- the provision of videoconferencing locations in the staff areas adjacent to the unit will support conferencing with networked national, territory and rural services and assist in training and development of the unit staff.

7.8. Teaching, education and research

The service will meet the requirements for an accredited teaching facility including the College of Intensive Care Medicine. Training and education activities within Intensive Care are delivered in a multidisciplinary format and occur in a variety of settings (bedside, tutorial style, supervision of training, simulated learning environment, half/whole day programs and external courses). Teaching and meeting spaces will be embedded within clinical care areas to facilitate clinical teaching, with easy access to larger spaces outside the Unit for extended education activities.

In-situ teaching and training facilities will include education/meeting rooms and simulation space to allow for teaching of procedures, new equipment and crisis response management within the clinical environment. At minimum the considerations for in-situ teaching and training would include:

- Education/meeting room in each pod
- Larger education/meeting space in close proximity to the pods, e.g. large enough for all medical staff across the unit to meet in a shift. This will need to be on the same floor as the clinical areas to allow for immediate attendance to a patient if sudden unexpected deterioration occurred. This would need to have appropriate IT support for teaching and training
- Simulation space to allow for teaching of procedures, new equipment and crisis response management within the clinical environment.

8. Specific design requirements

8.1. Overarching design requirements

Design requirements include:

- Acoustic design to minimise noise and promote confidentiality, particularly between bed bays, meeting rooms, interview rooms and staff offices
- Lighting is to be locally controllable in order to provide a calming environment and diurnal variation with natural light
- Local air-conditioning control is required in order to control the ambient temperature to address the minimal movement and clothing of ICU patients
- The environment will minimise stress to patients and staff and be culturally appropriate
- Patient privacy and confidentiality must be maintained. To support this, patient's full names must be out of public view
- The use of natural light is to be maximised particularly in patient care areas, however it is also necessary for suitable window coverings to be provided to accommodate rest periods throughout the day.

8.2 Pod design

The ICU will be planned as four pods, each pod will have 12 beds. Each bed requires structural separation in order to maintain patient privacy and acoustically attenuation, whilst enabling staff providing care at the head of bed to maintain visual contact of patients either side. Exact design of this separation requirement requires further exploration during the design phase.

The four pods will be configured to include:

- two Class N isolation rooms (in one pod, 1x Class N will be configured as a super bariatric)
- one Class P isolation room
- two Class S isolation rooms
- seven open bays. Two bays per pod will be configured to facilitate use as a single large bay
- have a appropriate tap water connections in each pod for dialysis machines
- one ceiling mounted patient hoist in an open bay in 3 pods rated to 250 kg, one rated to super bariatric in the 4th pod.

In addition:

- one pod will include a separable PICU.
- a second pod will be able to be quarantined.
- three pods will incorporate one bariatric Class N and one bariatric open bed space for up to 250kg. One pod will accommodate one super bariatric Class N and one super bariatric open bed space for up to 500kg.
- a total of eight beds across all pods will be fitted with dialysis ports and access to the water purification RO plant will be subject to the final location of the Acute Renal Dialysis Service (note that the shorter the loop the less likelihood of contamination).

Otherwise, all pods and individual spaces will be planned to achieve a standard layout to maximise flexibility and staff familiarity.

8.2.1. Outdoors

A bed accessible outdoor area for up to six patients is required for use by long term patients. This space will be able to support medical services such as medical gases, emergency call systems, suction and power connections (contained in a weatherproof and secured box to prevent tampering by visitors). This space will be accessible directly from ICU by family and visitors. It will require a flexible roofing option for some direct sunlight while able to provide protection from the weather patterns and potential hazards caused by the rescue helicopter.

8.2.2. Quarantine pod

One pod will be capable of being quarantined in the event of a major infectious threat. This pod will be fully self-sufficient with patient, staff and support functions required for a prolonged period of quarantine e.g. utilities, beverage bay, ensuites, staff toilets, staff station.

There will be direct access into and out of this pod. A separate air conditioning system is required to the quarantine pod. Telephones will be located in each zone to support communication between staff.

Areas within the pod will be 'zoned' green, yellow and red, reflecting the physical barriers, PPE and processes to be followed to contain the infectious threat. The zoning will respond to the nature of

the threat being quarantined and relates to quarantine requirements of the whole Unit and/or the quarantine requirements of the individual patient.

The following functions will be considered as green zone:

- staff station and workroom
- staff amenities (beverage bay, change, showers, toilet)
- clean utility, medication room, supplies storage
- clean linen.

The following functions will be considered as yellow zone:

- amenities for donning and doffing PPE

The following functions will be considered as red zone:

- patient bed spaces and ensuites
- dirty utility and dirty linen
- clean up room
- disposal room (with direct external access to avoid cross contamination).

In addition to the functions listed above, the quarantine pod will have dedicated:

- pneumatic tube
- cleaners room and disposal room for waste collection.

8.3. Specific design requirements

8.3.1. Entry/reception area

The entrance will be welcoming and staffed according to ACT Health policies. The reception will be accessible to staff from the clinical zone. The waiting area will provide privacy to family and visitors.

The entry will be access controlled, with the ability to remote access entry and include audio visual capabilities from front of house to clinical areas.

8.3.2. Family zone

Interview and meeting rooms will be available in this zone, able to accommodate up to ten people. Interview rooms will contain a full length cupboard with a sliding door to conceal a computer, phone and resource material.

A lounge and play area in the family zone will provide a breakout space outside the clinical zone. It will be designed to provide separation of family groups, perhaps through the provision of alcoves. This area will provide access for computers, mobile device charging stations, a pantry for meal preparation. Overnight accommodation will be provided in this zone for family member of adult patients. Overnight accommodation for paediatric patients will be within the PICU pod. Nappy changing equipment will be available in the family bathroom. A parenting room will be available within the Hospital.

8.3.3. Patient Areas

Each patient bed space will:

- Have line of sight from staff stations is required for all patients. The nurses write up area will be located to allow visual observation of two patients simultaneously, even when providing care to one patient. The nurses' write-up area will accommodate a central monitoring system
- be partially partitioned in open bay bed spaces at the patient's head to minimise spread of droplet infection, promote privacy and be equipped to provide all intensive care needs for all patients including bariatric patients
- be clear of trailing tubes, cables, power cords and pieces of equipment
- facilitate unimpeded access to the patient and the bed from both sides and the bed ends, in particular from behind the head for airway management procedures
- accommodate staff, family and visitors and highly sophisticated technical equipment (such as aortic balloon pumps, portable x-ray machines, dialysis machines and infusion pumps)
- homely environment and maintain normalcy (contain pieces of furniture such as clocks, armchair and whiteboard)
- accommodate a reclining chair for patients to facilitate early mobilisation
- ensuites will have medical gas panels
- bathroom is to include
    - a bath that is accessible from rear and both sides
    - a medical gas panel including nitrous,
    - ceiling mounted hoist positioned to enable transfer from bed/chair to hoist within the bathroom requires duress/emergency.

8.3.4. Staff Areas

This will be located in close proximity to patient treatment areas. Staff will have an alternate access/egress route that does not travel through the main entrance of the Department. This area will accommodate office areas, staff amenities and facilities to support education and research and rest activities. A meeting room will be used as a command centre during infectious threat events and large scale critical incidents. Space will be available for in-situ simulation/didactic teaching/clinical review and audit.

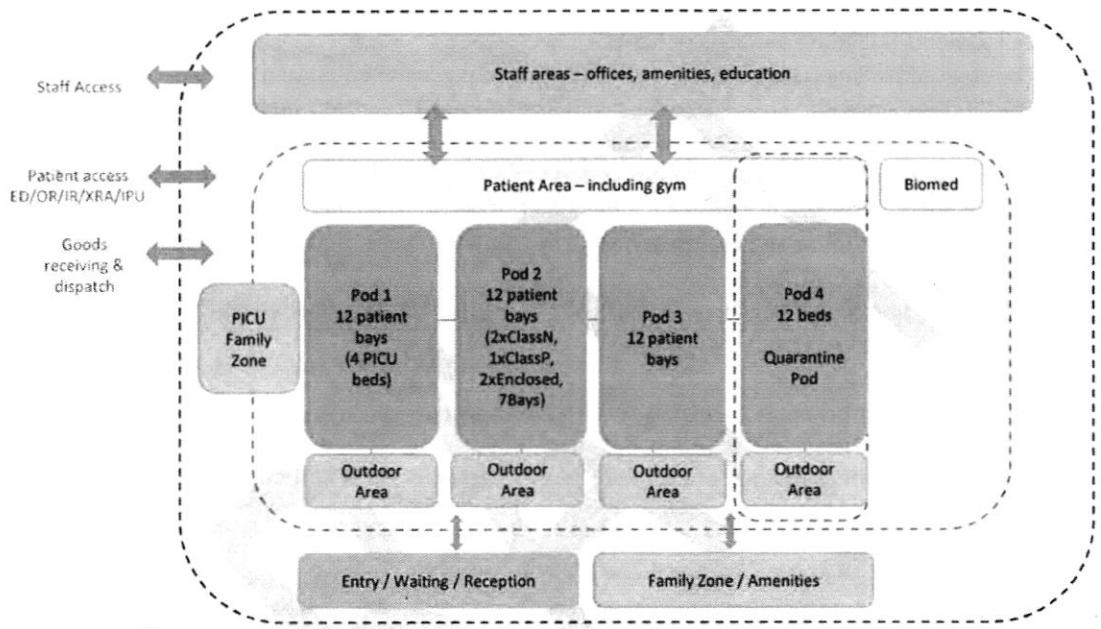
9. Functional relationships

9.1. Internal relationships

The internal functional relationships are illustrated in the following figure.

- Easy access is required to interview, meeting and escalation spaces
- gym for rehabilitation activities accessible by all pods.

Figure 7: ICU (AICU and PICU) internal functional relationships



9.2. External relationships

Key external functional relationships are prioritised in Table 5 as per the criteria in Table 6.

Table 5: ICU (AICU and PICU) external functional relationships

Service/Unit	Priority	Comments
Theatres	**Direct**	Movement of staff and patients for procedures
Cardiac Intervention Suite	**Direct**	Movement of patients
Angiography	**Direct**	Movement of patients
Emergency Department	**Direct**	Movement of patients and staff
Medical Imaging	**Direct**	Movement of patients
Security	**Direct**	Movement of staff. e.g. black alert, staff from all points urgently attend

Service/Unit	Priority	Comments
Pathology	**Ready**	Movement of patient samples via pneumatic tube
Allied Health	**Ready**	Movement of staff
Pharmacy	**Ready**	Movement of staff and medications; planned visits
IPU	**Easy**	Movement of patients and staff
Administration Centre	**Easy**	Movement of staff and consumers (admissions, MHRT hearings, patient flow etc)
General (Hotel) Services	**Easy**	Movement of staff, meals, linen & waste
Mortuary	**Easy**	Movement of patients
Donate Life main office	**Easy**	Movement of staff
Sterilising Services	**Easy**	Movement of staff and instruments
Site Interfaces	**Priority**	**Comments**
Helipad	**Direct**	Movement of patients and staff
Car parking – Staff	**Ready**	Movement of staff; swipe card access control (particularly on call staff)
Drop off/Pickup	**Easy**	Movement of staff & consumers; Ambulance, Security, Patient Transport
Car parking – Visitors	**Easy**	Movement of visitors and consumers
Public Transport	**Easy**	Movement of visitors, consumers and staff

Table 6: Priority of external functional relationships

Immediate (<1 minute)	Being the shortest direct, horizontal route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having an "Immediate" functional relationship must not exceed one minute.
Direct (<2 minutes)	Being a direct horizontal or vertical route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having a "Direct" functional relationship must not exceed two minutes and there must be minimal corner turns between the two areas or services.
Ready (<5 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having a "Ready" functional relationship must not exceed five minutes.
Easy (<10 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having an "Easy" functional relationship must not exceed ten minutes.

10. Future service developments and innovation

The establishment of the PICU as part of the ICU is a significant innovation for the Intensive Care Service which requires careful planning.

By the time the project is delivered, it is anticipated that:

- fewer adult patients will be transferred out of CH ICU for ECMO as this capability will be routinely provided at CH
- additional invasive organ supports are likely to be provided as technology and skills in this area develop
- the range of specialist services available at CH will broaden, providing opportunities for ICU to expand the scope of service provision

Design must incorporate space for future expansion as demand for intensive care services continues to grow, as well as opportunities to adapt to changes in the model of care.

