and
- Same day discharge post-surgery for conditions that would currently require several days stay, amongst others.

Newly designed HTH programs have several key features that transcend the fragility (and medical suspicion) of former models. The key features of a successful HITH service model would appear to include:

- A 'pull system' that actively 'recruits' patients from ED and wards in particular;
- An outcomes assessment process that demonstrates value to more reluctant medical consultants;
- Admission to HITH that can occur after-hours. This makes the service valuable to the traditional hospital departments, particularly the ED and wards with bed pressures;
- Staffed by senior/experienced clinicians that have credibility within the organisation;
- Have targets for volume and % of total acute admissions, as well as quality of care measures; and
- A senior medical resource that can be relied upon to respond to clinical situations that might be out of the purview of nursing or allied health staff.

A second, more short-term, challenge is the perception that HITH is another ward at CH, and the uncoupling of the current 11 Day Medical Beds on Level 2 Building 1 from the HITH program.

16. Dermatology

16.1. SERVICE DESCRIPTION

The Dermatology service at CH is a Level 5 service.[44]

Dermatology involves the treatment of people with problems relating to skin, hair, and nails. The Dermatology unit cares for both inpatients and outpatients, with the following clinics:

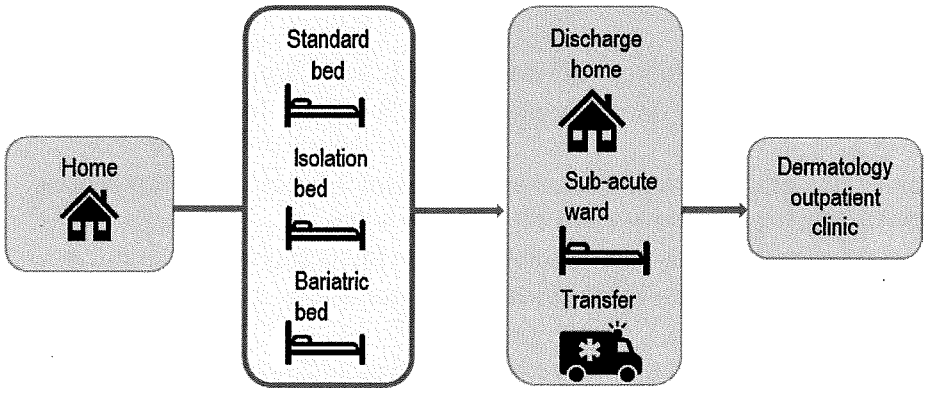
- Adult Dermatology Clinic;
- Paediatric Dermatology Clinic;
- Renal Transplant Dermatology Clinic; and
- Oncology Dermatology Clinic.

Dermatology may also be involved in clinical trials.

16.2. PATIENT PATHWAY

Patients may be admitted to dermatology beds, and Dermatologists also consult patients admitted to other units.

Figure 16-1: Dermatology patient pathway



16.3. WORK PROCESSES

16.3.1. Hours of operation

Dermatology cares for patients 24 hours a day, 7 days a week.

44. NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

Dermatology outpatient clinics provide ongoing monitoring and treatment. Access to outpatients is by appointment, with initial appointment triaged based on the most urgent condition.

16.3.2. Care planning

The treating team will establish a care plan for each patient admitted to the units. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

16.3.3. Conditioning

Allied health bed-based therapy will be provided to inpatients as soon as possible after admission to support early rehabilitation and patient mobility. A multi-purpose gymnasium will also be available for therapy will Allied Health practitioners, focusing on mobility, strength, and activities of daily living.

16.3.4. Patient transfer and discharge

Patients may require transfer to other clinical services within CHS. Patients may also be transferred to the North Canberra Hospital for subacute care. If a bed or chair in the Discharge lounge is available, the patient will be transferred into the lounge to await discharge summary, medications, and transport to their end destination point. This can be by private transfer, taxi or ambulance dependent on discharge destination.

16.4. WORKFORCE

The workforce requirements for a Level 5 service include a consultant dermatologist, as well as a medical officer with three or more postgraduate years of experience; may be in training with the Australasian College of Dermatologists.

16.5. CLINICAL AND NON-CLINICAL SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

16.6. FUNCTIONAL ADJACENCIES

- Rheumatology;
- General Medicine;
- Medical Imaging;
- Pharmacy;
- HITH;
- Pathology;
- Outpatients;
- ICU;
- Allied health;
- Language services.

External:

- GPs and community specialist consultants;
- Residential Aged Care facilities.

16.7. CHALLENGES AND OPPORTUNITIES

Both Dermatologists and Rheumatologists are involved in the management of psoriatic arthritis (PsA). Multidisciplinary Dermatology and Rheumatology outpatient clinics (face-to-face and virtual) for PsA are considered to be optimal care.[45]

Benefits of the multidisciplinary model include earlier identification of arthritis, more frequent monitoring of the patient's condition (e.g., of skin and joint manifestations, medications, and disease flares), improved recruitment for clinical trials, and multidisciplinary professional development.[46]

The most frequently reported challenges included scheduling the right mix of patients for a clinic to maximise the time and productivity of both clinicians and demonstrating the value of the clinic to support ongoing operation.[47]

45. Okhovat, J.P., Ogdie, A., et. al, *Poriasis and Psoriatic Arthritis Clinics Multicenter Advancement Network Consortium (PPACMAN) Survey: Benefits and Challenges of Combined Rheumatology-dermatology Clinics,* The Journal of Rheumatology May 2017, 44 (5) 693-694; DOI: https://doi.org/10.3899/jrheum.170148
46. Okhovat, J.P., Ogdie, A., et. al, *Poriasis and Psoriatic Arthritis Clinics Multicenter Advancement Network Consortium (PPACMAN) Survey: Benefits and Challenges of Combined Rheumatology-dermatology Clinics,* The Journal of Rheumatology May 2017, 44 (5) 693-694; DOI: https://doi.org/10.3899/jrheum.170148
47. Okhovat, J.P., Ogdie, A., et. al, *Poriasis and Psoriatic Arthritis Clinics Multicenter Advancement Network Consortium (PPACMAN) Survey: Benefits and Challenges of Combined Rheumatology-dermatology Clinics,* The Journal of Rheumatology May 2017, 44 (5) 693-694; DOI: https://doi.org/10.3899/jrheum.170148

17. Mental Health Short Stay Unit

17.1. SERVICE DESCRIPTION

CH Mental Health Short Stay Unit (MHSSU) is a standalone mental health inpatient unit designed to facilitate short admissions of up to 48 hours. All clients must be assessed in a face-to-face assessment by a Psychiatry Registrar for an admission to MHSSU. Admissions from other sources are also considered pending assessment of suitability by MHHSU consultants.

The MHSSU provides:

- Psychosocial assessment, short term stabilisation, brief therapeutic intervention, and organisation of follow up care for primary mental health issues, provided by the multidisciplinary team (medical, nursing, allied health clinicians);
- Medical assessment and support for concurrent physical health issues;
- Assessment and treatment for concurrent AOD issues;
- Other supports as required, e.g., Aboriginal Liaison Officers, peer workers; and
- Close liaison with community health providers (e.g., Community MH Teams, General Practitioner (GPs), family and carers, as well as Non-Government Organisation supports.

Clients are deemed ineligible for MHSSU admission if they are:

- Likely to require a mental health admission extending beyond 48 hours;
- Under the age of 18 years;
- Not assessed as medically stable by a member of the ED medical staff;
- Exhibiting aggressive behaviours;
- Exhibiting signs of delirium, overt confusion, or decreased level of consciousness;
- Have a primary diagnosis of dementia, developmental disability, or traumatic brain injury (unless they are experiencing a significant psychiatric disorder);
- Frail elderly; or
- Intoxicated from alcohol or other drugs; or
- Experiencing a primary diagnosis of drug or alcohol related conditions without significant mental health co-morbidities.

Clients who are referred from the ED (or other sources) and accepted as eligible and appropriate for care are formally admitted to the unit for observation and management.

The MHSSU, as part of the CH, is an approved and gazetted facility, and is able to accommodate clients under specific legislative arrangements, including under the Mental Health Act 2015 (Section 80) and the Crimes Act 1900 (Section 309).

The future location of the MHSSU is currently being determined, weighing the models of care and the available spaces. Ideally, the MHSSU should have close proximity to ED (as the major source of first contact and the need for a joint mental health and emergency medicine response).

17.2. CLIENT PATHWAY

Many of the admissions to MHSSU will likely come via the CH ED, however a smaller number of direct admissions from community teams as well as admissions from other hospitals e.g., Northside, are expected.

Most clients will initially present to the ED, where they will be:

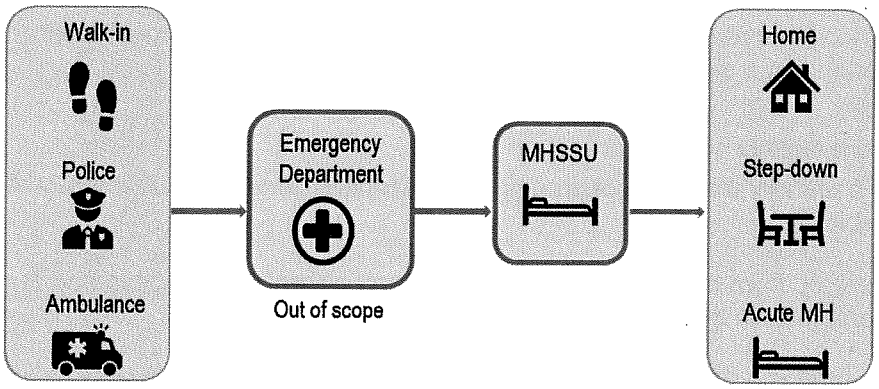
- Registered and triaged at the main ED reception;
- Assessed by a medical officer to determine any issues requiring medical treatment;
- Provided with a mental health screening by ED staff;
- Referred for assessment by an ED MH clinical liaison clinician, Psychiatric Registrar or Consultant;
- Assessed to determine the appropriateness of a short stay admission; and
- Approved for admission by a Consultant Psychiatrist.

Following transfer to the MHSSU (refer to Section 17.7), clients will be admitted as an inpatient to the unit.

Clients will typically depart the MHSSU to one of three major destinations.

- Most clients return to their usual accommodation within the community after receiving treatment in the MHSSU.
- Some clients may be referred to adult step-down mental health services in their local area if active monitoring and support is required.
- A small percentage of clients may be transferred to a longer stay acute mental health service for ongoing treatment and care.

Figure 17-1: MHSSU client pathway



17.3. WORK PROCESSES

17.3.1. Hours of Operation

The MHSSU will operate 24 hours per day, seven days per week.

17.3.2. Care Planning

All mental health clients admitted to the MHSSU receive timely and accessible care that is safe, person centred, recovery focused, harm minimising, trauma informed, sensitive and responsive to cultural and individual diversity, and optimised to an individual's lifestyle and living environment. Specific interventions provided by the unit include the establishment of pharmacological treatments, recovery focussed interventions (e.g., brief therapy), psychoeducation, and ongoing care planning.

17.4. WORKFORCE

The staff profile in the MHSSU requires a skilled workforce adept at assessing and treating people presenting in mental health crisis.

Accordingly, the unit is comprised of a specialist medical, nursing, and allied health team with access to additional support from the extended Adult Acute Mental Health unit. In-reach specialist consultation services will also be provided (e.g., Alcohol and Drug Service, Mental Health Service for People with and Intellectual Disability, Older Persons Mental Health Service, Aboriginal Liaison Service).

It is anticipated that the MHSSU will require a range of different staff comprising:

- Medical staff, including a Staff Specialist, Psychiatry Registrar, and Junior Medical Officer.
- Nursing staff, including Nurse Unit Manager, Clinical Nurse Consultant, Registered Nurses, Enrolled Nurses, and Assistants in Nursing.
- Allied health staff, including Social Workers, Psychologists and Occupational Therapists.
- Clerical staff, including an Administrative Officer.

17.5. CLINICAL AND NON-CLINICALSUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

17.6. FUNCTIONAL ADJACENCIES

Internal:

- ED;
- Pharmacy;
- Pathology;
- Allied health;
- Medical specialties.

External:

- Ambulance and non-emergency patient transfer services;
- PACER (Police, Ambulance and Clinician Early Response); and
- Community Mental Health programs.

The ED is a critical adjacency, whilst the Adult MH unit is also an important adjacency.

17.7. CHALLENGES AND OPPORTUNITIES

The proximity of MHSSU to the ED in the Critical Services Building will determine access and model of care for presenting mental health patients who are suitable for the SSU. If the location of the MHSSU is adjacent to ED, the ED physicians will provide any emergency medical treatment required to the mental health clients in collaboration with specialist mental health staff, including psychiatrists.

If the location of the MHSSU is not adjacent to the ED, the medical care of mental health clients and a safe mode of transport will need to be determined.

18. Discharge / Transit Lounge

18.1. SERVICE DESCRIPTION

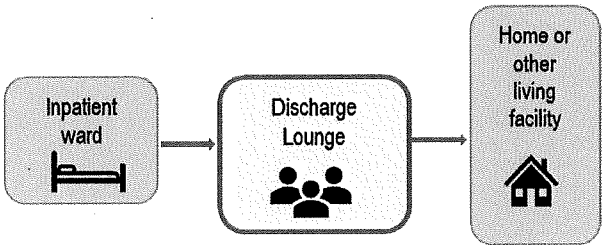
The ***Discharge / Transit Lounge*** will consist of 10 chairs, 1 isolation room and 8 beds. The discharge lounge is a transition area for patients prior to going home, or prior to being transferred to another facility.

The Discharge / Transit Lounge supports effective patient flow, by increasing discharge rates in inpatient beds prior to noon, which increases the turnover of inpatient beds and supports flow through the ED and operating theatres.

18.2. PATIENT PATHWAY

Ambulatory patients awaiting discharge may be from any inpatient unit in the hospital, or from ED. They may be awaiting discharge home, transfer to other regional or local hospitals and transfer to nursing home/ care facilities.

Figure 18-1: Discharge Lounge patient pathway



18.3. WORK PROCESSES

The operating hours of the Discharge / Transit Lounge are Monday to Friday 0700 hours until 2130 Hours.

18.4. WORKFORCE

The workforce will be sufficient to enable some level of monitoring but not direct patient care. It is most likely that the area is staffed by an EN.

18.5. CLINICAL AND NON-CLINICAL SUPPORT FUNCTIONS

Refer to section 19 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

18.6. FUNCTIONAL ADJACENCIES

The Discharge / Transit Lounge must be located with the inpatient wards. It should also be easily accessible for family/carers who are going to transport the patient home. Other important adjacencies for the Discharge / Transit Lounge are Pharmacy for discharge medication, and the Equipment Service for the provision of home aids.

18.7. CHALLENGES AND OPPORTUNITIES

A common challenge with Discharge / Transit Lounges is a lack of buy-in, ownership and trust from ward clinicians that the Discharge / Transit Lounge is the right place for their patients to go prior to discharge, leading to the Discharge / Transit Lounge being underutilised. Similarly, ward clinicians may not have the time required to assess the appropriateness of a patient to go to Discharge / Transit Lounge.

Another challenge with Discharge / Transit Lounges is being able to measure the effectiveness of the service in terms of patient flow (inpatients and ED), patient quality of care and patient satisfaction.

19. Support Services

19.1. CLINICAL SUPPORT SERVICES

A separate Clinical Support Services Service Model has been developed. Below is a short summary of the services.

Descriptions of the key clinical support services for in-scope medicine are:

- **Medical Imaging**, which is described in the Clinical Support Services Service Model (separately provided);
- **Pathology services**, which is described in the Pathology Service Model (separately provided);
- **Pharmacy services,** which is described in the Clinical Support Services Service Model (separately provided); and
- **Infection Control and Prevention.**

Each of these will be described more fully in the Functional Design Brief as it relates to the new Buildings to be developed.

19.2. NON-CLINICAL SUPPORT SERVICES

These include:

- Bio-Medical Engineering;
- Communications and Information Technology;
- Courier and Transport;
- Engineering and Maintenance;
- Fleet Management;
- Food Services;
- Linen Services;
- Patient/Visitor Access/Wayfinding;
- Portering;
- Quality and Risk;
- Security Services;
- Supply and Waste Management; and
- Volunteers.

All of the support functions need to ensure that they seamlessly interface with the clinical and patient services as needed.

The basis for the interface will be different for each non-clinical support service based on the buildings within which they operate or provide services. These issues are incorporated in the Functional Design Briefs to the extent that they are germane to the design and function of the new facilities.

A1. Canberra Hospital Role Delineation

The Role Delineation for clinical services provided by Canberra Hospital were obtained from the ACT Health Services Plan, 2022 - 2030[48]

	2021		
Service	**Canberra Hospital**	**UCH**	**CPHB**
Core services			
Anaesthesia and recovery	6	NPS	4
Operating Suite	6	NPS	4
Intensive Care Service	6	NPS	4
Nuclear Medicine	6	NPS	4
Radiology and Interventional Radiology	6	2	5
Pathology	6	2	5
Pharmacy	6	2	5
Emergency medicine			
Emergency Medicine	6	NPS	4
Medicine			
Acute Stroke Services	5	NPS	4
Cardiology and Interventional Cardiology	6	NPS	4
Chronic Pain Management Services	4	3	NPS
Clinical Genetics	4	NPS	NPS
Dermatology	5	NPS	3
Drug and Alcohol Services	5	NPS	1
Endocrinology	6	NPS	3
Gastroenterology	6	NPS	4
General and Acute Medicine	6	NPS	4
Geriatric Medicine	6	5	4
Haematology	6	NPS	3
Immunology	6	NPS	4
Infectious Diseases	6	2	5
Neurology	5	NPS	4

48. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Oncology — medical	6	NPS	2
Oncology — radiation	6	NPS	NPS
Palliative Care	4	NPS	2, CHH 6
Rehabilitation Medicine	2	6	2
Renal Medicine	6	NPS	2
Respiratory and Sleep Medicine	6	NPS	3
Rheumatology	5	NPS	2
Sexual Assault Services	4	NPS	1
Sexual Health	5	NPS	NPS
Surgery			
Burns	4	NPS	2
Cardiothoracic Surgery	5	NPS	NPS
ENT Surgery	6	NPS	4
General Surgery	6	NPS	4
Gynaecology	6	NPS	4
Neurosurgery	6	NPS	NPS
Ophthalmology	5	NPS	3
Oral Health	6	NPS	NPS
Orthopaedic Surgery	6	NPS	4
Plastic Surgery	5	NPS	4
Urology	6	NPS	4
Vascular Surgery	6	NPS	4
Child and family health services			
Maternity	6	NPS	5
Neonatal	5	NPS	3
Paediatric Medicine	5	NPS	2
Surgery for Children	4	NPS	2
Youth Health	4	NPS	NPS
Mental Health			
Adult Mental Health	5	2	4
Child and Youth Mental Health	4	NPS	NPS
Older Persons Mental Health	4	NPS	4

ACT Government | Canberra Health Services

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Canberra Hospital Capital Redevelopment

SERVICE MODEL - SURGICAL AND PROCEDURAL SERVICES

Final

25 Jan 2024

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TABLE OF CONTENTS

1. Introduction 6
1.1. Purpose 6
1.2. Approach 6
2. Service Model Context 7
2.1. ACT Planning Priniciples 7
2.2. Canberra Health Service Vision and Service Direction 8
2.3. Overarching Drivers for Change 11
2.4. Systemwide Service Innovation 12
2.5. Service Model Options 13
3. In-scope services 15
3.1. Surgical Specialties 15
3.2. Description and Scale of Services 16
3.3. Surgery Classification 18
4. Patient Pathways 19
5. Functional relationships 23
6. Work processes 25
6.1. Access 25
6.2. Care Planning 25
6.3. Conditioning 26
6.4. Patient administration 26
6.5. Amenities for patients, carers and STAFF 26
6.6. Patient transfer and discharge 26
7. Workforce 27
7.1. Medical staff 27
7.2. Nursing staff 27
7.3. Allied health staff 27
7.4. Training, education & research activities 28
8. Discharge / Transit Lounge 29
8.1. Service Description 29

8.2. Patient Pathway 29
8.3. Work processes 29
8.4. Workforce 29
8.5. Clinical and Non-clinical support Functions 29
8.6. Functional Adjacencies 30
8.7. Challenges and opportunities 30
9. Support Services 31
9.1. Clinical Support Services 31
9.2. Non-Clinical Support Services 31

INDEX OF FIGURES

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases 6
Figure 2-1: ACT Health Service Planning Principles 7
Figure 4-1: Elective and Emergency surgery patient pathways 19
Figure 4-2: Endoscopy Patient Pathway 21
Figure 4-3: Unplanned WYC surgery pathway 21
Figure 4-4: Surgical Outpatient Pathway 22
Figure 5-1: Matrix of Adjacencies for In-Scope Surgical Services and Clinical Support 23
Figure 8-1: Discharge Lounge patient pathway 29

INDEX OF TABLES

Table 3-1: Canberra in-scope surgical services 15

LIST OF ABBREVIATIONS

ACE	Acute Care for the Elderly
ACT HSP	ACT Health Services Plan
ADLs	Activities of Daily living
AI	Artificial Intelligence
CSB	Critical Services Building
CH	The Canberra Hospital
CHS	Canberra Health Services
COTU	Care, Optimisation and Transition Unit
COVID	Corona Virus Infectious Disease
DOS	The Division of Surgery
DOSA	Day of Surgery Admission
ED	Emergency Department
FDB	Functional Design Brief
GP	General Practitioner
HDU	High Dependency Unit
HITH	Hospital in the Home
HWA	Health Workforce Australia
ICU	Intensive Care Unit
IPU	Inpatient Unit
MI	Medical Imaging
NSW	New South Wales
NUM	Nurse Unit Manager
PACU	Peri-Operative Care Unit
POC	Points of Care
RMD	Reusable Medical Devices
SSD	Sterilising Services Department
UCH	University of Canberra Hospital

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VERSION CONTROL

VERSION	DESCRIPTION	ISSUED TO	ISSUED BY	DATE OF ISSUE
1.0	Surgical inpatient and outpatient Service Model	CHS	Aspex Consulting	3 July 2023
2.0	Inclusion of comments from CHS Clinical Liaison and Health Facility Planning team	CHS	Aspex Consulting	16 July 2023
3.0	Inclusion of comments from CHS Clinical Liaison and Health Facility Planning team	CHS	Aspex Consulting	19 July 2023
4.0	Clarification of WYC theatre use and location	CHS	Aspex Consulting	19 July 2023
5.0	Revised patient pathway emergency WYC surgery	CHS	Aspex Consulting	24 July 2023
6.0	Clinical Lead comments	CHS	Aspex Consulting	7 August 2023
FINAL	Incorporation of all ACTHD comments	CHS	Aspex Consulting	25 Jan 2024

1. Introduction

1.1. PURPOSE

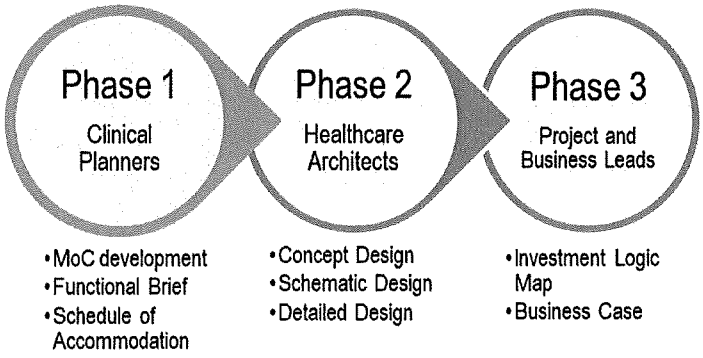
This Service Model focuses on surgical and procedural inpatient and outpatient clinical services that are in scope for the Phase 2 redevelopment at the Canberra Hospital (CH) and outlines *how* services are planned to be delivered in the future.

Phase 2 of the redevelopment plans will replace *like-with-like* capacity in the new facilities, not necessarily *like-with-like* space. This is to be based on translating the existing points of care (POC)[1] in the new facilities. New evidence, new technologies, changes in clinical practice, or more efficient or innovative ways of working may result in the *like-with-like* capacity replacement contributing to meeting future demand.

This Service Model incorporates the scope and clinical level of service, the care setting, patient pathway, coordination and integration between services, workflow, and work processes, and the indicative POC.

The information in this Service Model will input into the Functional Design Brief (FDB) and the Schedule of Accommodation SoA), which will be used to inform the new building concept designs. The steps are outlined in Figure 1-1.

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases



1.2. APPROACH

This draft Service Model has been developed in partnership with the Canberra Health Services (CHS) Clinical Liaison and Health Facility Planning team in the Capital Project Delivery and Infrastructure and Health Support Services Division.

[1] A Point of Care is defined as a place where a patient receives definitive care. This would typically include beds, ED cubicles, operating theatres, labour wards, outpatient clinics, chairs for chemotherapy/dialysis amongst others. It would not normally include recovery spaces from theatre, discharge lounges, other general patient spaces that does not deliver definitive care

2. Service Model Context

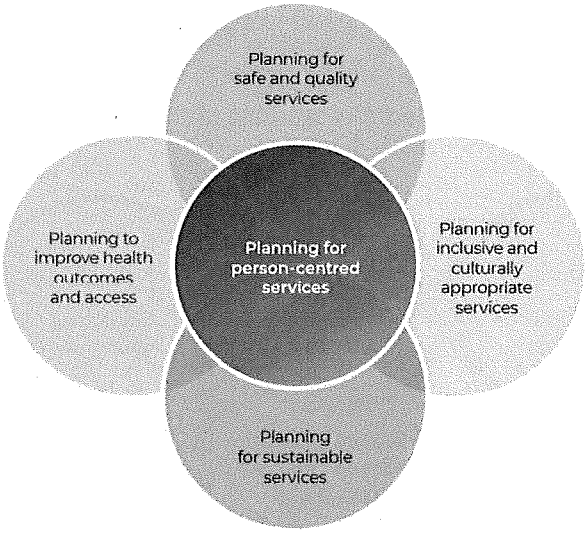
This section provides context within which the Service Model has been developed. It specifically includes:

- ACT Health's planning principles;
- CHS' future directions;
- Overarching key drivers of change;
- System-wide service innovations; and
- Service model options.

2.1. ACT PLANNING PRINICIPLES

The following principles underpin the *ACT Health Services Plan* (ACT HSP) 2022-2030[2]. These principles also accord with the development of this Service Model.

Figure 2-1: ACT Health Service Planning Principles



Person-centred services - The ACT Government consults with consumer and carers so that services are planned to treat consumers with dignity and respect; the ACT Government makes it easier for people to access services equitably, to move between services across the health system, and to partner with health professionals to participate in decisions about the services provided to them.

Inclusive and culturally appropriate services - The ACT Government consults with groups underrepresented in the healthcare system so that services are planned to be inclusive and culturally appropriate and targeted to specific health needs where necessary.

2. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Safe and quality services - Planning is guided by evidence-informed policy directions, and the ACT Government continually strives to plan for services that improve health outcomes, experiences of receiving care, experiences of providing care, and effectiveness and efficiency of care.

Health outcomes and access - Planning is guided by evidence-informed policy directions, with specific focus on at-risk and priority population groups; planning the right service, at the right time, in the right place, by the right team, every time.

Sustainable services - The ACT Government maximises the use and efficient allocation of limited resources by taking a Territory-wide approach to planning services across the ACT public health system, guided by clear role delineations, service levels, and evidence informed policy directions: service planning activities are prioritised based on need.

2.2. CANBERRA HEALTH SERVICE VISION AND SERVICE DIRECTION

CHS' vision is to ***'Create exceptional health care together'***[3].. Improving the quality of healthcare across the ACT is a key priority for CHS as it aims to be the safest healthcare system in Australia, delivering high-quality, person-centred care that is effective and efficient.

Specifically, CHS will provide health care that is:

- Person-centred: providing care that is respectful, responsive, and focused on the patient's needs;
- Safe: avoiding harm to patients from care that is intended to help them;
- Effective: providing services based on scientific knowledge and which produce a clear benefit;
- Timely: reducing waits and sometimes harmful delays;
- Efficient: avoiding waste and reducing unit costs; and
- Equitable: providing care based on clinical need, and that does not vary in quality because of a person's personal circumstances.

Consumer Principles

A fundamental component of patient-centred care is recognising and understanding the consumer perspective of the service. Central to patient-centred care are the themes of Participation, Communication, Experience and Support. These themes form the basis for Consumer Care Principles, the guiding principles for the Service Model. The Consumer Care Principles are:

- Participation: consumers (and where appropriate their family members and carers) will be equal partners within the multidisciplinary care team, enabling them to be actively involved in their own care;
- Communication: embedding frequent and meaningful communication with consumers, their family members, and carers, about their care for their entire hospital journey, including discharge;
- Experience: care is delivered in a way that supports the consumers' experience of safety and fosters trust; and
- Support: recognising the importance of involving family and carers in the consumer's care and recovery throughout their health journey.

[3] https://www.canberrahealthservices.act.gov.au/__data/assets/file/0005/1933187/CHS-Exceptional-Healthcare-Framework_V7_DigitalFA.pd. July 2023

2.2.1. CHS Future Directions

Canberra Health Services' future service directions are set out in the *ACT Health Services Plan*, 2022–2030.[4] The desired outcomes from each of the directions are also articulated. These are outlined below.

Addressing key areas of service demand and reform

- Improve health outcomes and access to care, with a particular focus on priority population groups.
- Support access to the services experiencing most significant demand pressures.
- Ensure our services are flexible and inclusive to respond to individual needs and circumstances.

Transitions of care

- Improve health outcomes and access to care.
- Make it easier for patients, families/carers, and service providers to navigate the service system.
- Address issues of patients 'falling through the gaps' as they move between services and care settings such as between hospital and the community.
- Break down the barriers and silos between services.

The ACT's role as a local, Territory and regional service provider

- Improve access to care closer to home in a safe and sustainable way.
- Reduce unwarranted variation between services.
- Maximise the efficient use of health resources to meet the needs of the community.

Strengthening core ACT Government funded clinical support services

- Improve patient outcomes and reduce length of stay in hospital.
- Ensure that our clinical support services have the appropriate capacity and capability to support new and expanded clinical services.
- Optimise clinical decision making in determining the most appropriate treatment and care for patients.

Specific Surgery Initiatives

The ACT HSP[5] also outlines specific areas of focus with actions for surgical services. These are:

Develop a Territory-wide ***public surgery plan*** that:

- Ensures long-term sustainability for public emergency and elective surgery delivery;
- Identifies future workforce requirements;
- Identifies infrastructure requirements;
- Maps the current and predicted future service case-mix;
- Identifies opportunities for service innovation;
- Identifies strategies to manage patient comfort while waiting for surgery; and
- Considers cross-border arrangements.

4. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.
5. ACT Government, Health, *ACT Health Services Plan 2022-2030*, available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Increase capacity for emergency and elective surgery services across the ACT, including:

- Identify opportunities for further emergency surgery delivery to respond to increasing demand;
- Redistribution of elective surgery to maximise Territory-wide capacity;
- Improve management of wait lists by surgical specialty;
- Expand capacity of specialty surgery including plastic and reconstructive surgery, ENT surgery, orthopaedic surgery, vascular surgery, urology, paediatric surgery, and general surgery; and
- Establish a territory-wide public endoscopy waiting list and review opportunities to establish Territory-wide public waiting lists for procedures.

Improved application of ***care plans as part of pre-admission planning***, which covers a comprehensive list of areas including:

- Identification and culture;
- Clinical assessment;
- Falls, cognition, and pressure injury;
- Goals of care;
- Activities of Daily living (ADLs);
- Planned interventions;
- Monitoring requirements,
- Care team supports pre- and post-surgery (e.g., family, clinical, allied health and key discharge planning etc); and
- Post-surgical home supports including weight, nutrition, and oral health.

Establish a profile of ***procedures that can be undertaken in ambulatory or procedural settings*** to reduce demand on hospital-based theatres and consider the development of infrastructure to enable the delivery of day surgery away from hospitals.

Undertake a ***cost benefit analysis/feasibility study for the development and sustainability of robotic surgery in the ACT***, with a particular focus on:

- Urology, gynaecology, and cardiothoracic surgery;
- Patient outcomes benefits;
- Workforce issues;
- Cost of equipment and infrastructure modifications required;
- Equipment maintenance and end of life replacement;
- Training, set up time; and
- Volumes of procedures.

2.2.2. Learning, Teaching and Research

CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*[6] provides the overarching vision, goals and strategic commitments to clinical learning and teaching. The six Strategic Commitments are:

- Strengthen governance and processes to prioritise and enable learning and teaching.
- Prepare and support the clinical workforce to work safely and effectively at the leading edge of their practice.

6. ACT Government, *Clinical Learning and Teaching Strategy 2023 – 2027'*. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf

- Develop and support the clinical workforce to deliver effective, innovative, evidence-based teaching and point of care clinical supervision.
- Establish collaborative environments that maximise and enable effective, innovative, and efficient learning and teaching.
- Foster and strengthen strategic partnerships for learning and teaching with clinicians, consumers and carers, communities, and academia.
- Promote, share, and celebrate learning and teaching.

To achieve these strategic commitments, and to develop a contemporary health precinct, a holistic approach to integrated education, training and research activities into the clinical areas will be key. For clinicians, access to teaching and learning will be built into the flow of their day. This means rooms available on each unit or a shared area readily accessible to clinical (patient) areas. To complement the integrated clinical spaces, a teaching and learning hub would provide greater opportunities for education.

The development of teaching and research are embodied in the design of the new facilities through a **tiered approach**, where:

- Tier 1 is teaching/learning as part of the spaces designed where patients are treated/managed including outpatient rooms, ward areas and clinical examination spaces. The key concept here is embedding. These developments would bring CH up to contemporary standards and practices common in newly developed tertiary hospitals;
- Tier 2 is teaching/learning spaces on wards and proximal to patient treatment areas that enable review, collegiate discussions, and virtual learning experiences through meeting/ consultation rooms. This would also provide suitable teaching space associated with formal training for accreditation in clinical specialties; and
- Tier 3 is teaching/learning spaces that are for more formal education away from patient areas that, for an academic tertiary hospital, could be expected to have larger auditorium spaces, academic administration space, teaching demonstration spaces (such as the gross anatomy museum), hi-fidelity simulation spaces for different clinical settings, and consumer experience spaces used for teaching and learning. This could also enable national and international research and large conferences to be held at Canberra Hospital, potentially creating new revenue streams.

  The tier 3 type services may be well suited in a separate teaching, learning and conference hub on campus that remains clinically connected. This would be undertaken in collaboration with academic institutions.

Refer to the Clinical Support Service Model for more information on Learning, Teaching and Research.

2.3. OVERARCHING DRIVERS FOR CHANGE

The above strategic and policy positions articulated by ACT Health and CHS are underpinned by a range of drivers for change. The Territory, like other jurisdictions, are facing increasing challenges that are forcing changes in the way people seek and access services. Some of these challenges which are driving change are described below.

Ageing population – the demand for health services is increasing as people live longer with more chronic and multi-morbid conditions. The aged population are high users of health services;

Access for vulnerable population groups – some population groups in Australia experience health inequalities. Aboriginal and Torres Strait Islanders and people from low socioeconomic areas are likely to have poorer health compared to the general population;

Increasing service demand – for elective and emergency surgery, chronic disease, cancer services, and mental health. These have been exacerbated due to the COVID-19 pandemic;

Climate change – has been causing more extreme weather events, such as bushfires and floods. Instances of heat stress, smoke inhalation, food insecurity, and mental health and wellbeing issues are increased for people experiencing extreme weather events; and

COVID-19 – the delivery of healthcare has rapidly changed since the beginning of the COVID-19 pandemic, especially in terms of how and where care is delivered, with a virtual and care closer to home becoming the norm. COVID-19 patients have caused greater pressure on health system capacity, especially in intensive care units and for multidisciplinary teams treating people experiencing the effects of 'long COVID'. Additionally, workforce availability has been significantly impacted, with burnt out staff choosing to leave their professions and with the usual immigrant workforces being unavailable.

2.4. SYSTEMWIDE SERVICE INNOVATION

The drivers of change result in different responses and innovations. These are particularly relevant to this Service Model.

The Territory's health services are exposed to continual external and internal influences which drive innovation in healthcare. The onset of the COVID-19 pandemic accelerated innovation in practice, workforce, technology, and infrastructure. Some of the key innovations that influence this Service Model include:

Care closer to people's homes is now the preferred model of service for any chronic, non-urgent care. This has been made possible via the wide spread adoption of telehealth and telemonitoring, particularly for diabetes, chronic obstructive pulmonary disease, and renal medicine.

For CHS the concept of the services closer to home can be much more than telemedicine, it can push the boundaries of the level of acuity of care that can be delivered at home and in the community with higher clinical capability 'on the ground' and investment in real-time patient technologies. The results would achieve a significantly higher proportion of acute admissions as hospital in the home (HITH).

Increased utilisation of available and emerging technologies. This applies to the current virtual service provision but will also apply to emerging remote clinical treatment and the broader use of artificial intelligence (AI) for diagnosis and patient pathways. AI analyses big data, which are extremely large data sets, to reveal patterns, trends, and associations to predict a diagnosis. From big data a common patient pathway for someone with the same diagnosis can also be obtained. AI in healthcare is currently infantile in Australia.

Patient engagement in healthcare has been increasing to the point where a patient is now at the centre of their care. Patients provide input into their care planning, treatments and care locations and patients are encouraged to discuss any concerns they may have with their treating team. The other aspect of patient centred care is self-management of their risks and lifestyle whilst they are not in hospital, such as tracking their exercise or diet, alcohol consumption or their use of medications. This further encourages patients to become central to their care.

Social prescribing is treating a person holistically and linking a person undergoing healthcare to social supports as required, to relieve social isolation or other factors that may be impacting on that person's mental health and wellbeing. These supports may range from walking groups to book clubs, to financial aid or housing services. Social prescribing models are well established in the United Kingdom and Canada, and they are becoming more prevalent in Australia.

Value-Based Health Care is a contemporary service model designed to develop patient-focused care in a meaningful (structured) way to creates enhanced outcomes (value) to the patient and value to the funder. This is a potentially important, albeit radical model to consider in the development of (a selected number of) clinical services that can be 'clustered to deliver end to end' outcomes for patients. The model transcends current hospital structures that are not designed to deliver value to the patient and where there are only very blunt outcome indicators. Value-based Heath care models go to the issues of clinical practice controlled by the clinicians and make decisions based on improved outcomes, not traditional patient flow through operational silos.

This is an important consideration as it impacts on the organisation and flow of patients that is not only efficient but improves patient outcomes (value). It is potentially a game-changer.

Nurse Endoscopy models of care. Health Workforce Australia (HWA) launched the Expanded Scopes of Practice Program in February 2012, which has evolved over the last 10 years to a functioning program of training of nurse endoscopists. The program has been successful in innovatively increasing medical specialist workforce productivity, recruitment, and retention. The 'Expanded Scope of Practice – Advanced Practice in Nurse Endoscopy' was also developed to address increasing demand for endoscopic procedures, in particular colonoscopy, after the implementation of the National Bowel Cancer Screening Program. This would appear to be a suitable contemporary model for CHS.

2.5. SERVICE MODEL OPTIONS

At this early stage of the planning for the new surgical services, there are some over-arching options for surgical services.

2.5.1. Location

The diagnostic endoscopy services and the Women, Youth and Children (WYC) theatres need to complement the surgical services in B5 and the Women's, Youth and Children's services in B11. In general terms, the Service Model options for in-scope surgical accommodation are to:

1. Collocate surgery inpatient and outpatients in the same building.
2. Collocate all inpatients – medical and surgical in the same building, with medical and surgical outpatients in a separate building; or
3. Collocate all medical and surgical inpatients and outpatients in the same building.

Each of these broad options will be examined. The final determination will be an 'on balance' determination that considered capital funding, ideal service adjacencies, and the 'yield capacity' of the various (potential) buildings.

2.5.2. Models of Care

More specific models that are important to consider this the Phase 2 Redevelopment are:

A 'pull model' from the Emergency Department (ED) for multi-day stay surgical patients ensures that there is direct surgeon/registrar availability in ED, and protocols that will enable transfer of likely surgical patients to the wards to reduce demand pressures in ED. 'Pull models' are currently in operation in hospitals of similar size and clinical capability as CH. The 'pull model' not only assists with patient flow at the front door, but it also facilitates patient flow through to discharge.

A focus on complex discharge and models that support acute care for the elderly (ACE). This is a key complementary strategy for all surgical wards. It has a focus on patient flow and minimise 'bed blocking'. It is designed to address those aspects of post-surgery care that a more holistic, reduce post-anaesthetic anxiety/delirium, and has a specific attention to factors that inhibit elderly surgical patients from being discharged.

The perioperative medicine model of service emphasises the importance of an integrated, planned, and personalised approach to patient care, before during and after any surgical procedure involving anaesthesia.[7] This approach requires close, continuous communication, collaboration, and co-ordination between healthcare practitioners at every stage of a patient's surgical journey, from their pre-procedure preparation to their post-operative rehabilitation. The perioperative care team includes everyone involved in a patient's perioperative journey. The perioperative medicine team is led by a medical specialist who will work collaboratively with the surgical team to support safe, effective, and efficient care.[8]

7. https://www.anzca.edu.au/education-training/perioperative-medicine-qualification/what-is-perioperative-medicine#:~:text=Perioperative%20medicine%20emphasises%20the%20importance,any%20surgical%20procedure%20involving%20anaesthesia.
8. https://www.anzca.edu.au/education-training/perioperative-medicine-qualification/what-is-perioperative-medicine#:~:text=Perioperative%20medicine%20emphasises%20the%20importance,any%20surgical%20procedure%20involving%20anaesthesia.

3. In-scope services

3.1. SURGICAL SPECIALTIES

This surgical Service Model includes the inpatient and outpatient services as outlined in **Error! R eference source not found.Error! Reference source not found.** below.

The ACT HSP uses the NSW Role Delineation Framework[9] to classify the level of clinical capability for each clinical service, as well as for the required supporting services. Role delineation defines the level of clinical complexity for each specialty service provided at a particular facility or setting which will enable the workflow to be directed to the most appropriate facility. Role delineations describe the minimum service requirements, staffing, core support services and other elements necessary for the clinical service to be delivered safely. Levels range from Level 1 (least complex) to Level 6 (most complex). Clear role delineation helps to ensure that planned services can be delivered safely. The Clinical capability and Role Delineation for CH is provided in Appendix 1.

Table 3-1: Canberra in-scope surgical services

Inpatient Specialty Service	Inpatient (Clinical Level)	Outpatients	Anaesthetics	Operating Suite	Close Observation	ICU	Nuclear Med	Medical Imaging	Pathology	Pharmacy
General Surgery	6	x	6	6	-	6	6	6	6	6
Endoscopy	-	-	2	4	-	-	-	3	3	3
Orthopaedics	6	x	6	6	-	6	5	6	6	6
Ophthalmology	5	x	5	5	-	5	5	5	5	5
Otolaryngology / Head and Neck	6	x	6	6	-	6	5	6	6	6
Maxillofacial surgery	5	x	5	5	6	6	-	6	5	5
Plastic Surgery	5	x	5	5	-	5	4	5	5	5
Trauma	-	-	6	6	6	6	-	6	6	-
Pre-Admission Clinic		x								

NSW Health, *Guide to the Role Delineation of Clinical Services*, 2021. Available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF

This Service Model focuses on the inpatient surgical wards and the surgical outpatient clinics for the surgical specialities outlined above. It does not include surgery planned to occur in Building 5 (B5), which is out of scope.

There are two exceptions:

- It is proposed to develop *two standard operating theatres and a shell space for a third* for (urgent and elective) WYC service requirements. The operating theatres will be located in B10 with a link through to B11 WYC services.
- A *new endoscopy suite*. This will increase the number of procedure rooms from three to eight (including five endoscopy rooms, a fluoroscopy room and two bronchoscopy rooms). The endoscopy suite will be located close to the operating theatres in the B5, with a link between the two areas for emergency transport of patients.

3.2. DESCRIPTION AND SCALE OF SERVICES

The Division of Surgery (DOS) caters to adults >16yrs with a surgical condition.

General Surgery at CH provides emergency or elective surgery for a range of surgical conditions. Common conditions include hepatobiliary / pancreatic surgery, upper gastrointestinal surgery, hernia repairs (with or without mesh) and colorectal bowel disease.[10] Surgical patients may also be admitted with complex general surgical injuries under the ACT Trauma Service delineation.

Endoscopy is a procedure that uses an endoscope (a long flexible tube with a light and camera) to observe the inside of the body without performing surgery.[11] Endoscopy is used for screening and treating disease. Common types of endoscopies include arthroscopy (joints), bronchoscopy (trachea to lungs), colonoscopy (colon and large intestine), gastroscopy (stomach) and laparoscopy (abdominal organs and female reproductive organs), among others.[12] All of these procedures can usually be done as day procedures.

The gastroenterology outpatient clinics will be co-located with the Endoscopy Suite.

Orthopaedic surgery involves broad range of procedures of the musculoskeletal system, including bones, joints, ligaments, tendons, muscles, and nerves. Common procedures can be urgent or elective total hip, knee and shoulder replacements, and upper and lower limb fractures.

Due to the ageing population, the number of fractured necks of femur admissions are increasing. This cohort of patients are often vulnerable and more complex as they have multiple comorbidities and can live with a diagnosed/undiagnosed cognitive impairment.