Planning will incorporate future inclusion of:

- ADMs
- delivery by Automatic Guided Vehicles (AGV)
- paperless systems.

11. Schedule of accommodation

AusHFG Code	Deviation from HPUB	Room / Space	Quantity	Room Area m2	Total Area m2	AHFG's Standard Component Size m2	Deviation from Standard Compent m2
ENTRY / RECEPTION							
WAIT-20	N	Waiting, 20m2	1	20	20	20	0
RECL-10	Y	Reception/ Clerical, 10m2	1	10	10	10	0
WCAC	Y	Toilet - Accessible, 6m2	1	6	6	6	0
SHD	Y	Shower - Accessible, 4m2	1	4	4	4	0
BBEV-OP	Y	Bay - Beverage, Open Plan, 4m2	1	4	4	4	0
OFF-S9	Y	Office - Single Person, 9m2	1	9	9	9	0
OFF-4P	Y	Office - 4 Person Shared, 20m2	1	20	20	20	0
SUBTOTAL		*Subtotal*			*73*		***0***
CIRC		Discounted Circulation		25%	18		
UNIT_TOTAL		**Total**			**91**		
FAMILY ZONE							
MEET-12	N	Meeting Room	1	15	15	15	0
LNPF-20	Y	Lounge - Patient / Family, 20m2	1	20	20	20	0
PLAP-10	Y	Play Area - Paediatric, 10m2	1	10	10	10	0
PTRY	Y	Pantry	1	8	8	8	0
WCPU-3	Y	Toilet - Public, 3m2	1	3	3	3	0
SHD	Y	Shower - Accessible, 4m2	1	4	4	4	0
OVBR	Y	Overnight Stay - Bedroom	4	10	40	10	0
ENS-SH	Y	Ensuite - Shared, 6m2	2	6	12	6	0
SUBTOTAL		*Subtotal*			*112*		***0***
CIRC		Discounted Circulation		25%	28		
UNIT_TOTAL		**Total**			**140**		
PATIENT AREAS							
	N	Bay - Resuscitation	4	2	6	2	0
PBC-24	N	Patient Bay - Critical, 24m2	23	24	552	24	0
PBCE-25	N	Patient Bay - Critical Enclosed (Class N Isolation)	7	25	175	25	0
PBCE-25	N	Patient Bay - Critical Enclosed (Class P Isolation)	4	25	100	25	0
PBCE-25	N	Patient Bay - Critical Enclosed (Standard Isolation)	8	25	200	25	0
ANRM	N	Anteroom	8	6	48	6	0
GYAH-60	N	Gymnasium, 60m2	1	45	45	45	0
BATH	N	Bathroom	1	15	15	15	0
BLIN	N	Bay - Linen	4	2	8	2	0
BRES	N	Ensuite - Special, 6m2	4	6	24	6	0
	Y	Pateint Bay - Critical 35m2	4	35	140	25	10
	Y	Patient Bay - Critical, super bariatric	1	28	28	25	3

	Y	Patient Bay - Critical Enclosed (Class N Isolation), super bariatric	1	30	30	25	5
TRMT	Y	Treatment Room	1	48	48	14	34
BLIN	Y	Bay - Dirty Linen	34	1	34	2	-1
	Y	Outdoor areas	6	30	180	30	0
CIRC		*Subtotal*			*1633*		*51*
		Discounted Circulation		40%	653		20
UNIT_TOTAL		**Total**			**2286**		**71**
STAFF AREAS							
OFF-CLW	N	Office – Clinical Workroom	4	15	60	15	0
SSTN-10	N	Staff Station, 10m2	3	10	30	10	0
OFF-S12	N	Office - Single Person, 12m2	1	12	12	12	0
OFF-2P	N	Office - 2 Person Shared, 12m2	1	12	12	12	0
OVBR	N	Overnight Stay - Bedroom	2	10	20	10	0
SRM-35	N	Staff Room, 35m2	1	35	35	35	0
WCST	N	Toilet - Staff, 3m2	6	3	18	3	0
SHST	N	Shower - Staff, 3m2	1	3	3	3	0
CHST-20	N	Change - Staff (Male/Female), 20m2	1	20	20	20	0
STFS-10	N	Store- Files, 10m2	1	10	10	10	0
STPS-8	N	Store - Photocopy / Stationery, 8m2	2	12	24	12	0
CHST-10	N	Change - Staff (Male/Female), 10m2	1	10	10	10	0
CHST-20	N	Change - Staff (Male/Female), 20m2	1	20	20	20	0
SUBTOTAL		*Subtotal*			*274*		*0*
CIRC		Discounted Circulation		25%	69		
UNIT_TOTAL		**Total**			**343**		
SUPPORT AREAS							
BBW	N	Bay - Blanket	4	1	4	1	0
BHWS-A	N	Bay - Handwashing, Type A	12	1	12	1	0
BMEQ-4	N	Bay - Mobile Equipment, 4m2	8	4	32	4	0
BPTS	N	Bay - Pneumatic Tube	2	1	2	1	0
CLRM-5	N	Cleaner's Room, 5m2	2	5	10	5	0
DISP-8	N	Disposal Room, 8m2	2	8	16	8	0
CLUP-7	N	Clean-Up Room, 7m2	4	18	72	18	0
	N	Respiratory / Biomedical Workroom	1	20	20	20	0
STEQ-20	N	Store - Equipment, 20m2	4	15	60	15	0
STSS-30	N	Store - Sterile Stock, 30m2	4	15	60	15	0
	N	Workroom - Telehealth	1	12	12	12	0
AIRLE-6	Y	Airlock - Entry, 6m2	1	6	6	6	0
MEET-L-30	Y	Meeting Room, 30m2	4	30	120	30	0
BPPE	Y	Bay - PPE (Personal Protective Equipment)	4	1.5	6	6	4.5
BBEV-OP	Y	Bay - Beverage, Open Plan, 4m2	4	4	16	16	12
BMT-4	Y	Bay - Meal Trolley, 4m2	4	4	16	16	12
BPATH	Y	Bay - Pathology	4	4	16	4	0
CLUR-8	Y	Clean Utility - Sub, 8m2	4	8	32	16	8
STDR-10	Y	Medication Room, 10m2	4	10	40	40	30
	Y	Dirty Utility - dirty linen, 8m2	4	8	32	32	24
DTUR-S	Y	Dirty Utility - Sub, 8m2	4	8	32	16	8
	Y	Office - Workstation, 5.5m2	2	5.5	11	6	0.5
STEQ-20	Y	Store - transport equipment	1	20	20	0	-20

WCPU-3	Y	Toilet - Public, 3m2	4	3	12	12	9
SUBTOTAL		*Subtotal*			*659*		*88*
CIRC		Discounted Circulation		25%	165		22
UNIT_TOTAL		**Total**			**824**		**110**
		Summary - Excluding ICU Clinical Admin			**Total Area m2**		**Deviation from Standard Compent m2**
		Total Room Area			2751		139
		Circulation Allowance	**Ave**	**34%**	933		42
		Total Department / Unit Area			**3684**		**181**
AusHFG Code	**Deviation from HPUB**	**Room / Space**	**Quantity**	**Room Area**	**Total Area m2**	**AHFG's Standard Component Size m2**	
ICU Clinical Admin							
MEET-L-55	Y	Meeting Room, 55m2	1	80	80	30	
MEET-L-30	Y	Meeting Room, 30m2	1	30	30	30	
SSTN-10	Y	Staff Station, 10m2	1	25	25	15	
OFF-S9	Y	Office - Single Person, 9m2	25	9	225	225	
	Y	Office - Workstation, 4.4m2	6	4.4	26.4	26.4	
	Y	Office - Workstation, 5.5m2	8	5.5	44	44	
	Y	Office - Shared Workstation, 3m2	12	3	36	36	
OFF-SWS	Y	Office - Shared Workstation, 2.2m2	25	2.2	55	55	
		Subtotal			*521*		
		Discounted Circulation		25%	130		
		Total			**652**		
		Summary - ICU Clinical Admin only			**Total Area m2**		
		Total Room Area			521		
		Circulation Allowance	**Ave**	**25%**	130		
		Total Department / Unit Area			**652**		

12. Abbreviations

Abbreviation	Definition
ACHS	Australian Council of Healthcare Standards
ACT	Australian Capital Territory
ACTAS	ACT Ambulance Service
ACTPAS	ACT Patient Administration System
ADM	Automated Dispensing Machine
ADL	Activities of Daily Living
ADON	Assistant Director of Nursing
AGV	Automatic Guided Vehicles
AHPRA	Australian Health Practitioner Regulation Agency
AICU	Adult Intensive Care Unit
ALO	Aboriginal and Torres Strait Islander Liaison Officer
ANZICS CORE	Australian and New Zealand Intensive Care Society Centre for Outcome and Resource Evaluation
ASO	Administrative Services Officer
AusHFG	Australasian Health Facilities Guidelines
CCC	Clinical Care Coordinators
CDN	Clinical Development Nurse
CH	Canberra Hospital
CHWC	Centenary Hospital for Women and Children
CI-CLABSI	Centrally-inserted central line-associated bloodstream infection
CICM	College of Intensive Care Medicine of Australia and New Zealand
CNC	Clinical Nurse Coordinator
CNE	Clinical Nurse Educator

Abbreviation	Definition
COU	Close Observation Unit, co-located in an inpatient ward for patients requiring higher levels of ward observation than normal
CPD	Continuing Professional Development
CSN	Clinical Support Nurse
ECMO	Extra Corporeal Membrane Oxygen therapy
ED	Emergency Department
EDSU	Extended Day Surgery Unit
eMM	Electronic Medication Management
EMR	Electronic Medical record
FPU	Functional Planning Unit
FTE	Full Time Equivalent
HDU	High Dependency Unit, co-located in the Intensive Care Unit
HMA	Healthcare Management Advisors
HP3	Health Practitioners Level 3
HP4	Health Practitioners Level 4
HSO	Hospital Salaried Officer
ICP	Intensive Care Paramedics
ICT	Information and Communication Technologies
ICU	Intensive Care Unit
IPU	Inpatient Unit
IR	Interventional Radiotherapy
JMO	Junior Medical Officer
MDT	Multidisciplinary Team
MET	Medical Emergency Team
MoC	Model of Care

Abbreviation	Definition
MRI	Magnetic Resonance Imaging
N-class isolation	Negative room air pressure with additional barriers including an Anteroom
NETS	Newborn and Paediatric Emergency Transport Service
NHPPD	Nursing Hours Per Patient Day
NICU	Neonatal Intensive Care Unit
NM	Nurse Manager
NSW	New South Wales
NSWAS	New South Wales Ambulance Service
PA	Personal Assistant
PEHR	Personal Electronic Medical Record
PFU	Patient Flow Unit
PGY	Postgraduate year
PI-CLABSI	Peripherally-inserted central line-associated bloodstream infection
PICS	Post Intensive Care Syndrome
PICS	Purchasing Inventory Control System
PICU	Paediatric Intensive Care Unit
PPE	Personal Protective Equipment
RMO	Resident Medical Officer
RN	Registered Nurse
Role Delineation	Describes the minimum support services, workforce and other requirements for the safe delivery of clinical services
Separation	The process by which an episode of care for an admitted patient ceases. A separation may be formal or statistical
SPIRE	Surgical Procedures, Interventional Radiology and Emergency
T-DOC	Sterile Goods Management System

Abbreviation	Definition
Tertiary Hospital	Generally offers services at Level 5 or 6, according to clinical services role delineations
TRACS	Tracheostomy Care Service
VA	Venoarterial extra corporeal membrane oxygenation (ECMO)
VTE	Venous Thromboembolism
VV	Venovenous extra corporeal membrane oxygenation (ECMO)

13. HPU brief development participants

Participants in the development of the ICU/HDU HPU Brief	
Position	**Name**
Director ICU	Bronwyn Avard
Acting ADON ICU	Carly Silberberg
ICU Administration	Belinda Lloyd
Acting CNC	Danielle Quiggin
Nurse Manager	Genevieve Harrigan
Clinical Support Nurse	Natalie Smith
Acting Executive Director Critical Care	Narelle Boyd
Deputy Director ICU	Simon Robertson
Clinical Liaison SPIRE	Kathleen Evans
Senior Health Facility Planner	Sally-anne Kinghorne
Clinical Liaison CHWC	Yvonne Noakes

ACT Government | ACT Health

ACT HEALTH

DATE: OCTOBER 2018

ACT Government | ACT Health

HEALTH PLANNING UNIT BRIEF

SURGICAL INPATIENT UNIT

ACT HEALTH

DATE: NOVEMBER 2018

Approvals

Name	Position	Signature	Date
	Executive Director, Health Service Program		
	Deputy Director General, Canberra Hospital and Health Services		
	For Information - Executive Sponsor, Chief of Clinical Operations, ACT Health		

Outstanding Issues

Subject	Issue
Stakeholder Consultation	Stakeholder consultation required as the design progresses. This is a generic inpatient unit brief based on the Australasian Healthcare Facility Guidelines.

Document Version History

Rev No	Issue Date	Issued By	Issued To	Reason for Issue
Draft v0.1	November 2018	HSPU	BHSP	For progression to Design Consultant for proof of concept
Surgical HPU V.2	November 2018	HSPU	HBSP	Updated SOA to reflected 38% discounted circulation

Table of Contents

1. Introduction

In September 2016, ACT Government announced the construction of a Surgical Procedures, Interventional Radiology and Emergency (SPIRE) Centre to be built at Canberra Hospital (CH). This infrastructure project is part of the ACT Government's 10-Year Health Plan and is in response to the increasing demand on ACT hospitals and health services across the territory.

The ACT Government 2017 Budget provided funding for the first stages of the SPIRE project which includes planning and the commencement of design. This Brief is a combined Model of Care (MoC) and Health Planning Unit (HPU).

A MoC is a planning document that broadly defines the way health services are delivered and outlines best practice care for a person using this service. This MoC planning document has been developed

for building design only and is required by the prospective design consultants to enable design development. For noting, a complete patient journey MoC is a subsequent piece of work.

A HPU Brief is a planning document that defines the activities and functions to be undertaken within a unit/ service. This HPU Brief has been developed as part of the planning component and articulates the operational requirements, functionalities and relationships for which the prospective design consultant can develop a proof of concept.

2. Description of the service

The new Surgical Inpatient Unit (IPU) will provide accommodation for the care and management of adult patients with a broad range of surgical conditions who require a minimum overnight inpatient stay.

3. Scope of service

Vision for the project

Two new commissioned and the soft shell space for an additional two surgical wards will be delivered as part of the Surgical Procedures Interventional Radiology Emergency (SPIRE) project. Each unit will comprise 32 adult surgical beds offering a range of surgical specialities. The unit will cater for patients 18 years and older and requiring an overnight stay in an inpatient environment.

Table 1. Bedroom Type

IPU	Room type	Number
Surgical Inpatient Unit	1 Bedroom	25
	1 Bedroom, Class N	1
	1 Bedroom, Class P	1
	1 Bedroom Special – Bariatric	2
	1 Bedroom – Accessible	1
	2 Bedroom	2
Total		32

Patients assessed as requiring advanced surgical management that cannot be managed in the unit (in the Close Observation Unit) will be managed in the either the High Dependency Unit (HDU) or Intensive Care Unit (ICU).

Patients requiring rehabilitation will be transferred to the rehabilitation unit at the University of Canberra Hospital: Specialist Centre for Rehabilitation, Recovery and Research (UCH).

The new wards will support innovation and implementation of the principles of the Territory-wide delivery of health services. The wards will form part of the facilities associated with providing undergraduate and postgraduate education for health and related disciplines as well as playing a role in the vocational and educational training sector.

The wards will emphasise best practice in the design and delivery of care to the community by including concepts of the health environment and advanced technology together with high quality healthcare. The focus of person-centred care will be embedded in the planning and design.

The wards will be designed as a healing environment that incorporates the use of natural light, artworks and views in its design while also providing for quiet and privacy. The high quality environment will be conducive to teamwork and help Canberra Hospital attract and retain a high quality workforce

Project objectives

The key objectives are to:

- meet the health needs and expectation of the community
- deliver surgical services in line with the vision of the Territory-wide Framework and Specialty Service Plans (SSP)
- provide expanded surgical capacity by increasing bed capacity, in the first instance, by 62 beds, and increasing the level of clinical services capability of the existing services
- provide contemporary healthcare facilities that are designed to support the delivery of person-centred, evidence based care in an environment that supports staff to deliver excellent, efficient and effective surgical services
- provide a spatial environment that is contemporary, salutogenic, flexible and adaptable
- provide a unit that facilitates best practice models of care

Design principles

A primary objective in the planning and design of these units is that surgical services should be safe, of high quality and person-centred. The overarching principles that underpin this objective are:

- design of the physical form should be a balance of staff, patient and operational needs
- design must consider and facilitate
  - efficient patient, staff and services flows
  - privacy and dignity for all patients
  - avoidance of healthcare associated infections
  - prevention of falls and adverse events
  - minimised travel time for staff
- evidence based design based on the following
  - spatial planning that supports standardisation of the configuration and fitout
  - integration of ergonomic principles
  - clear vision connection between patients and staff
  - connectivity to external environment
  - control over natural and artificial light by patient and staff
  - design features that facilitate safe and effective care for people with disabilities or obesity
- design that is salutogenic, that supports good health and maximises use of positive elements related to natural light, colour, images of nature, access to fresh air and music and spiritual space.

4. Model of care summary

The Surgical IPU will provide multidisciplinary case management for acute surgical care for booked and emergency adult patients. The patients admitted to the unit will require a minimum overnight stay.

The unit on most occasions will be dedicated to surgical patients but on occasion medical patients may need to be accommodated in the unit depending on demand. Male and female patients will be

accommodated and separated through single rooms with the exception of those patients requiring a higher level of care in a Close Observation Unit (COU).

The COU provides a level of care between standard ward care and the Intensive Care Unit (ICU), with close monitoring and observation. The COU provides a dedicated care area to high acuity patients who require increased nursing support, for example, patients transitioning out of the ICU, patients likely to need intensive care outreach support, patients requiring non-invasive ventilation (NIV), and on occasions post-operative patients need increased observation, inotropic support or central cardiac monitoring.

Patient Centred Care

A person-centred, flexible, holistic model of care that is responsive to the individual needs of each person will be provided and will require:

- focussing care services around the patient and within their bed area
- extensive involvement of patients and their family/significant other in the planning and delivery of care
- admissions will generally be on day of surgery, with a small number requiring admission the night before surgery
- privacy and dignity for the patient, their carers and family
- providing treatments or therapies either at the patients bed or in the units treatment/therapy room
- holistic multidisciplinary care involving integrated healthcare teams including medical, nursing, allied health, operational and administrative staff
- tailored nursing models of care to suit the needs of the patient and/or cohort of patients
- an integrated model of care working closely with primary care providers such as the emergency department, general practitioners and community settings. This will include follow up care of patients at high risk of readmission with a focus on prevention and early intervention to minimise risk
- clinical handover at the bedside, involving the patient in the care process and assisting to minimise clinical error
- facilities should be available for families that include the ability for family/carers to stay and sleep in the same room, somewhere to sit away from the ward, quiet room for relatives, beverage bay, toilet and washing area
- discharge planning for all booked admissions will commence at pre-admission prior to the day of surgery
- note – the Canberra Hospital is accredited with the WHO as a Baby Friendly Hospital Initiative provider, as such breast feeding and change facilities are located within the public areas in the hospital.

Model of Care Overview

As treatments and methods of care frequently change, the IPU will need to be flexible and adaptable to new models of care and service delivery.

Allied health services such as physiotherapy, speech pathology, psychology, occupational therapy, dietetics, pharmacy, aboriginal liaison and social work will be provided on an extended hour's basis. Allied health services will contribute to and provide health care for people in these units in collaboration with multidisciplinary teams.

Patients with burns defined for referral in the Burn Protocol will require transfer to interstate burns specialist hospitals.

Patients with behavioural disturbances or at risk of self-harming will have a risk assessment and their room and physical environment adapted accordingly.

The IPU will be supported by Family Resource Areas to meet the needs of families and carers who may come from regional areas, carers who are reluctant to leave their friend or relative and those who cannot visit a patient due to extended treatment being undertaken and or restrictions on the number of visitors at any one point to support their needs whilst visiting for prolonged periods of time.

Surgical Inpatient Unit

The IPU will be based on standardised 32 bed layout and configured into pods. Two IPUs will be paired to share ancillary facilities such as the staff lounge and teaching facilities.

The IPU will provide an environment that supports adults of all ages, acuity, frailty and disability, those living with co-morbidities, and allows the delivery of safe effective care for the patient and safety for staff.

The management of the IPU will be flexible to accommodate changes in demand. This may include flexing beds from one pod into one another as required. Patients requiring a higher level of care, but less than provided in ICU/HDU will continue to be managed within the same IPU but in a Close Observation Unit (COU) located adjacent to the Staff Station that accommodates 4 beds and 2 ensuite. Configuration of high observation rooms will include monitoring equipment with the ability to incorporate additional technology for patients who may require continuous monitoring or non-invasive ventilation.

Patients with an infection will be isolated within the pods with a single standard isolation room with dedicated ensuite. A negative pressure (Class N) single bed room will be used for patients with airborne infections (e.g. Tuberculosis and Chicken Pox). A positive pressure (Class P) single bed room will be used for immunocompromised patients requiring isolation.

Patients with behavioural disturbances will be managed in a single bed room that is devoid of items that could be used to harm themselves or others.

Centralised and sub staff station will be provided to encourage the collaboration required between staff and data entry will primarily be done at the patient's bedside using available technology.

5. Workforce

Table 1: The workforce requirements for Surgical IPUs will require further development.

	Classification	Current FTE	Projected FTE	Comment
Nursing				
	Director of Nursing			
	Assistant Director of Nursing			
	Nurse Manager			
	Clinical Nurse Consultant (CNC)			
	Nurse Practitioner			
	Clinical Development Nurse (CDN)			
	Registered Nurse (RN)			
	Enrolled Nurse (EN)			
	Assistant in Nursing (AIN)			
	Total Nursing			
Medical				
	Director			
	Staff specialists CMOs			
	Visiting Medical Officers			
	Fellow/Registrar			
	Resident/Intern			
	Total Medical			
Allied Health				
	Physiotherapist			
	Social Worker			
	Dietician			
	Occupational Therapist			
	Speech Pathologist			
	Clinical Psychologist			
	Aboriginal & Torres Strait Islander Liaison Officer			
	Total Allied Health			
Operational Support				
	PSA			
	Ward Assistant			
	Hospital Assistant			
	Ward Clerks			
	Cleaning Services			
	Total Operational Support			
Administrative				
	CSO			
	Ward Clerk			
	Total Administrative			

6. Policies impacting on the built environment

The unit will operate in accordance with Australian Council on Health Care Standards.

The unit will adhere to the relevant design and space standards outlined in the *Australasian Health Facility Guidelines (AusHFG) Part B – Health Facility Briefing and Planning:*

- AHFG 340 Inpatient Accommodation Unit

All Canberra Hospital and Health Services (CHHS) facility wide policies impact on the surgical inpatient unit but the following are specifically noted:

- ACT Health - Work Health and Safety Management System (WHSMS)
- ACT Health (2014) - Draft Action Plan: Improving patients sleep at Canberra Hospital
- ACT Health (2015) - Falls Prevention and Management Procedure
- ACT Health (2018) - Office and Workstation Accommodation Policy
- ACT Health (2017) - Waste Management Policy
- ACT Health (2013) - Work Health and Safety Policy
- Canberra Hospital and Health Services (2018), Operational Policy, Clinical Record Management
- Canberra Hospital and Health Services Clinical Procedure (2017), Healthcare Associated Infections.

7. Operational description and associated design requirements

The design of the inpatient unit will facilitate the operational practices of the facility. These are detailed below. Inpatient care is delivered by multidisciplinary teams including nursing, medical and allied health staff.

The CNC will be based within the IPU and their office will be situated at the front of the unit and be easily accessible to patients, visitors and staff.

An enclosed clinical workroom located adjacent to the staff station at the front of the IPU will be used for case discussions, write-up by members of the extended care team and students.

Allied health services begin at the bedside and are supported by infrastructure such as therapy gyms, interview rooms and purpose built assessment areas located in the IPU precinct. The following allied health services will be provided to all inpatient units: Nutrition, Occupational Therapy, Physiotherapy, Psychology, Social Work, Aboriginal Liaison, Speech Pathology and Audiology.

Staff meal breaks will be taken outside the unit in the staff room, staff amenity area or commercial facilities.