There are often a range of associated clinical support functions associated with orthopaedic surgery including:

- Pre-habilitation;
- Trauma stabilisation prior to surgery;
- Due to the duration of procedures, patients can often have delirium/cognitive impairment and require additional nursing support post-surgery;

10. Act Government, Canberra Health Services, *General Surgery*. Available: https://www.canberrahealthservices.act.gov.au/services-and-clinics/services/general-surgery
11. Victoria State Government Department of Health and General Surgeons Australia, Better Health Channel, *Endoscopy*, updated 2014. Available: https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/endoscopy.
12. Victoria State Government Department of Health and General Surgeons Australia, Better Health Channel, *Endoscopy*, updated 2014. Available: https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/endoscopy

- Rehabilitation and 'gym' facilities; and
- Occupational therapy and home assessments

Orthopaedics have at least 28 inpatient beds.

Ophthalmology is the diagnosis, management, and surgery of eye/vision disorders. It includes surgical procedures of the eye and other ocular adnexa including eyelids, conjunctival sac, lacrimal drainage system and gland, and orbital contents except for eye and optic nerve. A *like-with-like* capacity would suggest fewer than 1 inpatient POC. CH operates a busy ophthalmology outpatient department that is located in Building 3, and therefore, not in scope.

Otolaryngology / Head and Neck surgeons manage a wide range of conditions including the investigation and treatment of conditions of the ear, nose, throat, and head and neck. This may include nasal and sinus conditions, snoring and breathing problems, tonsillitis, cancer of the throat, voice problems, plastic surgery of the nose and face, hearing difficulties and deafness, and tumours of the head, neck, and ears[13].

Maxillofacial surgery involves management of the mouth, jaws, face, and neck. Maxillofacial surgeons work with ENT / Head and Neck surgeons. Types of surgery include impacted teeth, dental implant surgery, bone grafting, facial trauma surgery, facial reconstructive surgery and cleft lip and palate surgery.[14]

Plastic surgery involves both cosmetic and reconstructive surgery. Breast reconstruction, hand surgery, skin cancer surgery, **medicinal leech therapy and skin flap management** are all examples of reconstructive surgery.

ACT Trauma Service is ward-based care for people experiencing shock resulting from trauma, blood loss, an allergic reaction or heat stroke. The like-for-like capacity for trauma is included in the general surgery POC estimates.

Pre-Admission Clinic is an ambulatory space for the assessment of patient for suitability of surgery, and the key risks that CH would anticipate for particular patients. The Service Model at CH is that all planned surgical admissions will attend a preadmission appointment prior to the surgery date. The like-with-like Pre-Admission Clinic is eight POC.

Surgical bookings will be collocated with the preadmission clinics. Surgical bookings manage all planned surgery bookings and is the best point of contact if a patient's condition has changed or if they are no longer ready for surgery. Surgical bookings are an administrative service.

Sterilising Services. *A separate Sterilising Services Department (SSD)* is being considered for colocation with the WYC theatres in B10. This will provide a comprehensive specialised sterilising service for reusable medical devices (RMDs) at the level of the Australian Standards (AS 4187:2014).

The requirements include:

- Reprocessing Reusable Medical Devices (RMDs):
  - Disassembling, cleaning, and disinfecting instruments, trays, and other items requiring reprocessing;

[13] Australian Society of Otolaryngology Head and Neck Surgeons

14. Royal Australasian College of Dental Surgeons, *Oral and Maxillofacial Surgery*, updated 2023. Available: https://racds.org/education/oral-and-maxillofacial-surgery-oms/

  - Preparing, assembling, and inspecting package instrument trays and packs, including device functionality and safety checks; and
  - Sterilising completed trays and packs and provide disinfected items acceptable for patient use.
- Ensure that all processes meet quality assurance practices;
- Store raw materials/components before they are assembled into instrument trays/packs;
- Distribute sterile items and stock to theatres; and
- Manage RMD purchases, repairs, and maintenance.

Scope Reprocessing. It is expected that the endoscopy suite may have its own SSD for reprocessing scopes. Given the endoscopy suites will be proximal to the Building 5 theatres, then staffing or sterilising efficiencies may ensue.

The cleaning, decontamination and reprocessing of flexible scopes will be in a dedicated area of the Endoscopy unit. The unit will be AS/NZS 4187:2014 complaint. There will also need to be a HEPA-filtered storage cupboard for the reprocessed scopes to hang.

3.3. SURGERY CLASSIFICATION

Although surgery is a relatively small component of the relocating services, the classification of the surgery influences the patient pathway, and therefore capacity and supporting allied health functions.

Surgery may be classified as elective, emergency, or other surgery. Elective surgery is planned surgery that can be booked in advance. A general practitioner (GP) will refer a patient to a surgeon who will determine whether a patient requires planned surgery, and then place the patient on the Elective Surgery Waiting List.

People on the Elective Surgery Waiting List will be assigned an urgency category (1, 2 or 3) depending on the seriousness of their condition. These are defined as:[15]

- Category 1: Procedures that are clinically indicated within 30 days.
- Category 2: Procedures that are clinically indicated within 90 days.
- Category 3: Procedures that are clinically indicated within 365 days.

Emergency surgery is required to treat trauma or acute illness after a presentation at the ED or by helicopter transfer. Surgery may be required immediately, or at a later time. Emergency surgery also includes unplanned surgery if someone on the Elective Surgery Waiting List has deteriorated in condition.[16]

Day surgery is when a patient can be safely discharged from hospital on the same day they are admitted. They may be a booked admission or come via ED.

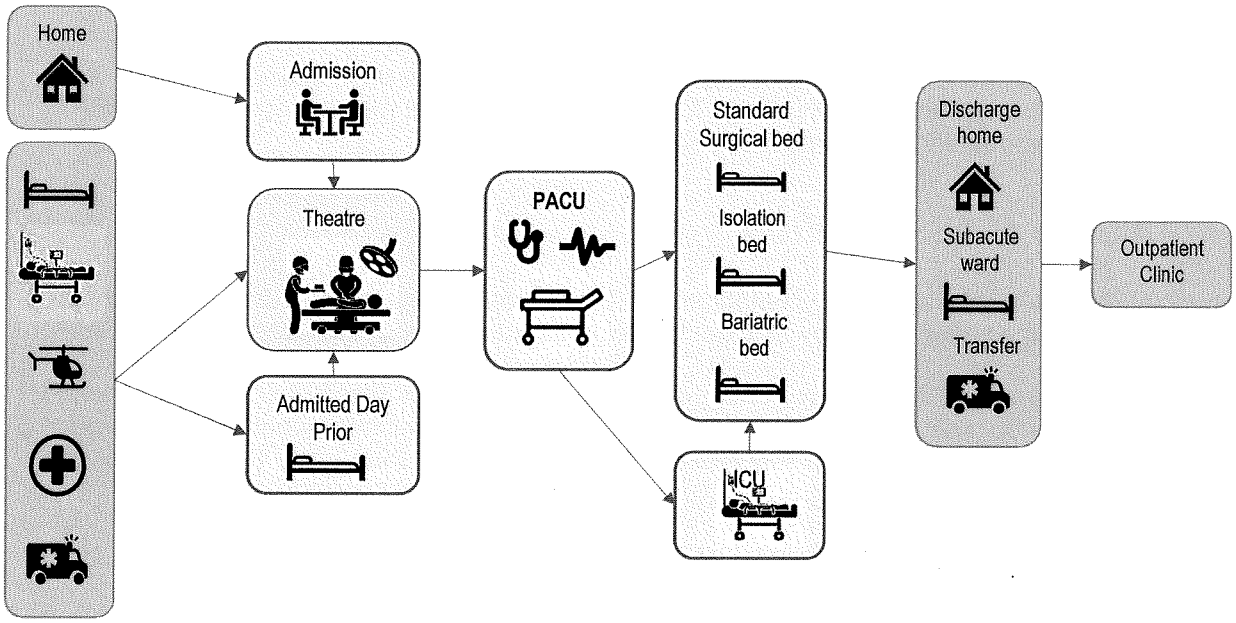
15. ACT Government, Health, *Waiting Time, and Elective Surgery Access Policy: Managing Elective Surgery patients in ACT public Hospitals*, July 2016. Available: https://health.act.gov.au/sites/default/files/2019-02/Waiting%20Time%20and%20Elective%20Surgery%20Access%20Policy.docx
16. ACT Government, Health, *Waiting Time and Elective Surgery Access Policy: Managing Elective Surgery patients in ACT public Hospitals*, July 2016. Available: https://health.act.gov.au/sites/default/files/2019-02/Waiting%20Time%20and%20Elective%20Surgery%20Access%20Policy.docx

4. Patient Pathways

This section focuses on a patient's pathway through a surgical inpatient unit (IPU) and outpatient clinic.

As an admitted patient there are three main pathways; an elective/emergency pathway, an endoscopy pathway, and an emergency WYC pathway.

Figure 4-1: Elective and Emergency surgery patient pathways



Patients having **elective or planned surgery** may arrive the morning of their surgery (DOSA[17]), or they may arrive the day before, in which case they will stay on the surgical ward on the night prior to surgery. After surgery and after the patient has recovered from anaesthesia, the patient will be transferred to the surgical ward, (or to high dependency unit/intensive care unit) if required before being transferred back to the ward). Upon discharge from the ward a patient would typically be discharged home but may also be discharged to:

- HITH;
- A subacute hospital for rehabilitation;
- Home.

Following a surgical discharge, the patient would be routinely booked into an outpatient clinic approximately six weeks post-surgery. Further follow up outpatient attendances may then be necessary.

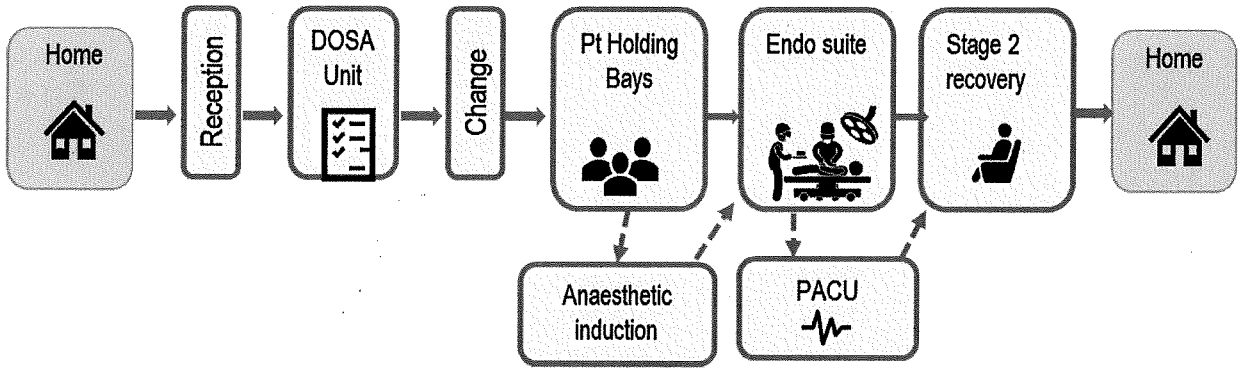
Emergency surgery patients presenting through the ED will either have surgery soon after arrival or will be booked for surgery within the coming days. The patient may go home whilst waiting for surgery if they are stable, or they may require an inpatient stay in a surgical ward whilst waiting for surgery.

[17] Day of Surgery Admission

The **endoscopy** patient pathway is shown in Figure 4-2 below. Endoscopy patients are largely same day stay patients, who arrive on the morning of their procedure, attend the DOSA reception, get changed and then wait in the patient hold area. Not all patients will require anaesthesia.

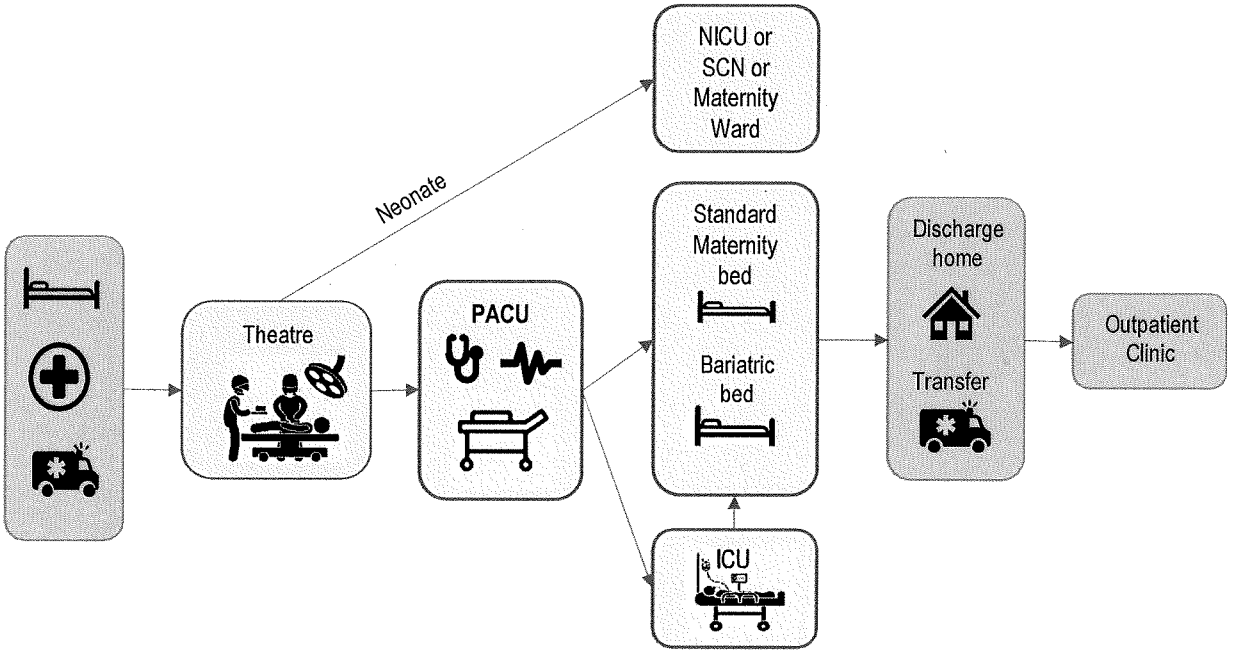
Following the procedure, patients with anaesthesia will recover in the post-anaesthetic care unit (PACU), whilst patients without anaesthesia will go straight to Stage 2 recovery and then be discharged home. There will be a link from the endoscopy suite to the general theatres in B5 to support emergency transfer of the patients to the theatres, or ICU.

Figure 4-2: Endoscopy Patient Pathway



It is recognised that there will be a small cohort of CH inpatients who will require endoscopy procedures. They will return to their ward once stable.

Figure 4-3: Unplanned and Elective WYC surgery pathway



WYC patients will be managed through pathways determined by the service, and generally include a labour or birthing suite.

The model of care for unplanned (that is, emergency surgery including caesarean deliveries) and elective obstetric surgery would require the use of a fully equipped operating suite to be available on an unpredictable basis.

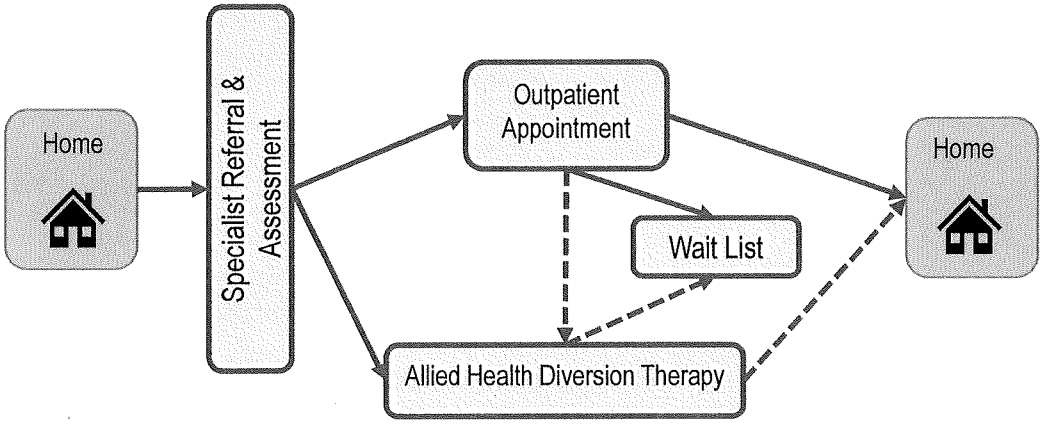
The Phase 2 Redevelopment Project will develop two operating theatres and one shell space in the new Building 10, proximal to the current labour wards in Building 11 Centenary Hospital for WYC surgical services.

Surgery-related outpatients. Many patients referred to surgery outpatients from GPs and other medical specialists will not proceed to surgery.

Some patients will be assessed at the referral stage and diverted to alternative/substitution therapies. Other patients who do require surgery will be placed on a surgical waiting list before a surgical time is booked. The wait is likely to be within a month for the most urgent patients but may be several years for non-urgent cases.

As noted above, outpatient attendances post-surgery will generally be around six weeks for surgery with follow up appointments as needed and referred back to the primary health provider.

Figure 4-4: Surgical Outpatient Pathway



5. Functional relationships

The key internal functional relationships for surgical inpatient wards are broadly represented in Figure 5-1 below.

Figure 5-1: Matrix of Adjacencies for In-Scope Surgical Services and Clinical Support

Relationship Matrix	Medical Imaging - CSB	Pharmacy	Pathology	Health Information Services	General Surgery	Endoscopy	Orthopaedics	Ophthalmology	ENT / Head and Neck	Maxillofacial surgery	Plastic Surgery	Learning & Teaching	Peri-Operative Suite CSB
Medical Imaging - New Core In-Scope MI	3	-	-	-	3	3	3	3	3	3	3	2	3
Pharmacy		x	-	-	3	3	3	3	3	3	3	2	3
Pathology			x	-	3	3	3	3	3	3	3	2	3
Health Information Services				x	-	-	-	-	-	-	-	-	-
General Surgery					x	-	-	-	-	-	-	2	3
Endoscopy						x	-	-	-	-	-	2	2
Orthopaedics							x	-	-	-	-	2	3
Ophthalmology								x	-	-	-	2	3
ENT / Head and Neck									x	1	2	2	3
Maxillofacial surgery	Legend									x	1	2	2
Plastic Surgery	1	directly adjacent (Horizontal / Vertical)									x	2	2
Learning & Teaching	2	easily accessible (less than 3 minutes)										x	-
Peri-Operative Suite CSB	3	accessible (3 - 5 minutes)											x

In context, there are many other relationships between in-scope surgical units and:

- Care, Optimisation and Transition Unit (COTU);[18]
- ED;
- ICU;
- Surgical Services in the Critical Services Building (CSB);
- Medical Imaging;
- Pathology;
- Outpatient clinics;
- Allied Health;
- Discharge Lounge;

18. Currently proposed as of July 2023 - The COTU at Canberra Hospital provides a 20-bed inpatient service. The unit will be governed by the Division of Rehabilitation, Aged, Community and Allied Health Services. The unit will work closely with Division of Medicine and Division of Surgery. The COTU Model of Care facilitates Allied Health and nursing led therapies to defined non-acute patients in one geographical location; Improved access to acute hospital beds in specialty care areas; and Reduction in hospital length of stay through patient centred and targeted maintenance therapy and complex discharge planning.

- Pharmacy;
- Security;
- Environmental Services (food, waste, linen, etc.); and
- Mortuary.

Other units within CHS that the surgical inpatient units will have working relationships with include HITH, outpatient clinics, subacute/rehabilitation services (Northside) and biomedical engineering.

The key external relationships for the Surgical Inpatient Units will be:

- GPs;
- Lower-level health services;
- Residential Aged Care facilities;
- Subacute services (The University of Canberra Hospital); and
- Ambulance and non-emergency patient transfer services.

6. Work processes

The work processes for the surgical inpatient and outpatients will continually be refined over the course of planning and design.

6.1. ACCESS

6.1.1. Hours of operation

The surgical inpatient units will operate 24/7 every day of the year. Importantly, the inpatient units need to safely accept admissions from ED at any hour.

6.1.2. Admission to Ward

Allocation of a surgical IPU bed is determined through a collaborative approach of the Patient Flow Unit, the nurse unit manager (NUM), the surgical subspecialty consultant or registrar, and the patient source, such as ED, intensive care unit (ICU) or other hospital transfer.

Admissions to a ward are consistent with CHS Admission to Discharge Procedure (adults and children).[19] This admission process supports the collaborative development of an individualised care plan and guides the expected date of discharge and discharge planning requirements'.

6.2. CARE PLANNING

The treating team will establish a care plan for each patient admitted to wards. The care plan will outline the care pathway, the team members to be involved in patient care (including multidisciplinary staff), special considerations relating to individual patient (or family/carer) needs, and the expected discharge date, destination and supports to be provided (by whom) following return to the community. Any deviation from the initial patient pathway will be documented, noting additional services requited.

Acute Care of the Elderly

A large proportion of our patient cohort consist of adults > 80 years of age who also have pre-existing behavioral and psychological conditions such as delirium and dementia. Many of these patients are admitted under surgical teams following elective or emergency surgery or in some instances, patients are admitted under the aged care team to the ward when aged care beds are unavailable. Inpatient services provide strategies to minimise the risk of further functional decline underpinned by the principles of person-centred practice.

19. Canberra Health Services, October 2021, Procedure – Admission to Discharge Procedure (adults and children), available at bing.com/ck/a?!&&p=eb98407187cec0b8JmltdHM9MTY4ODg2MDgwMCZpZ3VpZD0wYmRjZWE0Yi1kZGYxLTY4NzMtM2QyZS1mYjQ0ZGM2MTY5ZWMmaW5zaWQ9NTI0MA&ptn=3&hsh=3&fclid=0bdcea4b-ddf1-6873-3d2e-fb44dc6169ec&psq=chs+admmission+policy&u=a1aHR0cHM6Ly93d3cuY2FuYmVycmFoZWFsdGhzZXJ2aWNlcy5hY3QuZ292LmF1L19fZGF0YS9hc3NldHMvd29yZF9kb2MvMDAwMy8xOTgxMDkyL0FkbWlzc2lvbi10by1EaXNjaGFyZ2UtUHJvY2VkdXJlLWFkdWx0cy1hbmQtY2hpbGRyZW4uZG9jeA&ntb=1

6.3. CONDITIONING

Allied health bed-based therapy can often provide inpatients with some pre-habilitation as well as post-surgical rehabilitation and conditioning to speed up a full recovery.

It is expected that surgical areas will have access to a multi-purpose therapy space focusing on mobility, strength, and activities of daily living. The most appropriate place is on the orthopaedic ward(s) if possible. Other wards that require types of rehabilitation would benefit from being in close proximity of the orthopaedic physical therapies area.

6.4. PATIENT ADMINISTRATION

The staff stations will provide space for clerking duties. A ward clerk will operate from the main staff station, and as necessary staff stations in the wards.

The reception which will be staffed by administrative staff during normal business hours will have line of sight to the public entry from the public, and the patient lifts.

6.5. AMENITIES FOR PATIENTS, CARERS AND STAFF

Patients will have access to a patient lounge/dining room – an area where the patient can gather with family/visitors. Patients may be ambulant or in a wheelchair. The lounge/dining room should have a variety of seating options available including occasional chairs. The lounge/dining room is to:

- Be arranged so several families and individuals can gather at the same time; and
- Include a beverage bay with microwave, tea and coffee making facilities.

The ward area will ensure provision of sufficient storage space for equipment (such as lifters, wheelchairs, shower chairs, tilt tables and battery charging stations etc).

Staff will have access to end of trip facilities including but not limited to change rooms, lockers, showers, toilets, and drying facilities.

6.6. PATIENT TRANSFER AND DISCHARGE

Patients may require transfer to other clinical services within CHS. Transfers may be temporary and relate to medical imaging or interventional cardiology or radiology labs, for example. Some patients may also be transferred to theatre for planned or unplanned secondary surgical procedures, or to the ICU for more intensive monitoring or management.

Patients will also be discharged home or to alternative living facilities from the ward or via a Discharge Lounge.

7. Workforce

The specific configuration of staff and skills mix for the surgical inpatient units and the outpatient clinics will be determined closer to the commencement of the service. At this stage, there are general workforce requirements, as discussed below.

7.1. MEDICAL STAFF

As the surgical services at CH extend up to Level 6 services[20], with the exception of cardiothoracic, plastics and ophthalmology which are Level 5, there are specific requirements for medical staffing, including:

- A Surgical Head of Unit;
- Staff specialists or Visiting Medical Officers;
- Fellow/Registrars; and
- Residents/Interns.

24 hour on-call/on-site coverage is required of specialist staff as well as registrars.

7.2. NURSING STAFF

As per a Level 6 and Level 5 clinical service[21], there are specific requirements for the nursing workforce in relation to clinical supervision, clinical education, and clinical expertise, including:

- Assistant Director of Nursing;
- Nurse Managers;
- Clinical Nurse Consultants/Midwives;
- Nurse Practitioner;
- Clinical Development Nurse/s;
- Clinical Care Coordinators;
- Registered Nurses;
- Enrolled Nurses; and
- Assistants in Nursing.

The number and skill level of the nurses required to provide the day-to-day care should be based on the number and acuity of the patients within each unit and adhere to the minimum Nursing Hours per Patient Day set out in the ACT Public Sector Nursing and Midwifery Enterprise Agreement, 2020 – 2022.[22]

7.3. ALLIED HEALTH STAFF

A range of allied health staff will also be required to complete the mix of multidisciplinary skills required for patient management, including (but not necessarily limited to):

- Pharmacists;

20. NSW Ministry of Health, NSW Health Guide to the Role Delineation of Clinical Services, Third Edition, June 2018, available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF
21. NSW Ministry of Health, NSW Health Guide to the Role Delineation of Clinical Services, Third Edition, June 2018, available: https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF
22. Fair Work Act 2009, s.185—Enterprise agreement Australian Capital Territory T/A Justice and Community Safety Directorate, (AG2021/8828), ACT Public Sector Nursing and Midwifery Enterprise Agreement, 2020 – 2022, State and Territory government administration, COMMISSIONER P RYAN SYDNEY, 17 JANUARY 2022. Available: https://www.cmtedd.act.gov.au/__data/assets/pdf_file/0007/1891447/ACTPS-Nursing-and-Midwifery-Enterprise-Agreement-2020-2022-FINAL.pdf

- Physiotherapists;
- Occupational Therapists;
- Nutritionists;
- Speech Therapists;
- Psychologists;
- Medical Imaging Technologists;
- Social Workers; and
- Exercise physiologists.

The level of engagement/involvement of individual allied health practitioners should be based on clinical needs of individual patients.

7.4. TRAINING, EDUCATION & RESEARCH ACTIVITIES

Teaching and education include activities undertaken through the Medical Colleges, the Universities and higher education institutions, the staff development unit, and on the ward. Teaching, training, and development opportunities are a vital part of the surgery inpatient models of care.

Multidisciplinary learning and development opportunities are promoted and encouraged. Medical teaching rounds will occur during ward rounds. Staff will also be encouraged to take up and complete professional development packages.

Nurse education will be facilitated by the Nurse Educators. Nursing in-service education will be routinely conducted on the unit. Clinical placement for students from TAFE Colleges and Universities will also be provided for nursing, allied health, and medical students.

It is an expectation that all staff remain current in their essential training and maintain annual training currency as identified by the organisation. In addition to CHS mandatory training it is a requirement for all permanent staff to undertake specific education and training to their speciality as competencies. This may require both e-learning and practical assessments.

8. Discharge / Transit Lounge

8.1. SERVICE DESCRIPTION

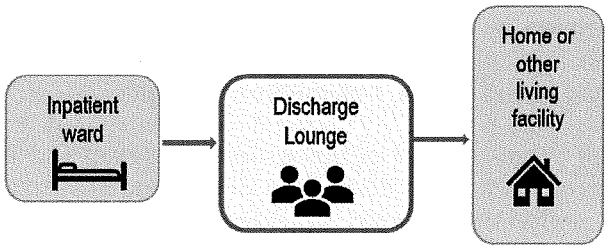
The ***Discharge / Transit Lounge*** will comprise 10 chairs, 1 isolation room and 8 beds. The discharge lounge is a transition area for inpatients prior to going home, or prior to being transferred to another facility.

The Discharge / Transit Lounge supports effective patient flow, by increasing discharge rates in inpatient beds prior to noon, which increases the turnover of inpatient beds and supports flow through the ED and operating theatres.

8.2. PATIENT PATHWAY

Ambulatory patients awaiting discharge may be from any inpatient unit in the hospital, or from ED. They may be awaiting discharge home, transfer to other regional or local hospitals and transfer to nursing home/ care facilities.

Figure 8-1: Discharge Lounge patient pathway



8.3. WORK PROCESSES

The operating hours of the Discharge / Transit Lounge are Monday to Friday 0700 hours until 2130 Hours.

8.4. WORKFORCE

The workforce will be sufficient to enable some level of monitoring but not direct patient care. It is most likely that the area is staffed by an EN.

8.5. CLINICAL AND NON-CLINICAL SUPPORT FUNCTIONS

Refer to section 9 for clinical and non-clinical supports and separately provided Clinical Support Services Service Model.

8.6. FUNCTIONAL ADJACENCIES

The Discharge / Transit Lounge must be located with the inpatient wards. It should also be easily accessible for family/carers who are going to transport the patient home. Other important adjacencies for the Discharge / Transit Lounge are Pharmacy for discharge medication, and the Equipment Service for the provision of home aids.

8.7. CHALLENGES AND OPPORTUNITIES

A common challenge with Discharge / Transit Lounges is a lack of buy-in, ownership and trust from ward clinicians that the Discharge / Transit Lounge is the right place for their patients to go prior to discharge, leading to the Discharge / Transit Lounge being underutilised. Similarly, ward clinicians may not have the time required to assess the appropriateness of a patient to go to Discharge / Transit Lounge.

Another challenge with Discharge / Transit Lounges is being able to measure the effectiveness of the service in terms of patient flow (inpatients and ED), patient quality of care and patient satisfaction.

9. Support Services

9.1. CLINICAL SUPPORT SERVICES

Descriptions of the key clinical support services for in-scope surgery are:

- **Medical Imaging**, which is described in the Clinical Support Services, Service Model (separately provided);
- **Pathology Services**, which is described in the Pathology Service Model (separately provided);
- **Pharmacy Services** which is described in the Clinical Support Services Service Model (separately provided); and
- **Infection Control and Prevention.**

9.2. NON-CLINICAL SUPPORT SERVICES

These include:

- Health Technology Management;
- Communications and Information Technology;
- Courier and Transport;
- Engineering and Maintenance;
- Fleet Management;
- Food Services;
- Linen Services;
- Patient/Visitor Access/Wayfinding;
- Personal Services Assistants;
- Quality and Risk;
- Security Services;
- Supply and Waste Management; and
- Volunteers.

All of the support functions need to ensure that they seamlessly interface with the clinical and patient services as needed. The basis for the interface will be different for each non-clinical support service based on the buildings within which they operate or provide services. These issues are incorporated in the Functional Design Briefs to the extent that they are germane to the design and function of the new facilities.

A1. Surgical Clinical Capability Levels

The Role Delineation for clinical services provided by Canberra Hospital were obtained from the ACT Health Services Plan, 2022 - 2030[23]

	2021		
Service	**Canberra Hospital**	**UCH**	**CPHB**
Core services			
Anaesthesia and recovery	6	NPS	4
Operating Suite	6	NPS	4
Intensive Care Service	6	NPS	4
Nuclear Medicine	6	NPS	4
Radiology and Interventional Radiology	6	2	5
Pathology	6	2	5
Pharmacy	6	2	5
Emergency medicine			
Emergency Medicine	6	NPS	4
Medicine			
Acute Stroke Services	5	NPS	4
Cardiology and Interventional Cardiology	6	NPS	4
Chronic Pain Management Services	4	3	NPS
Clinical Genetics	4	NPS	NPS
Dermatology	5	NPS	3
Drug and Alcohol Services	5	NPS	1
Endocrinology	6	NPS	3
Gastroenterology	6	NPS	4
General and Acute Medicine	6	NPS	4
Geriatric Medicine	6	5	4
Haematology	6	NPS	3
Immunology	6	NPS	4
Infectious Diseases	6	2	5
Neurology	5	NPS	4

23. ACT Government, Health, *ACT Health Services Plan 2022-2030,* available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Oncology — medical	6	NPS	2
Oncology — radiation	6	NPS	NPS
Palliative Care	4	NPS	2, CHH 6
Rehabilitation Medicine	2	6	2
Renal Medicine	6	NPS	2
Respiratory and Sleep Medicine	6	NPS	3
Rheumatology	5	NPS	2
Sexual Assault Services	4	NPS	1
Sexual Health	5	NPS	NPS
Surgery			
Burns	4	NPS	2
Cardiothoracic Surgery	5	NPS	NPS
ENT Surgery	6	NPS	4
General Surgery	6	NPS	4
Gynaecology	6	NPS	4
Neurosurgery	6	NPS	NPS
Ophthalmology	5	NPS	3
Oral Health	6	NPS	NPS
Orthopaedic Surgery	6	NPS	4
Plastic Surgery	5	NPS	4
Urology	6	NPS	4
Vascular Surgery	6	NPS	4
Child and family health services			
Maternity	6	NPS	5
Neonatal	5	NPS	3
Paediatric Medicine	5	NPS	2
Surgery for Children	4	NPS	2
Youth Health	4	NPS	NPS
Mental Health			
Adult Mental Health	5	2	4
Child and Youth Mental Health	4	NPS	NPS
Older Persons Mental Health	4	NPS	4

ACT Government

aspex consulting

Canberra Hospital Capital Redevelopment

PROPOSED PATHOLOGY SERVICE MODEL

Version 5.0

25 January 2024

OFFICIAL

TABLE OF CONTENTS

1. Introduction 6

1.1. Purpose 6

1.2. Approach 6

2. Service Model Context 7

2.1. ACT Planning Priniciples 7

2.2. Canberra Health Service Vision and Service Direction 8

2.3. Overarching Drivers for Change 10

3. Pathology 11

3.1. ACT Pathology 11

3.2. Context 11

3.3. Test Volumes 12

3.4. Future Demand 13

3.5. Referral Services 13

3.6. Pathology Services Vision and Drivers for Change 13

3.7. Pathology Services and Design Principles 19

4. Functional Relationships 24

4.1. Functional Relationships 24

4.2. Scale 28

4.3. Pre-Analytics 29

4.4. Anatomical Pathology 34

4.5. Chemical Pathology 42

4.6. Diagnostic Genomics 48

4.7. Haematology 53

4.8. Immunopathology and Infectious Immunoassay 60

4.9. Microbiology 65

4.10. Molecular Pathology (Microbiology) 71

4.11. Clinical and Non-Clinical Support Services 77

5. Mortuary Services 81

5.1. Scope of service 81

5.2. Pathways 81

5.3. Hours of Operation 82

5.4. Workforce Model 82

5.5. Current Location 83

5.6. Key Functional relationships 83
5.7. Mortuary Key Challenges/Future Service Trends 83

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List of Abbreviations

ACT	Australian Capital Territory
ACT HSP	ACT Health Services Plan
AusHFG	Australasian Health Facility Guidelines
AI	Artificial Intelligence
AIDS Syndrome	Acquired Immune Deficiency
ANU	Australian National University
AP	Anatomical Pathology
ARCBS	Australian Red Cross Blood Service
B	Building
BMT	Bone Marrow Transplant
CH	Canberra Hospital
CHS	Canberra Health Service
CJD	Creutzfeldt-Jakob Disease
COVID	Corona Virus Disease
CRI	Colour Rendering Index
CTC	Circulating Tumour Cells
DG	Diagnostic Genomics
DHR	Digital Health Record
DNA	Deoxyribonucleic Acid
ED	Emergency Department
FBC	Full Blood Count
FDB	Functional Design Brief
FFP	Fresh Frozen Plasma
FFPE	formalin fixed paraffin embedded
FISH	Fluorescence In-Situ Hybridisation
FNA	Fine Needle Aspirate
FTE	Full-Time Equivalent
GBA	Gross Building Area
GDA	Gross Departmental Area
HCV	Hepatitis C
HIV	Human Immunodeficiency Virus
HLA	Human Leukocyte Antigen
ICT	Information Communication Technology
IHC	Immunohistochemistry
IVF	In Vitro Fertilization
LIS	Laboratory Information System
MoC	Model of Care
NATA	National Association of Testing Authorities
NDA	Net Department Area
NGS	New Generation Sequencing
NPAAC	National Pathology Accreditation Advisory Committee
PCR	Polymerase Chain Reaction
POCT	Point of Care Testing
PPMS	Perinatal Post-Mortem Service
RCPA	Royal College of Pathologists of Australasia
RSI	Repetitive Strain Injury
SNP	Special Nucleotide Polymorphism
SoA	Schedule of Accommodation
SOP	Standard Operating Procedures
RNA	Ribonucleic acid
WSI	Whole Slide Imaging

DISCLAIMER

Please note that, in accordance with our Company's policy, we are obliged to advise that neither the Company nor any employee nor sub-contractor undertakes responsibility in any way whatsoever to any person or organisation (other than ACT Health) in respect of information set out in this report, including any errors or omissions therein, arising through negligence or otherwise however caused.

Version 3 of the Service Model incorporates material from ACT Pathology as expressed through a Vision Statement and a high level Functional Design Brief prepared by L2D Architects. The materials incorporated from L2D Architects are referenced as such. Issues not addressed in this document by Aspex or L2D Architects could be addressed through a consultation process managed by Canberra Health Services.

VERSION CONTROL

VERSION	DESCRIPTION OF CHANGE	ISSUED TO	ISSUED BY	DATE OF ISSUE
1.0	Preliminary (Part) Service Model	CHS	Aspex	6 June 2023
2.0	Full Draft Service Model	CHS	Aspex	14 June 2023
2.1	Proposed Service Model	CHS	Aspex	30 June 2023
3.0	Third Revision Service Model Incorporating L2D Draft FDB and ACT Pathology Vision	CHS	Aspex	23 July 2023
4.0	Incorporating ACT Pathology changes	CHS	Aspex	1 August 2023
5.0	Incorporating ACT Pathology changes (from FDB)	CHS	Aspex	25 January 2024

1. Introduction

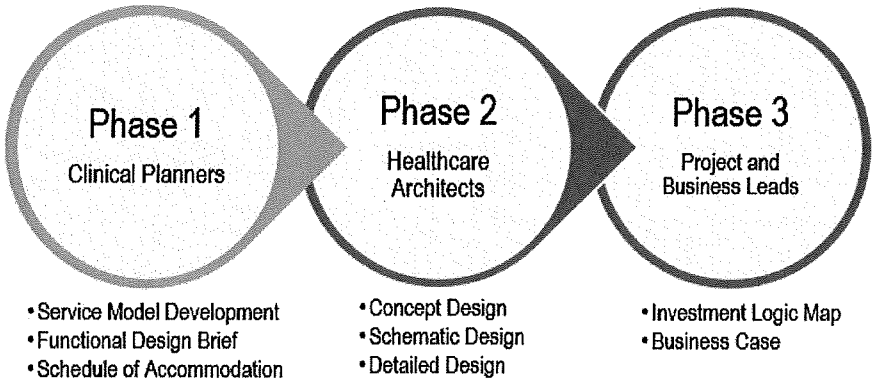
1.1. PURPOSE

This Service Model focuses on pathology services at the Canberra Hospital (CH) and outlines *how* services are planned to be delivered in the future.

The Phase 2 Redevelopment project involves developing *like-with-like* services into new facilities. However, this will not necessarily be *like-with-like space*, as new evidence, new technologies, changes in clinical practice, or more efficient or innovative ways of working may result in contemporary *like-with-like services*.

The information in this Service Model will input into the Functional Design Brief (FDB) and the Schedule of Accommodation (SoA), which will be used to inform the new building concept designs. The steps are outlined in Figure 1-1.

Figure 1-1: Canberra Hospital Capital Redevelopment planning phases



1.2. APPROACH

This draft Service Model has been developed in partnership with the Canberra Health Services (CHS) Clinical Liaison and Health Facility Planning team in the Capital Project Delivery and Infrastructure and Health Support Services Division.

This draft also includes input from ACT Pathology in the form of a Vision statement and incorporates relevant elements of a high-level FDB prepared for ACT Pathology by L2D Architects.

This Service Model outlines the vision, principles, and objectives of service delivery for the operation of Pathology Services. *It describes the potential impact of the changes to pathology services that can be expected in the future. This is a critically important consideration for the Service Model as it will underpin ACT Pathology's strategic direction and its propensity to thrive.*

The Service Model also describes each of the main pathology sub-specialties (Section 4). In doing so, it incorporates the scope and clinical level of service, specimen pathway, functional relationships and adjacencies, integration and work processes.

2. Service Model Context

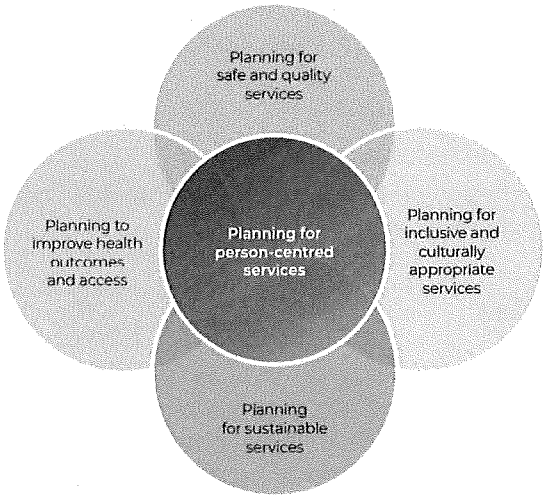
This section provides context within which the Service Model has been developed. It specifically includes:

- ACT Health's planning principles;
- CHS' future directions; and
- ACT Pathology's vision and alignment with system-wide drivers for change and service innovations.

2.1. ACT PLANNING PRINICIPLES

The following principles underpin the *ACT Health Services Plan* (ACT HSP) 2022-2030[1]. The Service Model is developed consistent with these principles.

Figure 2-1: ACT Health Service Planning Principles



Person-centred services - The ACT Government consults with consumer and carers so that services are planned to treat consumers with dignity and respect; the ACT Government makes it easier for people to access services equitably, to move between services across the health system, and to partner with health professionals to participate in decisions about the services provided to them.

Inclusive and culturally appropriate services - The ACT Government consults with groups underrepresented in the healthcare system so that services are planned to be inclusive and culturally appropriate and targeted to specific health needs where necessary.

Safe and quality services - Planning is guided by evidence-informed policy directions, and the ACT Government continually strives to plan for services that improve health outcomes, experiences of receiving care, experiences of providing care, and effectiveness and efficiency of care.

1. ACT Government, Health, *ACT Health Services Plan 2022-2030,* available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Health outcomes and access - Planning is guided by evidence-informed policy directions, with specific focus on at-risk and priority population groups; planning the right service, at the right time, in the right place, by the right team, every time.

Sustainable services - The ACT Government maximises the use and efficient allocation of limited resources by taking a Territory-wide approach to planning services across the ACT public health system, guided by clear role delineations, service levels, and evidence informed policy directions: service planning activities are prioritised based on need.

2.2. CANBERRA HEALTH SERVICE VISION AND SERVICE DIRECTION

CHS' vision is to ***'Create exceptional health care together'***. Improving the quality of healthcare across the ACT is a key priority for CHS as it aims to be the safest healthcare system in Australia, delivering high-quality, person-centred care that is effective and efficient.

Specifically, CHS will provide health care that is:

- Person-centred: providing care that is respectful, responsive, and focused on the patient's needs;
- Safe: avoiding harm to patients from care that is intended to help them;
- Effective: providing services based on scientific knowledge and which produce a clear benefit;
- Timely: reducing waits and sometimes harmful delays;
- Efficient: avoiding waste and reducing unit costs; and
- Equitable: providing care based on clinical need, and that does not vary in quality because of a person's personal circumstances.

2.2.1. Consumer Principles

A fundamental component of patient-centred care is recognising and understanding the consumer perspective of the service. Central to patient-centred care are the themes of Participation, Communication, Experience and Support. These themes form the basis for Consumer Care Principles, the guiding principles for the Service Model. The Consumer Care Principles are:

- Participation: consumers (and where appropriate their family members and carers) will be equal partners within the multidisciplinary care team, enabling them to be actively involved in their own care;
- Communication: embedding frequent and meaningful communication with consumers, their family members, and carers, about their care for their entire hospital journey, including discharge;
- Experience: care is delivered in a way that supports the consumers' experience of safety and fosters trust; and
- Support: recognising the importance of involving family and carers in the consumer's care and recovery throughout their health journey.

2.2.2. CHS Future Directions

CHS' future service directions are set out in the *ACT Health Services Plan*, 2022–2030.[2] The desired outcomes from each of the directions are also articulated. These are outlined below.

2. ACT Government, Health, *ACT Health Services Plan 2022-2030,* available https://www.health.act.gov.au/about-our-health-system/planning-future/act-health-services-plan-2022-2030#:~:text=The%20ACT's%20population%20is%20growing,and%20effective%20care%20for%20everyone.

Addressing key areas of service demand and reform

- Improve health outcomes and access to care, with a particular focus on priority population groups.
- Support access to the services experiencing most significant demand pressures.
- Ensure our services are flexible and inclusive to respond to individual needs and circumstances.