Parenting facilities for staff will be provided in a centralised staff amenity location within the hospital.

7.1. Access

7.1.1. Hours of Operation

IPUs operate 24 hours, seven days a week and visitor access is between 07:00 to 20:00 daily. Access outside these hours is negotiable with the team leader or the nurse in charge dependent on the patient's clinical condition and the health and safety of visitors.

7.1.2. Access points for staff, patients and visitors

Visitors will enter via one centralised public access point passing the main staff station to allow visibility and access control by administrative and nursing staff. There will be additional back of house/staff entry that is a non-public thoroughfare. Patient, staff and public and back of house circulation needs separation. Clinical support areas and staff amenities will be accessible to staff only. Corridors to the IPU's need to accommodate Automated Guided Vehicles (AGV's).

Access control will be required to all IPU entry doors. The doors will generally be open from 0600hrs-2100hrs but have capacity for access control at all times. Prior to entering the unit everyone must wash their hands with Alcohol Based Hand Rub (ABHR). Automated access control will be managed via the building management system (BMS). There will be audio-visual intercom and door release.

Lifts will have access control for use by the Medical Emergency Team (MET) response team based in the ICU/HDU.

Access into CH afterhours will be through one central point of entry.

7.1.3. Admission to the unit

Patient flow and bed allocation will be coordinated through the Patient Flow Unit (PFU) in consultation with the staff of the IPU.

Planned admissions will have appropriate pre-admission assessment, either at a preadmission clinic or by telephone.

Surgical patients will be admitted via elective the Day of Surgery Admission (DoSA) Unit, the Surgical Assessment Unit, other IPUs, Surgical Outpatients or the Emergency Department (ED).

Discharge planning will commence at pre-admission for planned admissions (surgical or procedural patients) and on admission for all unplanned patients.

While many patients will be discharged directly from an IPU and often via the Discharge Lounge, others will be transferred to another inpatient IPU (for e.g. to UCH for rehabilitation) or transferred back to a referral hospital.

7.1.4. After-hours access, and how this will be controlled

After 2100 hours and before 0600 hours, family and carers will enter CH via the after-hours entrance of the ED and present to the security office in order to gain access to the unit. After hours, the ward will be secure with entry controlled from the central staff station through an audio-visual intercom.

7.2. Core services

7.2.1. Diagnostic Imaging

Generally patients will be transferred to Diagnostic Imaging for imaging and imaging procedures, however on occasion access to mobile X-ray and/or ultrasound may be required. Where the patient is to be transferred to the Diagnostic Imaging Department, they may require a wards person and nurse escort.

7.2.2. Pathology

These services will be provided by the ACT Pathology Service onsite.

Pathology technicians visit the IPU once a day to perform a collection round Monday to Friday. Requests for pathology are made electronically or manually. Phlebotomy services are not provided by pathology staff on weekends or public holidays. IPU staff can collect additional samples as required.

Pathology services will include the use of point of care testing and have a direct pneumatic tube link from the IPU to the Central Specimen Reception Area of the Pathology Building. Pathology results are made available following processing on the secure centralised electronic database.

Some pathology samples are required to be hand delivered by IPU staff or courier.

7.2.3. Pharmacy

Pharmacy services for IPUs will be provided by the CH Pharmacy Service.

Medication management will occur via the electronic medication management (EMM) system utilising Workstations on Wheels (WoW's), Automated Dispensing Medication (ADM) systems and other devices. Capacity is required to adapt to other EMM devices as these become available.

Imprest medications will be stored in the imprest storage system within the Clean Utility room. A wall mounted safe will be provided for the storage of controlled and restricted drugs of addiction (S4D and S8). Access to medication storage areas will be controlled and limited to authorised persons.

The IPU will adopt the recommended storage and preparation of medications as endorsed by the Medication Safety Standard Committee including facilities for the monitored refrigeration of medications.

Future proofing will allow the space, power and data for further ADMs. ADMs provide staff with instant information and access to stocked medication 24 hours a day, 7 days a week. The ADMs will interface with the pharmacy inventory management system, meaning orders are automated and delivered by pharmacy staff to cater for the individual IPU's stock requirements. Par levels can be tailored for each ADM.

Any medications brought in by the patient on admission will be stored in a small safe in accordance with *Medicines, Poisons and Therapeutic Goods regulations 2008*.

The WOW's can also safely store patient medication close to the patient's bedroom. They are stocked by the nursing / pharmacy staff from the ward imprest, or are ordered individually. The trolleys require tethering for security purposes, but are easily untethered by staff to take to the patient bedside for medication administration.

Stock for return to Pharmacy must be stored in a locked receptacle.

Every patient's medication profile and therapy will be reviewed by a ward based clinical pharmacist. Patients will receive medication counselling prior to discharge.

7.2.4. Allied Health

The major allied health services to be available within the Surgical IPU will include:

- Physiotherapy
- Aboriginal Liaison Service
- Social Work, and
- Occupational therapy.

Other services, such as nutrition, psychology and speech pathology, will provide in-reach services to the Department where appropriate.

In order to undertake patient care, allied health services will need access to clinical and related facilities including:

- Interview Room

- Treatment Room
- Multipurpose Therapy Room (located in the shared zone).

7.3. Non-clinical support

7.3.1. Administration

There will be a central reception/staff station next to the unit entrance from which dedicated unit administration staff will work. Administration staff will provide overview of the unit entrance, reception duties, records management, patient admission and discharge processes and filing. The workspace will provide for an electronic sit to stand workstation for the administrative staff.

7.3.2. Environmental and Supply Services

Supplies will be business as usual.

Linen

Supplies will be delivered by Capital Linen Service and delivered daily.

Clean linen supplies will be stored on trolleys in designated linen bays in the inpatient unit. Restocking will be by a trolley exchange system. Dirty linen will be collected from the source and stored in dirty linen hampers in the dirty utility room. Collection and transfer to a central soiled linen holding room at the loading dock will occur on a regular basis.

Cleaning

Cleaning services will ensure that facilities are clean and hygienic as per Infection Prevention Guidelines and contemporary best practice.

All inpatient clinical areas will be cleaned at least once daily and upon discharge of the patient. Cleaners' rooms (lockable) will be located in the unit. It will accommodate a cleaner's trolley and related consumables, and stock storage (e.g. toilet paper, paper towels). A bulky equipment store will be located one between two wards to accommodate floor polishers, steam cleaners and ride on polishers.

Stores

Stores are delivered two to three times per week with stock levels monitored against the Purchasing and Inventory Control System (PICS). To reduce staff walking distances, point of care cupboards are to be distributed evenly throughout the IPU. The lower half of the cupboard will store the Blood Samples trolley. Above, storage for consumables such as incontinence pads, detergent, wipes and alcohol based hand rub.

Clinical supplies will be provided using an imprest system. Supply staff will attend to reordering.

In addition to the Medication/Clean Utility Room, unboxed sterile consumables and intravenous (IV) fluids will be stored in a Sterile Stock Room. An additional General storeroom will provide space for boxed supplies and miscellaneous stock. An Equipment Room will accommodate reusable equipment, some of which will require charging. Mobile equipment bays will be provided to make available commonly used items (e.g. hoists, IV poles, vital signs monitors). Non-core medical equipment will be stored in a Central Medical Equipment Store with 24/7 access.

Waste Management

Waste management and removal will occur as per the facility wide policy for managing waste.

Waste will be segregated at the source and will include general, biohazard and recyclable as a minimum.

Dirty Utility Rooms will accommodate two 660L bins for general waste and co-mingle recycling, and two 240L clinical waste bins. Waste will be removed from Dirty Utility rooms and Disposal rooms once to twice daily depending on area, demand and agreed schedule.

A disposal room will be shared one between 2 units, located in the shared space, close to back of house lifts.

7.3.3. Food

Breakfast, lunch, dinner, morning and afternoon teas will be provided for patients according to the menu. Fresh fruit will be available daily and drinks and snacks will be accessible from a beverage bay throughout the day and evening.

The management of patient diet orders and meals will be through the My Meal system – an integrated food services management system, with assistance rendered by Patient Support Assistants and Nutritionists as required.

Food service staff will deliver a retherm food trolley to the IPU which is docked at the retherm bay. A food services staff member delivers meals to the patients. Patients may have their meals in the dining room.

7.4. Amenities for patients, staff and visitors

7.4.1. Staff amenities

Staff access to and within the IPU will be controlled by proximity access card.

Staff oversight of and visibility of the COU, general bed rooms and lounge/dining areas is paramount for patient safety and support.

Decentralised clinical write-up bays will be required for every six – eight beds to enable nursing staff to have oversight of the patients in their care and to enable patients to easily see nursing staff. Each bay will have space to accommodate two to three staff including non-nursing members of the care team.

Office space will be allocated as per the ACT Health Accommodation Policy.

The ward clerk will have a designated work area in the Staff Station oversighting the unit entry and in close proximity to the clinical workroom.

Shared office space will be provided adjacent to the inpatient unit for nursing staff (Clinical Nurse Specialists/Clinical Nurse Educators), together with other shared amenities.

Staff will have access to a staff room with beverage bay, refrigerator and microwave and the ability to lounge, eat and debrief with colleagues. The location will provide privacy to staff away from patients/carers. The staff room will need to accommodate up to 15 staff at the same time. The room is to be provided in the shared zone outside the IPU.

Dedicated unit staff will require a secure property bay area for storage of personal belongings behind a staff controlled perimeter. Staff change rooms will be shared between two IPU's.

7.4.2. Patient amenities

Amenities for patients will be provided as per the design requirements and the Schedule of Accommodation.

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 a number of families and individuals can gather at the same time
- Include a beverage bay with microwave, tea and coffee making facilities
- A fridge that is temperature monitored for patients 'own food' accessible to patient and their family

Patients will engage in rehabilitation activities as soon as clinically appropriate to facilitate early recovery and prevent deconditioning. These activities will occur in the bed area and/or a therapy space adjacent to the inpatient unit, dependent on the nature of the activity.

A key issue is the need to have effective mechanisms in place to support patients who may be at risk of falling, for example, when getting out of bed, showering or mobilising after a period of bed rest. All inpatient units will be designed to minimise the risk of patient falls. Key planning considerations will be the design of the physical environment, visibility of patients to staff, and the coordination of patient transfers. Falls prevention initiatives and procedures will be in accordance with Falls Prevention and Management Policy.

7.4.3. Family accommodation within patient areas

Family members are encouraged to be involved in the patient's activities of daily living and their recovery as appropriate.

There is to be a carer zone in each bedroom with provision of a built in day bed. The day bed will double as an overnight bed and seating as required.

There is to be some dedicated storage for use by the patient/carer in the bed room.

There is to be the ability to separate the patient and carer with a curtain.

Single chairs will be located next to patient bed to accommodate other visitors.

There is to be task lighting in the carer zone to enable reading without disturbing the patient.

A lounge space will be required on each inpatient unit to foster mobilisation and for use by patients and their visitors. A beverage bay is required in the lounge.

7.4.4. Visitor amenities

A visitor toilet will be part of the IPU shared zone. Visitors/family will be encouraged to use the shared lounge/dining facility with their family members.

7.5. Security requirements

Security arrangements will be in line with ACT Health Policies and Procedures.

7.5.1. Access cards, telephones, call points, alarms

The IPU will be access controlled with the ability to lock the IPU if required. There is to be an audio/visual intercom controllable from the staff station.

Lifts adjacent to the IPU will have access control for after-hours use.

7.5.2. Mobile / personal duress systems

Personal duress is not required in this IPU, however fixed duress will be located in any room where a staff member has discussions with family / patients e.g. interview rooms, meeting rooms, lounge, and reception. Staff will be able to utilise the multifunctional wireless phones in addition to fixed duress systems.

Security personnel will respond to critical incidents within the unit automatically on activation of duress alarms and as required on request from clinical staff.

7.5.3. Additional secure areas / zone

All staff only areas are to be electronically accessed controlled including medication/clean utility, general store, equipment store, clean utility, staff toilets, staff room, change rooms.

Security must be able to be maintained during power failure and all public access points must be able to be locked down during a disaster.

Closed Circuit Television (CCTV) will be required at the IPU entrance and waiting/sub wait areas. Where appropriate, CCTV will be made available to staff in clinical areas such as staff stations and reception. As per ACT Health CCTV Policy and Procedure, "CCTV systems will only be installed in areas of operation accessed by the public and will NOT be installed in clinical treatment areas or internal to medical wards."