Transitions of care

- Improve health outcomes and access to care.
- Make it easier for patients, families, and service providers to navigate the service system.
- Address issues of patients 'falling through the gaps' as they move between services and care settings such as between hospital and the community.
- Break down the barriers and silos between services.

The ACT's role as a local, Territory and regional service provider

- Improve access to care closer to home in a safe and sustainable way.
- Reduce unwarranted variation between services.
- Maximise the efficient use of health resources to meet the needs of the community.

Strengthening core ACT Government funded clinical support services

- Improve patient outcomes and reduce length of stay in hospital.
- Ensure that our clinical support services have the appropriate capacity and capability to support new and expanded clinical services.
- Optimise clinical decision making in determining the most appropriate treatment and care for patients.

2.2.3. Learning, Teaching and Research

CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*[3] provides the overarching vision, goals and strategic commitments to clinical learning and teaching. The six Strategic Commitments are:

- Strengthen governance and processes to prioritise and enable learning and teaching.
- Prepare and support the clinical workforce to work safely and effectively at the leading edge of their practice.
- Develop and support the clinical workforce to deliver effective, innovative, evidence-based teaching and point of care clinical supervision.
- Establish collaborative environments that maximise and enable effective, innovative, and efficient learning and teaching.
- Foster and strengthen strategic partnerships for learning and teaching with clinicians, consumers and carers, communities, and academia.
- Promote, share, and celebrate learning and teaching.

3. ACT Government, *Clinical Learning and Teaching Strategy 2023 – 2027'*. Available: https://www.canberrahealthservices.act.gov.au/__data/assets/pdf_file/0012/2222040/69e04bc4df49dfd4a9ff49375fe0a3bcfd9dd628.pdf

To achieve these strategic commitments, and to develop a contemporary health precinct, a holistic approach to integrated education, training and research activities into the clinical areas will be key. For clinicians, access to teaching and learning will be built into the flow of their day. This means rooms available on each unit or a shared area readily accessible to clinical (patient) areas. To complement the integrated clinical spaces, a teaching and learning hub would provide greater opportunities for education.

Refer to the Clinical Support Service Model for more information on Learning, Teaching and Research.

2.3. OVERARCHING DRIVERS FOR CHANGE

The above strategic and policy positions articulated by ACT Health and CHS are underpinned by a range of drivers for change. The Territory, like other jurisdictions, are facing increasing challenges that are forcing changes in the way people seek and access services. Some of these challenges which are driving change are described below.

The ACT Health Services Plan (2022 to 2030) provides context within which the Service Model needs to be considered. The *ACT Health Services Plan* indicates that the Territory's population increased by 14% between 2016-2021 and is projected to increase by 9.7% over the decade to 2030. It is also ageing with those in the 70+ age category increased 34% between 2016-21 and is forecast to rise a further 22.7% by 2030, more than doubling the growth rate for the total population. In addition to population growth and ageing, there are particular factors that drive change for the Territory:

Ageing population and increasing chronic disease – the demand for health services is increasing as people live longer with more chronic and multi-morbid conditions. The aged population are high users of health services;

Access for vulnerable population groups – some population groups in Australia experience health inequalities. Aboriginal and Torres Strait Islanders and people from low socioeconomic areas are likely to have poorer health compared to the general population;

Increasing service demand – for elective and emergency surgery, chronic disease, cancer services, and mental health. These have been exacerbated due to the COVID-19 pandemic;

Climate change – has been causing more extreme weather events, such as bushfires and floods. Instances of heat stress, smoke inhalation, food insecurity, and mental health and wellbeing issues are increased for people experiencing extreme weather events; and

COVID-19 – the delivery of healthcare has rapidly changed since the beginning of the COVID-19 pandemic, especially in terms of how and where care is delivered, with a virtual and care closer to home becoming the norm. COVID-19 patients have caused greater pressure on health system capacity, especially in intensive care units and for multidisciplinary teams treating people experiencing the effects of 'long COVID'. Additionally, workforce availability has been significantly impacted, with burnt out staff choosing to leave their professions and with the usual immigrant workforces being unavailable.

3. Pathology

3.1. ACT PATHOLOGY

ACT Pathology currently operates as a tertiary (Level 6) pathology laboratory, and includes the (specialist) departments of:

1. Pre-Analytics (collection services, and specimen reception);
2. Anatomical Pathology (including Histology, Immunohistochemistry and Cytology);
3. Chemical Pathology (Routine Chemistry, Endocrinology, Special Chemistry and POCT);
4. Diagnostic Genomics;
5. Haematology (including General Haematology, Haemostasis, Blood Product Transfusion Service, Immunophenotyping, and Bone Marrow Transplantation);
6. Immunopathology and Infectious Immunoassay;
7. Microbiology (including Bacteriology, Mycobacteriology, Mycology, Parasitology and Virology);
8. Molecular Pathology; and
9. Mortuary Services.

Support departments include Pathology Administration, Information & Communication Technology (ICT), Quality, Pathology Museum (gross anatomical teaching), and Pathology Research. ACT Pathology employs more than three hundred personnel.

The role of ACT Pathology is to deliver routine and specialist pathology service to all CHS services, private hospitals, and community GPs and medical specialists with accurate, reliable and timely information obtained from scientific tests, investigations and examinations.

As is usual with tertiary-level pathology services that it also provides consultative services regarding the correct interpretation of test reports, and actively participates (or can lead) multi-disciplinary care team patient reviews.

ACT Pathology also provides important teaching functions for medical undergraduate and postgraduate degrees at the Australian National University (ANU). ACT Pathology is a leading provider of candidates seeking Registrar places in Pathology, and also provides training to registrars in other disciplines to assist them with the pathology components of their studies.

ACT Pathology prides itself on attracting pathology registrars in significant numbers each year.

It is expected that teaching and training will continue to be integral to the service model for pathology. This translates to dedicated teaching and research spaces, and spaces within the clinical specialties for pathology related activities

3.2. CONTEXT

ACT Pathology is expected to continue to operate at the highest clinical level (Level 6) and will also need to operate in a particularly dynamic environment, with important considerations in relation to:

- The inadequacies of the current facility to meet acceptable, contemporary standards;
- Operational efficiency and design considerations to deliver on its core functions; and

- The rapid pace of the convergence and emergence of technologies that will need to be embedded into a future pathology service. Future capacity and capability will be driven by technology developments.

3.3. TEST VOLUMES

ACT Pathology perform approximately 2.5 to 2.6 million testing panels annually[4] based on testing panel volumes since FY19-20, which demonstrates that the overall testing volume has been steady with a tendency toward a modest upward trend, as detailed in Table 3-1 below.

The pathology subspecialities with the highest percentage of testing volumes (excluding COVID Polymerase Chain Reaction [PCR]) are Chemical Pathology, Immunopathology & Infectious Immunoassay (55% in FY21-22), Haematology & Transfusion (19%), and Microbiology (4%), with all remaining subspecialities each contributing to approximately 1% or less of total testing volumes (noting that the number of tests does not correlate with test complexity).

It is difficult to assess ACT Pathology's trends relative to maintaining market share due to COVID "Refer Out" services, that is, potential activity foregone, has increased by 5% over the period. It may nevertheless reflect ACT Pathology's current services are not keeping pace with referrer demand at the high end of the testing spectrum, particularly diagnostic genomics.

Table 3-1: Pathology Testing Panel Volumes By Subspecialty, By Year[5]

Pathology Subspecialty	2019-20	2020-21	2021-22	Raw Change 19-20 to 2021-22	% Change 19-20 to 2021-22	% of total 21-22 Excl. COVID
Chemical Pathology, Immunopathology & Infectious Immunoassay	1,661,806	1,756,151	1,748,351	86,545	5%	67.8%
Haematology	523,564	537,756	531,487	7923	2%	20.6%
Microbiology	127,840	124,093	121,327	-6513	-5%	4.7%
Transfusion	53,448	56,472	56,021	2573	5%	2.2%
Molecular Pathology (excl. COVID PCR)	39,980	40,304	34,491	-5,489	-14%	1.3%
Research	34,650	34,094	32,427	-2,223	-6%	1.3%
Anatomical Pathology	34,265	33,157	30,221	-4,044	-12%	1.2%
Diagnostic Genomics	2,131	2,4526	1,9787	-153	-7%	0.1%
Refer out	19,766	20,312	20,695	929	5%	0.8%
Total Excluding COVID PCR	**2,497,450**	2,604,791	2,576,998	79,548	3%	100.0%
Coronavirus PCR	*31,821*	201,101	579,791	547,970	1722%	N/A
Grand Total	**2,529,271**	2,805,892	3,156,789	627,518	25%	N/A

4. Excluding COVID effect. If we include COVID effect the numbers would be 2.5 – 3.2 million tests annually between FY19-22.
5. Note testing numbers are significantly underestimated due to data reporting panels, not individual tests. For example, a Liver Function test is counted as 1, but may be made up of 6 individual tests.
6. Plus 2,145 send outs.
7. Plus 2,603 send outs.

3.4. FUTURE DEMAND

Forecasting the future volume of pathology specimens if fraught with complexities, not least of which is changing practice and development of new services.

Outlined below are estimates of future demand:

- For Anatomical Pathology, demand growth is based on the current ratio of specimens to total operating theatre procedures, including endoscopes. By 2035/36, there is expected to be an additional 33.7% surgical/procedural separations, resulting in an additional 7,973 AP examinations.
- For pathology tests other than for Anatomical Pathology:
  - Applying current rates of tests for hospital services only and extrapolate for the growth in hospital activity, excluding operating theatres, is expected to result in 37.7% growth in demand, or 631,990 additional testing panels; and
  - For other more routine tests, the expected demand is based on the relative utilisation of medical services of an ageing population, applied against expected community referral rates, would see demand growth of 28.3%, or 259,665 tests.
- An important part of the ACT Pathology work is also new types of tests, such as Genomics. The test volumes have been increasing steadily, and substantial growth is expected in the emerging area of diagnostics; and
- The provision of novel cell therapy products would increase the service demand on ACT Pathology's BMT/cell processing facility in the coming years. The manufacturing and storage of specialised therapies such as CAR-T cells will increase the regulatory, facility and operational demands of Haematology's BMT Laboratory. Although numbers are expected to be small initially (~10% growth), the complexity of processing would increase over time.

3.5. REFERRAL SERVICES

ACT Pathology is able to deliver all testing expected of a tertiary pathology laboratory or is able to refer out. For those tests that are not actually performed by ACT Pathology, the tests are referred to specialist referral interstate laboratories. ACT Pathology endeavours to use referral laboratories that provide the best quality testing for the respective test in an efficient manner and that have NATA accreditation to perform the respective test. Over time, ACT Pathology is looking to be able to undertake all tests in house.

3.6. PATHOLOGY SERVICES VISION AND DRIVERS FOR CHANGE

ACT Pathology aspires to be a leading tertiary pathology service with a national reputation for excellence.

The environment within which pathology services operate, offer both significant opportunities and challenges in achieving this vision. This is summarised below.

> "The next decade will see a profound transformation in Pathology. Several major drivers of change, including total automation, genomics, precision medicine, informatics and digital pathology – as well as a consumer-led revolution in healthcare leadership – are converging to reshape the way that Pathology services are designed, delivered and governed.

This has major implications for ACT Pathology, for Canberra Health Services, and for the community. In particular, the Pathology service model will see a significant shift towards convergent diagnostic technologies, genomics and personalised medicine, digital enablers, a focus on the value of data and shared clinical decision making, collaboration, and consumer-led co-design.

A key challenge is to embrace these new service models, whilst ensuring that we retain our leadership role – our trusted voice - in diagnostic excellence. This is especially true for our leadership and expertise with emerging diseases such as COVID-19, in which the ACT community has placed its trust"[8].

In turn, designs for a new Pathology building at Canberra Hospital must be sufficiently flexible to cater for this future. Agility to provide workspaces that support new diagnostic technology and automation, new digital systems and infrastructure, and new ways of working with others – while at the same time supporting modern practices in infectious disease diagnosis and pandemic management to keep the ACT community safe into the future.

Pathology services will operate at the highest level of clinical capability[9] for pathology (Level 6) and service the ACT and south-eastern NSW catchment. ACT Pathology *will continue to offer an extensive range of pathology services, be agile and adjust to new areas of pathology testing regimes, embrace current and emerging opportunities to innovate, and deliver the highest quality across all service types.* As noted, this will include embracing:

- Converging and Emerging Technologies;
- Workforce Co-Design, Flexibility and Planning for Uncertainty;
- Teaching and Research; and
- Consumer and Community Engagement.

3.6.1. Converging Technologies

Laboratory workflows, human tasks and governance are being fundamentally reshaped and standardised, driven by converging technologies. This is the clear trend in the pathology sector and endorsed by ACT Pathology staff[10].

Manual diagnostic methods are replaced with automation, which improves reliability, reduces and standardises turnaround time, and reduces error. More recently, more radical automation of workflows (such as sample "track" systems) and standardisation of instrumentation and IT connectivity are breaking down traditional laboratory structures and transforming the way that laboratories function.

This trend is well established in core laboratories such as Chemistry and Haematology. However more and more diagnostic equipment systems in these departments will be connected to automated track systems. This underscores the need for a strict approach to "open plan", since the expansion plans of many laboratories have been thwarted by under-estimating this requirement, with office and load -bearing structures limited the opportunity for extension of automated tracks. With increased automation comes more sophisticated integrated IT solutions which allows for increased workplace flexibility i.e., scientists can perform extensive work remotely.

8. Glenn Edwards, 'Future State Issues Impacting Building Design for Pathology', July 2023, unpublished.
9. NSW Role Delineation of Clinical Services,(2021). The NSW Role Delineation of Clinical Service is used as the default clinical capability framework for NSW, Victoria and ACT, unless there is a specific jurisdictional capability framework
10. Gen Edwards, op.cit.

> Microbiology and Molecular Pathology are also being transformed by automation, which is in part enabled by digital technology (e.g. plate reading via digital images). This trend will continue across all diagnostic areas, and laboratory design must allow for flexibility and expansion within a relatively short period of time.

Thus, laboratory workflows, human tasks and governance are being fundamentally reshaped and standardised. The design of new laboratory spaces is evolving to exploit this convergence of technology and workflow and ensure that the consequent value of these new models can be fully enabled.

3.6.2. Emerging Technologies

Increased application of emerging technologies is particularly relevant to the rapidly developing fields of **genomics** and the broader use of **artificial intelligence** (AI) and digital pathology for diagnosis, and patient treatment/management.

> Genomic technologies are evolving to bring new insights into disease and diagnosis – and enabling a new era of personalised medicine. This revolution is still relatively new, and yet laboratories are already evolving the way we work. This includes a much deeper collaboration with clinicians, with consumers and with technology partners. Genomic technologies are also breaking down traditional boundaries within Pathology laboratories, with new collaborations between genomic experts and haematologists, anatomical pathologists, microbiologists, and infectious disease experts – and this collaborative approach is growing, as it makes traditional boundaries within laboratory workplaces increasingly redundant[11].

Digital technologies, using AI, are driving transformation within pathology laboratories, most notably for Whole Slide Imaging (WSI) in Anatomical Pathology, Haematology, Immunology and Diagnostic Genomics, which enables workforce flexibility and greater collaboration with interstate clinical experts. There is now a National Pathology Accreditation Advisory Committee (NPAAC) standard for validating WSI use by Pathologists, and many Australian laboratories are rapidly gearing up for this.

WSI is shaping as a game changer for the workforce shortage in healthcare and pathology, and potentially allowing CHS to provide more effective diagnosis and timely care for people in the ACT and neighbouring regions during workforce shortages. "second opinion" reviews are able to be referred simply including to overseas expert services.

WSI also enables a new generation of AI tools as aids for the pathologists in their diagnostic task, with likely benefits for both task efficiency and diagnostic accuracy.

WSI has significant implications for digital technology infrastructure, including extensive image storage and transmission. Digital infrastructure is therefore a key design element for a new Pathology laboratory build.

AI and data analytics are also enabling a new approach to delivering clinical value across all of Pathology. In addition to internal real-time monitoring of laboratory processes, enhanced analytics and AI-driven decision making will enable a new generation of clinical diagnostics informaticians. These roles will work collaboratively together, across CHS and beyond, to drive new models of clinical decision making, audit and evidence-based policy. This approach will allow greater transparency, greater collaboration, and greater value – and also provide a powerful platform for CHS researchers, including a growing research opportunity in clinical decision science.

11. Ibid

Thus, with the recent implementation of the Epic digital heath record (DHR), and a suite of other analytical and AI tools, CHS Pathology is well-placed to drive this new approach to clinical decision support. IT infrastructure and spaces for collaboration (physical and virtual) will be critical enablers of success.

A summary of the above technologies as well as other potential innovative service developments are described below in Table 3-2. Many of the innovations are inter-related and capable of being developed independently, or inter-dependently in driving innovation.

Table 3-2: Innovations Identified from Specialty Sections

FUTURE TREND/ INNOVATION	DESCRIPTION
Next Generation (Genome) Sequencing (NGS)	▪ NGS is a parallel or deep (DNA) sequencing technology which has revolutionised disease diagnostics and screening over the recent years. Using this technology, NGS has become a part of routine clinical practice, as it helps to detect oncogenic and disease-causing genetic variants and enables a deeper understanding of complex diseases. This translates into diagnosis with genetic changes incorporated into essential criteria for classification of disease, prognosis, identification of targetable chemotherapies, disease monitoring, and screening This revolution will reduce morbidity and will prolong survival in the population of the ACT and surrounds. ▪ Expansion of NGS into multiple areas of healthcare is an immediate next step in the future direction, especially to support CH oncologists and haematologists who are actively seeking for ACT Pathology to develop this technology.
Omics Technologies and Integration	Similar to the way that multidisciplinary teams approach works in healthcare, the multi-omics approach (including technologies such as genomics, transcriptomics, epigenomics, proteomics, and metabolomics) will provide a much more holistic view of disease mechanisms, which not only works to enhance the accuracy of diagnosis, but also enables personalised treatment strategies based on individual patient profiles. The drive towards individually targeted therapies is compelling, it is expected to continue to increase the level of testing, workforce expertise and need for individualised reports, particularly in cancer treatments. *It is likely that in the not-so-distant future, the 'omics revolution' for personalised diagnoses and treatments could become core business for ACT Pathology*[12]
Biomarkers and Predictive Models	Support that predicts disease progression, treatment response, and patient outcomes. It is an important area of research in haematology and has the potential to make a massive difference to patient outcomes alongside other technologies such as the omics revolution.
Immuno and Targeted Therapies	CAR T-cell therapy and immune checkpoint inhibitors are new treatment options for patients with haematological disorders (including malignancies). ACT residents who are currently candidates for CAR-T cell therapies currently have to travel interstate to undergo a cell collection procedure and return 2-3 weeks later for infusion and post-therapy care. Patients must live within 30 minutes of the hospital for 4-5 weeks. Availability of this service in ACT will support patient-centred and value-based care models and improve timely access to novel treatments.
Artificial Intelligence (AI) [and Whole Slide Imaging]	In all facets of pathology, it is expected that AI will mark its presence. AI and machine learning will help automate processes (analysing big data sets), provide decision support information and security checks that are not systematically built into day-to-day processes. These developments are not expected to reduce staff or the footprint of the Pathology facility but instead give ACT Pathology more capacity to increase the range and level of services offered. "WSI is shaping as a game changer for the workforce shortage in healthcare and pathology, and potentially allowing CHS to provide more effective diagnosis and timely care for people in the ACT and neighbouring regions. AI and data analytics are also enabling a new approach to

12. Noting ACT Pathology already does gene assessment, epigenetics and protein expression as part of standard cancer reporting at the time this report was prepared.

FUTURE TREND/ INNOVATION	DESCRIPTION
	delivering clinical value across all of Pathology. In addition to internal real-time monitoring of laboratory processes, enhanced analytics and AI-driven decision making will enable a new generation of clinical diagnostics informaticians"[13].
Automation of Current Manual Steps in Processes	These innovations are to incrementally acquire technology that automates some steps in the process as part of a longer-term plan to automate all steps. This will progressively occupy existing workstations. The Pathology facility will need to design flexible core spaces for automated equipment and sensitively design workstations adjacent to automated equipment in the same specialty. In some instances, there will be cross over periods where both new automated technologies and existing manual processes are retained before phasing out.
Development of a Core Laboratory	Urgent testing on existing instruments is likely to shift to a Core Laboratory operating 24/7 and operated by multi-disciplinary pathology staff. Robotics will be extended to accommodate more of the high-volume testing of a Core Laboratory. Further details are provided in section 4.1.1.
Robotic Extensions taking on more Volume	As more technology moves into the Core Laboratory, so too will be the opportunity to extend the robotics to fully automate the routine testing.
Urgent Testing on Instruments Moved to the Core Laboratory.	The Core Laboratory concept will focus on 24/7 service delivery centralised to an area of the laboratory adjacent to specimen reception. Technologies and tests will move into the Core Lab (as per GeneXpert COVID and Flu A/B urgent testing) from various disciplines.
Recycling and Sustainability	Each Department will have equipment and technology designed to help recycle, particularly plastics and reagents/solvents. It will be a necessary development for Pathology services to demonstrate their 'green credentials'. Manufacturers will focus on reducing heat output and power consumption (e.g. Abbott Alinity i), which will help laboratories manage excess heat in the laboratory and the architectural designs for air conditioning/flow in the location of the equipment.
Point of Care Testing (POCT) Innovation	Enabling increasingly more rapid and accurate testing at the patient's bedside or in remote settings.
Liquid Biopsies	Liquid Biopsies have emerged as a non-invasive cancer diagnostic tool, which may assist in the early detection, residual disease monitoring, and treatment response.
Screening Opportunities	There will be opportunities to support community screening programs and personalised wellness testing expanding the range of services from predominantly diagnostic (i.e. HbA1C testing on microsamples self-collected from the community and microbiome analysis).
Quality Assurance and Standardised Practices/Processes	A growing focus to ensure high-quality laboratory testing and harmonisation across different laboratories, including the standardisation of reference intervals, establishment of proficiency testing programs, and implementation of quality management systems to enhance the accuracy and reliability of laboratory results.

3.6.3. Workforce Co-Design, Flexibility and Planning for Uncertainty

The convergence of technologies and the consequential convergence of workforce collaboration, means that the design of facilities will change to reflect this convergence.

The design of facilities will necessarily have two major elements:

- Integrated design that requires a higher level of functional adjacencies than was previously the case in laboratories; and
- Flexible design of space, which translates to more open spaces.

13. Ibid.

3.6.4. Teaching and Research

As noted above, CHS has articulated 'CHS' *'Clinical Learning and Teaching Strategy 2023 – 2027'*, and a *Research Strategy 2021-2025.* Both learning & Teaching, and research are outlined more fully in the *Service Model on Core Clinical Support Services.* These strategies underpin the approach for pathology and align in important respects including:

- Embedding a research ethos is facilitated by the use of multi-purpose spaces including flexible laboratories and real and virtual research; and
- Research will increasingly be informed and facilitated by digital technologies. Indeed, it is likely that several informatics-based activities will form the core of research in Pathology, including Artificial Intelligence and clinical decision support science (whilst supported and/or confirmed by manual testing).

3.6.5. Consumer and Community Engagement

Consistent with the broader service delivery principles consumers and the community will become more active participants in their health care. This will be manifest in:

- Individually tailored treatments. New technology and tools that enable pathology the opportunity to develop a genuine consumer-led co-design model, that will be in the vanguard of its kind in Australia.
- Care closer to home is now the preferred model of care (MoC) for any chronic, non-urgent care. This has been made possible via the widespread adoption of telehealth and telemonitoring, particularly for diabetes, chronic obstructive pulmonary disease, and renal medicine. Telemonitoring is performed using sensors, other wearable devices, or apps to record data which is relayed to the healthcare team. Changes in condition outside set parameters will also alert healthcare providers in real time. Pathology too will need to adapt to remote patient pathology testing.
- Consumer empowerment is transforming service models for Pathology. In the ACT there is already an overwhelmingly positive response to the direct-to-consumer test result reporting via MyDHR. Consumers are also actively driving discussions on genomics, cancer testing, pre-natal diagnosis, and other service areas. This trend is expected to continue. ACT Health Services will require real and virtual spaces with public access to facilitate this engagement;
- Social prescribing is treating a person holistically and linking a person undergoing healthcare to social supports as required, to relieve social isolation or other factors that may be impacting on that person's mental health and wellbeing. These supports may range from walking groups to book clubs, to financial aid or housing services. Social prescribing models are well established in the United Kingdom and Canada, and they are becoming more prevalent in Australia;
- Services developed and delivered will need to be increasingly designed around the principles of Value-Based Healthcare (Better Value Care); and

  Value Based Healthcare is a contemporary service model designed to develop patient-focused care in a meaningful (structured) way to create enhanced outcomes (value) to the patient and value to the funder. This is a potentially important, albeit radical model to consider in the development of (a selected number of) clinical services that can be 'clustered to deliver end to end' outcomes for patients. The model transcends current structures that are not designed to deliver value to the patient and where there are only very blunt outcome indicators.

All of these trends are inter-related and can have a major impact on the organisation and service options available.

3.7. PATHOLOGY SERVICES AND DESIGN PRINCIPLES

The proposed Pathology facility is seen to be a critical enabler for pathology services to achieve the vision. Therefore, it will be important that the Service Model is able to set some core principles for the future design.

3.7.1. Service Principles

As a clinical support service, operating at the highest clinical capability, ACT Pathology can be expected to:

- Be accessible and responsive to all clinical areas requiring the reporting of pathology results;
- Deliver specialised pathology services across the full spectrum of pathology types, including new and emerging pathology specialties/branches;
- Ensure contemporary practices and the application of leading-edge technologies that materially improves patient diagnosis, treatment and outcomes;
- Operate efficiently and sustainably;
- Actively participate in multi-disciplinary care models to deliver holistic patient treatment regimes;
- Develop a clinically capable workforce across the specialty areas, including through teaching and training as a core part of the role of pathology; and
- Actively participate in learning, teaching and research.

3.7.2. Design Principles

Almost all of the following design principles will be included in the FDB documents and are included here to ***provide a strong sense of the how the service model can be translated into the new facility***. Core design principles include:

- **Collocated and contiguous specialist pathology functions**.

  The facility is to provide as much generic open plan laboratory space as possible that maximises flexibility, expansion and alternative uses and for *connectivity between subspecialties*.

  This accords with contemporary practice for pathology (as noted above). Be highly interactive and adaptable, reflecting strong interconnection, visibility and flows between all Pathology services, between admin and laboratory, and between pathologists/registrars, scientists and technical staff. In practice it means:

  - Designing a Core Lab concept at the 'heart' of the operation;
  - Shared spaces for automation (robotics) creates a unique place to work. The robotic lines require structured and ordered space that is expandable and interchangeable. The "track" configuration is critical to the interconnectivities of the robotic stations that connect to the track. It is essential to design the space with direct and clear access in order to gain the most benefit from the expensive robotic lines; and

- Maximise the connectivity between functional clinical units, meaning as many clinical services (that require testing and assessments) being contiguous with each other as possible, ideally over a minimum number of floors without compromising functional capability. This will improve coordination and collaboration between specialties, including the Core Lab, enable the greater use and flexibility of equipment, reduce unnecessary movement of specimens and reduce the need for multiple support facilities.

The extent that ACT Pathology is accommodated over multiple levels, is to perpetuate fragmentation and inefficient practices that currently exist. Maximising the area of the 'floor plates' of the new facility footprint will be important to the new site.

- Within the context of open plan laboratory space there will be a continuing need for **specialised rooms and equipment**.

- Consider **future proofing as part of its design**: future proofing would mean that:
  - The core facilities are built to AS2243.3, 2022 (Microbiological) standards for PC2 certification for the handling of Risk Group II Organisms even though the space is to be certified PC1 for most of the activities. In this context, a fully PC2 compliant core facility would be possible even though most spaces will not need to operate under PC2 controls. Designing to PC2 does not come at a financial impost, and is appropriate for health, safety and cleanability considerations.
  - The FRDs in Appendix A3 indicate which functions are to be in PC2 containment, and the Briefing Record outlines this in more detail. The key areas of PC2 containment are Microbiology and parts of Molecular Pathology Biology; and
  - The PC3 facility is a high containment facility and is subject to decay testing to enable the required annual decontamination via fumigation.

- Consider **future proofing with respect to growth and space**. This would mean enhanced service capacity (that is not like-for-like) with respect to:
  - Digital support, data centre and digital storage, high resolution and high reliability digital capability;
  - Prototype laboratory, which is increasingly being adopted by modern pathology services – it will allow space to prototype new equipment, or showcase and trial a supplier's technology, including trialling of robotics before the expense of acquisition, conduct early trials pre-commissioning to speed up the compliance period, and for future expansion subject to priorities;
  - Diagnostic Genomics; and
  - Workforce connection spaces.

- Provide a workplace that is planned to enable a combination of quiet spaces for focused work as well as rooms for group activities in order to **promote peak performance and outputs**. The design will *minimise the number of office spaces to maximise break out spaces and meeting rooms for private and collaborative discussions.*

- **Patient-centred care specimen collection**. Depending on the location of pathology facility relative to outpatients, there may be a need to have a second collection centre to enable easy access for patients.

- Design for grieving families and for **cultural sensitivity and safety** in relation to mortuary services.

- From a service model perspective, decoupling mortuary and autopsy services from diagnostic pathology may be considered in the interests of **patient-centred care and operational efficiency** by locating the mortuary closer to where its services are likely to be of greater use, namely the medical inpatient building, in preference to long transport times of deceased persons, as well as creating discreet routes of travel for the deceased for privacy and dignity preservation. This includes National Capital Private Hospital patients.

In addition to the above design principles, the L2D high level FDB has also identified:

- **Lighting** is critical in all areas but more so in the open plan generic spaces with the robotic lines and technology.
  - Illumination Levels: the recommended illumination levels vary depending on the specific tasks performed in different areas of the laboratory. General working areas may require around 300-500 lux, while microscopy areas may need higher levels of illumination, typically between 1000 and 1500 lux;
  - Natural lighting is important for staff when reading culture and conversely Ultraviolet (UV) exposure on reagents/analysis can be detrimental;
  - Uniformity of Lighting: lighting should be uniform across the laboratory to minimise shadows and variations in visibility. Uneven lighting can lead to difficulties in accurately interpreting microscopic specimens or distinguishing subtle colour changes, potentially affecting the accuracy of results;
  - Colour Rendering Index (CRI) measures how accurately a light source represents colours compared to natural light. A higher CRI (ideally above 90) is desirable to ensure accurate identification and interpretation of colour changes in stained specimens or indicators;
  - Control of Glare and Reflections: the design should minimise glare and reflections on surfaces, such as microscope lenses, slides, and computer screens, to avoid visual discomfort and potential errors. Non-reflective surfaces, matte finishes, and proper positioning of lighting fixtures help control glare and reflections;
  - Task Lighting: task lighting is essential in areas where specific visual tasks, such as microscopy or reading culture plates, are performed. Adjustable task lighting, such as adjustable arm lamps or gooseneck lamps, can be utilised to provide targeted illumination and enhance visual clarity for detailed work; and
  - Emergency Lighting: emergency lighting systems should be in place to provide visibility and safety during power outages or other emergencies. Backup power sources, such as battery-powered lighting fixtures or emergency generators, should be installed to ensure adequate illumination for safe evacuation or continuation of critical task.

- **Temperature**

  This applies to all departments with a large number of equipment:

  - HVAC systems play a crucial role in regulating temperature in laboratories and may include air conditioning units, heat exchangers, fans, and ductwork to distribute conditioned air effectively;
  - It is recommended that heat load calculations are conducted for the department to determine the amount of heat generated by equipment and the required cooling capacity to ensure that HVAC systems are appropriately sized to handle the heat load and maintain optimal temperature conditions;

- The design might also consider dividing into zones to optimise temperature control and to place equipment generating significant heat in strategically placed locations to avoid localised heat buildup. Proper airflow management, such as supply and return air vents, can help direct cool air towards heat-generating equipment and remove hot air efficiently. The design could include ventilation strategies to remove heat from the space by increasing the air exchange rate or adjusting ventilation settings;
- Proper insulation of laboratory walls, ceilings, and equipment could also be included in the design to prevent heat transfer to the surrounding environment. Insulating materials with high thermal resistance reduce heat loss or gain, minimizing the impact on overall temperature control;
- Careful placement and spacing of equipment will be essential for effective heat management. Overcrowding or improper placement impeding airflow, leading to heat buildup should be avoided in the design; and
- The design could also include automated systems (with alarms and alerts) that can adjust HVAC settings based on preset parameters to maintain a comfortable temperature.

- **Acoustic control**
  - The design should consider noise control measures to allow scientists to concentrate, particularly during analytical processes including blood film reviews;
  - Consideration to be given to ceiling acoustic and wall treatment where applicable and appropriate. In particular ceilings and this has the added opportunity of enabling a design that adds colour and form to the ceilings – noting that they will be expansive over the large generic laboratories.

- **Laboratory space.** Laboratories are serviced by power/data and gases and shelving suspended from the ceiling above the bench tops to free up space on the floor and to facilitate changeable and modular systems. laboratory benches are to be loose and removable.

- **Offices**
  - Pathologist and scientific leadership offices/workspaces are to be located on the same level as the corresponding laboratory space in an administration area of the floor, to ensure the laboratory space is open plan and not disrupted by office spaces.
  - Allocation of offices is to accord with the *CHS Accommodation Guidelines*.
  - Workspaces for all scientists and some registrars (including supervisory positions) will be in the form of open-plan desks based within laboratory spaces; quiet office/workspace will be provided for scientific leadership roles (in close proximity to the laboratory if possible) as per CHS accommodation policy; and
  - Anatomical Pathologists are an exception for office requirements where their microscopes are located inside their work point, which for many is in an office with natural light (direct or indirect) and long sightlines beyond the building. While this is not a regulatory requirement, it is highly relevant and practical for the type of work conducted. AP registrars also need a dedicated space.

- **Staff Spaces**
  - Creating a welcoming and comfortable work environment for staff can be challenging;
  - Team members need ready access to break-out spaces for local meetings with minimal disruption to work. Each core team requires access to small, functional meeting spaces with glass windows and AV facilities, located near laboratory spaces;

- Common meeting areas should be spacious, comfortable and well-equipped. Where feasible these should be multi-purpose e.g. for teaching and "town hall" meeting purposes; and
- Staff spaces should acknowledge the demands placed on overnight staff – including safety, rest areas and lighted access to vehicles and transport.

- **Centralised support facilities.** Laboratory level storage is via the Centralised Consumables Store (one per level if more than one level) to maximise usable laboratory space and operational efficiency. Same concept goes with the Centralised Waste Store, Centralised Chemical Store, Centralised Equipment Storage, Centralised Record Storage[14], Central Lab Services (e.g., Uninterrupted Power Source room, Compressed air, RO water system), Freezer Farm Biobank, and Centralised cryogenic processing and storage facility.

- **Health and safety** as being at the forefront of all considerations – and during the further design stages it will become critical to the planning outcomes:
  - A logical layout that is ordered but yet expandable;
  - The workflow has key access points that need adequate space to allow operators to do their work unencumbered and not crowded by other activities or instruments;
  - Clearly articulated travel paths that are wide enough for ease of movement;
  - Sightlines and visual control will enhance safety;
  - Allows trolley based movements;
  - On floor hazard and spill mitigation; and
  - Appropriate allocation of hygiene and safety stations clearly demarcated.

- **Building services reticulation and backbone to be flexible and adjustable**, and ordered to avoid "mess" but be serviceable and able to be upgraded and interchanged with new technologies and equipment.

- **Floor Loading**. All departments will likely have an increased number of analysers and equipment that is heavy and becoming heavier. The design should ensure that the floor load capacity and point loads are designed for current and future equipment.

- Consider the increasingly popular **"science on display" concept** that can greatly enhance the awareness and importance of a hospital pathology department and engage with the hospital staff and also the public where applicable. These could include visible interior laboratory spaces for the public with extensive use of glazing, and use of graphics on glass

- **Sustainability.** It is likely that equipment to help recycle plastics, chemicals and other recyclables will be added to the future laboratory state and will require additional space and workstations.

14. BMT cell processing records storage/retention requirements and secure access to BMT staff only (this could be a lockable cabinet in common space).

4. Functional Relationships

4.1. FUNCTIONAL RELATIONSHIPS

This section provides information on the functional relationships between the different pathology departments and support services. These relationships are becoming increasingly complex due to converging and emerging technologies and the need for enhanced operational efficiencies.

Most of this information is relevant to the FDB. It is included here to assist with clarification of scope and scale of the new facility.

Figure 4-1 diagrammatically shows the functional relationships and associated complexities for a contemporary pathology lab. This has been developed by L2D following consultation with ACT Pathology staff. The diagram provides an overview. Other diagrams provide a more detailed set of relationships for each of the main department components, which are included in Appendix A3.

Key relationships include:

- A Core Lab (red border);
- The further development of highly automated processes for core subspecialties (purple);
- Administrative support functions (pink);
- Laboratory support functions (green); and
- Centralised supplies, waste and refrigeration spaces (grey).

The functional relationships diagram as provided by L2D includes new (expanded) functions, comprising:

- A prototype laboratory;
- Digital Pathology Research;
- DNA Extraction and Amplification, and enhanced cryogenic services; and
- 'Interaction space'.

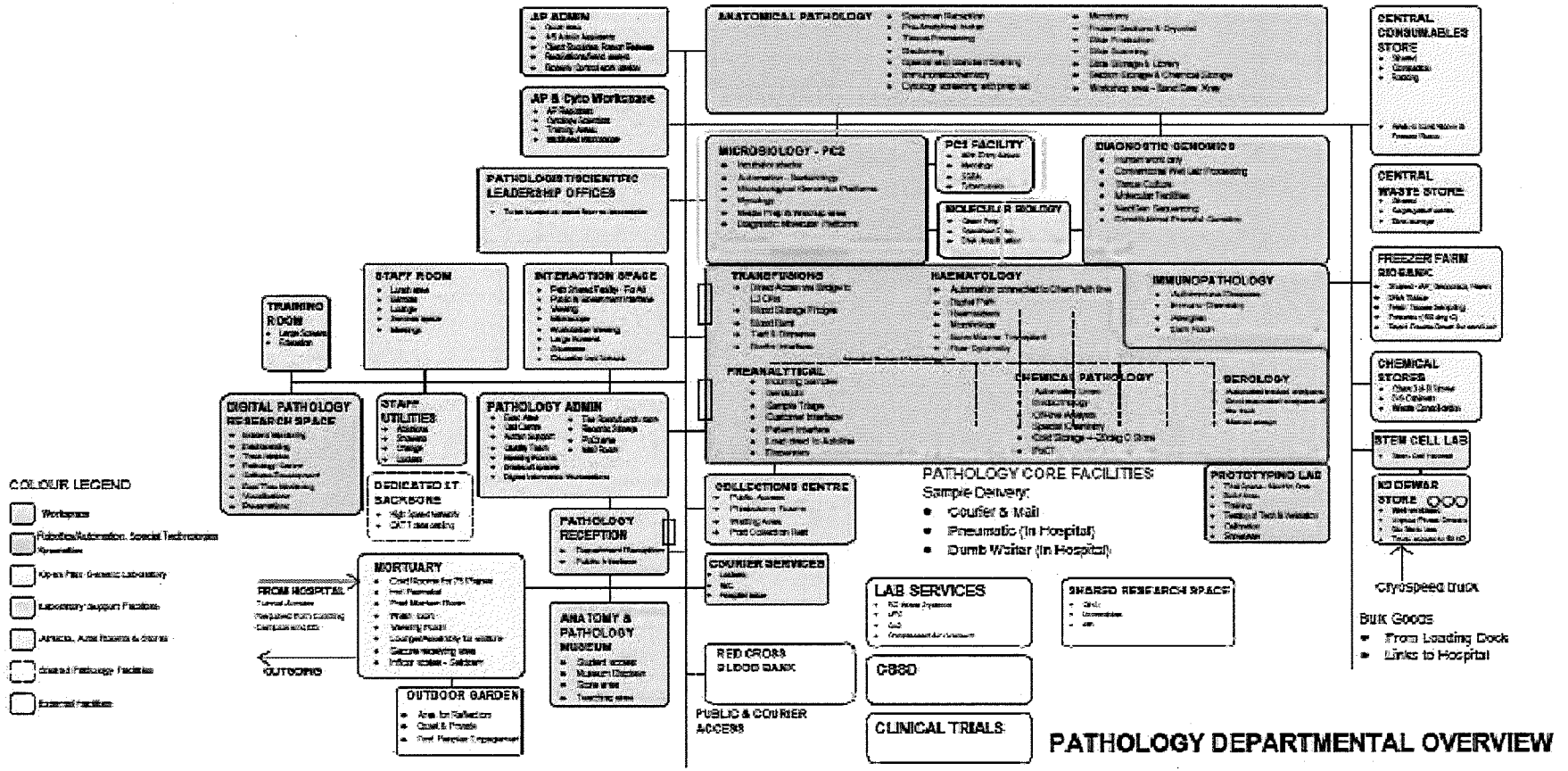
Historically, the above disciplines have functioned as independent silos, with minimal cross collaboration. It is clear, that the future of Pathology requires significant integration, convergence and cross collaboration of departments.

As a first step departments are more consolidated, forming larger integrated 'Groups', including:

- Collection Services and Specimen Reception (Pre-Analytics);
- Core Laboratory departments (Haematology[15], Chemical Pathology, Immunopathology & Infectious Immunoassay and Specimen Reception), and noting that these department functions may also have components that are not necessarily part of the Core Lab;
- Microbiology and Molecular Pathology;
- Anatomical Pathology and Diagnostic Genomics; and
- Mortuary and Autopsies.

15. Including BMT/Cell Processing Laboratory.

Figure 4-1: Pathology Functional Relationships (Department Overview) – by L2D Architects



CANBERRA HOSPITAL PATHOLOGY

FUNCTIONAL RELATIONSHIP DIAGRAM - Overview - All Departments

Notwithstanding, the above, there are some (non-testing) functions that are potentially able to be separated. Essentially, these are the non-clinical testing area, such as Pathology Administration, Pathology Reception, Mortuary, Pathology Museum, Collection Services, Central Storage spaces, Freezer Farm Biobank, Cryogenic Processing and Storage Facility; and Courier Services.

Figure 4-2 below shows functional adjacencies for pathology services. These are similar to the relationships described above, except expressed in terms of the relative importance of proximity.

There are critically important adjacencies relating to the Core Lab and, very close proximity for the other diagnostic pathology services, with easy access to clinical support functions.

Figure 4-2: Functional Adjacencies Matrix

	Relationship Matrix	Specimen Reception (Preanalytics)	Haematology and Transfusions	Chemical Pathology	Immunopathology - Serology, Infectious Immunoassay (automated)	Immunopathology - Other	Haematology - Bone Marrow Transplant	Chemical Pathology - Special Chem, POCT	Anatomical Pathology	Diagnostic Genomics	Microbiology and Molecular Pathology	Pathology administration	Collections Centre	Mortuary services	Prototyping Lab	Digital Informatics	Centralised Storage and Waste	Liquid Nitrogen Dewar	Freezer Farm and Biobank	ACT Pathology Research	Mortuary and Loading Dock Access	Courier Services	Slides and blocks storage
		Pathology Core																					
Pathology Core	Specimen Reception (Preanalytics)	x	1	1	1	1	1	1	2	1	1	3	2	-	1	3	3	3	2	-	-	1	-
	Haematology and Transfusions (automated)		x	1	1	1	1	1	2	1	1	3	2	-	1	3	3	3	1	-	-	-	-
	Chemical Pathology (automated)			x	1	1	1	1	2	1	1	3	2	-	1	3	3	3	2	-	-	-	-
	Immunopathology - Serology, Infectious Immunoassay (automated)				x	1	1	1	2	1	1	3	2	-	1	3	3	3	2	-	-	-	-
	Immunopathology - Other					x	1	2	2	2	2	3	2	-	2	3	3	3	2	-	-	-	-
	Haematology - Bone Marrow Transplant						x	1	2	2	2	3	2	-	2	3	3	3	2	-	-	-	-
	Chemical Pathology - Special Chem, POCT							x	2	2	2	3	2	-	2	3	3	3	2	-	-	-	-
	Anatomical Pathology								x	1	2	3	2	-	2	3	3	3	1	-	-	-	-
	Diagnostic Genomics									x	1	3	2	-	2	3	3	3	1	-	-	-	-
	Microbiology and Molecular Pathology										x	3	2	-	2	3	3	-	1	-	-	-	-
	Pathology administration											x	-	-	-	-	-	-	-	-	-	-	-
	Collections Centre												x	-	-	-	-	-	-	-	-	-	-
	Mortuary services													x	-	-	-	-	-	-	1	-	-
	Prototyping Lab														x	-	-	-	-	-	-	-	-
	Digital Informatics															x	-	-	-	-	-	-	-
	Centralised Storage and Waste																x	-	-	-	-	-	-
	Liquid Nitrogen Dewar																	x	-	2	-	-	-
	Freezer Farm and Biobank																		x	-	-	-	-
	ACT Pathology Research																			x	-	-	-
	Mortuary and Loading Dock Access																				x	1	-
	Courier Services																					x	-
	Slides and blocks storage																						x

Legend
1 directly adjacent (Horizontal / Vertical)
2 easily accessible (less than 3 minutes)
3 accessible (3 - 5 minutes)

4.1.1. The Core Laboratory

The concept of a centralised laboratory has been progressively evolving since the late 19th Century. Contemporary laboratories have the Core Lab at the 'heart' of its operations as automation and quality control become more important.