7.6. Infection control

Standard precautions will be implemented for patients known or suspected to be infectious or who are immunosuppressed.

Negative pressure (Class N) single bed rooms will be used for patients with airborne infections.

Positive Pressure (Class P) single bed room will be used for immunocompromised patients.

Alcohol based hand rub (ABHR) will be available at the IPU entrance for use by all staff, patients and carers before entry to the unit.

ABHR will be used as an adjunct to clinical hand washing and are to be provided on the end of each bed, at the entrance to patient rooms and distributed around the Unit. They will be fixed to the wall, with a strip of vinyl behind them.

Clinical hand wash basins and associated equipment and consumables will be provided in medication, treatment, utility and bed rooms – located so that staff wash their hands upon entry/exit from the room.

Clinical hand wash bays are to be provided at a ratio of one per four beds in the corridors. All basins will have basin set up as per the ACT Health including vinyl to 2700mm behind the basin and will have electronic sensor tapware.

A pair of rooms will have detergent wipe bracket.

Personal Protection Equipment (PPE) racks are to be provided at the entry to each bed area.

PPE waste holding bays are to be provided at a ratio of one per five beds.

Furniture Fittings and Equipment (FFE) should allow for ease of cleaning and discourage accumulation of dust.

Finishes to be washable and approved by Infection Prevention and Control (IPC).

7.7. Information Communication Technology (ICT)

The ICT infrastructure and systems must have the capacity to meet ongoing changes in technology.

Trained staff will access integrated clinical information systems. The operations of the ACT Health inpatient units will be supported by comprehensive ICT as part of the Digital Health Services program of work, in addition to existing ICT systems.

Technology will support access to information and data entry requirements of staff and patients, for example, bedside computers for data entry, and distributed spaces for data entry and computer access for all team members.

Clinical handover occurs at the bedside, however provision of a clinical workroom is required for general shift handover. Patient journey boards are required within this vicinity. The clinical workroom will be equipped for education, training and in-service activities.

The ACT Health ICT foundations comprises of four key areas:

Patient Record Systems that provide a consolidated, shareable patient-centric health record enabling information to be available to the right person at the right place and time to enable informed health care and treatment decisions. This program includes systems such as:

- My Health Record
- Personal Electronic Health Record (PEHR) incorporating an ACT Health smart card
- Clinical Portal/Centralised Order Entry/ Provider Index
- e-Referral system
- Integrated Chronic Disease Management tools
- Electronic Medical Record (eMR) System for patient admissions and discharges (CRIS replacement). eMR will be used for the patient admissions and discharges.

Clinical Decision Support Systems that provide healthcare professionals with better access to clinical research and evidence, and clinical decision-support tools to enable improvements in the quality, safety and efficiency of clinical practices. This includes:

- EMM
- Clinical Protocol System
- Community Care System
- Renal Dialysis Application
- Theatre System Integration (ACTPAS, PICS, T-Doc).

Support Services that use technology to efficiently manage the resources which support ACT Health in the provision of patient care, for example the management of staff, food and beds.

The **Digital Hospital Infrastructure** designed to provide:

- An integrated nurse call system
- the technological capability to ensure a complete view of patient information at the point of care
- high availability technologies needed to support a 24/7 care environment
- electronic systems needed to support the coordination of health care
- support for technologies required by staff in the delivery of health care services at the point of care

- readily accessible facilities to allow patients to review and update their details, manage appointment bookings and access health care information and education materials provided in the e-health environment
- enhanced patient health care experience
- support for the future expansion of clinical ICT systems across both public hospitals
- patient Controlled Electronic Health Record and the development of links with GPs and other external providers including access to discharge summaries.

ICT will be used to support self-management and health literacy and to promote healthy choices e.g. health kiosks, web-based education etc.

Video conferencing and Telehealth will be available using a range of technologies including fixed equipment in large bookable meeting venues, mobile equipment and internet based desktop applications.

Specific ICT requirements include:

7.7.1. Bedside data entry

- staff will need access to computers at each bedside, staff stations, in consultation, treatment and procedure room
- access is required to a mobile device platform (WOWs) for the purpose of data entry. One device will be used between two bed spaces
- use of tablets, smart phones etc. will also need to be supported
- secure storage of and charging facilities for mobile clinical devices such as WoW, handsets, batteries on wheels, in close proximity to the staff workroom.

7.7.2. Wi-Fi and blue tooth

- Wi-Fi and blue tooth provision for medically safe wireless networking throughout the clinical area
- Wi-Fi internet access will be provided throughout the Department (including lounge/wait areas) for use by staff and visitors
- blue tooth and Wi-Fi will be required for communication between portable medical devices to enable equipment tracking and remote diagnosis of equipment faults to Biomedical Engineering
- radio frequency ID tracking to enable equipment tracking throughout the hospital.

7.7.3. Printer

Printers are required at the staff station and clinical workroom.

7.7.4. Hearing loop

Hearing loop is to be available at reception, in one clinical treatment space, in one bed room and accompanying ensuite.

7.7.5. Patient beside entertainment

An integrated bedside communication system will include services such as television, computer monitor, patient health education, access to PEHR, menu ordering etc.

Bedside data entry for clinical staff will be provided by an alternate system.

7.7.6. Telemedicine/video conferencing

Video conferencing and Telehealth will be available using a range of technologies including fixed equipment in large bookable meeting venues, mobile equipment and internet based desktop applications.

7.7.7. Communication

The most appropriate latest technology will be required for:

- communicating during systems fail or in disaster response
- audible communication in all clinical and non-clinical areas of the IPU with access to points in multiple locations and integrated paging and communication systems.

7.7.8. Nurse call systems

Nurse call systems will be linked to multifunctional wireless phones enabling staff response to calls. This will include staff ability to communicate with each other and patients remotely through a handset. This system will facilitate 'rounding', reminding staff at intervals that they must check a patient or do observations. Cancellation of the nurse call occurs automatically that staff member wearing the device enters the room of the nurse call origin. The head set utilises Real Time Location System (RTLS).

The nurse call system will extend to fully integrate with the bedside systems which currently link to the reception and the central security monitoring room of the CH increasing safety and security for patients, visitors and staff.

Data and power points/batteries are to be located at a mobile device platform bay. These devices will facilitate integration with the Clinical Portal, ARIA, CHARM, EMM and accessible by card reader. Devices will be protected by RTLS.

7.8. Teaching training and research

Shared meeting and teaching space will be required adjacent to each inpatient unit.

Nurse education is facilitated by the Clinical Development Nurse (CDN). Nursing in-service education will be routinely conducted on the unit, and require access to a shared meeting room with capacity for 15 people.

Staff are encouraged to take up and complete professional development packages and will require access to computer workstations to access eLearning applications.

Multidisciplinary learning and development opportunities are promoted and encouraged. Medical teaching rounds occur during ward rounds.

Clinical placement for students from TAFE Colleges and Universities is provided for nursing, allied health and medical students.

8. Design requirements

The design must:

- incorporate safe design principles including visibility between staff and patients and vice versa, standardisation, automation (if possible), reduction in noise, immediate accessibility to information close to the point of service and the minimisation of patient movement around the facility

- support maximum productivity and efficiency, short travel distances, and ensure flexibility to allow operational models, nursing staff structures and the MoC to change over time, including nurse to patient ratios
- be standardised to produce an environment which is familiar to staff enabling efficient use of time and space thereby reducing stress and fatigue
- facilitate efficient and effective patient flow though areas
- have universal design of individual patient treatment areas to offer greater flexibility and adaptability for multiple purpose use.

The design and distribution of spaces must support the range of health care professionals and other care givers who will work in the IPU.

There is to be sufficient storage and mobile trolley bays to ensure trolleys do not clutter the corridor.

Floor and wall coverings are to support acoustic attenuation. Carpet may be used in the staff station, staff workroom, interview room and offices if an appropriate cleaning regime can be agreed.

Emergency (battery powered) lighting and other power to other essential equipment must be provided in all patient care areas in case of power failure.

8.1 Specific design requirements

The design will be consistent with the elements described in the AusHFG'S unless otherwise stated. The design of the surgical IPU is to convey a person-centred healing environment with welcoming surround. The unit will be designed for patient and staff safety, bariatric care and be 'elder friendly'.

Patients who are admitted to hospital these days are often acutely unwell and in need of observation. One of the primary goals in design, therefore, is to minimise the distance between patient bedrooms and the staff station/work-base and the distances between all patient rooms.

The unit will be designed as four pods with central staff and support areas. The unit needs to support flexibility of nursing allocation and bed management to enable clear visibility if working across a two pods. This ensures areas can:

- be managed efficiently during periods of low activity
- accommodate patients admitted under different specialities in a designated area in times of high demand.

8.1.1 Bed Rooms and patient amenities

Four beds will be podded to create a Close Observation Unit (COU). The COU will be located adjacent to the Staff Station to maximise visual and auditory observation of the patients. The COU will have central vital signs monitoring with the master monitor installed at the Staff Station. The remaining bedrooms are to be single bed rooms.

Each bedroom is to have a carer zone.

Patients will be able to access views and natural light when sitting/lying in bed.

Staff will be able to observe patients without entering the room. Inboard ensuite doors will be chamfered. Doors will be on soft close to reduce noise.

Room features will include:

- acoustic attenuation
- locally controllable dimmable lighting
- night lighting (floor lighting)

- all bedrooms to have direct access to an accessible ensuite
- zone lighting – to allow visitors to read without disturbing the patient
- built in bench for visitor seating and sleeping
- ability to charge personal devices by the bed
- storage for patient and family possessions
- integral privacy blinds in the patient observation window – controllable from outside the room.

The bariatric room with ensuite will require

- a ceiling mounted lifting device to enable the patient to be transferred between the bed, a chair and the ensuite, with a maximum weight of 350kgs
- ceiling mounted lifters will require a parking and charging area away from the patient bed area to avoid injury to staff or visitors

8.1.2. Staff Workspace, offices and amenities

Staff Station

The staff station will make provision for:

- storage of paper files
- data and power provision for eMR
- a bay to accommodate a patient file trolley
- receptacle for pathology requests
- wall-mounted storage for paper work associated with patient files.

Clinical Work Room

- access via the staff station
- confidential space for staff to work quietly without interruption
- adequate charging points for wireless Digital Enhanced Cordless Technology (DECT) phone system (mobile nurse call devices)
- space for the log on computer for the DECT mobile nurse call devices
- lockable cupboards for hand held devices
- printer
- electronic patient board in a position that provides patient confidentiality
- display of confidential information out of public view
- adjacent access to stationery / photocopy bay (access controlled).

Offices

A single Clinical Nurse Consultant (CNC) office and a two person shared office located within the IPU are required where staff can carry out administrative and educational functions in a degree of privacy. This includes preparing rosters, reports, counselling, online education and interviewing staff and patients. An external outlook is desirable.

Toilets – Staff

A toilet and hand basin for staff use - may be unisex will be provided in the Unit. Staff only access will be required.

8.1.3. Other Clinical Support areas

Clinical support areas located within the unit will include:

Bay Handwashing/PPE

- handwash bays are to be distributed throughout the unit at a ratio of one bay per four beds
- Space to store PPE is to be recessed into the corridor walls and located at hand wash basins to provide a ratio of one PPE bay per two beds.

Bay Mobile Equipment

- require data and power

Clean utility/ Medication room

- space for future ADM with integrated medication fridge with back to base alarms
- a secure container will be provided for staff to return medications to pharmacy
- adequate power and data access.

8.1.4. Spaces to be shared

The following spaces will be located in a shared zone.

- a meeting/teaching/tutorial room for up to 20 persons
- staff lounge – with computer stations, property bay and quiet write up area, a kitchenette, dining and lounge space
- staff toilet and shower
- staff will have access to an appropriately fitted out room for breast feeding/expressing as per the Australian Baby Friendly Hospital Initiative (perhaps elsewhere in the Hospital)
- family resource area including
    - sub-lounge / waiting area
    - health resources / information
    - child visitor play
    - quiet space.

Storage for specialised equipment not routinely required and beds will be provided from a centralised hospital-wide repository. This storage space will include a wet space for equipment cleaning.