The future Pathology facility will employ the Core Lab concept with a 24/7 service delivery. The Core Lab includes Specimen Reception, Haematology & Transfusion, Chemical Pathology, Immunopathology & Infectious Immunoassay. It is critical for these departments to be collocated for:

- Efficient triage of patient samples;
- Connection of analysers to core laboratory track system;
- Growth space to allow for the track to expand with additional instrumentation connected;
- Sharing of like technology;
- Sharing of generic workspaces e.g. centrifuges, storage spaces;
- Cross training of technical staff in the use of similar technology; and
- Centralise 24/7 critical services.

Technologies and tests will move into this space from various disciplines, as well as extended robotics to accommodate more of the high-volume testing of a Core Laboratory. Analysers which can be connected to an automated track system, will be connected to it as much as possible.

The Core Lab comprises four main departments:

- Specimen Reception;
- Haematology & Transfusion;
- Chemical Pathology; and
- Immunopathology & Infectious Immunoassay.

It is critical that the Core Lab departments are adjacent to each other in the Core Lab area.

The Core Lab has several critical design features, including:

- A large open space that can:
  - Accommodate an automated track system. With this comes the connection of the analysers to the Core Lab track system.
  - Accommodate infrastructure to allow a single sample transport system ('Tempus') to connect from critical locations e.g. Emergency Department (ED), directly into the automated track system to allow for minimal touch points and optimal turnaround time of urgent samples, facilitating triage of patients.
  - Enable reasonable expected growth in robotics and other automated instrumentation.

  Shared spaces for automation (robotics) creates a unique place to design. The robotic lines require structured and ordered space that is expandable and interchangeable. The "track" configuration (typically along a central spine with 'arms') is critical to the interconnectivities of the robotic stations that connect to the track. It is essential to design the space with direct and clear access in order to gain the most benefit from the expensive robotic lines.
- A reception space that receives and efficiently triages patient samples/ specimens (from multiple collection sources);
- Sharing of like technology, and generic workspaces (such as biosafety cabinets, centrifuges, storage);
- Cross training of technical staff in the use of similar technology; and
- Centralise core 24/7 critical services;
- Scientific staff will remain specialised within a particular department, instead of being cross trained.

4.1.2. Prototyping Laboratory

The concept of a Prototyping Laboratory would be implemented in the new Pathology facility. It is an important aspect of futureproofing. This is an initiative that expands on the current functional capacity. It is a practice that is increasingly being adopted by pathology services, which will allow space to:

- Prototype new equipment, or showcase and trial a supplier's technology;
- Be able to trial robotics before the expense of acquiring them, which is invaluable;
- Conduct early trials and testing/commissioning of new technology to speed up the compliance period; and
- Ultimately being able to be used as future expansion subject to priorities.

It is a single open plan area contiguous with the Core Lab.

4.1.3. Digital Pathology

The concept of Digital Pathology will also be fully embedded into the new Pathology facility, including:

- A modular functional space;
- Management of current interfacing and IT connections with dashboards to manage offline problems;
- Data Centre (off site, could be digital reference library/storage); and
- Digital admin (to be with all other admin staff).

The L2D high level Functional Design Brief report[16] also indicates that if not all functions can be located on the same level, then the following services can be on another level, including:

- Pathology Central Administration
- Collections Centre
- Mortuary
- Outdoor reflection garden space
- Vehicle access
- Anatomy and Pathology Museum
- Central Consumables Store
- Central Waste Store;
- Freezer Farm and Biobank
- Chemical Stores
- IT Backbone/Data Centre
- Stem Cell Lab
- Liquid Nitrogen Dewar Store
- Loading Dock

4.2. SCALE

The Service Model as presented recognises that there are two important factors that relate to scale for the new pathology facility:

- The current pathology services are operating in facilities that are not fit for purpose and space is inadequate for many services; and
- A core criterion for the Phase 2 Redevelopment is to develop **'like-for-like'** services, which is interpreted to mean like-for-like functional capacity, not like-for-like space.

For pathology, there is a need to consider increased space to continue to deliver the current functions to meet contemporary standards and expectations.

[16] L2D Architects, Functional Brief, July 2023, pp14-15

Importantly, the Australasian Health Facility Guidelines (AusHFG) only provide limited guidance for a Level 6 pathology facility's area requirements as might be expected, as each major public pathology service will have different functional requirements across different catchment areas.

To ensue transparency, the scale of the expanded area that enables contemporary like-for-like functional capacity relative to any accepted expanded functionality requires explicit consideration and guidance.

Current area stands at 4,458 sqm Net Department Area (NDA), which is the total available usable space. The estimated proposed area by ACT Pathology is 6,589 sqm NDA inclusive of expanded/enhanced functions, this translates to 8,355 Gross Departmental Area (GDA) and ~11,700 Gross Building Area (GBA).

4.3. PRE-ANALYTICS

This section describes the current operating system and service model as well as identifying key issues for Pre-Analytics services.

4.3.1. Scope of Service

Pre-Analytic services are the 'front door' to pathology. Pre-Analytics maintains the pathology test register, manages distribution of test results and is responsible for patient care in collection areas. Pre-Analytics is custodian of patient specimens up to handover to other specialist departments.

Pre-Analytics department comprises two distinct services:

- **Collection Services**.
  - Customer engagement;
  - Phlebotomy/specimen collection to support CH and non-CH services;
  - Glucose Tolerance Testing;
  - Electrocardiogram;
  - Fine Needle Aspiration;
  - Home Collection Service;
  - Couriers;
  - Client and service advocacy;
  - Dispatch of tests to specialist labs for testing;
  - Patient and client enquiries;
- **Specimen Reception**.
  - Pre-analytical request registration;
  - Specimen receipt;
  - Receipt of samples via the (Lampson) Pneumatic tube system from connected ward locations;
  - Specimen processing;
  - Loading, unloading and monitoring of the specimen tracking system;
  - Delivery of test results and reports;
  - Management of clinical trial samples; and
  - Referral of samples.

4.3.2. Specimen Pathway

Specimens are received from the following places:

- Inpatient and outpatient services at CH;
- Other public and private hospitals in the ACT and parts of NSW;
- Community medical practitioners; and

- Collection centres operated by ACT Pathology.

Upon receipt of the specimen and the checking of the specimen details, the specimen is registered in the Laboratory Information System (LIS). This becomes a critical step in the quality, tracking and risk management of pathology's work.

Collection Services

Collection services comprise:

- Patient arrival and registration - with referral and identification;
- The specimen is collected from the patient (by various methods depending on the specimen); and
- Once collected, the specimen is appropriately handled and transported to specimen reception.

Specimen Reception

Specimens are delivered to Reception by:

- Pneumatic Tube from some areas of the Hospital;
- Hospital staff;
- ACT Pathology couriers; and
- ACT Pathology staff including Anatomical Pathology staff who perform the collection (e.g., fine needle aspiration).

Specimen reception has two main functions: 'logging' the specimen into the laboratory's information management system with cross-checking of the requisite details and forwarding the specimen to the Core Laboratory for routine testing or other appropriate department for processing. Each department has their own process(es) and systems that are described below.

Area

The current NDA for Pre-Analytics is ~391 sqm.

4.3.3. Hours of Operation

Pre-Analytics services at the new Pathology facility will operate 24 hours a day, 7 days a week and 365 days a year, with reduced resourcing after-hours and weekends[17]. Collection services may also be offered outside of this building, if this is the case, hours of operation of this (other collection) service will be in line with the building and staff arrangements.

4.3.4. Service integration and collaboration

As noted above, Pre-Analytics is the 'front door' of the pathology service, and always available at the hospital site to receive specimens from CH, other hospitals and other collection sites across the ACT.

17. ACT Pathology, 02508 02501 86751 aid.

An important current and future function of the Pre-Analytics services is the capacity to further develop and maintain the market share for pathology services, which means:

- Maintaining its availability;
- Maintaining and improving its collaboration with community referrers and its responsiveness, including the timely collection of specimens; and
- The corresponding need for timely testing and reporting of results that is the responsibility of the Pathology Core Laboratory and each department. This also means having compatible ICT platforms for receipt of referrals and for reporting results in a timely manner: a core requirement of current and future Pathology services.

4.3.5. Workforce Model

The workforce model [18][19] determines the effectiveness of clinical capability of Pre-Analytics services. It is both the number of Full-Time Equivalent (FTE) as well as how staff are organised to meet demand in a timely manner that will be important to the viability of pathology as a business unit.

Current staffing levels provided in tables below, and total 99.1 FTE.

Table 4-1: Staffing by Workforce Category, Customer Services and Collection Services

Staff Category	Headcount	FTE
Customer Services Manager	1	1.0
Collections Manager	1	1.0
Collections Educator	1	1.0
Customer Liaison Officer	1	1.0
Receptionists	21	16.0
Phlebotomists	53	39.5
Pathology Courier	15	8.6
Total	93	68.1

Table 4-2: Staffing by Workforce Category, Specimen Reception

Staff Category	Headcount	FTE
Manager	1	1.0
Senior Technical Officers	5	5.0
Team Leaders	4	4.0
Technical Officers	28	21.0
Total	38	31.0

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

18. ACT Pathology, SR Staff List - January 2023
19. ACT Pathology, January 2023 Customer Service Staff List.

4.3.6. Key Functional Relationships

Internal Relationships

Collection Services has a close clinical relationship with Specimen Reception. However, it does not need to be immediately proximal to the Specimen Reception or any other pathology function if patient-centred care considerations outweigh proximity (collection services must be close to outpatient public access/parking/ pickup/drop-off). There are other mechanisms such as pneumatic tubes that can reduce the need for close proximity.

Specimen Reception will be a part of the Pathology Core Laboratory services in the new facility along with (automated) Chemical Pathology, (automated) Haematology, and (automated) Immunology/Infectious Immunoassay, as one of its main future functions will be loading and unloading the tracking system.

External Relationships

Collection Services is the most outward facing department of ACT Pathology. It works with all CH departments, other CHS services, private health service providers, as well as pathology laboratories outside of CHS. Collection Services is strategically positioned to impact ACT Pathology's reputation and reflect 'customer needs'.

Specimen Reception is to be closely linked with courier services.

4.3.7. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.3.8. Key Challenges/ Future Service Trends and Innovations

At the moment, Collection Services and Specimen Reception are two separate departments of Pathology, but with the introduction of Digital Health Record (DHR), the two departments will merge into a single department.

Most of the key challenges are automation, operational or 'space' related, including:

- The future **collocation and structural integration** of Customer Services and Specimen Collection;
- Improved **security and data privacy measures** through advanced encryption methods, robust authentication protocols and compliance with evolving data protection regulations, which are essential to safeguard patient information. The potential risks to CHS of data breaches/hacking is particularly significant;

- **Robotic automated systems** can support the sorting, labelling, and organising of specimens, ready for transporting them to the appropriate processing areas. The progression towards a fully operational robotic system for Pre-Analytics is understood to be in progress at ACT Pathology;
- **Automated devices** can be used to a greater extent, assisting in tasks such as venipuncture, tissue biopsy, and sample preparation, which may enable more patient-centred collections at the bedside or clinic, or even patients' homes;
- A fully integrated **laboratory information systems** (LIS) has potentially powerful application for enhanced data management and workflow, facilitate real-time tracking of specimens, and automated data capture. It could also enable data analytics and reporting capabilities to support quality improvement initiatives and to better support business performance;
- The constant need for **equipment and ICT platform upgrading and replacement**.
- **Enhanced courier access** (e.g., at a loading dock rather than directly to and from an upper level in the facility to improve efficiency for pickups and drop-offs;
- Enhanced **storage facilities for blood products**, with separation from Specimen Reception;
- The **more widespread adoption of DHR** by more ACT health services will enable better integration between services (with ACT Pathology) and further enhancing automation and coordination for P&PA;
- **24/7 workforce issues**. With technology, Specimen Reception may become one of the only, if not the only overnight service within ACT Pathology in the future with high levels of automation in the Core Laboratory. This means workforce capacity and sufficient staff amenities in the Specimen Collection and Core Laboratory will enable staff to remain in the area during their overnight shift;
- **Administrative process and structures**
  - **DHR impacts**. Most of the impacts are positive in the centralisation of the patient record. There are administration processes that will adversely impact on quality in the short-term such as potential distortion of sensitive information arising from the pre-printing labels in the context of "actual time of collection"; and label printing continuing to rely on hospital clinicians being familiar with frequently misprinted colour coding/test types, leading to substantial (and unnecessary) manual override;
  - The importance of maintaining a separate external door to allow for the presentation of **infectious patients**;
  - Medicare checks not being undertaken which introduces errors due to incorrect reading of doctor's handwritten information;
  - The need to separate internal hospital staff foot traffic from courier traffic; and
  - ACT Pathology, being the only public pathology service in ACT, still frequently gets mixed up with Capital Pathology, due to similar naming conventions.

4.3.9. Pre-Analytics Strategic Developments

The Pre-Analytics service model represents a traditional 'front door' model of a pathology service. It has progressively developed practices that are now partly electronic and partly manual. There would appear to be room for the further automation of collection and reception of specimens, and thereby increasing operational efficiencies and reducing risks associated with specimen identification and tracking. More contemporary practices would necessarily form part of the development of Pre-Analytics in the new Pathology facility.

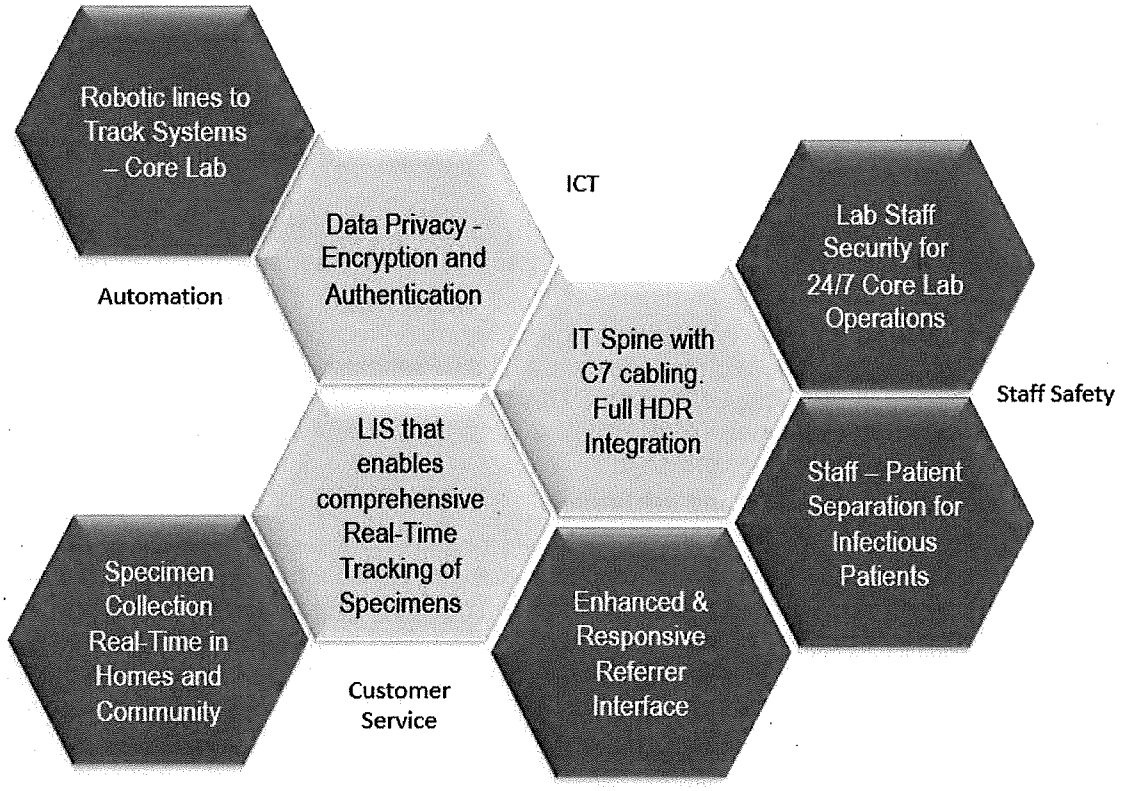
Consideration is given for two potential service model options for Collection Services:

- One Collection Service only, which continues the existing operations at the new Pathology facility, if the pathology facility is close to outpatients; or

- Two Collection Services, if pathology is too distant from outpatients. There would be one at the new Pathology facility to include usual collection services and all patients needing fine needle aspiration or other complex collection services. The second collection centre would be at one of the two new Inpatient and Outpatient building(s) for general collection.

The design of the Pre-Analytics area would effectively integrate work flow of Pre-Analytics with the Core Lab to maximise operational efficiencies. Over time, this is expected to enable the enhanced automation, a robust ICT spine, enhanced customer service, and staff safety, as identified in Figure 4-3 below.

Figure 4-3: Future State for Pre-Analytics



4.4. ANATOMICAL PATHOLOGY

4.4.1. Scope of Service

Test Volumes

Anatomical Pathology (AP) performs approximately 30,000 tests annually and is considered one of the most labour-intensive disciplines. The bulk of the testing is histology, which accounts for approximately 75% of the workload. The breakdown of testing, section and volume is provided Table 4-3 noting a slight decline year-on-year, which is most likely related to COVID.

Table 4-3: Anatomical Pathology Test Volumes – 2019-20 to 2021-22

Year	Histology	Cytology	Immuno-histochemistry	Perinatal Autopsies	Total
2019/2020	Not known	Not known	Not known	Not known	34,265
2020/2021	25,106	7567	Not known	95	33,157
2021/2022	22,507	7237	Not Known	77	30,221

Area

The current NDA for AP is ~939 sqm.

Specialty Scope

AP is a specialty of pathology that involves the study of human organs and tissues and has a large role in cancer diagnoses. The tissues examined usually include biopsy material taken from a patient in the operating theatre, on the ward, outpatients or during autopsy, and allows clinicians to give the most appropriate advice and treatment to patients[20]. A significant number of referrals also come from external specialists and GPs.

AP has roles in the following areas, noting the most significant volumes of work are for "tissues of living patients"[21]:

- Determining the cause of disease;
- The effect(s) these diseases have on the body and specific organs or tissues;
- The choice of treatment to be given;
- Prediction of prognosis; and
- Determining cause of death.

There are three sub-divisions within anatomical pathology; histology, cytology and mortuary services.

Histology

Histology focuses on microscopic structure of tissue obtained from biopsies or surgical procedures, processed (see below) and then examined by an anatomical pathologist under a microscope. There are several important components of histology that impact on the Service Model and the design of future AP space.

Immunohistochemistry (IHC) is a form of specialised staining employed on both histology and cytology samples. IHC uses antibodies to detect specific antigens in tissue samples and provides information about the location and intensity of antigen expression, giving a more detailed and specific analysis than traditional histology. This includes tumour markers (proteins) that are overexpressed in certain types of cancer (like HER2/neu in breast cancer), amongst many others.

20. NSW Health Pathology, Clinical Services Plan 2019 – 2025 Version 2:2021, https://pathology.health.nsw.gov.au/wp-content/uploads/2022/10/Clinical-Services-Plan.pdf
21. NSW Health Pathology, Clinical Services Plan 2019 – 2025 Version 2:2021, https://pathology.health.nsw.gov.au/wp-content/uploads/2022/10/Clinical-Services-Plan.pdf

Cytology

Cytology examines cells or cluster of cells under a microscope. Cytology includes examinations most often related to body fluids, cervical screening tests and fine needle aspirations. Cytology scientists attend many interventional radiology procedures to provide on-site rapid assessment of samples for diagnostic adequacy.

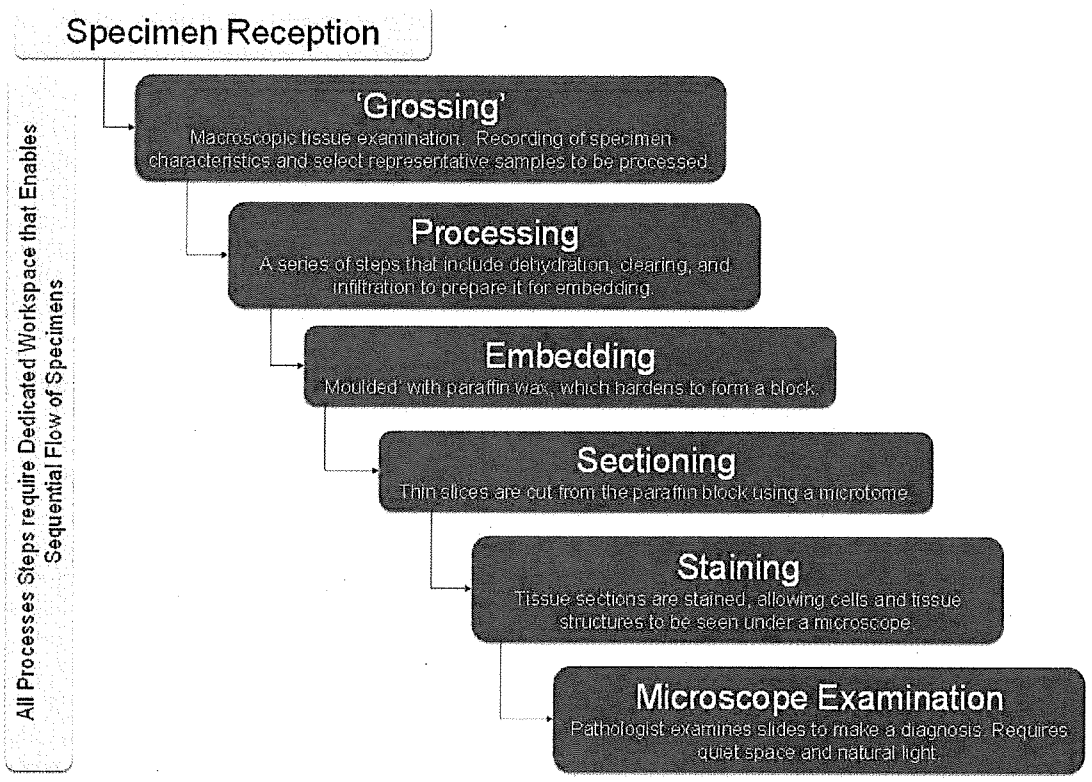
Mortuary services

See section 5.

4.4.2. Specimen Pathway

Figure 4-4: Unidirectional Specimen Flow for Histology

Following receipt and registration of specimens (from Pre-Analytics), processes in AP follow a generally linear flow, but with recursive loops through parts of the process if additional work or stains are required. There are slightly different pathways for each of the units as indicated in the following schematic diagram.



All findings/reports - including diagnosis and recommendations for treatment and/or management - are then documented, which is the principal means of communication with other clinicians involved in relation to overall patient care and management.

After analysis, specimens must be stored for a period of time (before disposal) based on CHS policies and statutory requirements. Disposal is similarly governed by policy and regulation/protocols, as biohazardous waste.

It is evident from the above description that AP requires space for receiving and managing/storing and processing a large variety of tissue types. Each of the stages of tissue examination requires dedicated space to ensure effective management and control of the tissue. Each process is sequential requiring the organisation of the histology unit to be established in a unidirectional and logical flow sequences.

Many of the process steps are currently manual but with an increasing propensity to automate most of these manual steps.

The pathologist may request additional sectioning and staining (including immunohistochemistry or in situ hybridisation) in order to make a diagnosis (looped workflow).

In some cases, specimens are sent fresh (rather than in formalin) for frozen section examination. Fresh tissues are also triaged and divided for examination by multiple other departments (for example, lymph nodes for Microbiology and Flow cytometry as well as Histology).

Triaging of samples is a large component of AP, requiring a close collaboration between scientists and pathologists. Close proximity is therefore essential.

For Cytology. the processes are a truncated version of Histology.

4.4.3. Hours of Operation

Usually, AP operates five days a week Monday to Friday, with laboratory staff present from 5.30am to 8.00pm. Additional rostered shifts occur during extended hours, weekends and Public Holidays i.e., Easter and Christmas-New Year break.

AP supplements the usual operating times with a 24/7 out-of-hours on-call service for emergency/urgent tissue analysis, which includes:

- A pathologist on-call, out-of-hours;
- Scientists on-call to assist pathologist with any Frozen Section and Renal Biopsy which occur after-hours, as well as attending to the laboratory if processor and/or other instrumentation issues arise.

4.4.4. Workforce Model

The workforce model reflects the clinical capability level of AP, with staffing levels provided in Table 4-4 below. The staffing complement includes clinical director, anatomical pathologists, registrars, chief scientist, administration support, laboratory/pathology scientists and technical officers.

Table 4-4: Staffing by Workforce Category, Anatomical Pathology[22]

Category	Section/Unit	Head Count	FTE
Director	All	1	1
Deputy Director	All	1	1
Pathologists	All	13	11.1[23]

22. ACT Pathology, March 2022, ASSESSMENT INFORMATION DOCUMENT SUPPLEMENT – NCSP.
23. There are 11.1 FTE pathologists plus an ANU-funded pathologist for running the undergraduate pathology course, this ANU funded position is not part of the FTE count for this table.

Category	Section/Unit	Head Count	FTE
Registrar	All	7	6.4[24]
Chief Scientist	All	1	1
Scientific Supervisor	AP	1	1
Scientific Supervisor	Cytology	1	1
Senior Scientist	Histology	2	2
Senior Scientist	IHC	1	1
Senior Scientist	Cytology	1	1
Base Grade Scientist	Histology and IHC	13	11.4
Cytoscreener	Cytology	6	5.8
Technical Officer	Histology and IHC	4	4
Administration Support	All	4	4
	Current Total	56	51.7

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

4.4.5. Current Location

AP is currently located on Levels 1, 3 and 5, Building 10, CH as indicated:

- Histology (Level 3);
- Immunohistochemistry (Level 5);
- Cytology (Level 3); and
- Mortuary services (Level 1).

Additionally, archived 'slides and blocks' are stored in the basement primarily due to the weight of the blocks and also due to storage constraints on level 3 where a smaller store area is kept. The laboratory is required to retain slides and blocks generated as part of the diagnostic process for as many as 28 years.

The locations indicate the that the nature of the department is too fragmented and operates inefficiently from over-crowded spaces. This service model proposes a consolidation of AP, an increase in area, and with strong connection with DG.

4.4.6. Key Functional Relationships

Internal Relationships

Within the department, Histology, Immunohistochemistry/Special Stains, EM and Cytology should be located together, as a single coherent unit. This is the primary functional relationship for AP.

24. There is a 0.2 FTE honorary registrar, not part of the FTE count for this table.

As the next most important relationship, AP should be located proximal to (or contiguous with) Diagnostic Genomics. Anatomical Pathology and Diagnostic Genomics will be managed as a single department in the future. The closer working relationship will provide an opportunity to better leverage new technologies (genomics and imaging in particular) and the evolving, closer professional relationships that are already emerging.

Anatomical Pathology site visits demonstrated that, new laboratories, even after a relatively short period of time e.g. 5 years, outgrow the space. This is due to the high level of manual labour, especially in areas such as cut up grossing. As workload increase, space requirements also increase due to additional staff a workplace. It is therefore critical to over spec the anatomical Pathology laboratory to ensure ACT Pathology can keep pace with future clinical requirements.

AP registrars will be located in a dedicated space to allow for their workstations/microscope, as well as registrars of other departments.

There is no requirement for Mortuary Services or the Pathology Museum to be collocated with the other AP units, but there will be a strong association between these services.

External Relationships

The key requirement for AP is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Anatomical pathologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

4.4.7. Storage and Specimen Retention

For AP, storage is a particular issue (and is one of the challenges noted below). The department requires various types of storage for different purposes, noting it shares processing similarities with closely linked departments – Histopathology (tissue processing) Diagnostic Genomics and Molecular Pathology. The design could create special efficiency by having shared storage.

Stock will need to be retrieved from storage locations strategically placed to optimise workflow. Waste should be relocated to a dedicated waste removal space awaiting collection by the waste disposal service.

Details on storage and waste are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.4.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;

- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.4.9. Anatomical Pathology Future Challenges, Trends and Innovations

Trends and Innovations

The future for AP is relatively clear. It incorporates a service model that has very significant investment in automation, particularly WSI, and embracing of the omics revolution, in order to minimise manual processes wherever possible.

Whole Slide Imaging and Artificial Intelligence

It is certain that AI and machine learning will assist AP with the automated evaluation of *digital slides*, improving accuracy, and reducing the time taken for manual diagnosis. This will reduce the workloads for Anatomical Pathologists.

The evolution to AI will be incremental. In the first instance, AI will be used as a clinical decision support tool. Nevertheless, even making the strategic decision to use slide imaging as a decision support tool for AP, it will require significant investment in the technology.

The technology currently exists and will continue to improve over time. *Whole Slide Imaging and Digital Pathology* technology can create digital slides that can be viewed on a computer, eliminating the need to manually handle glass slides. The digital images are easily shared and stored but will require additional digital storage capacity

Digital technologies in pathology are rapidly moving beyond imaging to guiding diagnosis. Some manufacturers are developing technology, dyes and analytic platforms to meet future demand and improve patient outcomes using nanotechnology. These new technologies are mostly replacing the staining technology and the scanner for new types of digital immunohistochemistry.

Integrated automation and tracking solutions.

While many steps of the pathology workflow are already automated, there is potential for even more automation using advanced robotics.

There are current automated processes for AP that are not yet operating at ACT Pathology. This is where 'leap frogging' investment is a key consideration. Indicatively:

- For histology and IHC workflow, individual components and workstations could become more automated, which highlights the need to design for open spaces as well as structural design of flooring to handle additional machinery and its weight;
- *Processing*: Automated tissue processors are a crucial part of the workflow in many labs including ACT Pathology. Future advancements in processing could involve more efficient or rapid methods, or using alternative chemicals that are safer or more environmentally friendly but will mostly be replacing equipment with similar sized equipment;
- *Embedding*: Automation of the embedding process is already available for simple specimen transfers and with advancements in robotics and machine learning, there will be more automated embedding systems in the future;

- *Sectioning*: Sectioning is currently primarily a manual task, as it requires a high degree of precision and skill. Automated microtomes are available with automatic, semi-automatic, and manual options available to meet a variety of circumstances and it's possible that with advancements in robotics and machine vision, more automated sectioning could become possible. Despite this advancement, however, scientists will still be just as needed and wanted as they will need to manage this process, with the automation part acting predominantly to reduce manual labour and hence prevent repetitive strain injury (RSI); and
- *Staining*: Automated stainers are already widely used in histopathology labs. Advancements will be the replacement of current technology with new technology that offers more and/or better features.

Omics and individual therapies.

The drive towards individually targeted therapies is expected to continue to increase the level of testing, workforce expertise and need for individualised reports, particularly in cancer treatments. *Perhaps more relevant, Diagnostic Genomic, and the 'omics revolution' for personalised diagnoses and treatments will become core business for ACT Pathology.*

Challenges

There are other challenges that will impact on how pathology is delivered in the future, including:

- ICT systems with sufficient bandwidth, and robust IT platforms will be a critical enabler to a contemporary AP pathology service. It requires a capacity for on demand case discussions/presentations.
- Designing flexibility into the workspace including mobile workstations,
- Mobile equipment to transport microscopes around the laboratory;
- Designing spaces that embedded/specialised laboratory workstations with protection against any disturbances such as airflow and movements;
- Purpose design specimen storage for AP is a critical enhancement to the current capacity;
- Ensuring protocols and systems are consistent with Royal College of Pathologists of Australasia (RCPA) protocols for Structured Reporting of Cancer;
- A regular reassessment of the number and core skill sets of the workforce. Training and retraining will be a core part of the flexibility needed of a tertiary pathology service; and
- Develop a stronger reputation of being available and responsive to pathology queries from CH staff and external referrers.

4.4.10. Anatomical Pathology Strategic Developments

The most important strategic option is to commence AP in the new building with a ***substantial investment in automation and 'omics',*** *which would place ACT Pathology at the fore of AP across jurisdictions. The default position is to progressively enhance technology capability in automation and 'omics' as the investment funds would ordinarily become available.*

An operational consideration relates to ***archiving slides and blocks****. With the statutory requirement to keep slides and blocks for up to 28 years in some instances, the current archive in the basement will require a solution that does not rely upon the existing practice of continuing to store in the B1 basement. The existing basement room is nearing capacity, using approximately 55-60sqm. The future requires storing/archiving at an alternative archive site off-campus.*

It is also clear that the current space allocations will need to be increased for both the specimen flows and future automation.

4.5. CHEMICAL PATHOLOGY

Chemical Pathology is the largest of the pathology departments by volume of testing. Examinations are broadly applicable to detect substances in blood and body fluids, measures cancer markers, hormones, poisons, and therapeutic and illicit drugs.

4.5.1. Scope and Capacity of Services

Chemical Pathology operates as a Level 6 laboratory[25].

Test Volumes

Chemical Pathology's test panel volumes are combined with Immunopathology & Infectious Immunoassay, performing more than 1 million tests annually. The year-by-year breakdown is as below.

Table 4-5: Chemical Pathology, Immunopathology & Infectious Immunoassay Test Panel Volumes – 2019-20 to 2021-22

Year	Total
2019/2020	1,661,806
2020/2021	1,756,151
2021/2022	1,748,351

Area

The current NDA for Chemical Pathology is ~417 sqm, excluding support services.

Specialty Scope

Chemical Pathology comprises four distinct sub-sections:

- Routine Chemistry;
- Endocrinology;
- Special Chemistry; and
- Point of Care Testing (POCT).

Routine Chemistry (in Core Lab)

Routine chemistry focuses on the analysis of bodily fluids such as blood, urine, and cerebrospinal fluid. It involves the measurement of various chemical components and biomarkers present in these fluids to evaluate the normal functioning of organs, diagnose and monitor diseases, assess and monitor treatment efficacy, and detect abnormalities or imbalances within the body. The tests for routine chemistry are typically automated. Chemical pathology tests are expected to be part of the routine 'Core laboratory' processes.

[25] NSW Role Delineation of Clinical Services,(2021). The NSW Role Delineation of Clinical Service is used as the default clinical capability framework for NSW, Victoria and ACT, unless there is a specific jurisdictional capability framework

Common tests include:

- Blood glucose tests to diagnose and monitor diabetes;
- Lipid profiles to assess cardiovascular health and disease risk;
- Liver and kidney function tests to detect conditions such as hepatitis, cirrhosis, and renal failure;
- Electrolyte panel to assess the body's fluid balance, acid-base balance, and overall electrolyte status.

These functions would be undertaken in laboratories, including levels 3 to 6 clinical capability.

Endocrinology (in Core Lab)

Endocrinology focuses the study of endocrine disorders, including:

- Hormone assays;
- Metabolic markers;
- Bone markers;
- Steroid hormone analysis; and
- Pituitary hormone assessment.

Endocrinology involves the integration of laboratory test results with other clinical findings to help diagnose and manage endocrine-related conditions. Endocrinologists, along with chemical pathologists, registrars and laboratory scientists, collaborate to interpret these results accurately and provide optimal patient care. Endocrine pathology would be typically undertaken in Level 3 to 6 laboratories.

Special Chemistry

Special Chemistry focuses on advanced and specialised laboratory testing for the diagnosis and management of complex or rare diseases. It involves the analysis of specific analytes, biomarkers, or metabolic pathways that may not be included in routine chemistry panels. Special chemistry would only be undertaken in a Level 6 laboratory.

Point of Care testing

POCT is the performance of specific laboratory tests outside the traditional laboratory setting using portable or handheld devices, which typically include but are not limited to:

- Glucose monitoring;
- Coagulation monitoring;
- Electrolyte analysis;
- Cardiac markers;
- Haemoglobin analysis; and
- Lipid profiling.

POCT enables immediate, real time test results, convenience, and the ability to make prompt clinical decisions at the patient's bedside, clinic or even patient's home. However, these devices also come with limitations in terms of accuracy, precision, and the range of tests they can perform compared to central laboratory analysers.

4.5.2. Specimen Pathway

The specimen pathway for Chemical Pathology is described below.

Specimens are received in specimen reception as for all specialty areas. The sample then typically follows the steps in Figure 4-5.

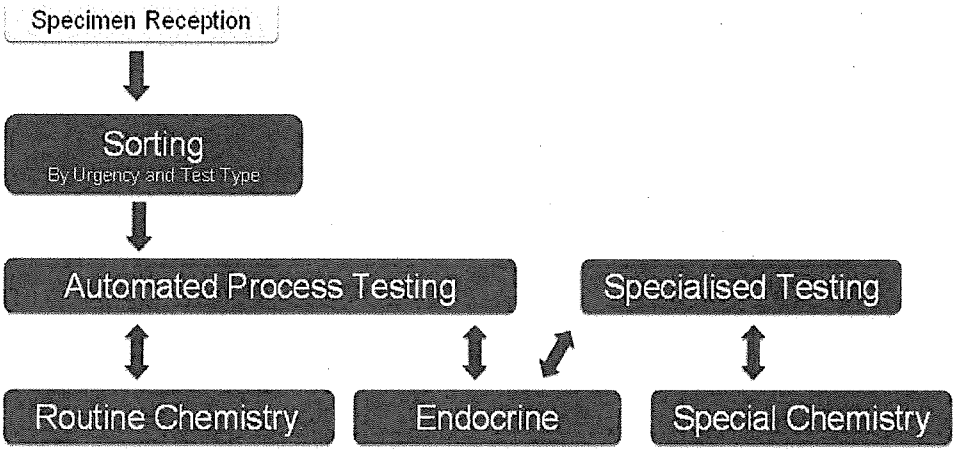
The pathway is multi-directional following the automated testing step where sample also have specialised tests or second sample tests or are transferred to another department for further testing.

All findings/reports – including diagnosis and recommendations for treatment and/or management - are then documented, which is the principal means of communication with other clinicians involved in relation to overall patient care and management.

After analysis, specimens may be stored for a period of time (before disposal) based on CHS policies and statutory requirements. Disposal is similarly governed by policy and regulation/protocols, as biohazardous waste.

The specimen pathway impacts service models and related issues of ongoing storage, teaching and operational efficiencies that are able to be introduced.

Figure 4-5: Specimen Pathway for Chemical Pathology



4.5.3. Hours of Operation

Routine Chemistry and Endocrinology operates 24/7 every day of the year. The remainder of Chemical Pathology (that is, Specialised Endocrinology, Special Chemistry and POCT) routinely operate between 8.30am – 5.00pm Monday – Friday[26].

4.5.4. Workforce Model

The workforce model[27] reflects the clinical capability level of Chemical Pathology, with staffing levels provided in Table 4-6 below. The staffing complement includes clinical director, chemical pathologists, registrars, chief scientist, laboratory/pathology scientists and technical officers.

Table 4-6: Current Staffing by Workforce Category, Chemical Pathology

Category	Section/Unit	Head Count	FTE
Director	All	1	1
Pathologist	All	1	0.5
Registrar	All	1	1

26. ACT Pathology, Chemical Pathology.
27. ACT Pathology, Chemical Pathology.

Category	Section/Unit	Head Count	FTE
Chief Scientist	All	1	1
Senior Scientists	Routine Chemistry	2	2
Base Grade Scientists	Routine Chemistry	15	12.68
Technical Officers	Routine Chemistry	2	2
Senior Scientist	Endocrinology	1	1
Base Grade Scientist	Endocrinology/	1	1
Senior Scientist	Special Chemistry	1	1
Base Grade Scientist	Special Chemistry/ Routine/Chemistry	1	1
Senior Scientist	POCT	1	1
Base Grade Scientist	POCT	1	1
	Current Total	29	26.18

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

4.5.5. Current location

Chemical Pathology (automated and manual) are located on Level 2, contiguous with Specimen Reception and adjacent Haematology. Manual testing, Mass Spectrometry and Point of Care Testing are also on level 2, at the rear of the automated section.

Infectious Immunoassay and Special Protein Chemistry (part of Immunopathology) are currently located on level 6. This is seen as a dislocation of the Chemical Pathology due to overcrowding on Level 2.

4.5.6. Key Functional Relationships

Internal Relationships

Chemical Pathology has a close clinical relationship with Specimen Reception (mainly due to volumes), Haematology and Immunopathology & Infectious Immunoassay (due to the move to automating as much of the analysis process as possible). This will include a direct pneumatic tube.

Specimen Reception, Automated Chemistry and Automated Haematology/transfusion will be joined by Automated Immunopathology & Infectious Immunoassay to form the **Core Laboratory**. Aspects of Microbiology and Molecular Pathology are increasingly becoming more automated and could also form part of the core laboratory in the future – These areas must be collocated in an open plan configuration as per the L2D functional designs.

While the Chemical Pathology department manages both automated and manual testing, it is necessary that the automated processes are contiguous, and integral to the Core Lab.

External Relationships

The key requirement for Chemical Pathology is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Chemical pathologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

The future development of this specialty will require close and frequent communication with referrers to build the specialty and broaden the scope of services.

4.5.7. Storage and Specimen Retention

For Chemical Pathology, storage is one of the continuing challenges on Level 2, especially with space being at a premium for testing. The department requires various types of storage for different purposes, noting it shares processing similarities with closely linked departments – Haematology and Immunopathology & Infectious Immunoassay.

Chemical Pathology, Haematology, and Immunopathology & Infectious Immunoassay departments will operate as part of a broader core laboratory in the new pathology facility, details on the core laboratory and its storage/waste requirements are further outlined in the Functional Design Brief

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.5.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.5.9. Chemical Pathology Future Challenges, Trends and Innovations

The main challenges and expected future trends are outlined below. Many of the therapeutic trends are inter-related. Whilst highly automated at present, future technologies provide for significant increases in productivity and efficiency.

Evaluation of new technology and the development of new tests is an ongoing process in Chemical Pathology. Emerging trends encompass advancements in laboratory testing methods, diagnostic technologies, and approaches to personalised medicine.

For Chemical Pathology there are particular opportunities in relation to:

- **New generation automated systems** for existing routine and common tests, and the automation of existing manual steps that remain in Chemical Pathology.
- **Development of a Core Laboratory:** Urgent testing on existing instruments are likely to shift to a Core Laboratory operating 24/7 and operated by multi-disciplinary pathology staff. Robotics will be extended to accommodate more of the high-volume testing of a Core Laboratory.
- **POCT innovations** enabling increasingly more rapid and accurate testing at the patient's bedside or in remote settings.
- **Artificial Intelligence.** AI and machine learning will help automate processes (analysing big data sets in chemistry. Like other specialties, Chemical Pathology will be in a position to utilise AI as a decision support tool and security checks that are not systematically built into current day-to-day processes. This will not reduce the staff or building footprint but instead give the adopting laboratory more capacity to increase the range of services offered.
- **Recycling and sustainability**: each department will have equipment and technology designed to help recycle.
- **Liquid biopsies** have emerged as a non-invasive cancer diagnostic tool, which may assist in the early detection, residual disease monitoring, and treatment response assessment for haematologic malignancies;
- **Gene editing and gene transfer therapies** are potentially achievable for ACT Pathology, again with targeted investment.
- **Biomarkers and predictive models** help predict disease progression, treatment response, and patient outcomes. It is an important area of research in haematology and has the potential to make a massive difference to patient outcomes alongside other technologies such as the omics revolution.
- **Quality assurance and standardisation** is another area of growing focus in order to ensure high-quality laboratory testing and harmonisation across different laboratories, including the standardisation of reference intervals, establishment of proficiency testing programs, and implementation of quality management systems to enhance the accuracy and reliability of laboratory results.
- **Cramped Space**. This is an issue for Chemical Pathology, mainly for new generation automated machines as well as storage.

4.5.10. Chemical Pathology Strategic Developments

The future for the high volume and routine Chemical Pathology testing will be a progressive elimination of the remaining manual processes.

The future for the interface between chemical pathology, genomics and molecular pathology will continue to challenge ACT Pathology as it develops capability to extends beyond the current 'norms' at leading interstate laboratories.

4.6. DIAGNOSTIC GENOMICS

section describes the current operating system and service model as well as identifying key issues for Diagnostic Genomics (DG).

4.6.1. Context

Diagnostic Genomics is a rapidly evolving area of pathology that has the potential to have significant impacts on the future development of medicine. DG is likely going to change the way we understand and manage cancer and disease-causing constitutional variants through diagnosis, screening, and monitoring. This will revolutionise disease diagnosis, tailored curative treatments, and clinical management based on each individual patient's genetic information.

At ACT Pathology, the DG laboratory initially operated as a cytogenetics lab, providing karyotype and Fluorescence In Situ Hybridization (FISH) services to various medical specialties, at which time only a small number of DNA extractions were performed manually. By 2000, the lab moved to its current location, initially equipped with very basic infrastructure and equipment, but experienced significant expansion and diversification over the 15 years from 2008 to 2023. During this period:

- The FISH service expanded to include analysis of paraffin embedded tumour samples from Anatomical Pathology;
- The number of DNA extraction requests increased from a handful to hundreds per year;
- The lab started performing multiple PCR-based assays, with specific PCR machines;
- Traditional karyotyping transitioned into molecular-based karyotyping using Single Nucleotide Polymorphism (SNP)s array technology, necessitating additional analytical software and scientists; and
- New technology, such as NGS has come to the fore, and is being developed for 2024/2025.

Demand has rapidly increased. The scale of operation, and the breadth of testing, has not been able to keep pace with the demand.

4.6.2. Scope of Service

Test Volumes

DG performs ~2,000 tests annually and is considered one of the smallest specialties. The noted decline in activity is principally due to COVID and higher levels of 'Refer Outs' (>2500, many of which will be performed in-house in the future with the development of NGS.

Table 4-7: Diagnostic Genomics Test Volumes – 2020-21 to 2022-23 (Projected)

Year	Diagnostic Genomics
2019/2020	2,131
2020/2021	4,597 (2,452 + 2,145) send outs
2021/2022	4,581 (1,978 + 2,603) send outs

Area

The current NDA for DG is ~319 sqm.

Specialty Scope

Technology advances have merged molecular genetics and cytogenetic laboratories over time, into the area of genomics. As a discipline, there are three broad categories of genomic testing:

- **Cancer genomics**. This includes familial cancer predisposition testing; tumour profiling (e.g. solid tumours, haematological tumours), predictive selection of therapeutic cancer drugs, and monitoring of disease progression; and
- **Constitutional Genomics.** This includes inherited conditions (e.g. cystic fibrosis, haemochromatosis, population specific conditions), congenital disease diagnosis, pre-conception and post-conception screening, and post-natal genomic diagnostics (e.g. products of conception, fetal demise including post-mortem cases, newborn, and paediatric).

From the above potential scope of DG, ACT Pathology focuses predominantly on[28]:

- **Cancer diagnostic genomics** for haematological disorders and solid tumours utilising conventional karyotyping, FISH, single gene assays, and NGS; and
- **The investigation of fetal death** utilising SNP microarray, fertility investigations and rapid diagnosis of neonates utilising conventional karyotyping, and FISH.

4.6.3. Specimen Pathway

Typical genomic tests performed include[29]:

- Conventional Karyotyping (haematological and constitutional);
- FISH, including the analysis of formalin fixed paraffin embedded (FFPE) tissue, solid tumor (haematological and constitutional);
- Cryopreservation of cells;
- SNP Microarray (products of conception);
- DNA extraction and storage;
- Single Gene PCR Molecular Assays; and
- NGS (2024).

DG at ACT Pathology is currently modest, however, as a burgeoning specialty, there are active plans and considerable scope to invest in technologies and workforce to significantly develop this specialist field by 2025 and into the future. The area proposed for DG offers a considerable expansion.

Specimens are received in specimen reception as for all specialty areas.

The pathway requires close proximity to molecular pathology. To comply with regulatory requirements, the department also needs to include a separate clean room for PCR preparation noting separate isolated spaces are required to reduce risk of contamination of specimens.

28. ACT Pathology, Diagnostic Genomics.
29. ACT Pathology, Diagnostic Genomics.

4.6.4. Hours of Operation

DG operates largely within business hours, 8.30am – 5.30pm Monday to Friday, with a Saturday roster in place to harvest bone marrow cultures and prepare peripheral blood cultures[30]. On-call service is provided for emergency analysis between 9.00am – 5.00pm Saturdays and Sundays as well as public holidays, covered by experienced laboratory scientists at HP3 level or above.

4.6.5. Workforce Model[31]

The workforce model[32] reflects the clinical volumes and capability level of DG, with staffing levels provided in Table 4-8 below. The staffing complement includes clinical director, chief scientist, senior scientists, HP2 scientists and technical officers.

The workload is currently divided into two streams – *constitutional and oncology genomics*, each stream supervised by a senior scientist, under a single leadership model.

The senior scientists get rotated regularly to ensure they gain experience in each other's area. A similar process applies to the scientific and technical staff, with movement between tests to multi-skill all team members for redundancy planning, and to prepare for times of staff shortage:

- All HP2 staff will gain experience in all aspects of DG laboratory bench work and analysis; and
- Technical officers will gain experience in most aspects of DG lab bench work and ancillary tasks, but do not perform analysis with the exception of FV/FII Genexpert tests.

Table 4-8: Staffing by Workforce Category, Diagnostic Genomics

Category	Section/Unit	Head Count
Clinical Director	1	1
Supervising Pathologists/Clinical Supervisors	1	8 (part-time components, multiple individuals)
Supervising Scientist (HP4)	1	1
Senior Scientist (HP3)	2	2
Base Grade Scientist (HP2)	5	6
Technical Officer (TO1)	1	1
Total	11	19

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

30. ACT Pathology, Diagnostic Genomics.
31. ACT Pathology, Diagnostic Genomics.
32. ACT Pathology, Diagnostic Genomics.

4.6.6. Key Functional Relationships

Internal Relationships

Diagnostic Genomics utilises similar technologies and laboratory equipment as Molecular Pathology, so rather than duplicating laboratory space, Diagnostic Genomics and Molecular Pathology should be collocated to allow for the sharing of laboratory facilities and optimisation of space usage. The area proposed to be shared are the DNA Amplification laboratory with separate PCR set up and specimen preparation areas for both departments.

If Diagnostic Genomics is not co-located with Molecular Pathology, then shared areas would need to be duplicated on the other floor, including DNA amplification.

The Diagnostics Laboratory will need to have close relationships with and to have sample workflows established from Anatomical Pathology, Haematology, Immunopathology and specimen reception.

External Relationships

Diagnostic Genomics receives a significant and important volume of samples from external referrers (private in vitro fertilization [IVF] clinics, GP's, private obstetrician and gynaecologist [OBGYN] clinics), and blood collections from outpatient collection centres. The key requirement for DG is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Genomic pathologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images;
- Regular and constructive relationships with all referrers, including timely provision of results; and
- Analytical software is securely housed, backed-up, and located on virtual servers with ample space and speed to allow timely genomic analysis by multiple users. Karyotype, FISH, SNP array and NGS are software based, using large data files and high-resolution images hence breakdowns in processing speed and file back-up poses clinical risk.

The future development of this specialty will require close and frequent communication with referrers to build the specialty and broaden the scope of services.

4.6.7. Location

DG is located on Level 4.

4.6.8. Storage and Specimen Retention

For DG, storage is a particular issue (and is one of the challenges noted below). The department requires various types of storage for different purposes, noting it shares processing similarities with closely linked departments – Microbiology and Molecular Pathology. The design could create special efficiency by having shared storage.

Stock will need to be retrieved from storage locations strategically placed to optimise workflow. Waste is relocated to a dedicated waste removal space awaiting collection by the waste disposal service.

Details on storage and waste are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.6.9. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Future required design elements;
- Sample flow;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.6.10. Diagnostic Genomics Future Challenges, Trends and Innovations

As previously noted, the specialty of genomics is both exciting and challenging with the potential it offers health practice. There is more scope to invest in genomics than in any other specialty.

The big picture challenges and trends that will make a significant impact on DG are similar to the broader pathology sector:

- **NGS** is a parallel or deep (DNA) sequencing technology which has revolutionised genomic research over the recent years. Current lab space limitation is a constraint to the procurement of a NGS, which would be highly relevant and substantially beneficial to the work of DG. In many cases is now the frontline test for diagnosis and treatment of various cancers and this will only expand further. Plans to implement this technology by 2024/2025 are underway with significant future growth anticipated.

- **Integrating multiple omics technologies**, similar to the way that multidisciplinary teams approach works in healthcare, the multi-omics approach (including technologies such as genomics, transcriptomics, epigenomics, proteomics, and metabolomics) will provide a much more holistic view of disease mechanisms, which not only works to enhance the accuracy of diagnosis, but also enables personalised treatment strategies based on individual patient profiles. The drive towards individually targeted therapies is expected to continue to increase the level of testing, workforce expertise and need for individualised reports, particularly in cancer treatments. *It is likely that in the not-so-distant future, the 'omics revolution' for personalised diagnoses and treatments could become core business for ACT Pathology.*
  - Increased integration of genomics into routine clinical practice – essential for timely diagnosis of cancer, for prognostication and to identify targeted treatments;
  - Pharmacogenomics;
  - Screening for disease: including minimal residual disease in cancer patients, and carrier screening in parents/families; and
  - Tissue banking to allow for retesting of samples.

- **Automation of Manual Steps.** Common to all specialties, there will be opportunities to automate more manual steps with automated machines and AI assisted software.

- **AI and machine learning** are being much more widely used in pathology as algorithms and pattern recognition can help humans perform much faster, much more accurately with much less effort. Together, they will play a significant role in analysing and interpreting large-scale genomic data, and identification of disease patterns moving forward. AI-assisted technology is already utilised in DG for slide scanning and image analysis; this will increase in the future.

Some key operational challenges include:

- Senior workforce capability is problematic across Australia and is certainly the case at ACT Pathology. Recruitment and outplacement at another institution interest are strategies that have been successful in other Research Institutes;
- Specimens that are sent to other laboratories requires an investment of time on behalf of the clinical staff of DG. 'Refer-Outs' may benefit from administrative support that would improve the efficiency of the department;
- The introduction of DHR and a new LIS has brought changes to sample processing, requiring the lab to have additional workstations;
- The increasing complexity of genomic testing led to the inclusion of new processes such as RNA stabilisation, cell separation, and RNA & DNA extraction. These will require additional space, reagents, and specialised storage (i.e., a minus 80-degree freezer or liquid nitrogen storage); and
- Current lab space is not fit for purpose, nor does it meet all of the NATA requirements (proper clean and dirty separation), which may compromise the way DG can support the treatment of its patients, especially those with metastasised cancer or life-threatening rare diseases.

4.6.11. Diagnostic Genomics Strategic Developments

The future for DG is expected to incorporate a service model that has very significant investment in automation and multiple omics technologies, this includes a variety of new equipment that ACT Pathology does not currently have. The automation will be predominately focused on NGS (genetic sequencing), reagent testing, DNA extraction, quality testing, and Fresh Frozen Plasma (FFP) extraction; and advances in omics technologies (possibly in partnership with others).

It is also clear that the current space allocations will need to be increased to allocate for these new equipment additions.

One strategic option is to commence DG (and Molecular Pathology) in the new building with a ***substantial investment in automation equipment,*** *which would place ACT Pathology at the fore of DG and Molecular Pathology across jurisdictions. The scale of the investment would be determined as part of a future capital investment funding and business case. The default position is to progressively enhance technology capability in automation and 'omics' as the investment funds would ordinarily become available.*

4.7. HAEMATOLOGY

Haematology is concerned with blood and its components. Haematology tests enable the diagnosis, treatment, and prevention of blood disorders and disorders of blood producing tissues/organs. Haematology testing is one of the most widely used forms of pathology.

4.7.1. Scope of Service

Test Volumes

The Haematology department's highest volume of work is for Full Blood Count (FBC) testing with over 290,000 tests annually. The comparison of two sections and the total testing is provided below. The decline in number of tests is most likely due to COVID.

Table 4-9: Haematology Test Volumes – 2019-20 to 2021-22

Year	Blood Transfusion	Haematology (incl. coagulation & immunophenotying)	Total
2019/2020	53,448	523,564	577,012
2020/2021	56,472	537,756	594,228
2021/2022	56,021	531,487	587,508

Area

The current NDA for Haematology is ~333 sqm.

Specialty Scope

In this context of CHS, the Haematology department[33] is 24/7 has a number of subspecialities including:

- General Haematology;
- Morphology;
- Coagulation;
- Immunophenotyping; and
- Transfusion Bone Marrow Transplant (BMT).

In addition, there is critical connectivity required by haematology department with units across the CH, mainly with the Haematology Ward (Building 3 in the oncology building) and Apheresis Unit (Building 19 with blood donations). It is expected that the Haematology Ward and Apheresis Unit will remain in their current locations.

For Haematology services in the new pathology facility:

- **Haematology laboratory services**

  This encompasses all forms of blood cell analysis (such as blood cell morphology and physiology, haematological malignancies, coagulation disorders, bone marrow disorders, overseeing blood transfusions, and haemoglobinopathies (inherited blood disorders).

  Routine tests include patient sample testing, storage and management of FBC, blood films, routine and special coagulation; flow cytometry, haemoglobinopathy testing, and haematological genetic testing.

  Given ACT Pathology is a regional transfusion centre, catering to a potentially large number of trauma-related transfusion cases, is an important function of the transfusion service.

33. ACT Pathology, Haematology Transfusion BMT.

- **Bone Marrow Transplant**

  BMT is a highly specialised service. It is an integrated team that collect, process, store and issue Human Haemopoietic Progenitor Cells, ready for use. The service is clinically integrated with the Canberra Regional Cancer Service and affiliated with the BMT+CT Network in NSW.

  The BMT Unit is involved with approx. 50 stem cell collections and 35 transplants per year. CH haematologists determine the suitability of each patient for transplant.

  The ACT Pathology Haematology department has a purpose-built cryogenic storage facility adjacent Building 10, fitted with reticulated LN2 supply and oxygen monitoring. The facility houses three LN2 storage tanks dedicated to haematopoietic progenitor cell storage, a -80 freezer and a controlled rate freezer. Transport vessels are also stored in this facility (two permanent, others when products are shipped in or out). LN2 bulk supply is located outside of the building for convenient refilling by external contractors and for safety.

4.7.2. Specimen Pathway

Specimens are received by the laboratory from the specimen reception area, similar to all other pathology specialties. Specimens arrive at reception via pneumatic tube, CH staff, couriers Australian Red Cross Blood Service (ARCBS), and external transport (such as taxis). Urgent testing is commonly delivered by hospital staff, and couriers if external to CH.

Blood products are delivered by the ARCBS for crossmatch and received by blood transfusion services (closely proximate to the hospital/specimen reception access point), which requires careful verifying and documenting that the products match what has been requested to ensure accuracy and traceability (by barcoding).

BMT laboratory receives BMT/cell therapy products (delivered by nurses) which require strict inspection and label verification procedures.

The process steps for haematology are not necessarily sequential or require unidirectional flow.

The key process is the **automation of specimen analysis**, integrated with the Core Lab, followed by reporting of results. If there are queries in relation to the results, a second sample is assessed and/or the sample is manually assessed.

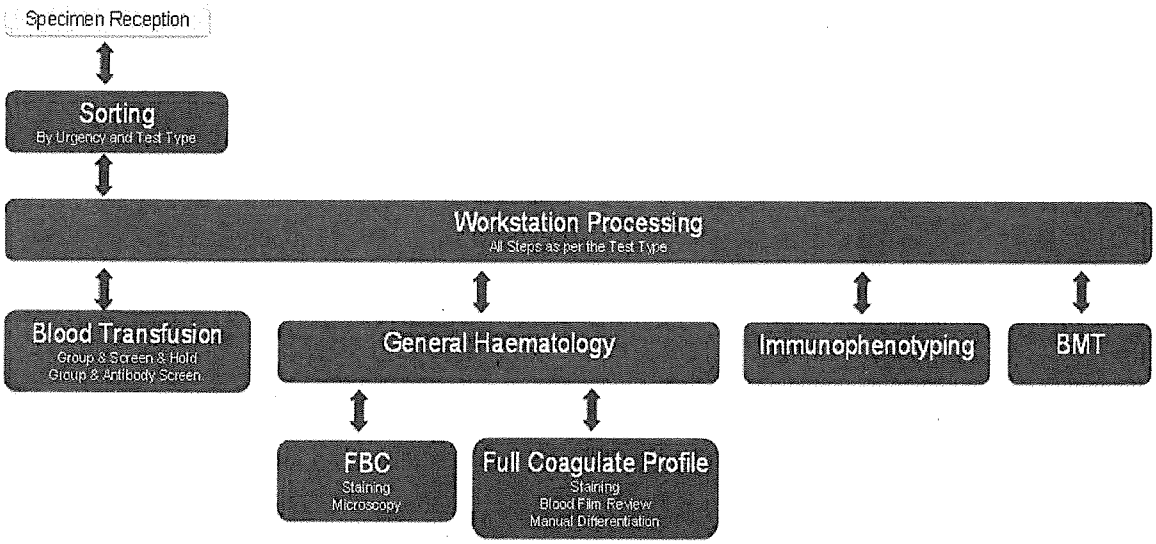
In relation to **transfusion services**, various tests are performed on the blood products to ensure compatibility with the intended recipient prior to any patient transfusion. These tests include ABO and Rh typing, antibody screening, and crossmatching. Blood products are then released for transfusion by the blood transfusion services. For **BMT**, all processing is performed in a biological safety cabinet.

The **blood bank** section is in close proximity to the hospital/specimen reception access point to allow for easy collection of blood products. Immunophenotyping (flow cytometry) and BMT are located behind the more automated sections.

The specimen flow in the new facility will need to accommodate:

- Blood transfusion services with blood bank refrigerators close to the hospital/specimen reception access point;
- Automated haematology and coagulation testing; and
- BMT and immunophenotyping behind automated areas.

Figure 4-6: Specimen Pathway for Haematology



Storage and specimen retention are also part of the pathway, detailed below.

The specimen pathway impacts service models and related issues of ongoing storage, teaching and operational efficiencies, all of which form part of the design of the new Haematology department.

4.7.3. Hours of Operation

Haematology laboratory services is a 24/7 service with a more limited range of services offered after-hours (6pm to 7:30am Monday to Friday, all day Saturdays Sundays and public holidays).

4.7.4. Workforce Model

The workforce model reflects the clinical capability level of Haematology, with staffing levels provided in Table 4-10 below. The staffing complement includes clinical director, specialist haematologists, registrars, laboratory manager, chief scientist, senior scientists, scientists, and technical officers. Like the Department of Microbiology, the Pathologists have a clinical role as well and are fractional appointments to the laboratory.

Table 4-10: Staffing by Workforce Category, Haematology

Position	Headcount	FTE
Clinical Director	1	0.4
Pathologists	7	1.7
Registrars	3	3
Laboratory Manager	1	1
Chief Scientist	1	1
Senior Scientists (HP4)	2	2
Senior Scientists (HP3)	7	6.8

Position	Headcount	FTE
Base Grade Scientists	20	18.3
Technical Officers	4	3.6
Total	46	37.8

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

4.7.5. Key Functional relationships and adjacencies

Internal Relationships

Haematology has a close clinical relationship with Specimen Reception and courier services (in relation to Blood Bank),

Due to the 24/7 nature of timely service delivery and the integral part that haematology has for the Core Lab, automated Haematology processes will be contiguous with automated Chemical Pathology, automated Immunopathology & Infectious Immunoassay specimen reception to form the new **Core Laboratory.**

There are also some functional links to Diagnostic Genomics with molecular haematology processes focusing on the molecular and genetic aspects of haematological disorders and involves the analysis of specific genes, chromosomal abnormalities, or molecular markers associated with various blood disorders (including leukemias, lymphomas, and inherited blood disorders). While important in the overall diagnostic reporting, the three related processes do **not** require adjacency in the design, however it would be ideal.

The proximity of the Blood Bank to automated Pre-Analytics (hence Pathology Core Laboratory) will be an important relationship in the design.

Implied in the functional adjacencies and central to the increase in convergence technology, pathologists, registrars, and scientists will have greater synergy working alongside each other in the laboratory (which acts as a "watchdog" system for the blood results). Close proximity needs to be developed as much as possible within the new facility.

External Relationships

The key requirement for Haematology is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Haematologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

Haematology also has critical relationships with accreditation and regulatory bodies. In addition to the NATA requirements, BMT must comply with *Requirements For Procedures Related To The Collection, Processing, Storage And Issue Of Human Haemopoietic Progenitor Cells* (Sixth Edition 2021)[34].

34. National Pathology Accreditation Advisory Council. (2021). Requirements for Procedures Related to the Collection, Processing, Storage and Issue of Human Haemopoietic Progenitor Cells (Sixth Edition 2021). Retrieved from https://www.safetyandquality.gov.au/sites/default/files/2022-08/tier_4_requirements_for_procedures_related_to_the_collection_processing_storage_and_issue_of_human_haemopoietic_progenitor_cells_sixth_edition_2021.pdf.

4.7.6. Current Location

Haematology is currently located on Level 2.

4.7.7. Storage and Specimen Retention

Haematology storage is an issue. The Haematology department requires various types of storage for different purposes. These include proximal blood bank storage at precise temperature controls (and alarmed), cryopreservation, controlled freezing capability for BMT, and various types of reagent store, specimen store, equipment store and waste store.

The department shares processing similarities with closely linked departments – Chemical Pathology and Immunopathology & Infectious Immunoassay.

It is important to note that Haematology, Chemical Pathology and Immunopathology & Infectious Immunoassay departments will operate as part of a broader core laboratory in the new pathology facility, details on the core laboratory and its storage/waste requirements are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.7.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Bone marrow transplant;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.7.9. Haematology Future Challenges, Trends and Innovations

Haematology is a pathology discipline that continues to evolve. The main challenges and expected future trends are outlined below. Many of the therapeutic trends are inter-related. Current research at ACT Pathology includes flow cytology, molecular research and new technology evaluation.

- **Automation of manual steps**: The relatively few manual steps in haematology are likely to become automated. Much of the technology currently exists. The future automation is likely to replace most of the existing workstations in the future.

- **The Development of the Core Laboratory:** Urgent testing on existing haematology instruments is likely to shift to a Core Laboratory operating 24/7 and operated by multi-disciplinary pathology staff. Robotics will be extended to accommodate more of the high-volume testing of a Core Laboratory. It is likely that haematology testing (FBC etc) will be the first added to track systems followed closely by coagulation analysers.

- **Immunotherapies and targeted therapies**. ACT residents who are currently candidates for CAR T-cell therapies are having their samples sent interstate or overseas for production, this service/treatment could be made available in Canberra with targeted investment. CAR T-cell therapy and immune checkpoint inhibitors brings new treatment options for patients with haematological disorders (including malignancies).

- **New technologies leading to new workstations**. As new fields of haematology testing emerge, the service range for haematology can be extended if embraced by ACT Pathology. These areas include blood analysis as part of microbiome analysis. Any expansion of scope will increase the requirement for additional workstations. Overall, it is expected that there will be some reduction in workstations due to greater automation as well as increase the need for workstations as new services emerge.

- **Recycling and sustainability**: each department will have equipment and technology designed to help recycle.

- **Community screening**. There will be opportunities to support community screening programs and personalised wellness testing expanding the range of services from predominantly diagnostic (i.e., HbA1C testing on microsamples self-collected from the community and microbiome analysis).

- **Liquid biopsies** have emerged as a non-invasive cancer diagnostic tool, which may assist in the early detection, residual disease monitoring, and treatment response assessment for haematologic malignancies.

- **Artificial Intelligence.** AI and machine learning will help automate processes (analysing big data sets in haematology. Like other specialties, haematology will be in a position to utilise AI as a decision support tool and security checks that are not systematically built into current day-to-day processes. This will not reduce the staff, building footprint but instead give the adopting laboratory more capacity to increase the range of services offered.

- **Gene editing and gene transfer therapies** are potentially achievable for ACT Pathology, again with targeted investment.

- **Biomarkers and predictive models** help predict disease progression, treatment response, and patient outcomes. It is an important area of research in haematology and has the potential to make a massive difference to patient outcomes alongside other technologies such as the omics revolution.

Some key operational challenges include:

- Pathologists, registrars, and scientists have a lot of synergy working alongside each other in the laboratory (which acts as a "watchdog" system for the blood results). Close proximity needs to be developed as much as possible within the new facility.
- Given ACT Pathology is a regional transfusion centre, catering to a potentially large number of trauma-related transfusion cases, is an important function of the transfusion service.
- Turnaround times of reports and access to haematologists for secondary consultations may be important for the sustainability of the client base.
- Referrals to haematology at ACT Pathology have declined since the introduction of the new DHR. There appear to be operational impediments to maintaining current market share for haematology (and other high-volume specialties).

4.7.10. Haematology Strategic Developments

The future for the high volume and routine haematology testing will be a progressive elimination of the remaining manual processes.

The future for the interface between haematology and genomics and molecular pathology will continue to challenge ACT Pathology as it develops capability to extend beyond the current 'norms' at leading interstate laboratories.

There are several potential service model variations for the design and Service Model for haematology.

The first option is to collocate the Apheresis Unit with the new pathology building. At present, a relocation of blood donations is not being planned.

A second option, common to other pathology specialties, is to invest in the remaining automated processes at the new facility, particularly the automations to extend the Core Laboratory. The alternative is to continue with the current technologies of the existing MoC.

A third option relates to the access and storage of liquid nitrogen tanks. The current tanks and accommodated in a separately built facility abutting Building 10 at ground level. The option is to continue the siting of the liquid nitrogen tanks on the perimeter of the new facility, or the accommodated them within the building. This issue needs to be considered in the context of the proposed expanded cryogenic capacity and new Dewar system as well as the logistics and distances of the design of the new building.

4.8. IMMUNOPATHOLOGY AND INFECTIOUS IMMUNOASSAY

Immunopathology & Infectious Immunoassay is a particularly challenging area of pathology.

Testing and investigating for immune disorders from specimens are often only part of the solution to a definitive diagnosis and treatment pathway. There is a crucial liaison role between the complex testing of specimens and patient management advice of other physicians.

4.8.1. Scope of Service

Test Volumes

Immunopathology & Infectious Immunoassay's test panel volumes are combined with Chemical Pathology, performing more than 1 million tests annually. The year-by-year breakdown is as below.

Table 4-11: Chemical Pathology, Immunopathology & Infectious Immunoassay Test Panel Volumes – 2019-20 to 2021-22

Year	Total
2019/2020	1,661,806
2020/2021	1,756,151
2021/2022	1,748,351

Area

The current NDA for Immunopathology & Infectious Immunoassay is ~222 sqm.

Specialty Scope

At ACT Pathology, Immunopathology and Infectious Immunoassay embodies two Pathology disciplines – Immunopathology and Infectious Immunoassay.

A typical range of tests include:

Immunopathology

- Auto-immune serology: testing for organ specific and systemic autoimmune disease with indirect immunofluorescence and more specific antibody tests;
- Specialised immunochemistry: Immunopathology supervises all immunochemistry which includes determination of complement levels, immunoglobulin testing, serum and urine electrophoresis, serum and urine immunofixation, CSF IEF,
- Allergy testing;
- Immunogenetics: HLA B27 testing; and
- Flow cytometry for B and T cell enumeration, and characterisation of B cell subsets: performed in Haematology but interpreted and overseen by Immunology.

Also importantly, Immunopathology testing overlaps with other areas, such as:

- HIV testing (with Microbiology);
- Flow cytometry (with Haematology);
- Endocrine testing (with Chemical Pathology);
- Complex therapeutic monitoring (with therapeutic drug monitoring);
- Human Leukocyte Antigen (HLA) and other genetic testing (with Diagnostic Genomics / Molecular Pathology); and
- Some individual tests also cross disciplines (such as latent tuberculosis and H Pylori – a common digestive tract infection).

Infectious Immunoassay

An infectious immunoassay test detects the presence of infectious agents, such as bacteria, viruses, parasites, or fungi, in a patient's sample (e.g., blood, urine, or respiratory secretions). It involves the use (i.e., the presence or absence) of specific antibodies or antigens that can bind to target molecules associated with the infectious agent to indicate a current or past infection. With respect to the model of care, Infectious Immunoassay range of testing is not necessarily unidirectional and involves a high level of automation but with important manual testing and second sample testing.

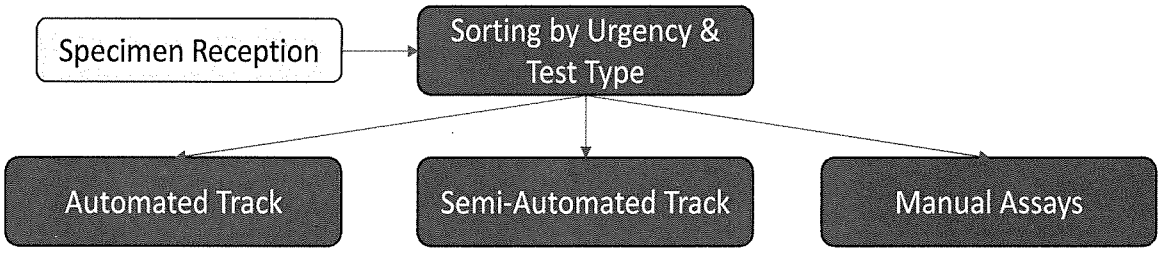
4.8.2. Current Locations

At present, Immunology and Immunoassay is split over two levels, (Level 2 and Level 6). This is not conducive the operational efficiency and carries quality risks.

4.8.3. Specimen Pathway

Specimens are retrieved from Specimen Reception (where they are registered) and transported by hand from Level 2 to Level 6, specific pathway is described in Figure 4-7.

Figure 4-7: Specimen Pathway for Immunopathology and Infectious Immunoassay



From the description of the scope and the specimen pathway, Immunopathology is a specialty that requires close proximity to almost all other specialties, especially the Core Laboratory. The extent that proximal location cannot be achieves introduces inefficiencies and poorer levels of communication and coordination.

4.8.4. Hours of Operation

Immunopathology and Infectious Immunoassay operates in extended business hours from 8.30am – 8.00pm Monday to Friday, with pathologist and scientist on-call out-of-hours for urgent requests[35].

4.8.5. Workforce Model

The workforce model reflects the clinical capability level of Immunopathology & Infectious Immunoassay, with staffing levels provided in Table 4-12 below. The staffing complement includes clinical director, Immunopathologists, registrar, chief scientist, senior scientists, scientists and technical officers.

Table 4-12: Staffing by Workforce Category, Immunopathology and Infectious Immunoassay [36]

Staff Category	Headcount	FTE
Clinical Director	1	0.5
Pathologists	2	0.5
Registrar	1	1.0
Chief Scientist	1	1.0
Senior Scientists	3	3.0
Base Grade Scientists	10	9.1
Technical Officers	2	2.0
Total	20	17.1

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

35. ACT Pathology, 02508 02501 86750 aid.
36. Microbiology/Infectious Immunoassay clinical Director and Pathologist are represented in the Microbiology workforce category.

4.8.6. Key Functional Relationships

Internal Relationships

Immunopathology and Infectious Immunoassay have a close relationship with other departments. The two specialties with highly integrated pathways include:

- Haematology (immunophenotyping); and
- Chemical Pathology (operational support for analysers on the track system).

Automated Immunopathology & Infectious Immunoassay will be joined by Specimen Reception, Automated chemical pathology and Automated Haematology to form the new **Core Laboratory.**

External Relationships

The key requirement for Immunopathology & Infectious Immunoassay is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Immunopathologists and Clinical Microbiologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

The future development of this specialty will require close and frequent communication with referrers to build the specialty and broaden the scope of services.

4.8.7. Storage and Specimen Retention

Immunopathology storage is an issue. The department requires various types of storage for different purposes noting it shares processing similarities with closely linked departments – Chemical Pathology and Haematology.

It is important to note that Immunopathology & Infectious Immunoassay, Haematology, and Chemical Pathology departments will operate as part of a broader core laboratory in the new pathology facility, details on the core laboratory and its storage/waste requirements are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.8.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.8.9. Immunopathology Future Challenges, Trends and Innovations

Immunopathology continues to evolve as a discipline. The main challenges and expected future trends are outlined below. Many of the therapeutic trends are inter-related.

Some key future trends include:

- **Automate manual processes, where possible.**
- **Immunotherapies and targeted therapies**.

  Immunogenomics is an emerging field that integrates Immunopathology and genomics to understand the genetic basis of immune responses and immune-related diseases. Immunopathologists have the opportunity to identify novel biomarkers, therapeutic targets, and individualised treatment approaches, as has been the case with CAR T-cell therapy and immune checkpoint inhibitors.

- **Community screening**.

  There will be opportunities to support community screening programs and personalised wellness testing expanding the range of services from predominantly diagnostic (i.e., COVID).

- **Artificial Intelligence.**

  AI and machine learning will help automate processes (analysing big data sets in Immunopathology. Like other specialties, Immunopathology will be in a position to utilise AI as a decision support tool and security checks that are not systematically built into current day-to-day processes.

- **Collaborative research initiatives**

  The complex nature of immune-related diseases necessitates interdisciplinary collaborations and the integration of diverse expertise. Future trends in immunopathology are likely to involve increased collaborations among immunologists, pathologists, geneticists, bioinformaticians, and clinicians from various specialties and various settings to facilitate the sharing of knowledge, resources, and data, leading to a deeper understanding of immune-mediated diseases and the development of more effective diagnostic and therapeutic approaches.

Some key operational challenges include:

- Operational constraints on space. Whilst the move to Level 6 has alleviate some of the space constraints it has been at the expense of collaboration and coordination, and inefficient use of equipment.
- Referrals to Immunopathology at ACT Pathology have declined since the introduction of the new DHR. There appear to be operational impediments to maintaining current market share for Immunopathology (and other high-volume specialties).

4.8.10. Immunopathology Strategic Developments

The future for the high volume and routine Immunopathology and Infectious Immunoassay testing will be a progressive elimination of the remaining manual processes, where possible.

The future is to invest in the remaining automated processes into the new facility, particularly the automations to extend the Core Laboratory. The alternative is to continue with the current technologies of the existing service model.

The future for the interface between Immunopathology and genomics and molecular pathology will continue to challenge ACT Pathology as it develops capability to extends beyond the current 'norms' at leading interstate laboratories.

4.9. MICROBIOLOGY

Microbiology is the identification of infectious agents (such as bacteria, viruses, fungi and parasites) that are responsible for causing infectious diseases. It also explores the susceptibility of organisms to antibiotics to help decide on treatment, across a spectrum of activities including infection control and public health (including most recently the response to COVID-19.

4.9.1. Scope of Services

Microbiology operates as a Level 6 clinical capability.

Test Volumes

Microbiology performs around 120,000 tests annually, with much of it manually processed.

Testing involves the following sample types: blood, urine, faeces, sputum, synovial fluids, cerebrospinal fluid, spore strips for environmental investigations and/or infection control, and aspirates of bacterial isolates, biopsy specimens, bronchoalveolar lavage, bronchoalveolar washings, cerebrospinal fluid, cervical swabs, dry swabs, ear swabs, eye swabs, faeces, fine needle aspirates (FNA), fluids; gastric aspirates; genital swabs; human breast milk, nasal swabs; nasopharyngeal swabs, operative specimens; oral sites, post-operative wounds, pus, respiratory specimens, skin, tissues and more.

Table 4-13: Microbiology Test Panel Volumes – 2019-20 to 2021-22

Year	Microbiology
2019/2020	127,840
2020/2021	124,093
2021/2022	121,327

Area

The current NDA for Microbiology (and molecular pathology) is ~674 sqm.

Speciality Scope

At ACT Pathology, services provided by the Department of Microbiology at a tertiary-level 6 lab, and includes:

- **General bacteriology** – isolation and identification of pathogens;

- **Virology** – limited testing for respiratory and gastrointestinal viruses, using immunochromatographic or molecular techniques. Viral cultures are no longer performed locally;
- **Mycology** – isolation and identification of pathogenic fungi, including dermatophytes;
- **Mycobacteriology** – isolation and identification of mycobacterium tuberculosis complex and mycobacterium avium/intracellular group;
- **Parasitology** – microscopy for enteric parasites and helminths (including hydatids);
- **Antimicrobial** susceptibility testing and reporting;
- **POCT e.g. Covid 19**; and
- Testing for organisms of **public health** significance in collaboration

Microbiology is an enabler of Antimicrobial Stewardship, including a registrar who has dual roles in both departments.

4.9.2. Specimen Pathway

Microbiology mainly receives tissue samples from the following places:

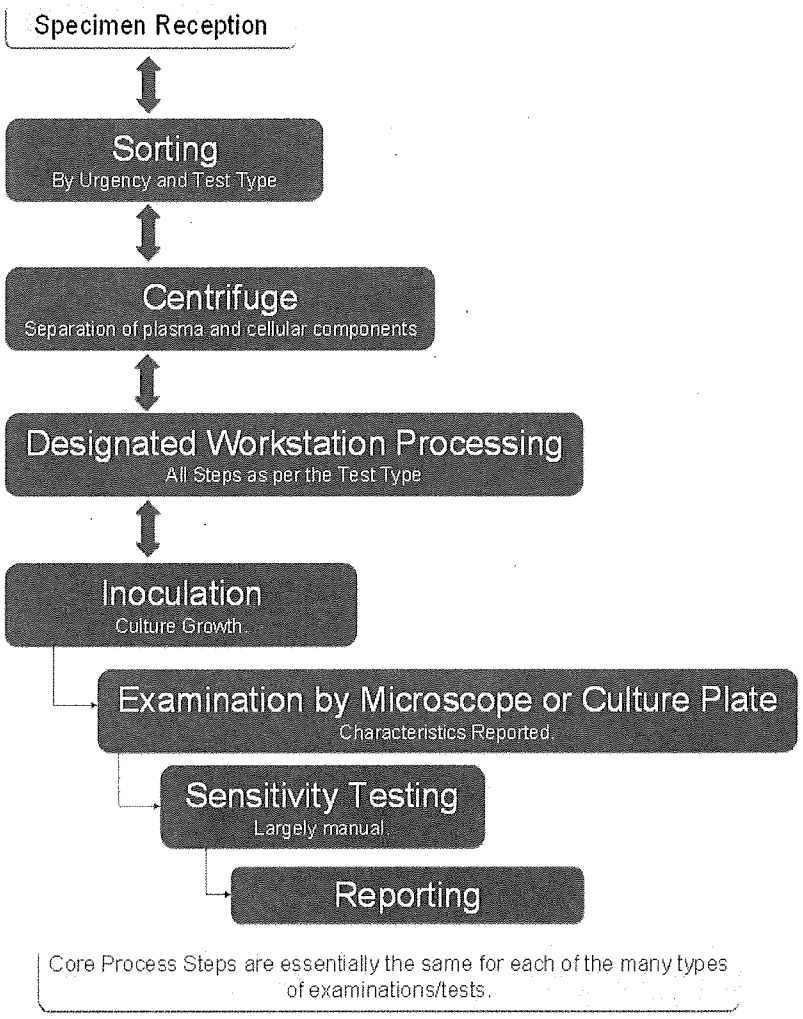
- Inpatient and outpatient services, TCH; and
- Other public and private hospitals in the ACT and parts of NSW.

The core steps are not unidirectional. The workflow is partly sequential and often requires movements to and from workstations.

Movement of specimens by staff between other areas of Pathology (e.g. shared specimens, should be transported by the safest route to other pathology units where there are shared specimens.

The specimen pathway impacts service models and related issues of ongoing storage, teaching and operational efficiencies that are able to be introduced.

Figure 4-8: Specimen Pathway for Microbiology



4.9.3. Hours of Operation

Microbiology operates 8.00am – 10.30pm Monday to Friday and 8.00am – 9.30pm Saturdays and Sundays, with pathologist and scientist on-call out-of-hours for urgent requests[37].

4.9.4. Workforce Model

The workforce model[38] reflects the clinical capability level of Microbiology, with staffing levels provided in Table 4-14 below. The staffing complement includes clinical director, specialist microbiologists, registrars, chief scientist, senior scientists, laboratory scientists, and technical officers. Some of the pathologists have a dual role, working with the laboratory as a staff specialist and a clinical role in the hospital as an Infectious Disease Clinician.

37. ACT Pathology, Microbiology.
38. ACT Pathology, 02508 02501 86766 tasl - Microbiology.

Table 4-14: Staffing by Workforce Category, Microbiology

Staff Category	Headcount	FTE
Clinical Director - Microbiology	1	0.6
Specialist Microbiologists	4	1.45
Registrar	2	1.5
Chief Scientist	1	1.0
Supervising Scientist	1	1.0
Senior Scientists	4	4.0
Base Grade Scientists	13	12.5
Quality Control Officer	1	1.0
Technical Officers	4	3.0
Total	31	26

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

4.9.5. Current location

The Microbiology Department is currently location on Level 4 of the Pathology Services building, co-located with Molecular Pathology and Diagnostic Genomics.

4.9.6. Key Functional relationships and adjacencies

Internal Relationships

Microbiology and Molecular Pathology will combine as a single operational discipline due to the significant clinical overlap, shared specimens, movement of traditional microbiology to molecular based staff and ability to cross train staff.

Both Microbiology and Molecular pathology are moving to an increased level of robotics and their functional relationship is based around some key principles:

- Much microbiology testing will move to tracked robotics, which has an increased floor print e.g. Kiestra;
- Molecular Pathology has moved and will further embrace increased robotics e.g. Roche 6800;
- Molecular Pathology must be adjacent to Diagnostic Genomics to allow shared of laboratory space and equipment e.g. PCR Clean Preparation, Specimen Preparation, DNA Amplification. If not co-located with Diagnostic Genomics, then shared areas would need to be duplicated on the other floor, including, PCR set up, specimen preparation and DNA amplification;
- Molecular Pathology should also be adjacent to the core laboratory. More instrumentation is being enabled to connect to track systems, with Molecular Pathology robotics likely able to connect to a track system when the Pathology building is opened – this is already possible with Roche instrumentation;
- The spaces will be open plan wherever possible, with some exceptions including the PC3 facility; and
- Provision of sufficient space to allow fast scale up of services e.g. pandemic.

Microbiology also has a close clinical relationship with Infectious Diseases, Infection Prevention and Control, and Antimicrobial Stewardship

External Relationships

The key requirement for Microbiology is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Specialist Microbiologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

Specialist Microbiologists and senior laboratory scientists work collaboratively with Infectious Diseases, Antimicrobial Stewardship, Infection Prevention and Control and Occupational Medicine Unit to provide support services across Canberra Health Services and ACT Health related to infection prevention, diagnosis and management.

Many specialists are employed within two or more of these units and collocation should improve collaboration and information flow, resulting in improved integration and better patient care, including research and teaching.

The infection related services could include:

- Clinical Microbiology staff specialists;
- Infectious Diseases staff specialists, registrars and administrative staff;
- Infection Prevention and Control and Occupational Medicine Unit nursing, administrative staff and specialist (typically an Infectious Diseases physician);
- Antimicrobial Stewardship Team – pharmacist, epidemiologist, registrar, specialist (typically an Infectious Diseases physician); and
- If Pharmacy was also located within the same building, this would connect well with the Antimicrobial Stewardship team.

4.9.7. Storage and Specimen Retention

The department requires various types of storage for different purposes noting it shares processing similarities with closely linked departments – DG and Molecular Pathology departments. The design could create special efficiency by having shared storage.

Stock will need to be retrieved from storage locations strategically placed to optimise workflow. Waste is relocated to a dedicated waste removal space awaiting collection by the waste disposal service.

Details on storage and waste are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.9.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Safety and security;

- Office and workspaces;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.9.9. Microbiology Future Challenges, Trends and Innovations

Microbiology discipline spans support for public health services to highly specialised targeted responses to patient conditions.

The future challenges and opportunities for microbiology at ACT Pathology include:

- Collaboratively work with other laboratories to address challenges of **antimicrobial resistance**.

- Like other areas, **Automation of manual steps**: The relatively few manual steps in Microbiology are likely to become automated. Much of the technology currently exists. Future automation would be able to manage increased demand, workforce shortages. In particular:
  - **Plate readers**: further to what was mentioned above, these instruments will carry out most of the Microbiology lab work in the future. They provide the flexibility for pathologists to analyse results from the comfort of their own homes, which is valuable given the requirement for ongoing afterhours work, and also meet the time sensitive requirement of generating rapid analysis and reports back to the patient's treating clinician in order to carry out timely, accurate and targeted treatment;
  - **NGS** has the potential to revolutionise Microbiology testing at ACT Pathology by offering ultra-high throughput, scalability and speed, enabling comprehensive and rapid analysis of microbial genomes for pathogen identification, genomic epidemiology, and antimicrobial resistance profiling, among other applications;

- **Development of a Core Laboratory:** Urgent testing on existing Microbiology instruments is likely to shift to a Core Laboratory operating 24/7 and operated by multi-disciplinary pathology staff. Robotics will be extended to accommodate more of the high-volume testing of a Core Laboratory. It is likely that Microbiology testing (FBC etc) will be the first added to track systems followed closely by coagulation analysers.

- **Mycology laboratory**. The longer-term future would envisage a distinct mycology laboratory.

- **Research**. There are potentially new fields for collaborative research for ACT Pathology, including Metagenomics, Microbiome, microbiological surveillance, and/or Bioinformatics;

Some key operational challenges include:

- Operational constraints on space, particularly impacting on inefficient workflow from workstation to track and storage.

- Referrals to Microbiology at ACT Pathology have declined since the introduction of the new DHR. There appears to be operational impediments to maintaining current market share for Microbiology (and other high-volume specialties).
- Equipment redundancy will improve operational efficiency (such as a dual access autoclave).
- ICT equipment and systems to enable storage of large sets of laboratory data (for research, analysis, data retention/compliance) and on-demand virtual case discussions.

4.9.10. Microbiology Strategic Developments

The future for the moderate volume and routine microbiology testing will be a progressive elimination of the substantial manual processes including reviewing the culture plates (plate readers) and NGS capability. AI is likely to have a significant impact on microbiology, either as an aid/tool or as the main diagnostic instrument.

This requires investment in the remaining automated processes into the new facility, particularly the automations to establish the Core Laboratory. The alternative is to continue with the current technologies of the existing service model.

The future for the interface between microbiology and molecular pathology will continue to challenge ACT Pathology as it develops capability to extends beyond the current 'norms' at leading interstate laboratories.