8.1.5. Design for the Older Patients

Patients admitted to the surgical IPU may be frail, with multiple co-morbidities. The design should support restoration or maintenance of independence in a safe environment and enhance falls prevention strategies.
Design factors which can assist include:

- easy and visible access to toilets including directional night lighting and contrasting colour for toilet seats
- maximum exposure to daylight
- glare minimisation
- adequate and appropriate artificial lighting e.g. non-directional or diffuse lighting and dimmable lighting
- non-slip floor coverings without obvious seams in patient access areas to minimise trips and falls
- minimisation of clutter
- minimisation of noise
- signage colour and contrast for wayfinding and orientation
- a layout such as continuous loop paths that permits patients to wander but provides the ability to control entries and exits, and to minimise the extent of unsupervised spaces.

8.1.6. Design for Patients with a Disability

Patients admitted to the IPU may have a disability including independent wheelchair users, those with arthritis, cognitive or vision impairment, gait and mobility problems or chronic pain. Design solutions to support patients with a disability will include:

- fully accessible bedroom and ensuite
- attention to weight of doors used by patients particularly ensuite doors
- slow release doors
- height and design of door handles, light switches and taps
- patient buzzer placement will maximise ease of access
- selection of floor coverings that minimise glare, strong colours and confusing patterns
- lighting including sensor lighting in ensuites
- familiar signage
- designated rest areas along corridors
- provision of grab and hand rails.

DRAFT

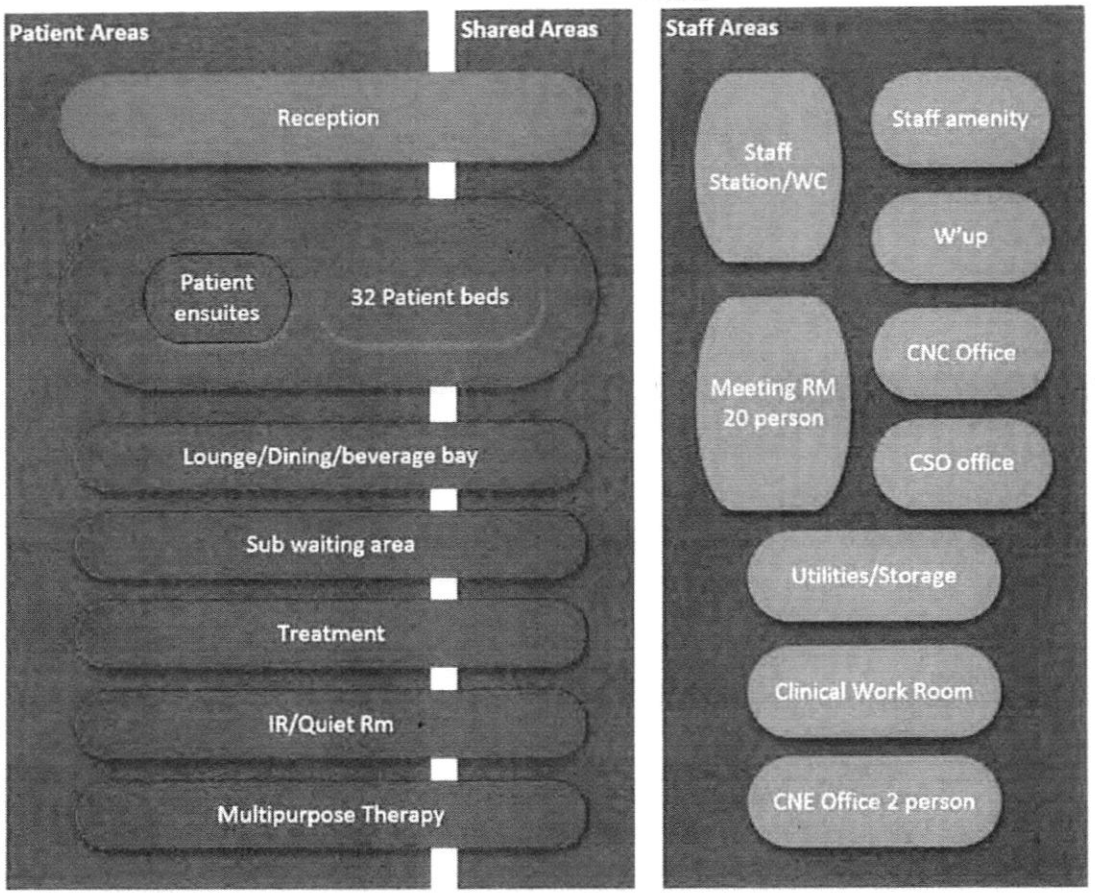
9. Functional relationships

The 32 bed IPU configuration will be as follows:

- 28 single rooms with non-shared ensuite comprising of:
  - one single Class N isolation room with anteroom
  - one single Class P isolation room
  - two bariatric rooms
- one quadruple bedroom with two ensuites (sized as for 2 x two double bedrooms with shared ensuite AusHFG Standard Component 2BR-ST-A2)

The internal functional relationships for the Surgical IPU are shown in the following figure.

Figure 1: Internal functional relationships for the Surgical IPU



9.1. External relationships

The surgical IPU will be located within the 24 hour acute clinical services zone of SPIRE.
Key external functional relationships are prioritised in the following table as per the criteria in Table 3.

Table 2: Surgical IPU external Functional relationships

Service/Unit	Priority	Comments
Surgical Assessment Unit	Easy	Movement of patients
Perioperative Services	Easy	Movement of patients
ICU/HDU	Easy	Movement of patients
Interventional Services	Easy	Movement of staff and patients for procedures
Emergency Department	Easy	Movement of patients and staff
Medical Imaging	Easy	Movement of patients
Pathology	Easy	Movement of patient samples via pneumatic tube
Security	Easy	Movement of staff. e.g. black alert, staff from all points urgently attend
Administration Centre	Easy	Movement of staff and consumers (admissions, patient flow etc.)
Pharmacy	Easy	Movement of staff and medications
General (Hotel) Services	Easy	Movement of staff, meals, linen & waste
Mortuary	Easy	Movement of patients
Central Equipment Store	Easy	Movement of equipment
Discharge Lounge	Easy	Movement of patients
Site Interfaces		
Drop off/Pickup	Easy	Movement of staff & consumers; Ambulance, Security, Patient Transport
Car parking – Visitors	Easy	Movement of visitors and consumers
Car parking – Staff	Easy	Movement of staff; swipe card access control (particularly on call staff)
Public Transport	Easy	Movement of visitors, consumers and staff

Table 3: External functional relationship criteria

Immediate (<1 minute)	Being the shortest direct, horizontal route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having an "Immediate" functional relationship must not exceed one minute.
Direct (<2 minutes)	Being a direct horizontal or vertical route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having a "Direct" functional relationship must not exceed two minutes and there must be minimal corner turns between the two areas or services.
Ready (<5 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having a "Ready" functional relationship must not exceed five minutes.
Easy (<10 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having an "Easy" functional relationship must not exceed ten minutes.

10. Future service developments and innovation

The following future service developments are anticipated:

- delivery of support services via Automated Guided Vehicles (AGV)
- provision for RFID scanning devices to be accessible throughout the unit
- installation of ADMs
- provision of eHealth integration throughout the unit including at the bed side
- point of care testing.

DRAFT

11.Schedule of accommodation

Table 42: Schedule of Accommodation for IPU

AusHFG Code	Deviation from HPU Y/N	Room / Space	Quantity	Room Area M2	Total Area m2	AHFG's Standard Compnent Size m2	Deviation from Standard Compent m2
PATIENT AREAS							
1BR-ST	N	1 Bed Room, 15m2	24	15	360	15	0
1BR-IS-N	N	1 Bed Room - Isolation - Negative Pressure, 15m2	1	15	15	15	0
ANRM	N	Anteroom	1	6	6	6	0
	N	1 Bed Room, 16.5m2	2	16.5	33	16.5	0
ENS-ST	N	Ensuite - Standard, 5m2	26	5	130	5	0
ENS-ACC	N	Ensuite - Accessible, 6m2	4	7	28	7	0
	N	1 Bed Room - Bariatric, 18m2	1	18	18	18	0
ENS-BA	N	Ensuite - Bariatric, 7m2	1	7	7	7	0
4BR-ST	N	4 Bed Room, 56m2	1	56	56	56	0
ENS-ACC	N	Ensuite - Accessible, 6m2	2	6	12	6	0
LNPF-20	N	Lounge - Patient / Family, 20m2	3	20	60	20	0
		Subtotal			***725***		***0***
		Discounted Circulation		38%	276		
		Total			**1001**		
SUPPORT AREAS							
TRMT	N	Treatment Room	2	14	28	14	0
BATH	N	Bathroom	1	15	15	15	0
BBEV-OP	N	Bay - Beverage, Open Plan 4m2	4	4	16	4	0
BMT-4	N	Bay - Meal Trolley	2	4	8	4	0
BFLW-OP	N	Bay - Flowers (Open)	2	2	4	2	0
BHWS-B	N	Bay - Handwashing, Type B	8	1	8	1	0
BHWS-PPE	N	Bay - Handwash/PPE	16	1.5	24	2	0
BLIN	N	Bay - Linen	4	2	8	2	0
BMEQ-4	N	Bay - Mobile Equipment, 4m2	4	4	16	4	0
BRES	N	Bay - Resuscitation	4	2	6	2	0
CLRM-5	N	Cleaners Room, 5m2	2	5	10	5	0
BPTS	N	Bay - Pneumatic Tube	1	1	1	1	0
CLUR-14	N	Clean Utility, 14m2	1	14	14	14	0
	N	Medication Room	1	10	10	10	0
DTUR-12	N	Dirty Utility, 12m2	1	12	12	12	0
INTF	Y	Interview Room	1	12	12	12	0
OFF-CLW	Y	Office - Clinical Workroom	1	15	15	15	0
SSTN-14	N	Staff Station, 14m2	4	14	56	14	0
SSTN-10	N	Staff Station, 5m2	4	5	20	5	0
STPS-8	N	Store - Photocopy/Stationery, 8m2	1	8	8	8	0
STEQ-20	N	Store - Equipment, 20m2	1	20	20	20	0
STGN-9	N	Store - imprest 20m2	1	20	20	20	0
		Subtotal			***331***		***0***
		Discounted Circulation		38%	126	32%	
		Total			**457**		
STAFF AREAS							
OFF-S9	N	Office - Single Person, 9m2	1	9	9	9	0
OFF-2P	N	Office - Two Person Shared, 12m2	1	12	12	12	0
SRM-15	N	Staff Room, 25m2	1	25	25	25	0
PROP-2	N	Property Bay - Staff	1	3	3	3	0
WC-ACC	N	Toilet - Staff, 3m2	1	3	3	3	0
SHST	N	Shower - Staff, 3m2	1	3	3	3	0
		Subtotal			***55***		***0***
		Discounted Circulation		38%	21	32%	
		Total			**76**		

SHARED AREAS							
MEET-L-30	Y	Meeting Room	1	30	30	18	12
MEET-L-15	N	Meeting Room, 18m2	1	18	18	18	0
LNPF-20	N	Lounge - Patient / Family, 20m2	2	20	40	20	0
WCPU-3	N	Toilet - Public, 5m2	2	5	10	5	0
WCAC	N	Toilet - Accessible, 6m2	1	6	6	6	0
DISP-10	N	Disposal Room, 10m2	1	10	10	10	0
		Subtotal			***114***		***12***
		Discounted Circulation		38%	43	32%	4
		Total			**157**		
					Total Area m2		**Deviation from Standard Compent m2**
		Total Room Area			1225		12
		Total Discounted Circulation	**Ave**	**38%**	466		4
		Total Department / Unit Area			**1691**		**16**

12. Abbreviations

Abbreviation	Definition
ABHR	Alcohol Based Hand Rub
ADM	Automated Dispensing Machine
AGV	Automated Guided Vehicle
AIN	Assistant in Nursing
AusHFG	Australasian Health Facility Guidelines
BMS	Building Management System
CCTV	Closed Circuit Television
CH	Canberra Hospital
CHHS	Canberra Hospital and Health Services
CMO	Consultant Medical Officer
CNC	Clinical Nurse Consultant
COU	Closed Observation Unit
CSO	Clinical Service Officer
DECT	Digital Enhanced Cordless Technology
DoSA	Day of Surgery Admission
ED	Emergency Department
EMM	electronic medication management
eMR	Electronic Medical Record
EN	Enrolled Nurse
FFE	Furniture Fitting Equipment
HDU	High Dependency Unit
HPU	Health Planning Unit
ICU	Intensive Care Unit
IPC	Infection control and Prevention
IPU	Inpatient Unit
IV	Intravenous