4.10. MOLECULAR PATHOLOGY (MICROBIOLOGY)

Molecular pathology (Microbiology) focuses on the study and diagnosis of disease at a molecular level. This means that there is significant crossover with other pathology Departments, especially Microbiology. The Molecular Pathology Department perform diagnostic assays based on molecular biology techniques. Most tests are based on the initial isolation of nucleic acid from a variety of diagnostic specimens including but not limited to blood, swabs, plasma, CSF and respiratory specimens/nasopharyngeal aspirates.

4.10.1. Scope of Service

Molecular Pathology operates at a Level 6[39] service.

Test Volumes

The Molecular Pathology was the most impacted department from the COVID-1 pandemic with workload increasing more than 20-fold at its peak.

Table 4-15: Molecular Pathology Test Volumes – 2020-21 to 2022-23 (Projected)

Year	Molecular Pathology (excl COVID PCR)	Molecular Pathology Total
2019/2020	39,980	71,801
2020/2021	40,304	241,405
2021/2022	34,491	614,282

[39] NSW Role Delineation of Clinical Services,(2021). The NSW Role Delineation of Clinical Service is used as the default clinical capability framework for NSW, Victoria and ACT, unless there is a specific jurisdictional capability framework

Area

The current NDA for Molecular Pathology (and Microbiology) is ~674 sqm.

Specialty Scope

On the basis that Molecular Pathology has service links to all pathology disciplines, the Molecular Pathology (Microbiology) ranges from high throughput, more automated assays (using larger equipment) to low throughput, often in-house traditional assays which require dedicated operational units as outlined below:

- The Nucleic Acid Extraction Laboratory;
- The PCR Set-up Laboratory (Clean Room); and
- The PCR Analysis Laboratory.

All three units are physically separated from each other to mitigate the risk of cross-contamination within the laboratory. The three units have differing levels of cleanliness and sterility. The PCR Set-up Laboratory is essentially the cleanest section with no sample derived nucleic acid followed by the Nucleic Acid Extraction Laboratory where sample nucleic acid extractions are carried out. Finally, the PCR Analysis Laboratory is considered the lowest level clean area where all PCR amplifications occur.

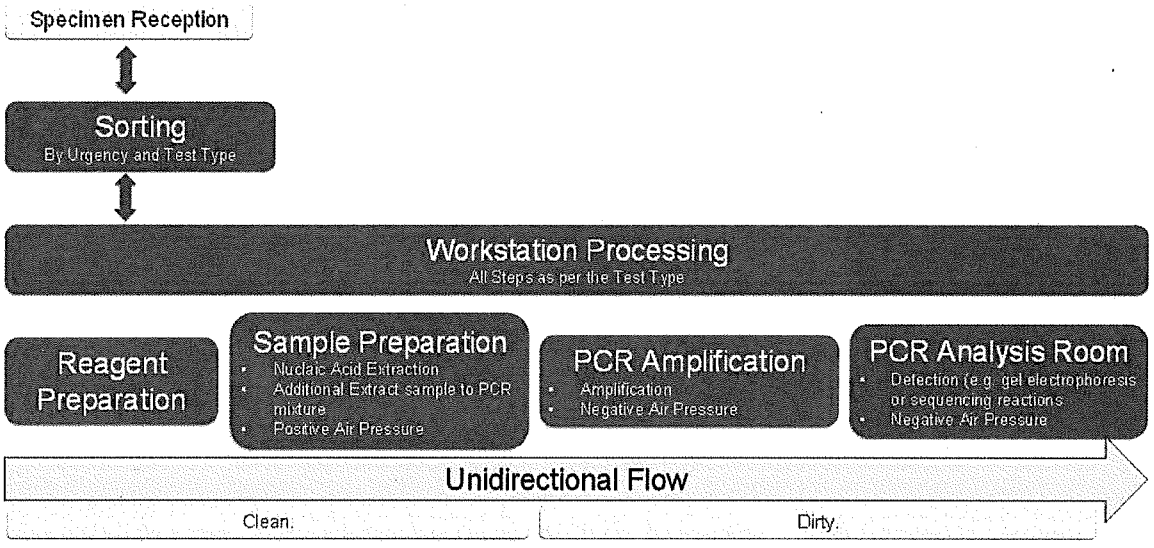
Molecular Pathology shares the following with Microbiology:

- The wash up room (shared with Microbiology) containing autoclaves and water filtration system; and
- The media room (shared with Microbiology) containing the centrifuge and the balance.

4.10.2. Specimen Pathways

Specimens are received by the laboratory from the specimen reception area, similar to all other pathology specialties. Specimens arrive at reception via pneumatic tube, CH staff, couriers, and external transport (such as taxis). Urgent testing is commonly delivered by hospital staff, and couriers if external to CH.

Figure 4-9: Schematic Specimen Pathway for Molecular Pathology (manual tests only)



OFFICIAL

The process steps for Molecular Pathology are summarised in Figure 4-9. There are seven core steps:

- Sorting specimens by test(s) required and the urgency of the test;
- There is a split pathway:
  - Specimens are sent to Molecular pathology if specimens are not shared by other laboratories; and
  - HIV Viral Load, Hepatitis C (HCV), PCR, HBV viral load and CMV viral load requests are sent to These specimens are generally sent directly to the Separations Laboratory where serum/plasma is fractionated and stored at 4°C pending collection by Molecular Pathology staff.

  Movement of specimens by staff between other areas of Pathology (e.g. shared specimens, should be transported by the safest route to other pathology units where there are shared specimens.
- Allocation to staff/workstation based on the test required;

  (Most tests performed in Molecular Pathology are batched. Some tests are performed more urgently and on request [such as Monkeypox, Meningococcal or Measles PCR]).
- Reagent Preparation
- Sample Preparation;
- PCR Amplification;
- PCR Analysis; and
- Reporting.

4.10.3. Hours of Operation

Molecular Pathology Operates Monday- Friday 0730-1800, with a weekend winter service. Urgent testing moving to the Core Laboratory expanding from GeneXpert platforms to also include technology with broader menus (i.e. BioFire FilmArray for Meningococcal infections).

4.10.4. Workforce Model

The workforce model[40] reflects the clinical capability level of Molecular Pathology, with staffing levels provided in Table 4-16 below. The staffing complement includes clinical director, pathologists, registrar, chief scientist, and laboratory/pathology scientists.

Table 4-16: Staff and Workforce Category for Molecular Pathology

The Clinical Director, Pathologists, and Registrar for Molecular Pathology are the same as for Microbiology.

Position	Headcount	FTE
Director	1	0.6
Pathologists	5	1.6
Registrar (also Microbiology)	1	1
Chief Scientist	1	1

40. ACT Pathology, 02508 02501 86766 tasl - Molecular Pathology.

Position	Headcount	FTE
Senior Scientist	2	2
Base Grade Scientist	4	4
Technical Officer	1	1
Total	15	11.2

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

4.10.5. Current location

The department is currently co-located on level 4 with Microbiology and Diagnostic Genomics.

4.10.6. Key Functional relationships and adjacencies

Internal Relationships

Microbiology and Molecular Pathology will combine as a single operational discipline due to the significant clinical overlap, shared specimens, movement of traditional microbiology to molecular based staff and ability to cross train staff.

Both Microbiology and Molecular pathology are moving to an increased level of robotics and their functional relationship is based around some key principles:

- Much microbiology testing will move to tracked robotics, which has an increased floor print e.g. Kiestra;
- Molecular Pathology has moved and will further embrace increased robotics e.g. Roche 6800;
- Molecular Pathology must be adjacent to Diagnostic Genomics to allow shared of laboratory space and equipment e.g. PCR Clean Preparation, Specimen Preparation, DNA Amplification. If not co-located with Diagnostic Genomics, then shared areas would need to be duplicated on the other floor, including, PCR set up, specimen preparation and DNA amplification;
- Molecular Pathology should also be adjacent to the core laboratory. More instrumentation is being enabled to connect to track systems, with Molecular Pathology robotics likely able to connect to a track system when the Pathology building is opened – this is already possible with Roche instrumentation;
- The spaces will be open plan wherever possible, with some exceptions including the PC3 facility; and
- Provision of sufficient space to allow fast scale up of services e.g. pandemic.

Molecular Pathology also has a close clinical relationship with Diagnostic Genomics.

External Relationships

The key requirement for Molecular Pathology is similar to all other areas of pathology. The ICT connectivity and the IT platforms need to be robust in order that:

- Molecular Pathologists are able to communicate with other medical practitioners, with sufficient bandwidth to display high fidelity images; and
- Regular and constructive relationships with all referrers, including timely provision of results.

4.10.7. Storage and Specimen Retention

Molecular Pathology storage has been problematic for some time. The department requires various types of storage for different purposes noting it shares processing similarities with closely linked departments – DG and Microbiology departments. The design could create special efficiency by having shared storage.

Stock will need to be retrieved from storage locations strategically placed to optimise workflow. Waste is relocated to a dedicated waste removal space awaiting collection by the waste disposal service.

Details on storage and waste are further outlined in the Functional Design Brief.

ACT Pathology is required to meet National Pathology Accreditation Advisory Committee's Requirements for the retention of laboratory records and diagnostic material. The relevant retention period is also outlined in the Functional Design Brief.

4.10.8. Environmental and Safety Considerations

There are important environmental components for the Service Model that incorporate:

- Space and zoning;
- Ventilation and air quality;
- Lighting (particularly for blood film reading),
- Temperature controls;
- Noise abatement;
- Floor loading; and
- Sustainable practices.

These considerations form part of the Functional Design Brief.

4.10.9. Molecular Pathology Future Challenges, Trends and Innovations

Molecular Pathology discipline intersects with the most other pathology disciplines. This intersection means that Molecular pathology will benefits from advances across the pathology spectrum.

The future opportunities for Molecular Pathology at ACT Pathology include:

- **Continued automation** of exiting manual processes.

- **Personalised Medicine and NGS** is a parallel or deep (DNA) sequencing technology which has revolutionised genomic research over the recent years. Using this technology, an entire human genome can be sequenced within a single day in comparison to its predecessor which required over a decade[41]. NGS will become a part of routine clinical practice in the future, as it helps to detect rare genetic variants and enables a deeper understanding of complex diseases.

  Molecular Pathology and DG is rapidly advancing in technology and the laboratory hasn't been able to keep up with this, NGS is an immediate next step in the future direction, especially to support CH oncologists who are actively seeking this technology.

41. Behjati, S. and Tarpey, P.S. (2013) What is next generation sequencing?, ADC Education & Practice Edition. Available at: https://ep.bmj.com/content/98/6/236 (Accessed: 09 June 2023).

Current lab space limitations is a constraint to the procurement of a NGS, which would be highly relevant and substantially beneficial to the work of Molecular Pathology and DG. In many cases is now the frontline test for diagnosis and treatment of various cancers and this will only expand further.

- **Integrating multiple omics technologies**, similar to the way that multidisciplinary teams approach works in healthcare, the multi-omics approach (including technologies such as genomics, transcriptomics, epigenomics, proteomics, and metabolomics) will provide a much more holistic view of disease mechanisms, which not only works to enhance the accuracy of diagnosis, but also enables personalised treatment strategies based on individual patient profiles. The drive towards individually targeted therapies is expected to continue to increase the level of testing, workforce expertise and need for individualised reports, particularly in cancer treatments. *It is likely that in the not-so-distant future, the 'omics revolution' for personalised diagnoses and treatments could become core business for ACT Pathology.*

- **Automation of Manual Steps.** Common to all specialties, there will be opportunities to better integrate all of the manual steps with track systems.

- **AI and machine learning** are being much more widely used in pathology as algorithms and pattern recognition can help humans perform much faster, much more accurately with much less effort. Together, they will play a significant role in analysing and interpreting large-scale genomic data, and identification of disease patterns moving forward.

- **Liquid biopsies** involve the analysis of various biomarkers, including circulating tumour cells (CTCs), circulating tumour DNA (ctDNA), and exosomes, from a simple blood sample. This approach offers a non-invasive and real-time method for monitoring disease progression, treatment response, and minimal residual disease detection. Future advancements in liquid biopsy technologies may lead to improved sensitivity and specificity, making it a routine tool in cancer management.

- **AI and machine learning** algorithms will continue to advance in molecular pathology, aiding in the interpretation of complex molecular data. These technologies can assist in identifying patterns, predicting disease outcomes, and improving diagnostic accuracy. AI-based tools may also help pathologists automate routine tasks, such as image analysis, thereby enhancing efficiency and reducing human error.

- **Theranostics** combines diagnostics and therapeutics into a single integrated approach. Molecular pathology will likely play a significant role in the development of theranostic strategies, allowing simultaneous identification of disease biomarkers and targeted therapy delivery. This approach holds promise for personalised treatment, optimising drug efficacy, and minimising side effects.

- **Single-cell analysis techniques** will become increasingly important in molecular pathology. They provide the ability to analyse individual cells at a molecular level, enabling the characterisation of cellular heterogeneity within tissues, identification of rare cell types, and tracking of cellular dynamics during disease progression. Advancements in single-cell technologies will provide valuable insights into disease mechanisms and potential therapeutic targets.

- **Digital pathology involves the digitisation of histopathology slides**, enabling remote access, storage, and analysis of tissue samples. This technology has the potential to enhance collaboration, improve diagnostic accuracy, and facilitate the integration of molecular data with traditional pathology.

4.10.10. Molecular Pathology Strategic Developments

The future for Molecular pathology is similar to that of DG. The future is likely to embrace a service model that has very significant investment in automation and multiple omics technologies, this includes a variety of new equipment that the laboratory does not currently have. The automation will be predominately focused on NGS (genetic sequencing), reagent testing, DNA extraction, quality testing, and single cell analysis techniques; and advances in omics technologies (possibly in partnership with others).

It is also clear that the current space allocations will need to be increased to allocate for these new equipment additions.

One strategic option is to commence Molecular Pathology (and DG) in the new building with a **substantial investment in automation equipment,** which would place ACT Pathology at the fore of Molecular pathology and DG across jurisdictions. The scale of the investment would be determined as part of a future capital investment funding and business case.

The default position is to progressively enhance technology capability in automation and 'omics' as the investment funds would ordinarily become available.

4.11. CLINICAL AND NON-CLINICAL SUPPORT SERVICES

This section identifies the range of inter-dependencies that ACT Pathology has with other clinical and non-clinical services.

Some of these services potentially impact on the service model for pathology. However, most relate to the Functional Design Brief in the next stage of the planning process for the capital redevelopment.

4.11.1. Clinical Support Services

Pathology itself is principally a clinical support service to almost all other medical specialties delivering patient care at TCH, private hospitals and community referrers.

There is minimal clinical interdependency with:

- Medical Imaging; or
- Pharmacy, except for microbial stewardship and community testing.

Quality and Infection Control is the exception. There is considerable inter-dependency between pathology and quality and infection control; a core consideration in all pathology departments.

Quality Department

The Quality Department supports the systems and structures that enable assurance of the the quality and consistency of testing and reporting. The role of quality is to:

- Ensure **standard operating procedures** (SOPs) for all laboratory processes;
- Establishing and maintaining a comprehensive **quality management system**;
- Designing and implementing **quality control measures**;
- Implementing and overseeing **quality assurance programs**;

- **Compliance and accreditation** including ISO 15189-2012 (AS ISO 15189-2013), NATA ISO 15189, NPAAC requirements and guidelines, and all other relevant NATA and Australian standards including statutory regulations and good laboratory practice standards;
- Leading **quality improvement initiatives**;
- Providing **training and education programs** for laboratory personnel to ensure they are knowledgeable about quality standards, procedures, and best practices.; and
- **Liaising with external organisations, regulatory bodies, and accreditation agencies** to stay updated on industry standards, guidelines, and best practices, including the participation in external proficiency testing programs and collaborate with other laboratories for benchmarking and knowledge sharing.

Teaching

Teaching and training is a core and integrated element of the provision of pathology services. The teaching and training occurs at both post-graduate and undergraduate level.

ACT Pathology is funded by the ANU to undertake pathology teaching for Medical undergraduates and postgraduate degrees through the School of Medicine and Psychology. Training of registrars in disciplines other than pathology is also required to assist them in passing the pathology components of their exams.

ACT Pathology prides itself on attracting pathology registrars in significant numbers.

It is expected that teaching and training will continue to be integral to the service model for pathology. This translates to dedicated teaching and research spaces, and spaces within the clinical specialties for pathology related activities.

Gross Pathology Teaching

This is commonly called the Museum, which houses gross pathology specimens. The Museum is not critical to day-to-day functions, however, it is important that there is easy access for staff to maintain/repair precious specimens when needed, that public access is restricted to learning and teaching purposes only, and that the department is located adjacent to a teaching space to allow for tutorials and conferences involving pathology case materials and wet specimens.

The current NDA for Pathology Museum and its associated support services is ~162 sqm.

Research

Research at CH is detailed in the *Clinical Support Services Service Model*, and the research projects and functions undertaken by ACT Pathology are core to its operations. It is anticipated that the core research functions for pathology will migrate with the pathology services into the new facility.

There are discrete research activities undertaken by ANU that are not integral to ACT Pathology and are not expected to be included in the scope of the new Pathology facility. These research activities may be well suited to be accommodated in a dedicated research facility on campus.

Prototyping

ACT Pathology does not currently have a prototype laboratory.

It is part of the proposed expansion of function as articulated in the L2D high level FDB.

A prototyping laboratory is a concept that is being increasingly adopted by modern pathology services. It provides a dedicated area to prototype new equipment or showcase and trial a supplier's technology. Trialling robotics before the expense of acquiring the equipment can be invaluable. It can also be helpful to conduct early trials and testing/commissioning of new technology to speed up the compliance period. It may also provide a capacity to be used in a future expansion or core activities. For further details refer to section 4.1.2.

DNA Extraction and Amplification

ACT Pathology has a limited capability for DNA extraction as part of the DG functions. This is an area that has been highlighted for major expansion in the future. The proposed increase in area if included in the expanded space for DG. This can be a shared function with any future (PC2) pandemic readiness area.

Cryogenic Processing and Storage Facility

ACT Pathology has a LN2 tank (Cryogenic store) adjacent to and connected into Building 10 currently. This supports the small DG service.

An expanded cryogenic service is proposed for the new pathology service, with expanded functionality that is likely to require expanded storage of ultra-low temperature samples

Cryogenic storage must adhere to best safety principles and should be collocated that incorporates the correct provisions for oxygen depletion detection, alarms and ventilation systems. Ideally, cryo-storage is on a well-ventilated external wall. There is likely to be a requirement for vapour phase and full immersion dewars.

Cryo-speed truck access is a requirement as well as the exclusion zone during filling process.

Digital Pathology

The service could be located off-site or on-site. It would nevertheless require a 'digital backbone' with sufficient bandwidth (Cat 6 or 7 level capability) to support real-time digital pathology operations, as well as off-site and remote work by Pathologists. For further details refer to section 4.1.3.

4.11.2. Non-Clinical Support Services

Pathology Administration

Pathology Administration manages the business unit that is ACT Pathology. This includes:

- Operations oversight and management;
- Quality;
- Human resources management;
- Financial management,
- Data management and reporting;
- Strategic planning;
- Clinical and non-clinical liaison with the rest of CH services;
- Communications and public relations; and

- Engagement in research and education activities.

Enabler Services

There are an important range of non-clinical services that will be described in the Functional Design Brief, including:

- Logistics: This includes the collection, transport and storing of specimens, particularly couriers, and other supply chain requirements for supplies
- ICT: This is an increasingly critical enabler for pathology services. This includes ICT standardisation, high bandwidth the communicate with clinical personnel, remote monitoring of POCT, enhanced automated testing and reporting processes, meta-data analytics, and many other areas.
- Bio-Medical engineering;
- Maintenance and equipment repair (at CH and by manufacturers);
- Ventilation and air quality, Lighting, Temperature controls and Noise abatement;
- Store replenishment;
- Waste disposal; and
- Access and Safety, amongst others

5. Mortuary Services

Mortuary services will be incorporated in the new Pathology facility building.

This may need to be revisited depending on the location of Pathology relative to core clinical areas on the campus, the travel distances, and having to use shared public pathways for transporting deceased persons.

5.1. SCOPE OF SERVICE

The mortuary service will include:

- **The acceptance and safe repository** of bodies during and after business hours[42] for persons who have died at CH, as well as potentially other deceased persons depending on the capacity for storing at the Forensic Medical Centre;

  Non-autopsy services including Body Release: CH's services involve the release of bodies to appropriate Funeral Homes/Transport Companies/Religious Organisations[43], including the management of relevant/necessary paperwork;

- **Perinatal post-mortem service** (PPMS)[44]: autopsy procedures conducted on deceased perinatal bodies where deaths occurred during pregnancy, or during and (just) after birth, at CH.

  Perinatal anatomical pathology is highly specialised, with the quality and clinical utility of reports requiring a higher degree of expertise/experience of the pathologist, scientist and technical staff. The majority of postmortem examinations provided by ACT Pathology are perinatal postmortems.

  The PPMS Care Coordinator[45] also supports families during a difficult and sensitive time by providing family-focused care and consultation with relevant health care teams to identify the cause of death, providing answers to the families.

Full adult autopsies are no longer performed at CH and are performed at the Forensic Medical Centre (Botany Rd Phillip), although we are renewing our scope of accreditation to include limited autopsies for post-mortem biopsy and organ retrieval for consented research.

Area

The current NDA for Mortuary and Autopsy is ~294 sqm.

5.2. PATHWAYS

Coronial Matters

ACT Pathology provides a temporary storage location for the coroner if they cannot arrange direct transfer at the time of passing.

42. ACT Pathology, Anatomical Pathology Introduction.
43. ACT Pathology, Anatomical Pathology Introduction.
44. NSW Health Pathology, Clinical Services Plan 2019 – 2025 Version 2:2021.
45. This is a Midwife on ward function.

Non-Coronial Deaths

Mortuary pathways[46] begin with the **Verification** and then **Notification** of Death. The mortuary service either undertakes or supports other CH staff in all subsequent processes, including:

- **Documentation** mainly associated with death certificates;
- **Care of the Deceased** is another important step in the process, focusing on maintaining the dignity of the deceased patient and supporting the family; and
- **Release of the deceased person** and transfer to a Funeral Home.

There may also be services provided by the mortuary service including documentation/ certificates, and particular processes for:

- Perinatal deaths;
- Infectious diseases (as noted in Table 5-1);
- Death of a patient in the Perioperative Unit;
- Radioactive or Cytotoxic substances;
- Bariatric and tall stature patients in inpatient settings;
- Deceased person who's next of kin are unable to claim them or there is no next of kin.

Table 5-1: Infectious Diseases a Deceased Person is Suspected or Known to have been Exposed to, List A vs List B[47]

List A *Does not require hermetically sealed bag*	**List B** *Does require hermetically sealed bag*
Acquired Immunodeficiency Syndrome (AIDS)	Anthrax
Acute Viral Hepatitis (Unclassified)	Diphtheria
Hepatitis A, B, C, D	Creutzfeldt-Jakob Disease (CJD)
Human Immunodeficiency Virus Infection (HIV)	Plague
Meningococcal Disease	Small Pox
Rabies	Yellow Fever
Active tuberculosis	(Any) Viral Haemorrhagic Fever including: Lassa, Marburg, Ebola, and Congo Crimean Fevers
COVID-19	

5.3. HOURS OF OPERATION

Mortuary's normal opening hours are Monday to Friday: 8:00-4:00pm. On weekends, the department is open for releases, body wash and viewing only, which is organised by the out of hours shift coordinator and performed by hospital (non-pathology) staff.

5.4. WORKFORCE MODEL

The workforce model reflects the clinical capability level of mortuary services, with staffing levels provided in Table 5-2 below. The staffing complement includes a mortuary team leader, a mortuary assistant, as well as some shared staffing arrangements with AP. Note, this shared arrangement is not explicitly detailed in Table 5-2.

46. ACT Health Canberra Health Services, 22 Sept 2021, Canberra Health Services Procedure - Providing Care after Death.
47. ACT Health Canberra Health Services, 22 Sept 2021, Canberra Health Services Procedure - Providing Care after Death.

Table 5-2: Staffing by Workforce Category - Mortuary

Staff Category	Headcount	FTE
Mortuary Team Leader	1	1.0
Mortuary Assistant	1	1.0
Current Total	2	2

Staffing numbers are at a point in time and will not reflect future FTE or workforce mix needs.

5.5. CURRENT LOCATION

The department is currently collocated on level 1, with Pathology Administration, Collection Services and Pathology Museum.

5.6. KEY FUNCTIONAL RELATIONSHIPS

Internal Relationships

Mortuary services often shares staff with AP, however, there are no functional relationships that require mortuary to be proximal to any other pathology department.

External Relationships

Mortuary services work closely with clinical staff within inpatient services and emergency departments. They coordinate or support the transfer of deceased individuals from hospital units to the mortuary and ensure proper documentation.

There will typically have a working relationship with local funeral homes or funeral directors and will involve interactions with authorities such as coroners, and ACT Health to comply with regulations regarding body transportation, handling, and burial/cremation procedures.

5.7. MORTUARY KEY CHALLENGES/FUTURE SERVICE TRENDS

The future for mortuary services will need to consider the following service trends:

- **Discrete body transition**: Deceased persons are frequently being transferred from department to mortuary via hospital corridors/grounds that are shared with the public. It will be important for future transfers not to be undertaken through public spaces. Only underground tunnels and staff only areas should be used.

  Opportunities should also be sought as part of the facilities developments to:
  - Automate body transits; and
  - Maintain integrity and prevent contamination.
- **Cultural sensitivity and inclusivity**: Along with all other parts of CHS, mortuary services place a strong emphasis on cultural sensitivity and inclusivity, ensuring that practices and services accommodate diverse cultural and religious traditions;
- **Technology integration**: The Mortuary services should leverage advances in technology to better coordinate and transit deceased patients and ensure efficient administration of regulations; and
- **Sustainable practices**: with growing environmental consciousness, there might be a shift towards more eco-friendly practices in mortuary services. This could include options for natural or biodegradable materials.

- **Scale**. The proposed capacity for the new mortuary service as indicated in the L2D FB is for 75 deceased persons.

Whilst there are expected to be some changes to the technology platforms and streamlined operations in the mortuary, the basic Service Model will not change substantially. It is expected that there might be reduced space required for mortuary services (unless there is a major ACT policy change to undertake more autopsies at CH).

A1. ACT Health Policies, Strategies and Plans

The following policies, strategies and plans are relevant to the ongoing enhancement and accessibility of pathology and other clinical services as they are developed in the new Pathology facility.

ACT Government policies, strategies and plans

- Accessible, Accountable, Sustainable: A Framework for the ACT Public Health System 2020-2030
- Healthy Canberra: ACT Preventative Health Plan 2020-2025
- ACT Health Digital Health Strategy 2019 –2029
- ACT Wellbeing Framework
- ACT Drug Strategy Action Plan 2018 –2021
- ACT Carers Strategy
- ACT Aboriginal and Torres Strait Islander Agreement 2019-2028
- ACT Climate Change Strategies 2019-2025
- ACT Women's Plan 2016-2026
- Capital of Equality Plan 2019-2020
- ACT Mental Health Strategic Plan –under development
- Other Policies, Strategies and Plans

Ongoing Territory-wide planning

- ACT Child and Adolescent Clinical Services Plan
- ACT Mental Health Services Plan
- Joint planning framework with Southern New South Wales Local Health District Planning Team
- Models of care and facility planning for Canberra Hospital Expansion Project
- Models of care and facility planning for Centenary Hospital for Women and Children expansion
- Other Specific Services Plans

Canberra Health Services planning

- Canberra Health Services' Strategic Plan, 2020 –2023
- Canberra Health Services' Clinical Services Plan 2021-2031
- Canberra Health Services: COVID-19 Recovery Roadmap 2020
- Canberra Hospital Master Plan
- Implementation and enabling plans.

A2. Pathology Clinical Capability Framework

Pathology role descriptions below are for all six levels of pathology. ACT Pathology is a Level 6 pathology service. [48]

LEVEL	SERVICE SCOPE	SERVICE REQUIREMENTS	WORKFORCE
NPS	No planned service.		
1	Blood and diagnostic specimen collecting services available.	Supported by a timely courier service to a National Association of Testing Authorities / Royal College of Pathologists of Australasia (NATA/RCPA) accredited laboratory for testing. Collection policies and procedures established by the accredited laboratory. Referral pathways to relevant Aboriginal programs and services. Compliance with the quality and safety requirements as determined by NATA and the National Pathology Accreditation Advisory Council (NPAAC)	Workforce requirements in accordance with standards and guidelines specified by the NPAAC; accredited for compliance by NATA.
2	As for Level 1. In addition, a range of urgent tests available. Tests may be performed by appropriately trained health workers using approved Point of Care Testing devices (see NSW Health PD2018_028 Managed Point of Care Testing (PoCT) Service.)	As for Level 1. In addition, comply with NSW Health PD2018_042 Blood Management.	As for Level 1.
3	As for Level 2. In addition, an accredited Category B (Branch)[1] laboratory providing core pathology services, either on-site or through networked arrangements. Range of tests available varies according to clinical need. Will usually include basic haematology (e.g. full blood count, cross matching, blood grouping and basic coagulation), biochemistry (e.g. liver and renal function tests, electrolytes) and microbiology (e.g. urine microscopy, Gram staining	As for Level 2. In addition, under the overall control of, with specialist scientific and clinical supervision from, an accredited laboratory. 24-hour on call access to Category G laboratory	As for Level 1.
4	As for Level 3. In addition, part of a service network providing some specialist diagnostic tests (e.g. fine needle aspiration, frozen section, bone marrow biopsy) and/or an expanded range of tests.	As for Level 3. In addition, provide an extended hours service to meet agreed clinical needs.	As for Level 1.
5	As for Level 4. In addition, accredited as Category B or G[2] laboratory. Provide access to comprehensive range of pathology services, either on-site or through networked arrangements. Provide support for clinical trial and research activities. May act as 'hub' laboratory, providing diagnostic and clinical services for other hospitals or laboratories in the region or pathology network.	As for Level 4. In addition, provide 24 hour access to comprehensive range of pathology services	As for Level 1.
6	As for Level 5. In addition, accredited as Category G laboratory. Provide	As for Level 5	As for Level 1.

48. https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF.

LEVEL	SERVICE SCOPE	SERVICE REQUIREMENTS	WORKFORCE
	comprehensive range of core clinical, laboratory and business support services as part of the clinical management team. Perform testing of a complex technical nature in a range of fields to support clinical services. May initiate and lead clinical trial and research activities. May operate reference laboratories and provide public health services for the State		

1. Category B (Branch): This category is used for a laboratory that is either: an integral part of a Category G laboratory apart from its geographic location, or a part of a regional pathology service. A Category B laboratory shall have a documented agreement with a Category G laboratory to ensure that the range of pathology tests provided and the standard of work in the laboratory is under the direction and control of a designated supervising pathologist or senior scientist of an accredited Category G laboratory[49].

2. Category G (General): These categories are used for both large and small multidiscipline or general laboratories providing comprehensive services. It is also used for limited or single discipline laboratories[50]. Introduction of PoCT and specialised testing has resulted in new categories of laboratories for these sites. For further information please contact NSW Health Pathology.

49. NPAAC (2018) Requirements for Supervision in the Clinical Governance of Medical Pathology Laboratories. Fifth edition. Commonwealth of Australia, Canberra
50. NPAAC (2018) Requirements for Supervision in the Clinical Governance of Medical Pathology Laboratories. Fifth edition. Commonwealth of Australia, Canberra

A3. Functional Relationship Diagrams – by L2D Architects

Below functional relationship diagrams are designed by L2D Architects for the purpose of the Functional Design Brief.

Table A3-1: Pathology Departmental Overview – All Departments

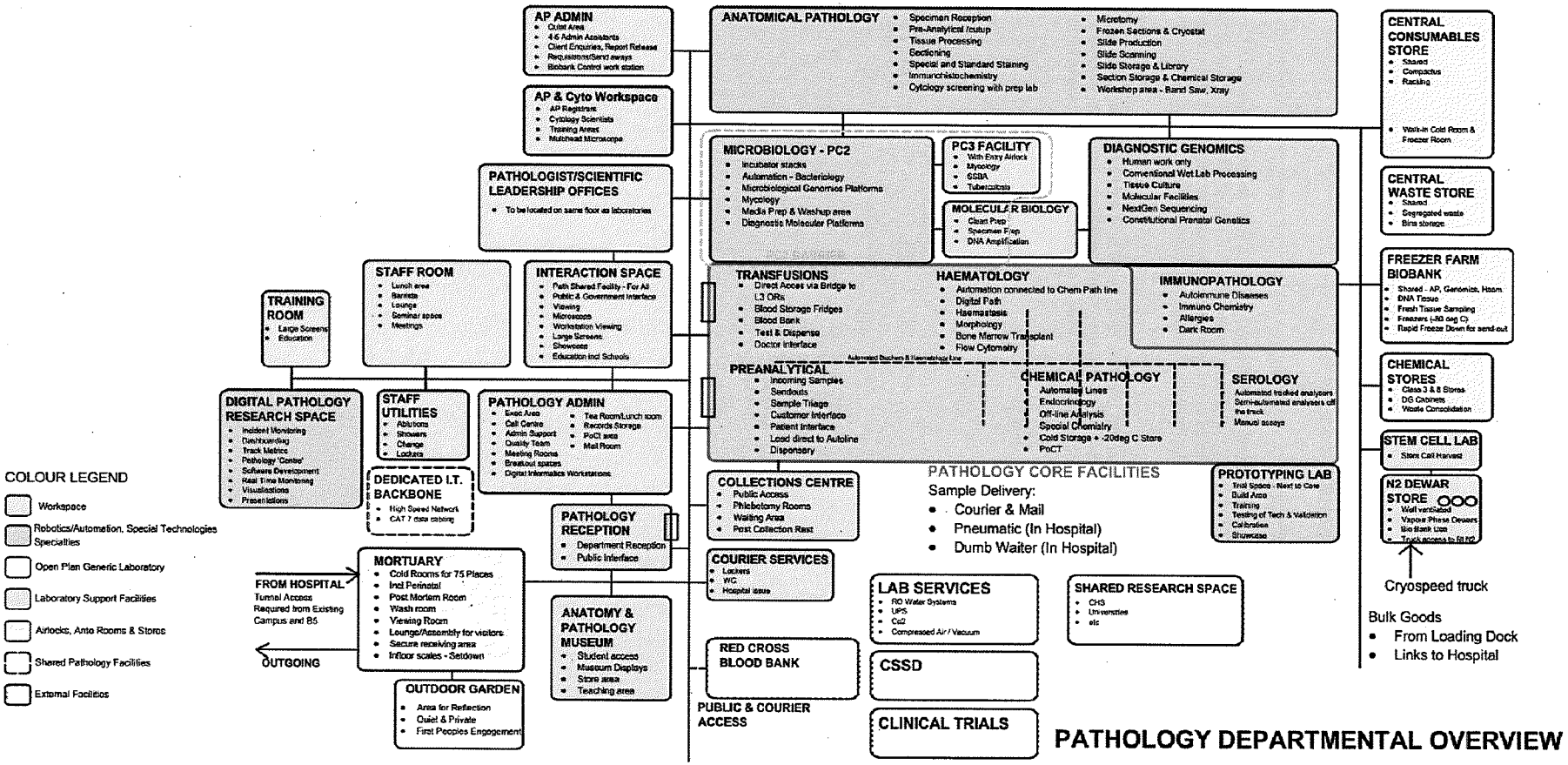


Table A3-2: Pathology Department – Core Facilities and Immunopathology

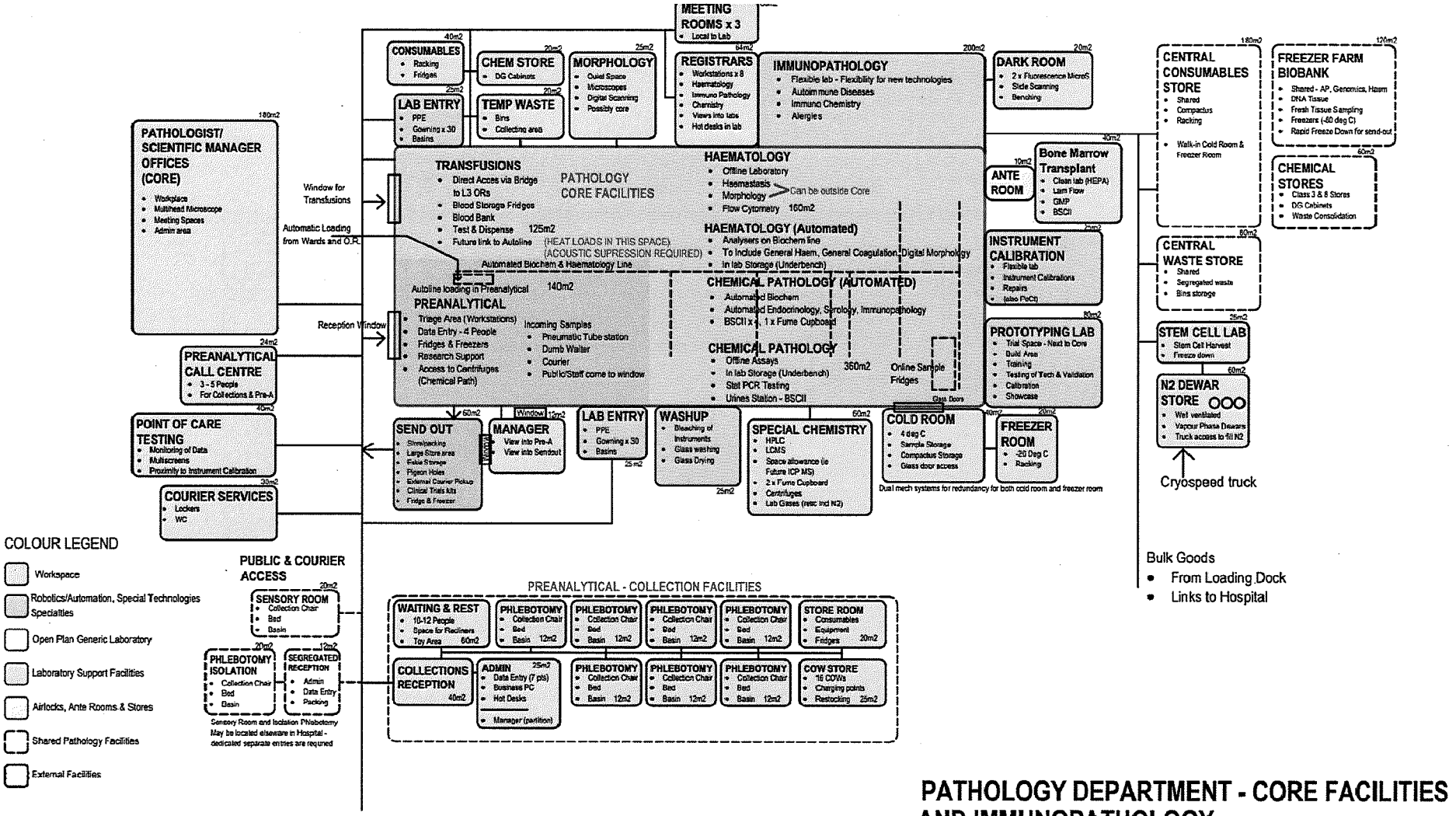


Table A3-3: Anatomical Pathology

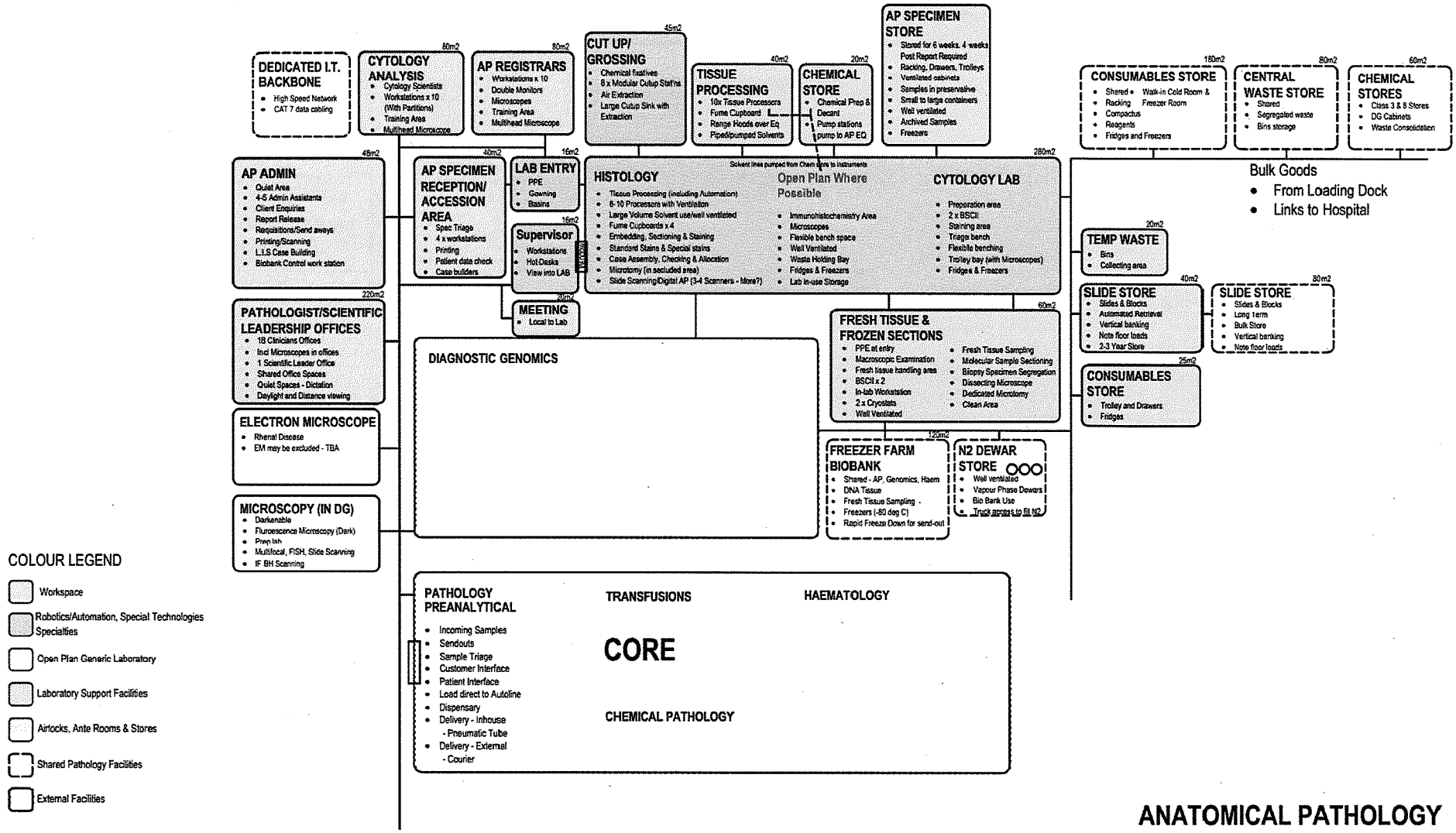


Table A3-4: Diagnostic Genomics

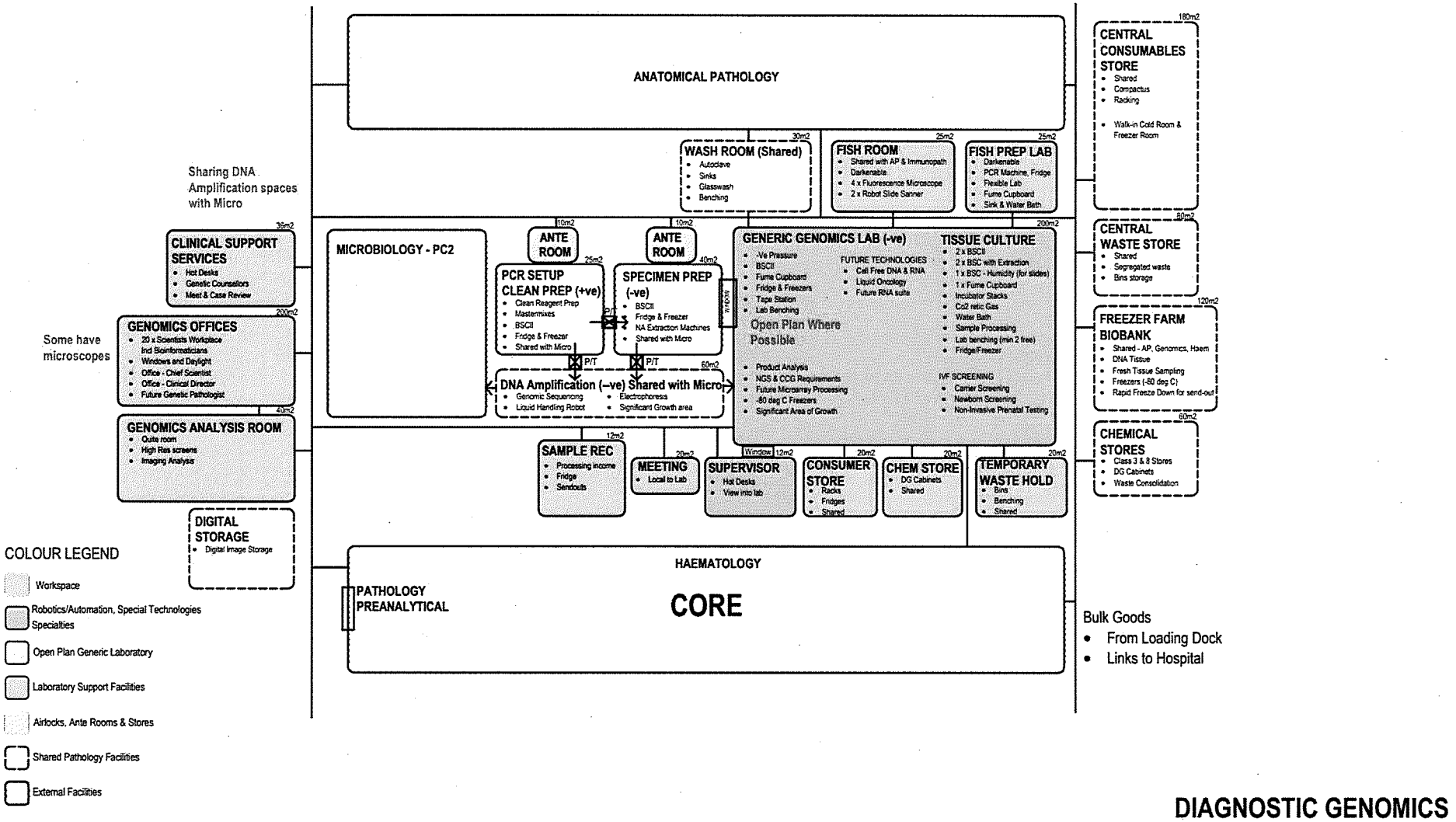


Table A3-5: Microbiology / Molecular Pathology

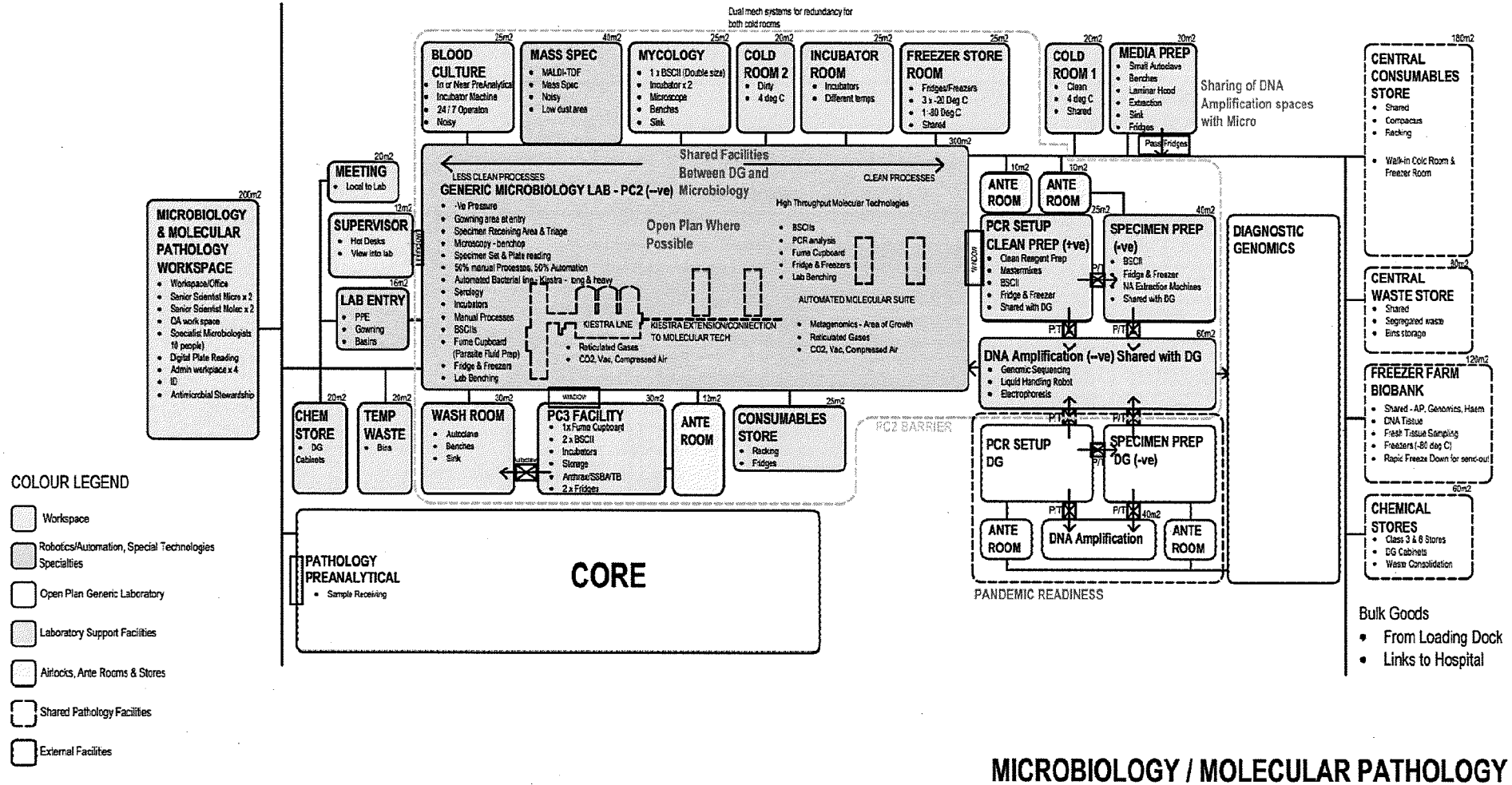
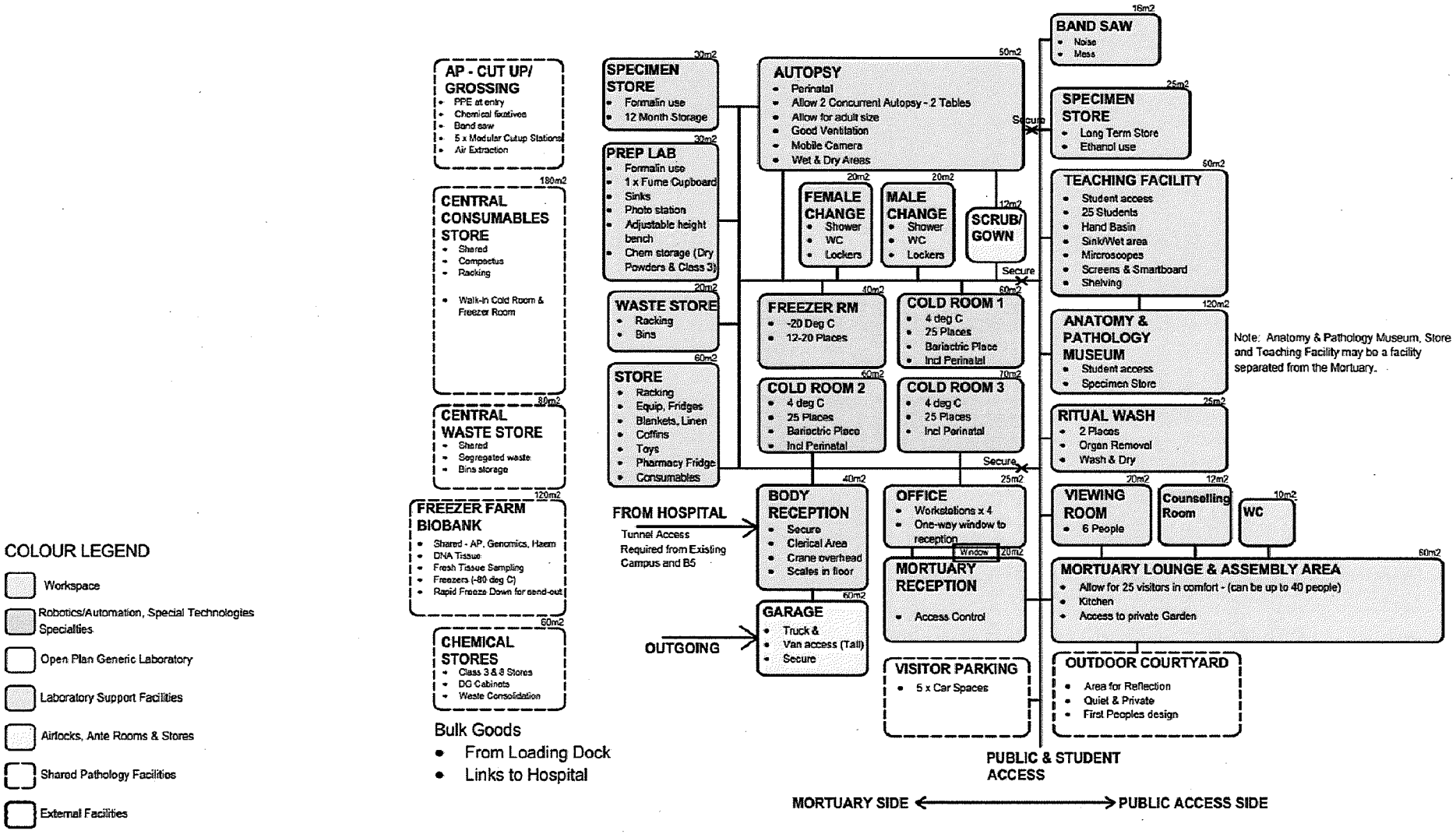


Table A3-6: Mortuary



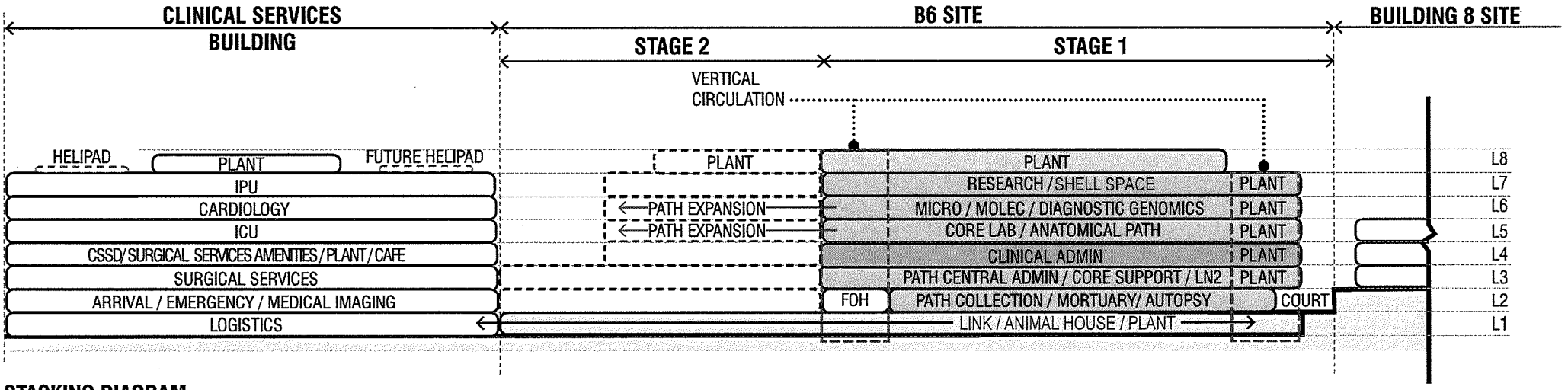
A4. Prohibited Actions for Suspected Coronial Deaths

CHS staff must NOT carry out any of the following without first confirming with the ACT Police Coroner's Team Representative[51]:

- Leave all tubes, drains, cannula, airway devices and dressings are to remain in situ on the deceased person. Permission for the removal of any device or equipment should be sought from ACT Policing and must be noted in the patient's clinical record and on the Deceased Person Checklist (including the asset number of equipment, if labelled) and staff should consider describing the site of the device or equipment with a sketch/diagram;
- Not place anything in or on the deceased person, including surgical packs, dressings, and drains;
- Not take foot and/or handprints without ACT Policing permission in the case of a death of a child/neonate;
- Not wash the deceased person's body. If the body is going to be viewed by relatives before leaving the perioperative unit to go to the Mortuary, ask for instruction from ACT Policing prior to removing any blood or fluid from the body;
- If ACT Policing give permission for the deceased person to be viewed by relatives or have rights administered by a Minister of Religion and have given permission for the deceased person to be moved, the deceased person may be moved out of the theatre and into a nearby room such as the perioperative tutorial room. The deceased person is to be covered with a clean sheet;
- Gastric aspirate and vomitus from the deceased person are to be placed in a yellow top specimen container, labelled with a patient ID label, and sent with the deceased person to the Mortuary;
- Ensure the deceased person's identification is checked as correct and identification tags are attached to the deceased person's ankle and wrist. After the patient identification process has been completed and the police are instructed by the coroner's office, the deceased person may be removed from the theatre complex. Do not remove the body until instructed to do so by the Police. When transferring the deceased person, a wards person is to be contacted to assist with placing the deceased person into a body bag and transferring them to the Mortuary; and
- If requested to give a statement to ACT Policing, please refer to document "Staff Options - interaction with ACT Policing following a coronial death".

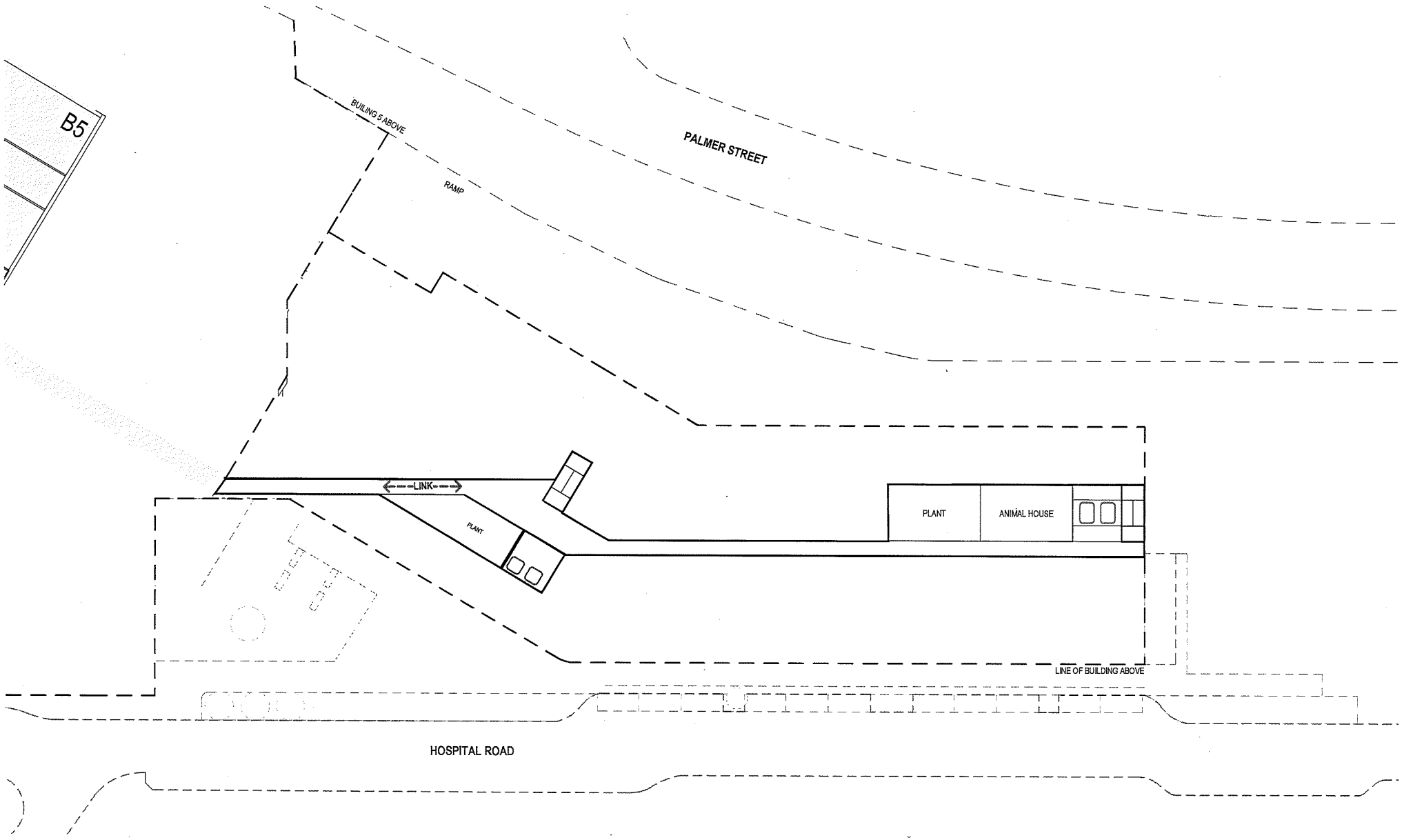
51. ACT Health Canberra Health Services, 22 Sept 2021, Canberra Health Services Procedure - Providing Care after Death.

MASTER PLAN 2.2 - B6 STACKING DIAGRAM

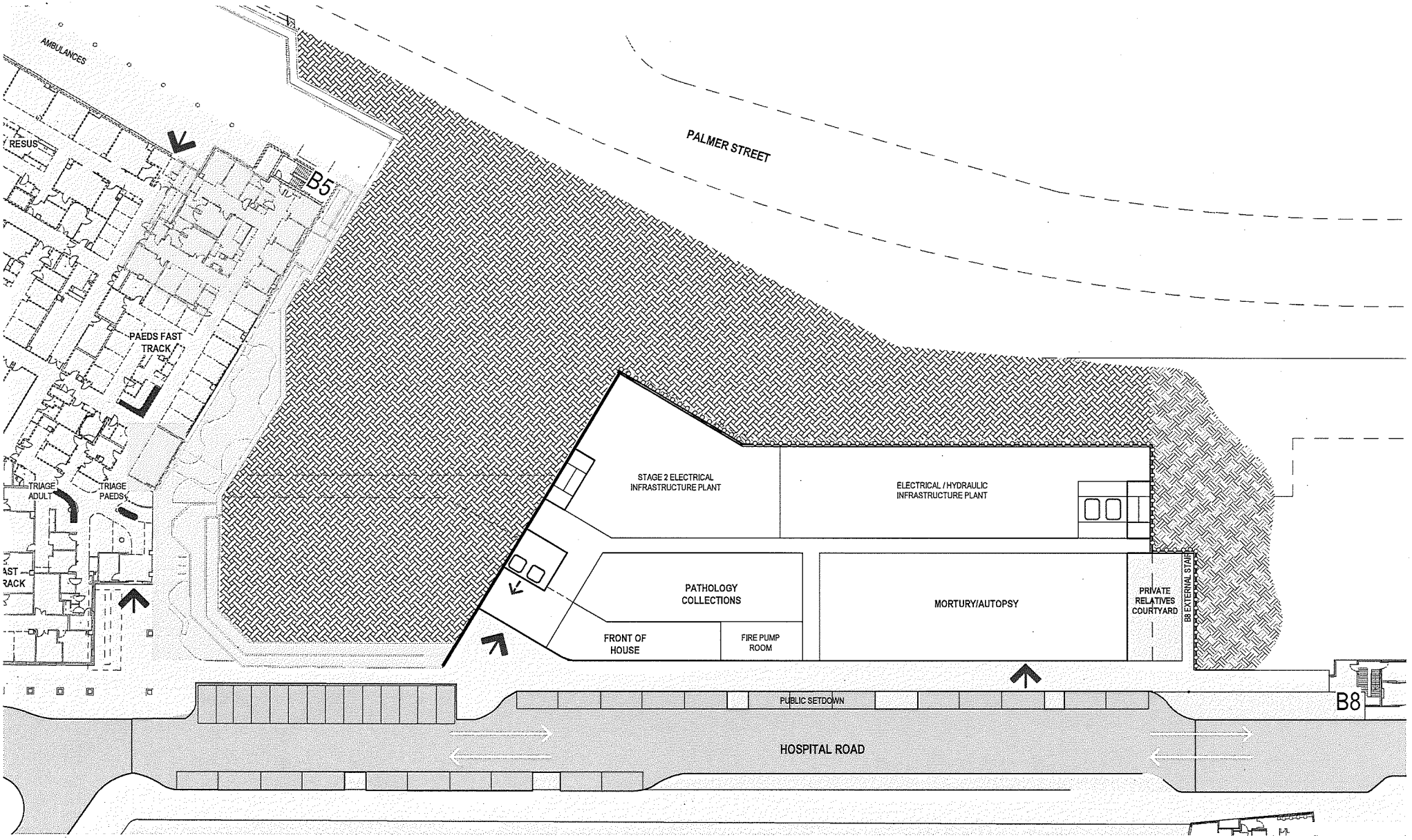


STACKING DIAGRAM

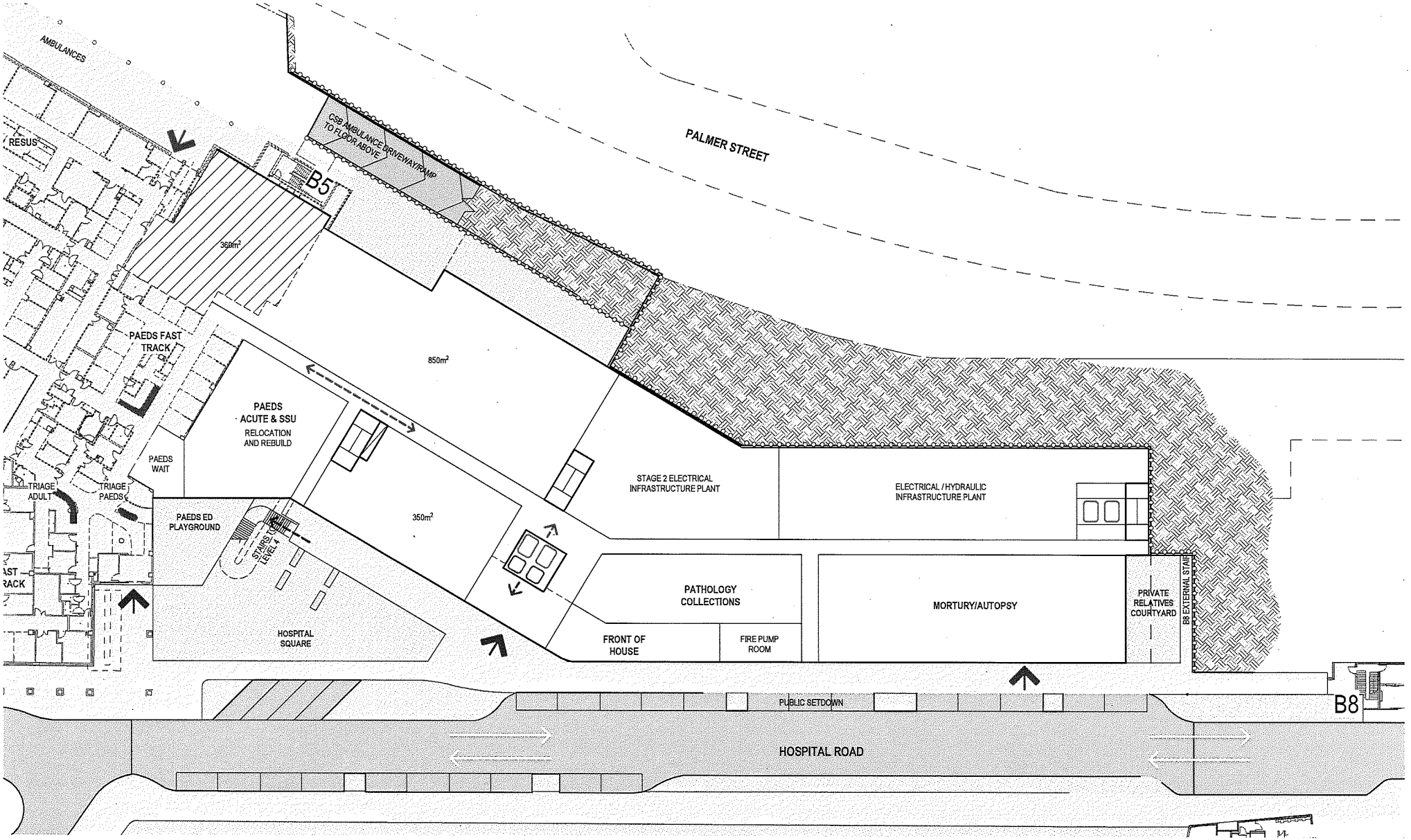
B6 GENERAL ARRANGEMENT PLAN - LEVEL 1 - STAGE 1



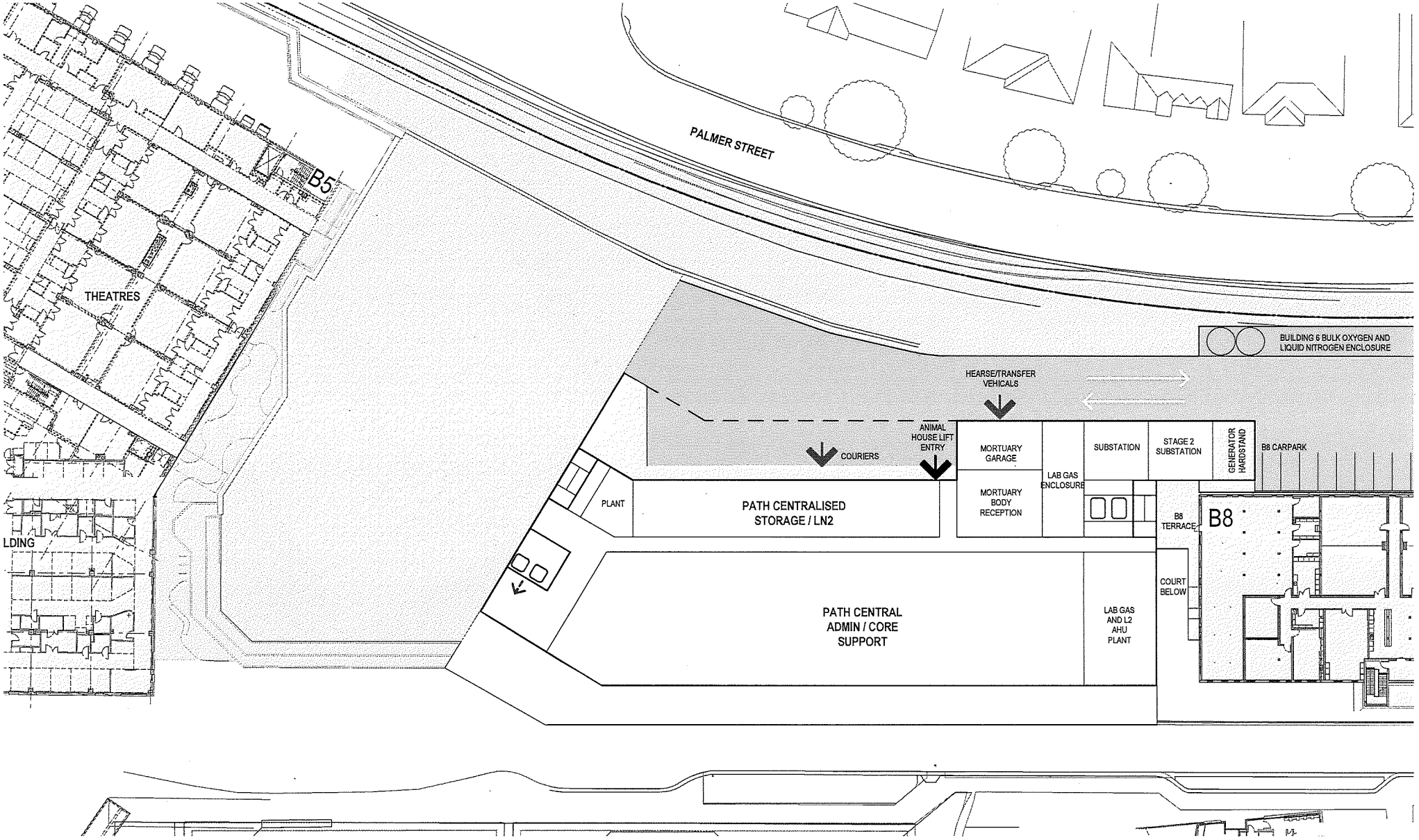
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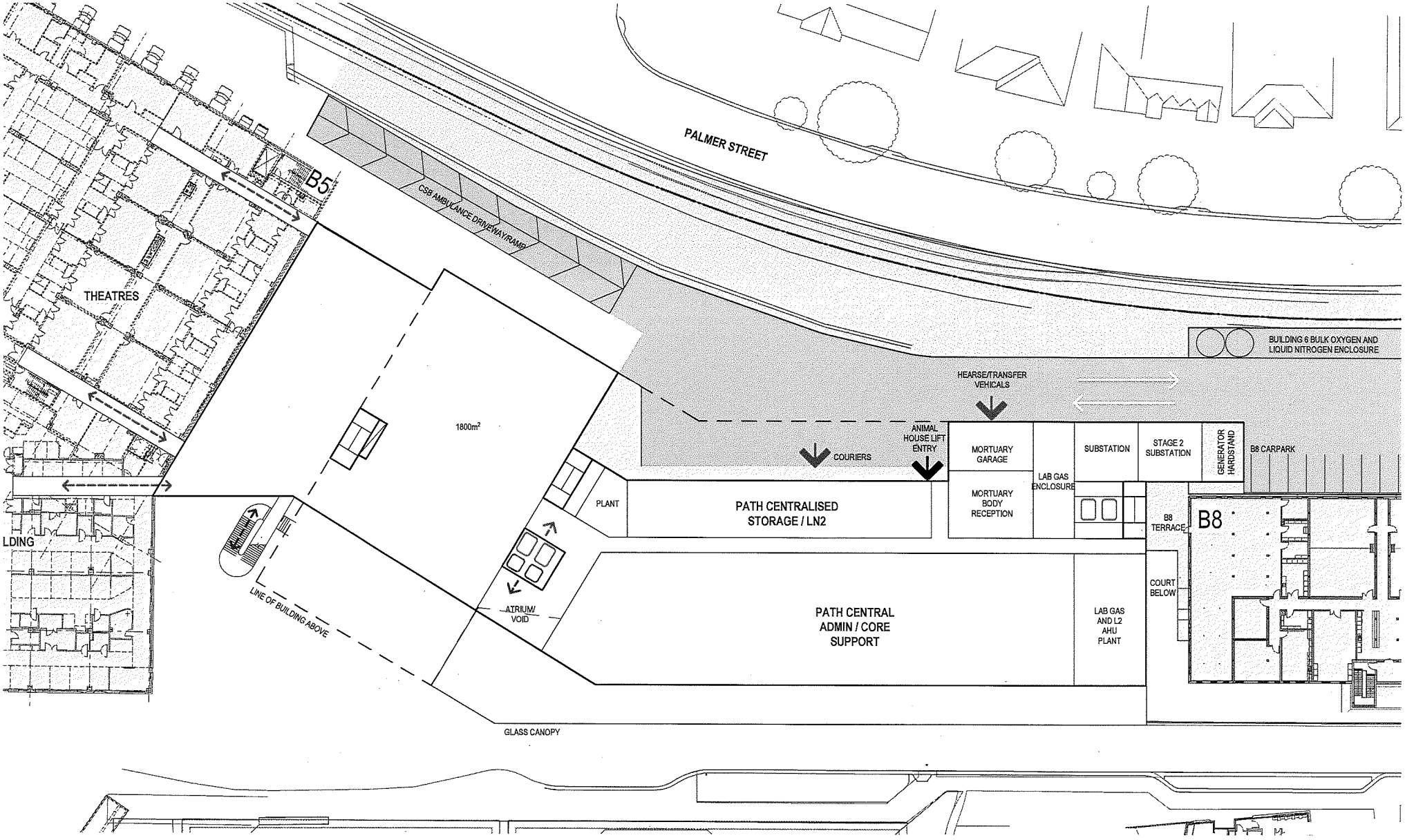
B6 GENERAL ARRANGEMENT PLAN - LEVEL 2 - STAGE 2



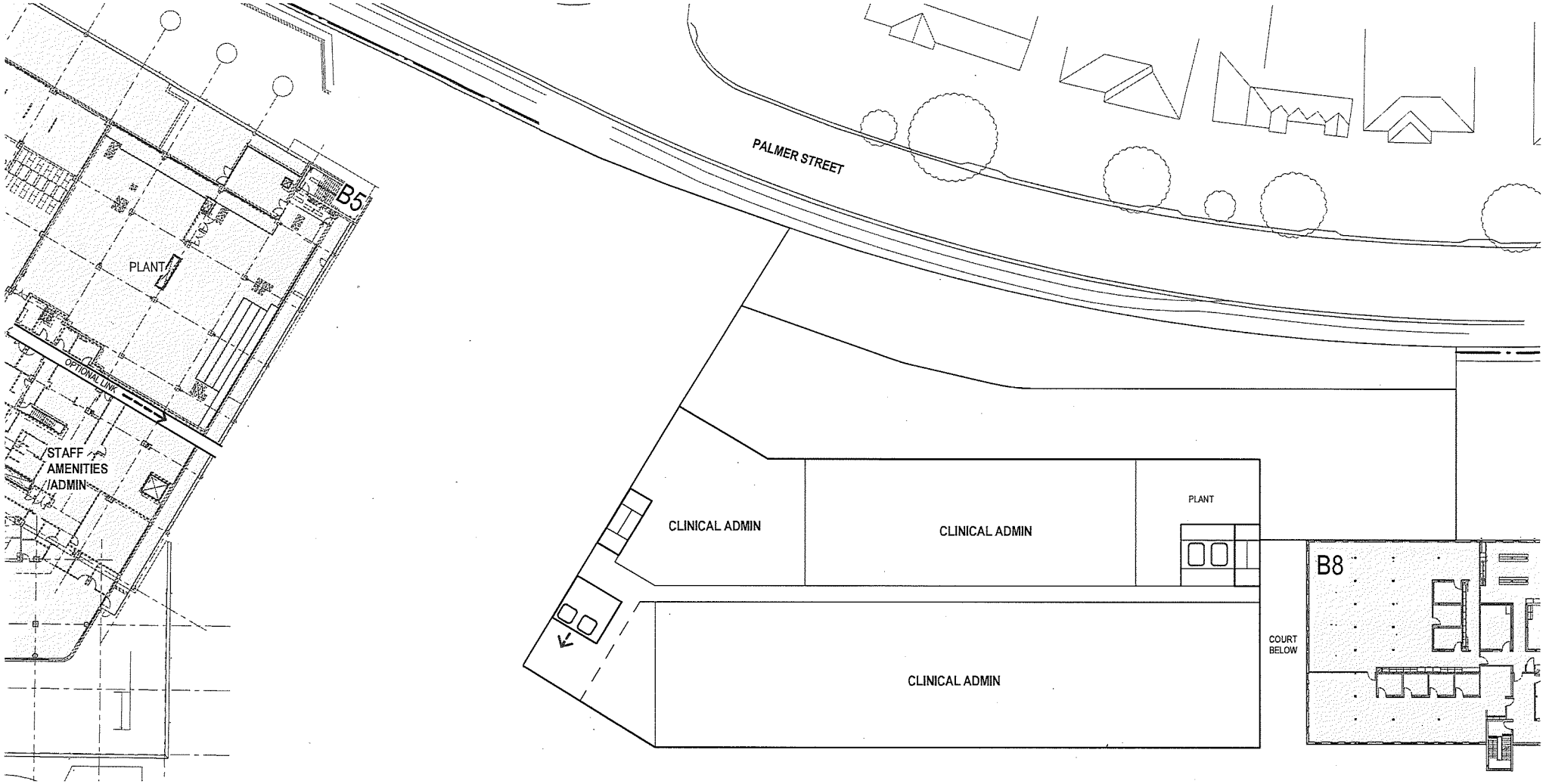
B6 GENERAL ARRANGEMENT PLAN - LEVEL 3 - STAGE 1



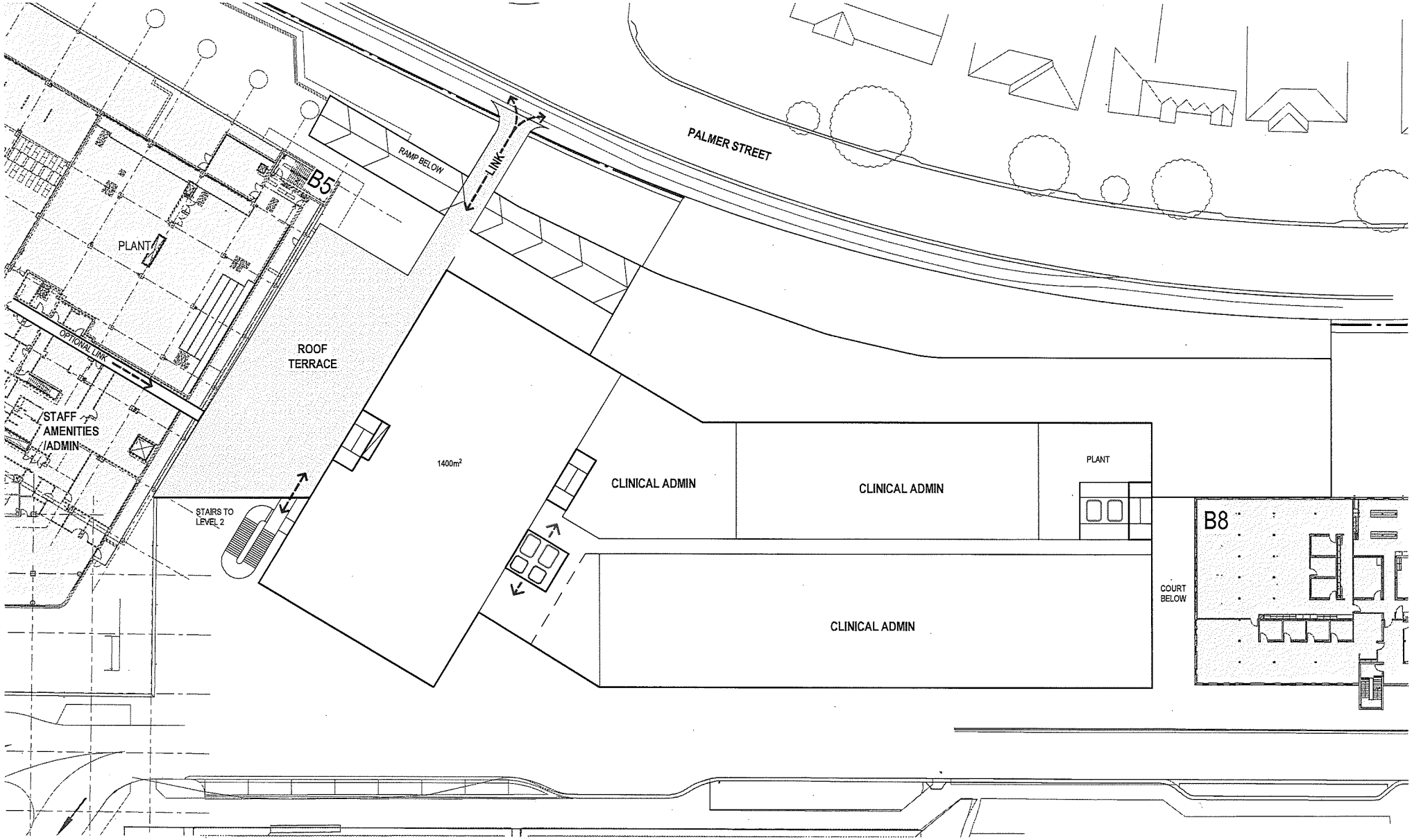
B6 GENERAL ARRANGEMENT PLAN - LEVEL 3 - STAGE 2



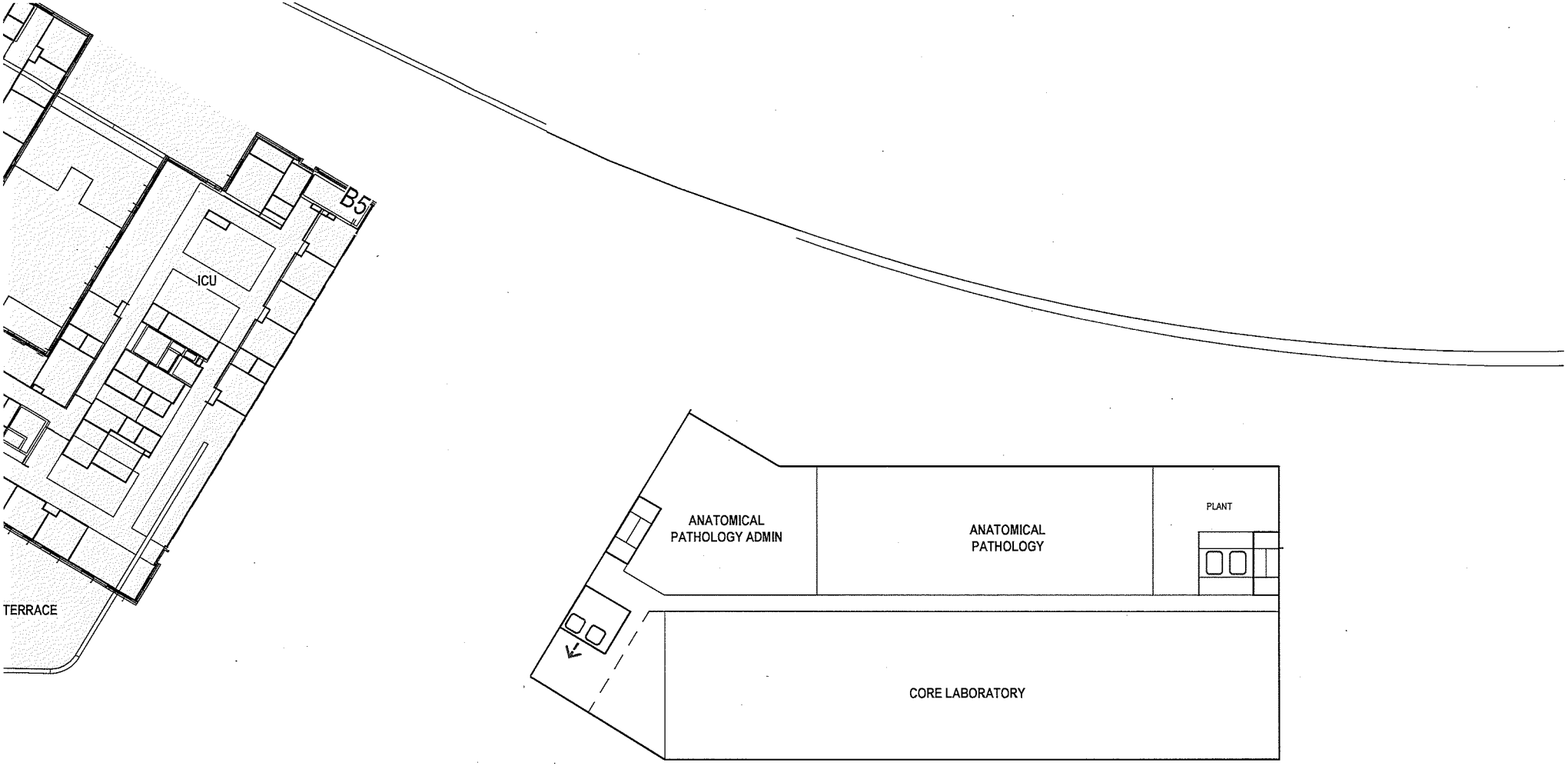
B6 GENERAL ARRANGEMENT PLAN - LEVEL 4 - STAGE 1



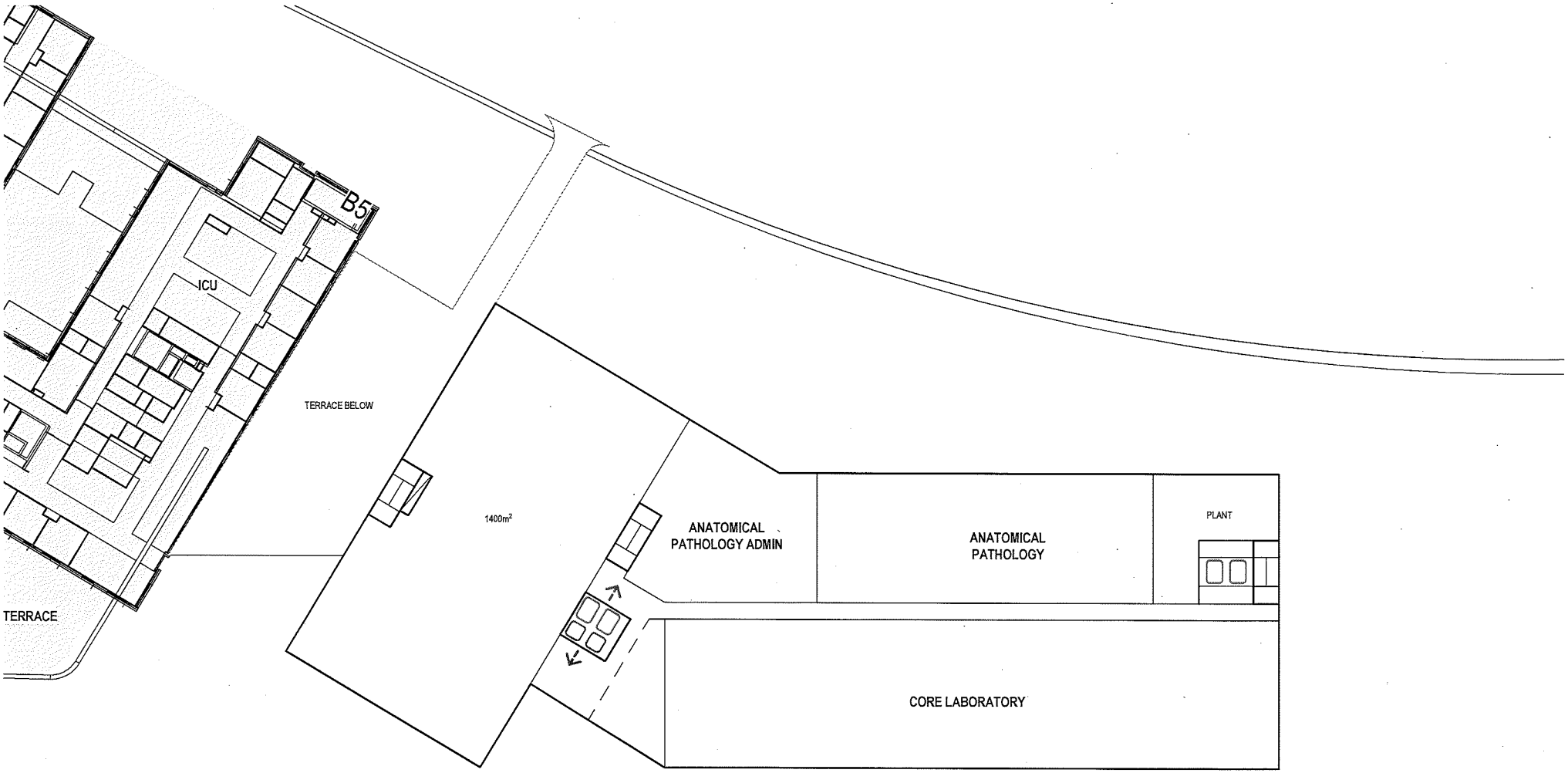
B6 GENERAL ARRANGEMENT PLAN - LEVEL 4 - STAGE 2