MET	Medical Emergency Team
MoC	Model of Care
PEHR	Personal Electronic Health Record
PFU	Patient Flow Unit
PICS	Purchasing and Inventory Control System
PPE	Personal Protection Equipment
RN	Registered Nurse
RTLS	Real Time Location System
S4D	Schedule 4 medication. Prescription only medicine
S8	Schedule 8 medication. Controlled drug
SPIRE	Surgical Procedures, Interventional Radiology and Emergency
SSP	Specialty Service Plan
UCH	University of Canberra Hospital: Specialist Centre for Rehabilitation, Recovery and Research
WHSMS	Work Health and Safety Management System
WoW	Workstations on Wheels

13.HPU brief development participants

Participants in the development of the HPU brief	
Position	Name
Clinical Liaison SPIRE	Kathleen Evans

DRAFT

ACT Government | ACT Health

ACT HEALTH

OCTOBER 2018

ACT Government | ACT Health

HEALTH PLANNING UNIT BRIEF

HELIPAD RETRIEVAL SERVICES

ACT HEALTH

OCTOBER 2018

Approvals

Name	Position	Signature	Date
Narelle Boyd	Executive Director, Critical Care Division		
Chris Bone	Deputy Director General, Canberra Hospital and Health Services		
	For Information - Executive Sponsor, Chief of Clinical Operations, ACT Health		

Outstanding issues

Subject	Issue

Document version control

Rev No	Issue Date	Issued By	Issued To	Reason for Issue
Draft v0.1	3/4/2018	Capital Insight	ACT Health	Draft for review and comment
Draft v0.2	9/4/2018	Capital Insight	ACT Health	Updated to reflect User Group input
Draft v0.3	27/4/2018	Kate Evans	Amanda Slater	Reviewed and updated
Draft v0.4	30/4/2018	Amanda Slater	HSPU	Final Review and format
Draft v0.5	11/5/2018	Kate Evans	HSPU	Incorporated User Group input
Draft v0.6	8/10/2018	HSPU	BHSP	For Proof of Concept

1. Introduction

In September 2016, ACT Government announced the construction of a Surgical Procedures, Interventional Radiology and Emergency (SPIRE) Centre to be built at Canberra Hospital (CH). This infrastructure project is part of the ACT Government's 10-Year Health Plan and is in response to the increasing demand on ACT hospitals and health services across the territory.

The ACT Government 2017 Budget provided funding for the first stages of the SPIRE project which includes planning and the commencement of design. This document incorporates components of a Model of Care (MoC) and Health Planning Unit (HPU) Brief into a combined planning document that broadly defines the way the service is delivered, and the functions to be undertaken within the unit/service. This planning document has been developed for building design only and is required by the prospective design consultants to enable design development.

ACT Health engaged Healthcare Management Advisors (HMA) Pty Ltd and Capital Insight Pty Ltd to undertake the MoC/HPU brief development in collaboration with staff from Health Services Redesign and Building Health Service's Program. Development of the document occurred between February and May 2018 with internal ACT Health stakeholders who have been identified within this document. Outstanding issues that require resolution over the next design phases are noted at the beginning of this document.

The SPIRE Project provides an opportunity to develop a helipad for patient transfer by medical transport helicopters and is an essential element of the healthcare capabilities of the CH and the Centenary Hospital for Women and Children (CHWC). A rooftop helipad located on the SPIRE building will enhance the efficiency of patient transfer by aero-medical ambulances using a direct transfer link between the helipad and the critical care areas in CH such as the Emergency Department (ED), Perioperative service, Intensive Care Unit (ICU) and the Neonatal Intensive care Unit (NICU) in the CHWC.

2. Description of the service

A helipad is defined by the Civil Aviation Safety Authority (CASA) as an area that is:

a. intended for use wholly or partly for the arrival or departure of helicopters, on: (i) land; or (ii) a building or other raised structure on land
b. meets or exceeds the helipad standards set out in Volume II of Annex 14 to the Chicago Convention.

The helipad will meet the operational needs of the current and longer term future fleet of medical transport helicopters operating in Performance Class 1, a future requirement for Medical transport helicopters advised by CASA in their Notice of Proposed Rule Making OS13-04.

The helipad is primarily used for the retrieving patients to CH as a regional trauma healthcare facility and tertiary Intensive Care Unit for the Southern region of NSW. The helipad also supports patient transfers from CH to other hospitals notably the major specialist facilities in Sydney, NSW.

The CH helipad is used by the helicopter retrieval service located in the ACT and other New South Wales Ambulance Service (NSWAS) Helicopters in NSW (Orange, Wollongong and Bankstown bases); including the Newborn Emergency Transport Service (NETS) helicopters operating from the NETS base at Bankstown airport, Sydney NSW. The CH helipad may on occasion be used by Ambulance Victoria for patient transfers.

The various retrieval services currently operate the Agusta Westland AW139 helicopters. These helicopters have the capability to transport one to two patients and are classified in the generic grouping of medium twin types due to their maximum mass and twin engine configuration.

3. Scope of service

The existing helipad serving CH currently supports approximately 700 patient transfers a year. The assessment of demand for Helicopter Medical Transport flights through CH indicates that the helipad is to be capable of supporting the independent loading or unloading of two helicopters

The CH rooftop helipad will be used exclusively for air ambulance flights associated with healthcare service provision in the Capital Region and adjoining areas, including the Sydney Basin. As such, the facility will meet the physical and operational needs of the current and future fleet of Medical transport helicopters operating in these areas.

The helipad will be available used 24 hours a day, seven days a week. The frequency of use is variable and whilst current usage patterns indicate a daily average of two or three flights, more than five flights in a 24 hour period have been recorded. The duration of time that a helicopter occupies the helipad is also a variable but a 30 minute period between approach and departure is not uncommon.

4. Model of care summary

The CH helipad will be capable of two Final Approach and Take Off (FATO) areas for independent but non-simultaneous arrivals and departures. This will enable the transport of two patients at a time without the requirement for helicopter movement and parking, giving increased flexibility and operational safety for each helicopter using the facility. A detailed analysis of the helipad configuration and operational protocols will be undertaken during the detailed design phase for the project.

5. Workforce

Dedicated workforce is not required for the clinical operation of the helipad, staffing will be supplied by the appropriate retrieval service. Canberra retrieval service medical staff are provided by the Capital Region Retrieval Service (CRRS), located at the CH. Each mission by the retrieval helicopter service requires four crew members on board the helicopter (pilot, air crew, intensive care paramedic and a critical care doctor). A similar configuration applies to the flights conducted by the Ambulance Services of NSW (ASNSW) and NETS.

CH medical staff rostered to work on the retrieval helicopter, when not on shift for the aircraft, work in their designated specialty area at CH. The doctors provide 24/7 medical coverage and are key to providing an aeromedical coordinated system approach to the care of critically ill and injured

patients throughout the ACT and Southern NSW. Paramedics assigned to the service are employed by the ACT Ambulance Service (ACTAS)

CH Security and ward staff personnel will be involved whenever the helipad is active. Protocols and procedures for the activities by hospital staff will be developed during the project development phases in consultation with relevant user groups.

Support by additional CH clinical personnel may be required on occasions in support of the clinical personnel on the helicopter. Procedures including communication protocols for the involvement of additional personnel will be developed during the project development phases in consultation with relevant user groups.

6. Policies impacting on the built environment

The design and construction of the helipad must comply with the current technical standards, codes and recommended practices defined by CASA and the Building Code of Australia (BCA) for a helipad operating as a hospital based Helicopter Landing Site (HLS).

A HLS is defined as a helicopter landing area within easy trolley access (<100m) to and from the hospitals critical care areas.

Additional guidance material for hospital helipads has been prepared by the ASNSW.

7. Operational description and associated design requirements

7.1. Access

7.1.1. Hours of operation and access

The helipad will operate 24/7 on an as needs basis, therefore is to be designed for day and night use.

Incoming retrieval flights contact the Navigator Nurse in the CH ED and advise the patient requirements on arrival. A Code H alert is then sent to all the required services in preparation for the arrival of the patient.

Access to the hospital rooftop and helipad lobby will be restricted and controlled by building access and security protocols. Normal operating procedures for the arrival and departure of helicopters will include provisions whereby no personnel will be permitted to be outside the helipad lobby or on the hospital rooftop in proximity to the helipad.

Public access to the hospital rooftop and helipad level will not be available.

7.2. Core services

All required clinical support services will be provided in accordance with the Code H specifications.

7.3 Non-clinical support

7.3.1. Environmental and supply services

Cleaning

Cleaning services will ensure that facilities are clean and hygienic as per Infection Prevention Guidelines and contemporary best practice. Access will be required to a cleaners' room.

Equipment

Four adult retrieval transfer trolleys will be required on-site to support patient transfer to and from the helipad. Two trolleys will be stored in bays within the helipad at all times. Following use, transfer trolleys will be decontaminated by staff within a clean-up area adjacent the ED ambulance bays and stored with other patient transport equipment managed by staff. Equipment tracking technology, such as RFID, will be employed to ensure the location of the trolleys is known at all times.

The NETS transfer cot will be stored within NICU.

Waste

Waste management and removal will occur as per the facility wide policy for managing waste. The helipad will require bins for general and clinical waste.

7.4 Amenities for staff

Retrieval team members will have access to hospital amenities including the staff cafeteria and toilet facilities. Decontamination facilities will be provided in the ED.

7.5 Security requirements

Security arrangements for access to the helipad area will be in line with ACT Health policies and procedures including appropriate access control and adequate restriction to the helipad operational areas.

Lifts to the helipad will be access controlled. Access from the helipad lobby to the flight deck will also be access controlled.

Security and access must be able to be maintained during power failure.

A fixed duress will be located in the helipad lobby. Security personnel will respond to critical incidents within the helipad automatically on activation of duress alarms and as required on request from clinical staff

Closed Circuit Television (CCTV) will be in the helipad lobby and on the flight deck.

7.6 Infection control

Standard precautions will be implemented for patients known or suspected to be infectious or who are immunosuppressed.

Alcohol based hand rub, a clinical hand wash basin and Personal Protection Equipment (PPE) will be located in the helipad lobby.

General and clinical waste bins will be provided in the lobby.

Furniture Fittings and Fixtures (FFE) should allow for ease of cleaning and discourage accumulation of dust. Finishes are to be washable and approved by Infection, Prevention and Control.

7.7. Information Communication Technology (ICT)

Specific ICT requirements for the helipad include:

- Radio and mobile phone communication between the helicopter and hospital
- A fixed telephone
- Access to full two way radio
- Wi-Fi
- Automated weather station
- Automated lighting activation system
- CCTV

7.8. Safety

The planning, design and construction of the helipad is to comply with all relevant safety standards and codes including fire safety.

The serviceability of the rooftop helipad and associated obstacle environment will be monitored daily by the Helipad Safety Officer. An annual technical inspection that includes a detailed survey of the obstacle environment needs to be undertaken and provided to the helicopter operators so that flight planning with reference to the operational criteria for Performance Class 1 can be completed for each flight.

8. Specific design requirements

8.1. Overarching design requirements

The analysis of operational parameters for the CH rooftop helipad will include the identification of flightpath track options and an assessment of expected usability relative to a range of crosswind limits using site specific wind data. The assessment of helipad usability relative to crosswind values is necessary to consider the potential capability of the facility to meet the operational criteria for the design helicopter operating in Performance Class 1.

As outlined in Section 6, the design and construction of the helipad must comply with the current technical standards, codes and recommended practices defined by CASA, the BCA, and other relevant guidelines for a hospital based HLS.

The helipad must have the capacity to accommodate the current and future fleet of Medical transport helicopters operating in Performance Class 1. Capacity for military class helicopters is not required.

8.2. Specific design requirements

8.2.1. Helipad performance criteria

The helipad must meet the following aeronautical performance criteria:

- capable of use by two medical transport design helicopters for the loading and unloading of patients and equipment
- capable of meeting the physical and operational needs of medical transport helicopters operating in Performance Class 1 include provision for helicopters with a larger D-value and maximum mass than the current fleet (7,000kg).