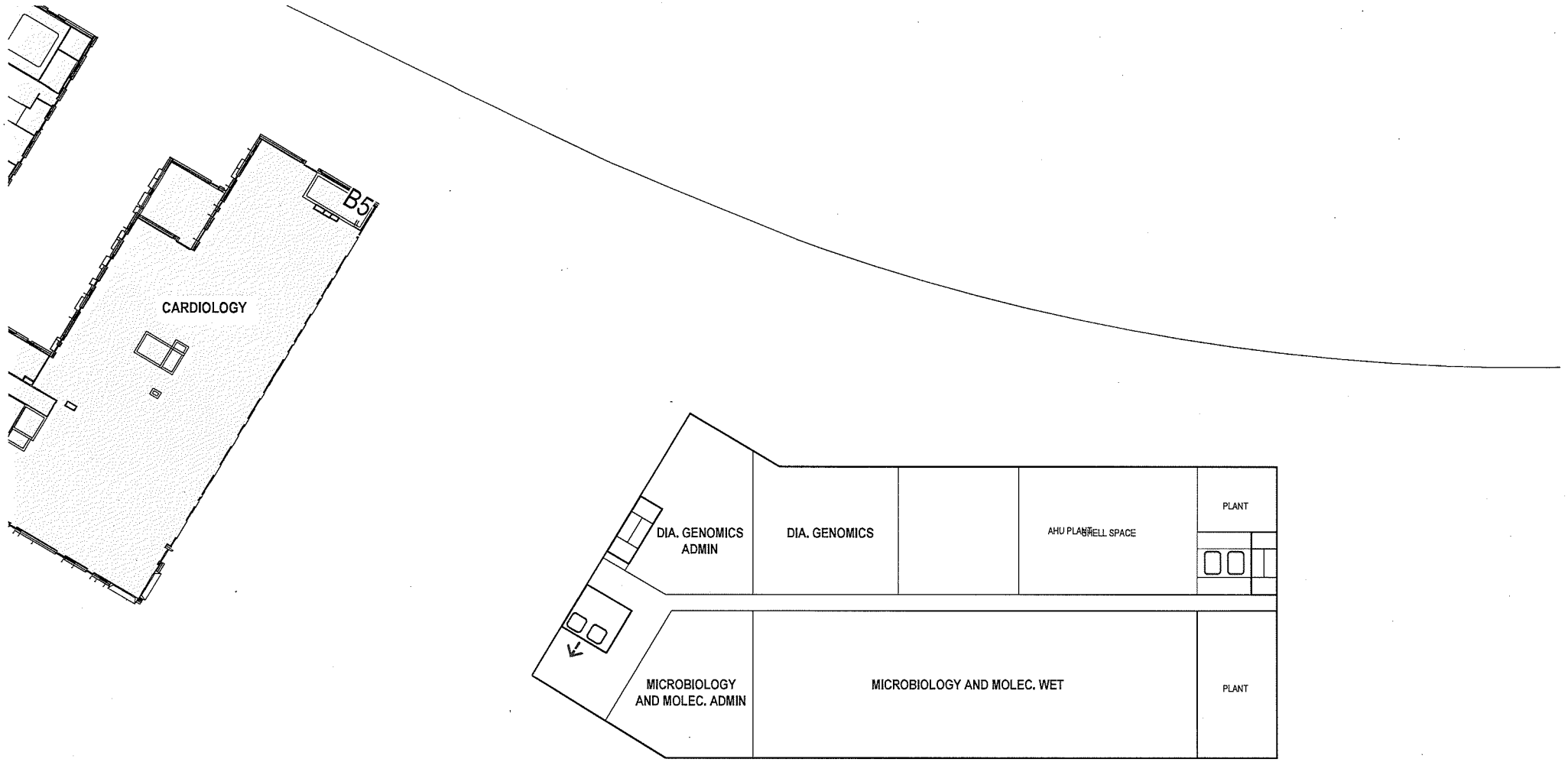
B6 GENERAL ARRANGEMENT PLAN - LEVEL 5 - STAGE 1



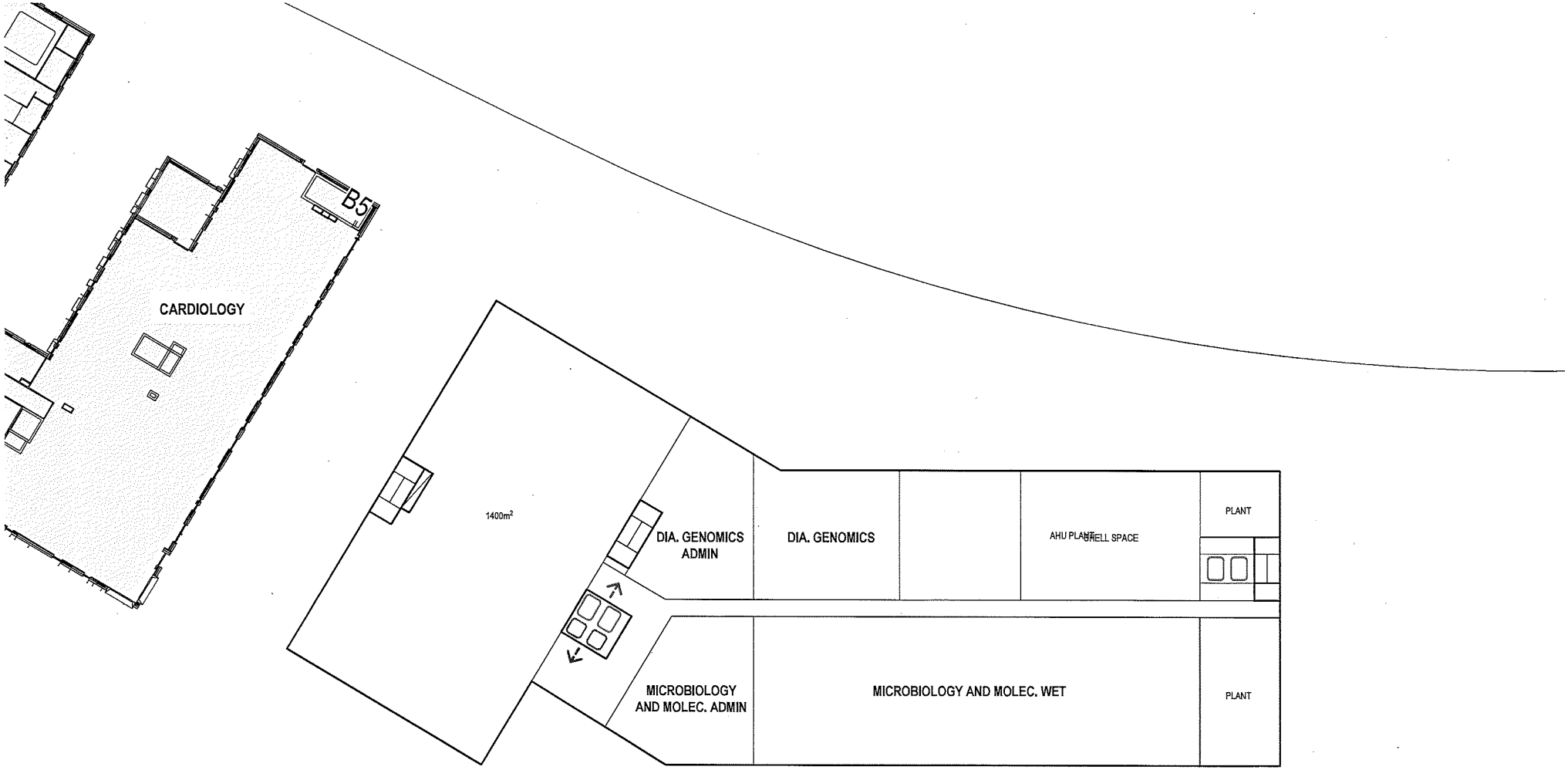
B6 GENERAL ARRANGEMENT PLAN - LEVEL 5 - STAGE 2



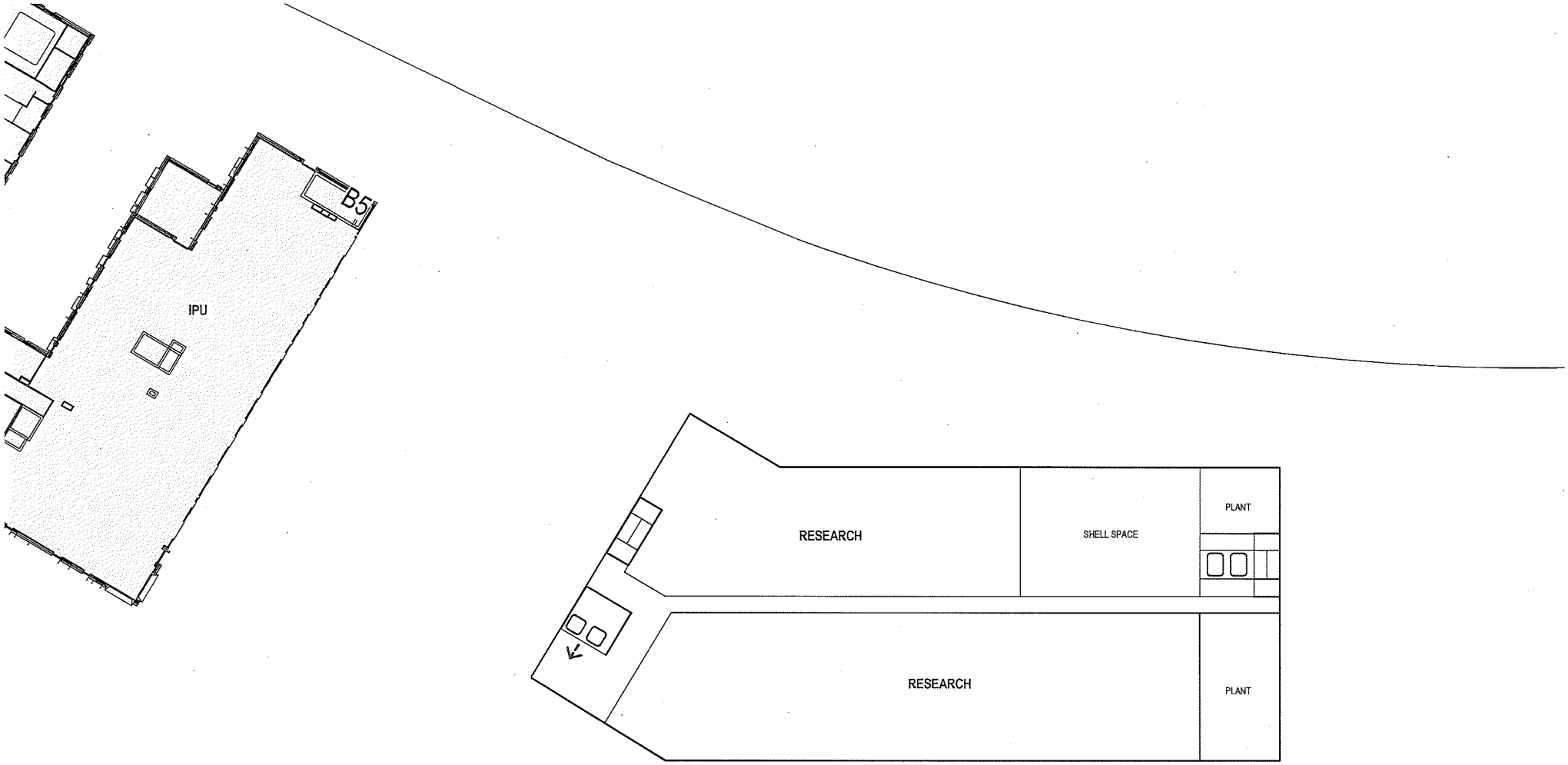
B6 GENERAL ARRANGEMENT PLAN - LEVEL 6 - STAGE 1



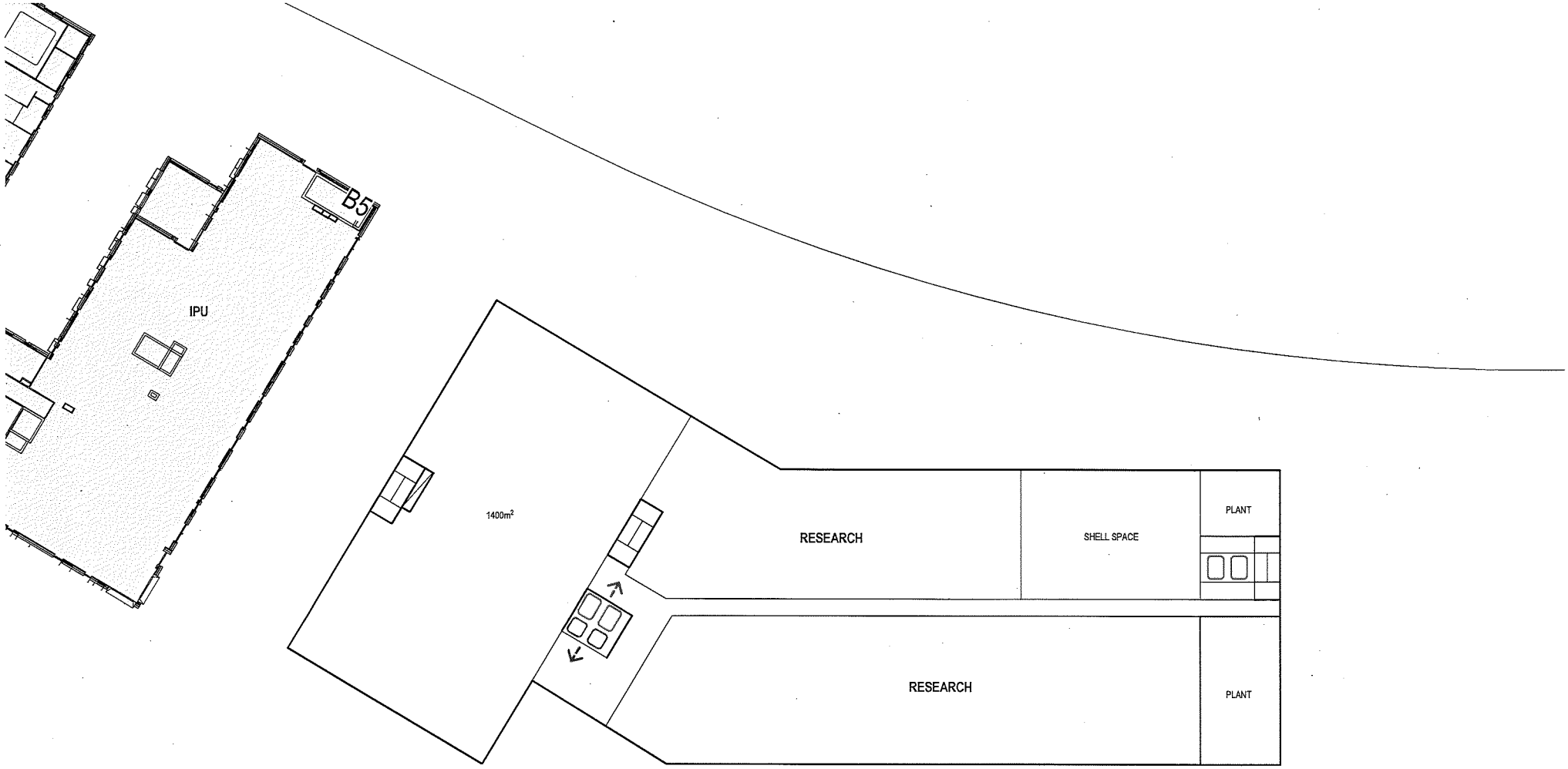
B6 GENERAL ARRANGEMENT PLAN - LEVEL 6 - STAGE 2



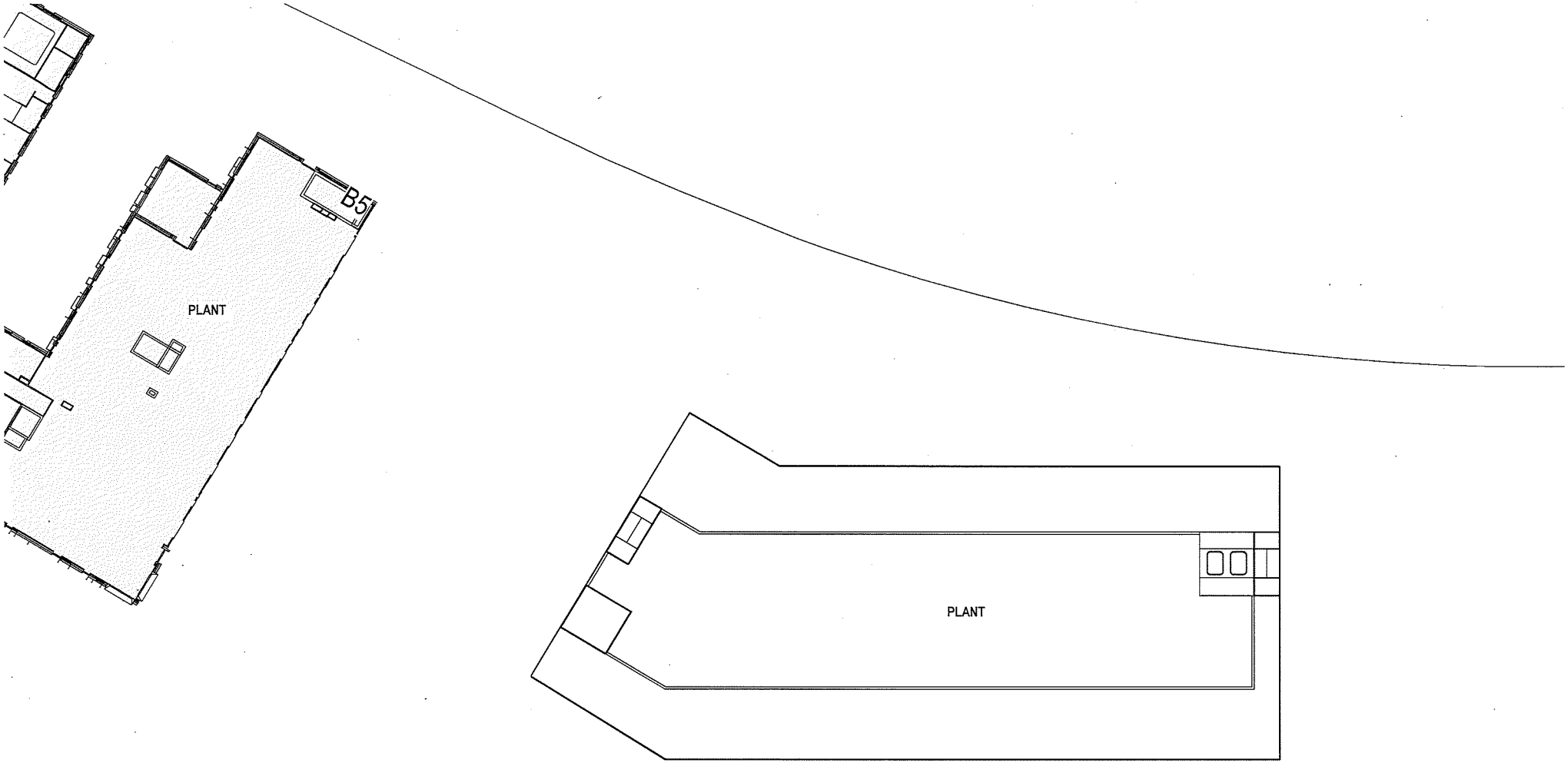
B6 GENERAL ARRANGEMENT PLAN - LEVEL 7 - STAGE 1



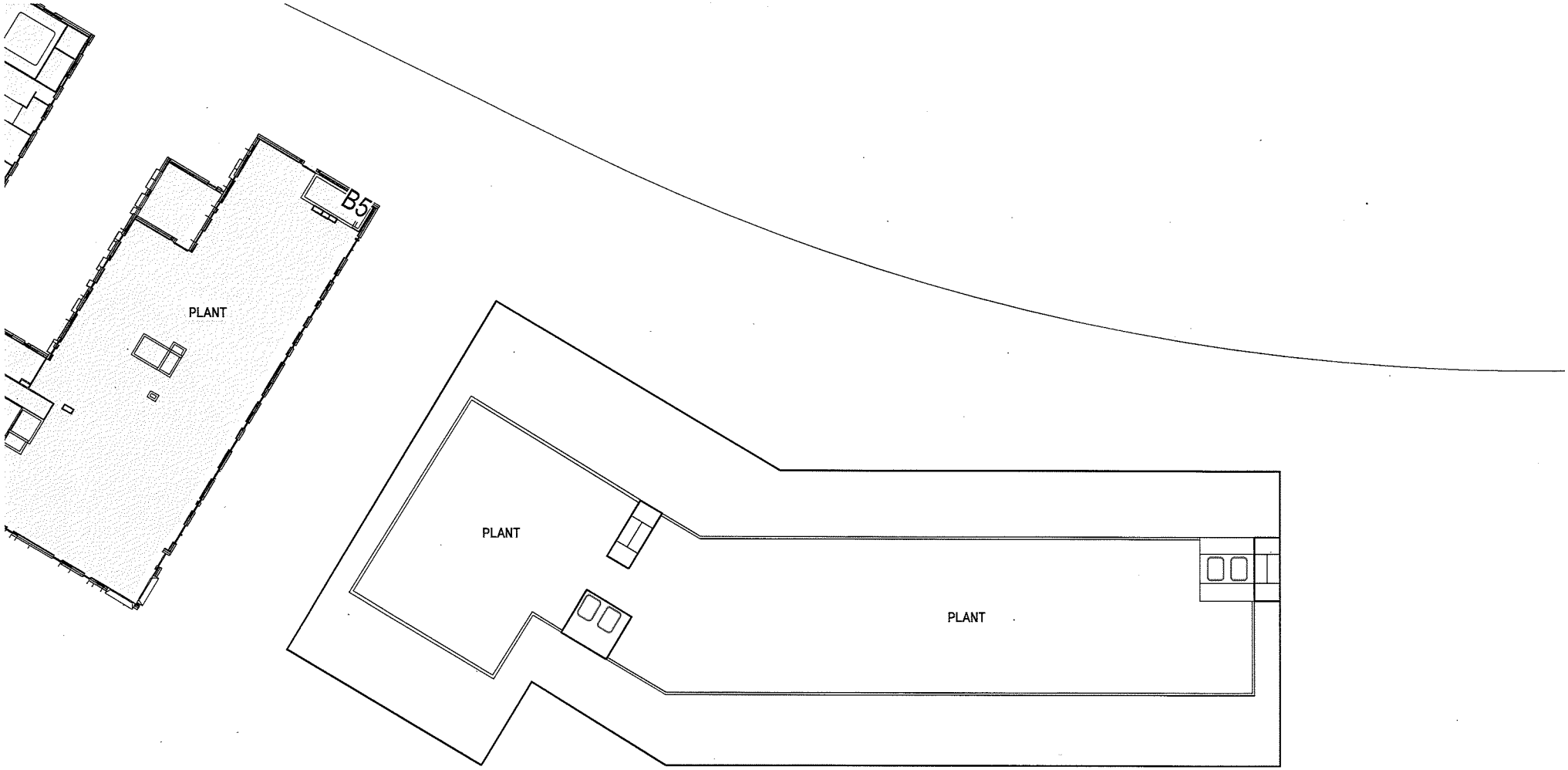
B6 GENERAL ARRANGEMENT PLAN - LEVEL 7 - STAGE 2

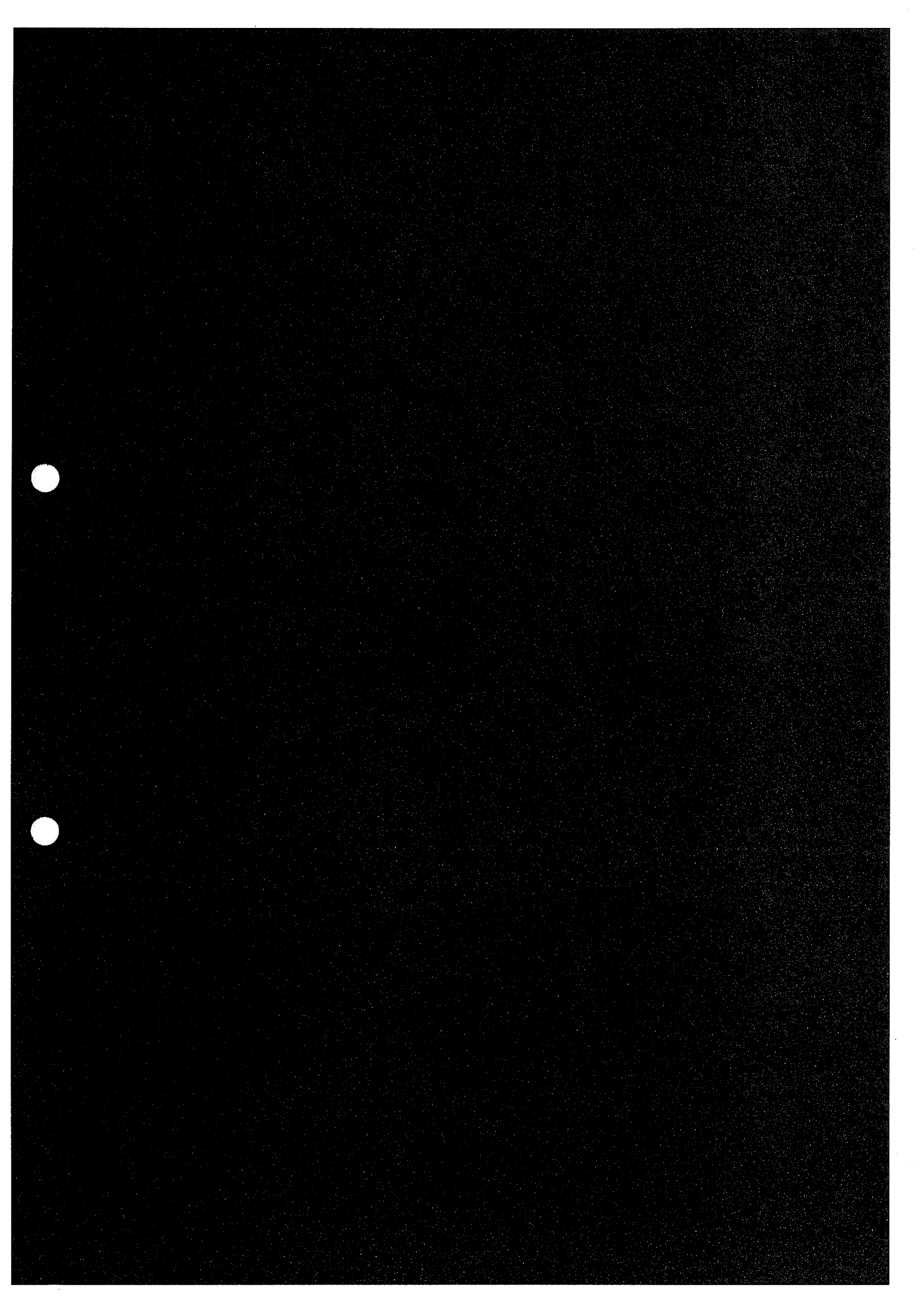


B6 GENERAL ARRANGEMENT PLAN - LEVEL 8 - STAGE 1



B6 GENERAL ARRANGEMENT PLAN - LEVEL 8 - STAGE 2





Communications and Engagement Overview – Canberra Hospital Masterplan Implementation – Phase 2 (Pathology and clinical support building)

Tier	Tier 1	**Directorate/Business Unit**	ACT Health	**Budget allocation**	TBC
Timeframes	2025 – commence construction	**Key spokesperson/Minister**	Minister Stephen-Smith	**Budget source**	

What are we communicating?

Strategic intent

- Provide genuine opportunities to engage with local communities, stakeholders, health consumers and clinicians to ensure the next phase of the Canberra Hospital Masterplan (CHMP) is designed to meet the needs of Canberrans now and into the future.

Strategic approach

- Identify and actively involve a diverse range of stakeholder groups through authentic, timely, innovative and culturally sensitive communication and engagement.
- Continuously evaluate input and measure success of the engagement program to ensure it is effective and appropriate.
- Reassure staff, patients, families, visitors, carers, and the general community about the continuity of services throughout construction and the importance of patient safety will be a key aspect of all communications.

Strategic rationale

- In 2021, the ACT Government released the CHMP that provides a long-term planning framework that will guide the redevelopment of the Canberra Hospital campus over the next 20 years.
- Ongoing community and stakeholder engagement will be pivotal in the planning, design and construction of the next identified facility in the plan, a new pathology and clinical support building.

Overarching proposition

- The ACT Government's vision is for a person-centred health system that is innovative, effective, and sustainable. To ensure we deliver on the commitment to our future public health system, which puts individuals and their families first and provides the right care, in the right place, at the right time, we need everyone to be part of the conversation.

What success looks like

Objectives and KPIs for communications strategy

1. Increase public awareness and support for the implementation of the CHMP and the value and benefits it will bring the community now and into the future.
2. Communicate and engage with local communities, stakeholders, First Nations peoples and health consumers through the dedicated engagement program for the new building.
3. Deliver best practice communication and engagement that is well researched, well planned and tested with core reference groups.

Measuring success

- Clear project messaging in line with the overarching strategy.
- Monitor and evaluate strategic engagement objectives through applying a key engagement performance scorecard.
- Evaluate project specific feedback from the community, stakeholders and the workforce at each consultation phase and categorise by sentiment to measure shifts in awareness and support.
- Measuring engagement performance through online analytics.
- Work with the project team to identify and mitigate project specific communication and engagement risks.

What we know

Research, insights, and data

- The ACT has experienced the fastest growing population of any area over the last 10 years, growing from 370,000 to 455,000 people. By 2027 we are expected to reach half a million residents.
- Canberra Hospital is ACT's largest and busiest hospital, providing a range of services for more than 500,000 people. Many of its existing assets are aging having been operational since it opened in 1973. It is the Territory's tertiary teaching hospital and provides trauma services and most major medical and subspecialty services.
- While extensive communication and engagement with stakeholders and community members was completed in late 2021, market research in 2023 showed there was a lack of awareness and understanding about the CHMP, its objectives and proposed future work.
- This market research showed that few participants were aware of work that was underway at the campus, and none had heard of the master plan.
- However, once they were questioned further, they viewed expansion of Canberra Hospital as "necessary", "encouraging", and would ensure equitable access to healthcare for those in the south of Canberra.

Key risks and mitigation strategies

- Consultation fatigue - mitigated by coordinated, strategic engagement plans that take into consideration previous engagement outcomes and other projects occurring during the planning and scoping phase.
- Slow pace of infrastructure and ongoing construction onsite - mitigated by clear key messages to the community around project milestones and timelines.
- Disruption to services, changes to parking and access and/or patient or consumer experience – mitigated by actively engaging health providers, peak bodies and consumer advocacy groups and providing proactive and upfront communication about changes.

Who (target audiences and stakeholders)

The list below identifies at a high-level community and stakeholder engagement touchpoints for the overall CHMP implementation engagement.

Primary audiences:

- Our health workforce
- Health consumers
- Health Infrastructure Consumer Reference Group
- People with specific needs and seldom heard groups such as older persons LGBTQIA+ communities, families with complex needs and CALD Communities
- First Nations communities
- United Ngunnawal Elders Council
- ACT Aboriginal and Torres Strait Islander Elected Body
- NGOs funded by ACTHD to deliver health services
- Project specific NGOs
- Health peak bodies and interest groups
- Community Councils
- Joint Advisory Councils
- Unions
- Residents of Garran
- Reference groups

Secondary audiences:

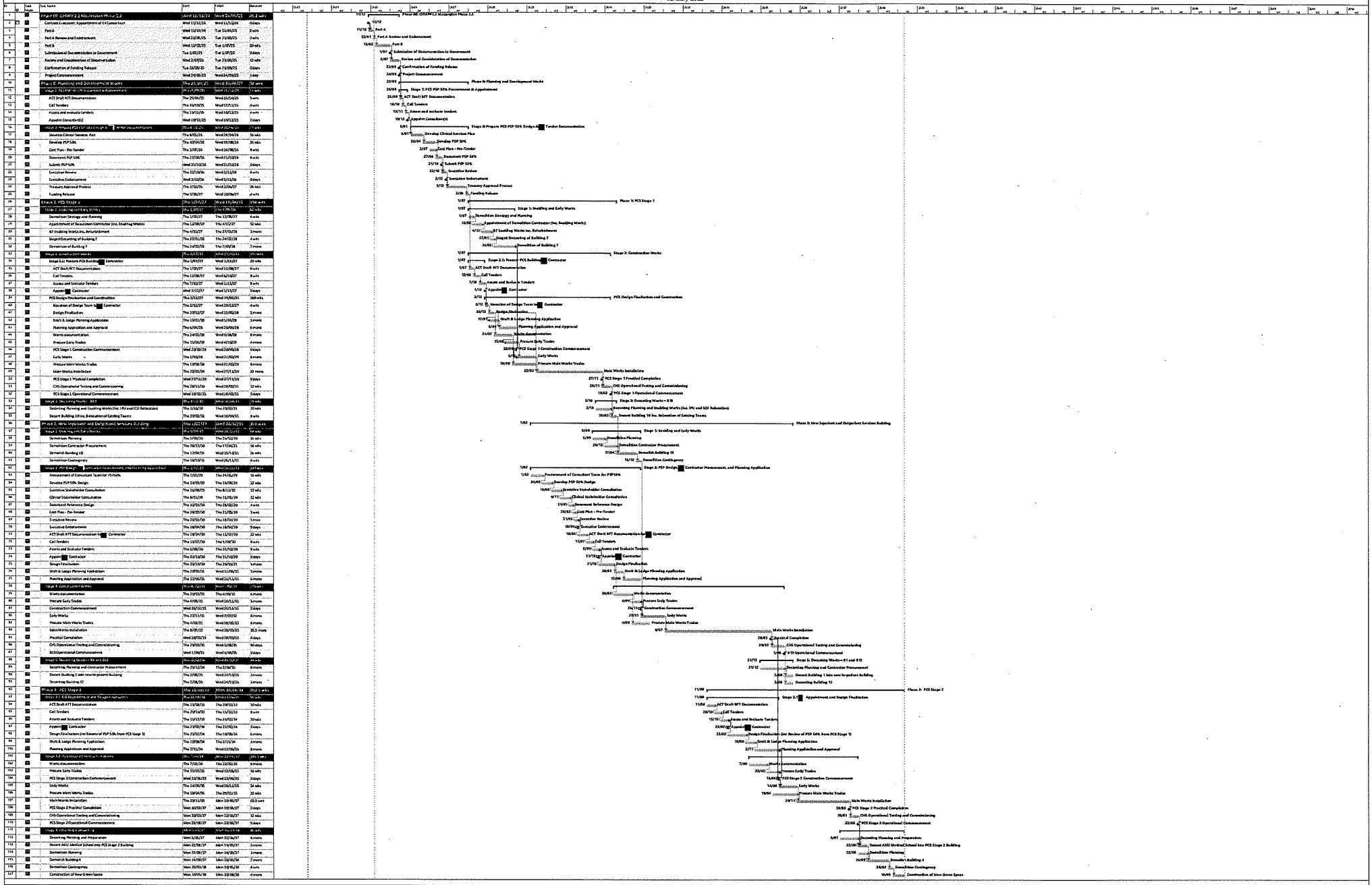
- ACT broader community, including border towns who access ACT health services.
- Regional NSW health providers and services

How are we informing and engaging our target audiences	How will we communicate/engage
Key messages • The ACT Government is continuing to improve the Canberra Hospital campus, following the opening of the new emergency department and Intensive Care Unit in 2024. • The new health infrastructure upgrade to the will be a Pathology and Clinical Services building, which was identified in the Canberra Hospital Masterplan. The masterplan provides a long-term planning framework that will guide the redevelopment of the Canberra Hospital campus over the next 20 years. • Implementation of the masterplan is occurring in stages to ensure operational continuity with minimal disruption to clinical functions. This includes the progressive decommissioning and demolition of ageing facilities and the deployment of new assets across the campus. • The ACT Government is committed to working closely with the community, stakeholders, consumers and our workforce to ensure health facilities puts patients and their families first, and provides the right facilities to meet the region's future health needs. **Call to action** - Find out more information and get involved in the conversation by visiting https://www.builtforcbr.act.gov.au/projects/health	• Monitoring media and feedback from stakeholders • Regular communications and briefings to internal staff and key stakeholders around progress and milestones • Social Media (Facebook, LinkedIn, Instagram) – Min, ACTHD, ACT Govt • Digital engagement – websites (ACT Health and Built for CBR, intranet, eDM etc) • WHOG publications – region specific OurCBR eDM and print • YourSay conversations page • HCCA Communication channels including the Territory-wide Health Infrastructure Consumer Reference Group • Media announcement and opportunities for earned, paid and owned channels • Stakeholders and third-party owned/managed members and channels • Strategic partnerships • Program of in-person activation and engagement activities including roadshows, pop-up kiosks, event pop-ups and community outreach activities.

Activation Plan

Comms/engagement stage	When	What and why	Responsibility
Discovery phase			
Research and Engagement	2020-2023	• Masterplan development – extensive community input and engagement • Market Research - explored community perceptions, attitudes and expectations amongst Canberrans in relation to the Canberra Hospital Master Plan	ACT Health CMTEDD
Business case development – New pathology and clinical support building	2025	• Gathering, testing and validation of sections of the Business Case with design and technical advisors, along with government agencies (Treasury, CHS and MPC). • Targeted market sounding of Tier 1 providers for different options. • Working sessions with Health Infrastructure Consumer Reference Group and the Health Care Consumers Association to raise awareness of the project and an opportunity to provide input into design parameters.	ACT Health
Community education/awareness	2025	• In early 2025, deliver an ongoing educational campaign through owned social media channels and publications - promoting health infrastructure and the Canberra Hospital Master Plan, celebrating project milestones while highlighting the community benefits and outcomes.	ACT Health
Implementation phase			
Early works – enabling and demolition	2024-2025	Ongoing communications and engagement around impacts and changes as a result of enabling and demolition works.	ACT Health
Detailed design	2025-2026	Extensive engagement will be undertaken throughout the detailed design for Phase 2 of the Canberra Hospital Master Plan with clinicians, stakeholders, consumers, and the broader community. This will be delivered through a range of methodologies including, but not limited to: Interactive websites, virtual and in person engagement sessions, surveys, place activations, and pop-ups.	ACT Health
First Nations Engagement	2025-ongoing	First Nations engagement encompasses initiatives for cultural education among our staff, integrating traditional knowledge and practices into our design, and establishing an ongoing partnership framework with First Nations peoples. Engagement activities will lead to opportunities with our First Nations peoples to incorporate First Nations specific facilities and create the foundation to design culturally safe and appropriate spaces.	ACT Health
Reference Groups	Ongoing	Ongoing involvement of the Health Infrastructure Consumer Reference Group across all stages of phase 2.	ACT Health
Planning Approvals	2025-2026	Engagement activities to support the development application statutory processes.	ACT Health
Evaluate and improve phase			
Review and evaluate	Ongoing	• Reporting to the community – listening reports throughout engagement phases. • Review meetings/workshops with key stakeholder groups around processes – capturing key learnings. • Market research around sentiment, awareness, perceptions. • Establish benchmarks for minimum engagement methods to ensure continuous improvement targets for engagement.	ACT Health

Canberra Hospital Master Plan Phase 2.2
Master Program
January 2025



Canberra Health Services | ACT Government

Appendix S

CHS internal wayfinding project

Summary

- We are requesting for initial funding to commence internal wayfinding signage design and rectification works. This supports critical infrastructure projects as identified in the Canberra Hospital Master Plan.
- This funding will enable the procurement of an internal signage consultant, delivery of detailed design works and implementation of urgent signage upgrades at Canberra Hospital.
- The proposed business case request concerns capital funding and provides for the necessary underpinning work including project management and design delivery [redacted]
- Due to the scale of works and to provide sufficient program for detailed design, signage rectifications will occur over a five-year program, commencing with urgent signage rectification in the first and second year.
- Additional funding for implementation e.g. further internal wayfinding construction will be requested for in future budget cycles. [redacted]

Project background

- This project follows an initial funding appropriation (phase one of the Canberra Hospital Masterplan) to enhance signage in the Canberra Hospital public realm. This delivered on improvements to Canberra Hospital external wayfinding through the installation of new signs and removal of redundant signs. It also funded consultancy services including signage audit, delivery of preliminary sketch plans and a digital wayfinding feasibility study.
- Project funding is now exhausted and there is currently no funding for internal signage rectification within Master Plan projects.

Current state

- The CHS consumer feedback process has highlighted that many consumers struggle to find their way around our facilities, which contributes to a stressful experience.
- A 2024 consumer study on Canberra Health Services (CHS) facility experience conducted by Health Care Consumers Association consistently ranked CHS signage as not visible or provided, and requiring improvements, especially in accessibility.
- The continuation of the Master Plan infrastructure project will require on-going remediations of internal wayfinding signage as services relocate and entry points change.
- An example of this is the recent closure of the western entrance to Building 12 at Canberra Hospital. Consumers accessing the hospital from Yamba Drive have been diverted through

an entrance in Building 3 that was unintended for high pedestrian traffic and has insufficient and inconsistent signage. This has led to a surge in lost visitors seeking assistance from nearby team members for directions.

Problem, opportunity and benefits to be delivered

- Confusing signage significantly affects patient flow, making it difficult for consumers to arrive on time for their appointments and leading to further complications. Improved clinical efficiency will ensure that CHS is able to scale our health service appropriately as health needs increases in Canberra.
- The lack of visible signage is a safety risk and impacts our ability to deliver critical timely care. We have an opportunity to provide consumers with efficient and effective navigational access to emergency services as well as other acute and critical care areas.
- Poor signage also has a significant impact on staff. It diverts clinical staff from their responsibilities and affects overall clinical efficiency.
- Enhancing signage throughout the CHS facility portfolio is vital to significantly improving consumer and staff experiences and is a critical requirement to support in hospital re-accreditation.
- This requires a thorough upgrade of outdated, unclear, and inaccessible signs and the development of new, durable, and cohesive signage that meets contemporary standards.

Why now?

- The continuation of the Canberra Hospital Master Plan will require internal wayfinding remediations alongside to ensure efficient consumer access to critical health services which meets hospital accreditation standards.
- This includes the implementation of accessible signs for consumers with disability as part of meeting goal two in the ACT Disability Health Strategy 2024–2033 (People with disability have access to appropriate healthcare services)
- There are cost efficiencies by acting now to establishing signage best practice and consistency for future CHS infrastructure projects e.g. new health centres, North Canberra Hospital expansion.

Scope of works

- Engagement of signage consultant to deliver:
  - Detailed Design Documentation and design prototyping for signs
  - Procurement documentation for construction contractor
- Abortive works will be minimised through the implementation of a flexible and adaptive slate-based signage system and infrastructure.
- Urgent signage remediation works focusing on key entrances and high consumer traffic areas within CHS facilities.

2025-26 Program

- July 2025 – November 2025: Procurement of signage design consultant
- December 2025: Onboarding of consultant and briefing

- January - June 2026: Development of Detailed Design Documentation
- June 2026: Finalisation of construction procurement documentation including full program schedule
- On-going between July 2025 – June 2026: Urgent signage remediation works within key entrances

2026-27 Program

- July – December 2026: Finalisation of Detailed Design Documentation
- July 2026 – November 2026: Signage prototyping and consumer testing
- December 2026: Preparation of business case for full internal wayfinding construction program
- On going between July 2026 - June 2027: Continuation of urgent signage remediation

[redacted]