8.2.2. Helipad design considerations

The design of the rooftop helipad will require careful consideration of factors that may affect the safety or efficiency of helicopter flights and current and future hospital operations. Considerations will include:

- interference from/with electromagnetic fields of medical equipment such as MRI and sensitive medical equipment such as monitoring devices and plant
- acoustic insulation
- vibration disturbance
- impact of downdraft to adjacent public and patient areas
- proximity to hospital flammable liquid storage areas
- proximity to mechanical plant including air intake points and exhaust stacks and plumes that may be subjected to the effects of rotor wash
- the impact of approach and departure paths on future development of the hospital campus.

The structural implications for supporting structures, noise levels and fire safely will be considered in detail during the design development phase.

The boundaries of the operational airspace for the rooftop helipad need to be identified in the early stages of the project and effective measures identified and implemented to protect the airspace against possible future obstacle intrusion.

8.2.3. Lobby area

The helipad lobby area must meet the following requirements:

- have restricted access controlled by the hospital security pass system
- have an airlock to provide shelter from helicopter rotor wash winds
- have patient bays for holding up to two patients; each bay will require a medical service panel (MSP) with two oxygen and one suction outlet
- have access to storage for two transport trolleys and storage for protective/safety clothing for up to four hospital support staff
- have access to handwashing facilities
- have manually operated (push button control) doors for access to the interior of the facility which are located beside the helipad (rather than set back) and allow visual contact between pilots, crew and staff on the facility
- have lighting enabling full use of the helipad, including individual patient assessment, in all natural light conditions
- have the capacity to dispose of general and clinical waste
- ensure ease of patient transfer from the helicopter to the lifts to the critical care areas (minimal change in gradient)
- the lifts will be configured to give members of the retrieval staff and associated hospital support staff priority access over other hospital users

- the lifts will accommodate at least one patient on a stretcher, a minimum of four staff and life support equipment, with capability to transport bariatric patients.

Additional requirements include:

- Non-slip flooring
- Door protection to prevent trolley damage to the doors and frames
- Drainage and weather protection to prevent back flow of water into the lobby.

8.2.4. Visual aids

The helipad will be equipped with visual aids including surface markings and aeronautical lighting. The aeronautical lighting will include an illuminated wind direction indicator mounted on the rooftop of the helipad lobby and services block. A supplementary wind speed indicator or an automated weather station will be provided to assist the helipad safety officer provide verbal advice of wind conditions to the helicopter pilot.

9. Functional relationships

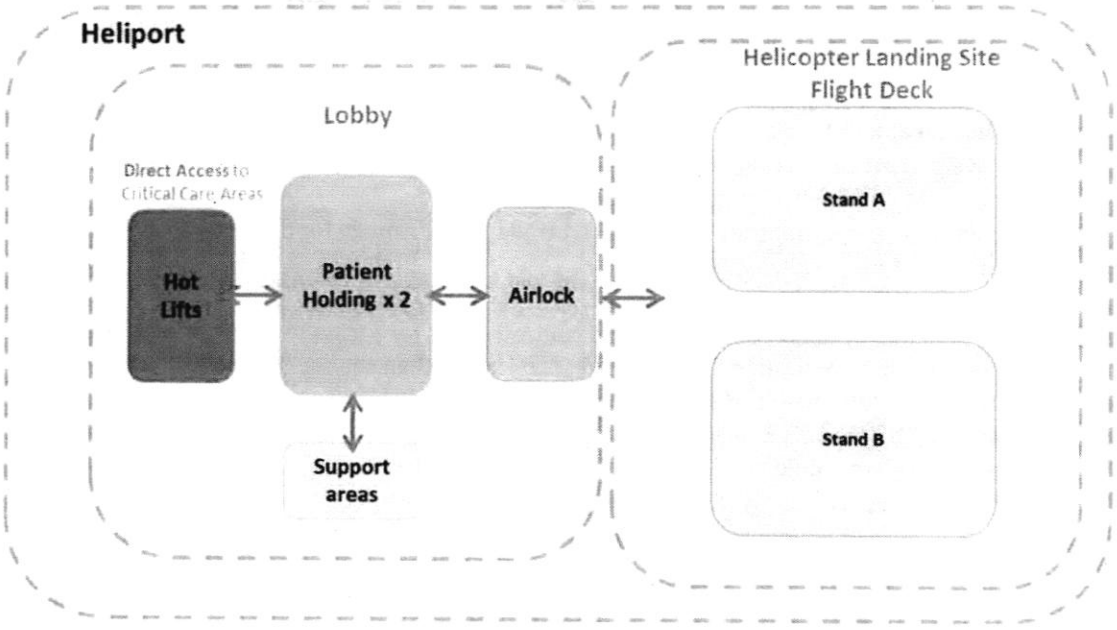
9.1. Internal functional relationships

The flight deck will have direct access to a lobby for patient holding prior to transfer either to:

- the helicopter, or
- the critical care areas in CH or CHWC.

The functional relationships are outlined in Figure 1

Figure 1: Functional relationships



9.2. External functional relationships

The helipad will be located within the 24 hour acute clinical services zone of the CH.

A direct link between the helipad and the critical care areas of the CH and the CHWC will be provided by two priority access controlled lifts.

Direct travel links are required between the helipad and the CH and CHWC critical care areas to minimise travel time.

Key external functional relationships are prioritised in the following table as per the criteria in Table 1.

Table 1: Functional relationships

Service/Unit	Priority	Comments
ICU	**Direct**	Movement of patients and staff
CCU	**Direct**	Movement of patients and staff
NICU	**Direct**	Movement of patients and staff
Interventional Suites	**Direct**	Movement of staff and patients to Theatres and Catheter laboratory
Emergency Department	**Direct**	Movement of patients and staff including those requiring decontamination
Medical Imaging	**Direct**	Movement of patients to CT & MRI
Security	**Easy**	Movement of staff. e.g. black alert, staff from all points urgently attend
General (Hotel) Services	**Easy**	Movement of staff, waste & transport trolley
Mortuary	**Easy**	Movement of patients and staff

Table 2: External functional relationship criteria

Immediate (<1 minute)	Being the shortest direct, horizontal route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having an "Immediate" functional relationship must not exceed one minute.
Direct (<2 minutes)	Being a direct horizontal or vertical route. The route must be an unimpeded route. Door to door travel time between the two areas or services identified as having a "Direct" functional relationship must not exceed two minutes and there must be minimal corner turns between the two areas or services.
Ready (<5 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having a "Ready" functional relationship must not exceed five minutes.
Easy (<10 minutes)	Being a horizontal or vertical route. Door to door travel time between the two areas or services identified as having an "Easy" functional relationship must not exceed ten minutes.

10. Future service developments and innovation

In the longer term beyond the operational life of the current fleet, variants of existing models and new types can be expected to operate at the CHHS rooftop helipad. It is anticipated that the air ambulance function will continue to be provided using helicopters in the medium twin engine grouping. The trend within this group of helicopters demonstrated by recent developments is that the engine power available and associated performance capabilities with one engine inoperative increases significantly with only slight increases in maximum mass and overall D-size. Notwithstanding the expected life span of the newly introduced AW139 types, the design helicopter for CH rooftop helipad needs to include provision for helicopters with a larger D-value and maximum mass than the current fleet.

Any development in the near vicinity of the airspace connecting with the rooftop helipad will need to consider the operational impact of the helipad in relation to flight paths. Future developments need to be warned that some noise will be inevitable from the operations of this service.

DRAFT

11.Schedule of accommodation

AusHFG Code	Deviation from HPU N/A	Room / Space	Quantity	Room Area m2	Total Area
CLINICAL					
AIRLE-12		Airlock - Entry, 12m2	1	12	12
PBTR-A12		Patient Bay - Acute Holding Treatment, 12m2	2	0	0
		Subtotal			***12***
		Discounted Circulation		0%	0
		Total			**12**
SUPPORT					
BHWS-B		Bay - Handwashing, Type B	1	0	0
BPPE		Bay - PPE	1	2	2
STEQ-14		Store - Equipment, 14m2	1	14	14
		Subtotal			***16***
		Discounted Circulation		0	0
		Total			**16**
		Total			
HELICOPTER LANDING SITE					
		HLS	1	2500	2500
			0	0	0
			0	0	0
			0	0	0
		Subtotal			***2500***
		Discounted Circulation		0	0
		Total			**2500**

12. Reference

Key reference sources for the development of this HPU brief were:

1. Helipad, Health Planning Unit Brief, v1.6, 6 October 2015, ACT Health - Health Infrastructure Program

13. Abbreviations

Abbreviation	Description
ACTAS	Australian Capital Territory Ambulance Service
ASNSW	Ambulance Service of New South Wales
BCA	Building Code of Australia
CASA	Civil Aviation Safety Authority
CCTV	Closed Circuit Television
CHWC	Centenary Hospital for Women and Children
CRRS	Capital Region Retrieval Service
ED	Emergency Department
FATO	Final Approach and Take Off
FFE	Furniture, Fittings and Equipment
FPU	Functional Planning Unit
FTE	Full Time Equivalent
HPU	Health Planning Unit
HLS	Helicopter Landing Site
ICT	Information Communication Technology
ICU	Intensive Care Unit
NETS	Newborn and paediatric Emergency Transport Service
NICU	Neonatal Intensive Care Unit
PPE	Personal Protective Equipment
RFID	Radio Frequency Identification

Abbreviation	Description
SPIRE	Surgical Procedures, Interventional Radiology and Emergency
TCH	The Canberra Hospital

14. Participants in HSPU brief development

Participants in the development of HPU Brief	
Position	**Name**
Executive Director	Narelle Boyd
Director, Capital Region Retrieval Service	Kelvin Grove
Clinical Liaison, SPIRE	Kate Evans
HPU senior planning officer	Amanda Slater
Acting CNC, NICU	Janine McEwan
Executive Director, Health Services Program	Vanessa Brady
Program Director Health Services Redesign	Carolyn Bartholomew
Deputy Director, Capital Region Retrieval Service	David Lamond

ACT Government | ACT Health

ACT HEALTH

DATE: OCTOBER 2018

ACT Government
Health

HEALTH PLANNING UNIT BRIEF

RECEIVING / DISPATCH LOADING DOCK

CANBERRA HEALTH SERVICES

ACT HEALTH

DATE: OCTOBER 2018

Approvals

Name	Position	Signature	Date
	Director Support Services		
	Deputy Director General, Canberra Hospital and Health Services		
	For Information - Executive Sponsor, Chief of Clinical Operations, ACT Health		

Outstanding Issues

Subject	Issue

Document Version History

Rev No	Issue Date	Issued By	Issued To	Reason for Issue
Draft v0.1				
Draft v0.2				
Draft v0.3				
Draft v0.4				
Draft v0.5				
Draft 0.6				
Draft v0.7				
Draft v0.8				
Draft v0.9				

Table of Contents

1. Introduction

The ACT Government committed to an expansion of the Canberra Hospital in the 2016 election with the development of a Surgical Procedures, Interventional Radiology, and Emergency (SPIRE) Centre. In September 2018, the Building Health Services Program Strategy Steering Committee agreed in-principle for the eastern corridor (North End) of the Canberra Hospital Campus, Garran be scoped as the future site of the SPIRE project.

This planning unit brief has been developed in response to the eastern corridor site proposal and will be used to inform early site planning, feasibility and proof of concept in the first instance.

2. Purpose

This Health Planning Unit (HPU) Brief defines the activities and functions undertaken at the Canberra Hospital loading dock. It has been developed with limited consultation and only approximates current space for initial proof of concept and does not reflect what the service may need in the future.

It is not the role of the HPU Brief to design the space, but rather to articulate the operational requirements, functionalities and relationships for which the architect can develop a suitable design response.

3. Description of the service

The loading dock's function is to provide an area for easy delivery and dispatch of goods and services, critical to the Canberra Hospital's effective functioning.

The loading dock will receive goods, equipment, medical and pharmaceutical supplies, linen and food.

The loading dock will dispatch waste, dirty linen, empty supply trolleys and dirty instruments/trolleys for sterilising services.

The dock will be used as a holding area for bins that are full awaiting collection by various contractors, and for empty bins that exchange with full bins throughout the facility. Bin washing will be undertaken at the dock.

The dock will be a permanent holding point for the flammable store that will store separately flammable liquid and dangerous goods.

The dock will be a permanent holding point for portable unused/used medical gas cylinders, gas packs and the management of these gases will be undertaken from the dock.

A stores manager will be located in the loading dock in the site office. The store manager/staff will take receipt of goods and provide overall operational support to the services who deliver goods and collect waste and other items.

3.1. Medical Gas

Portable medical gases will be managed centrally at the dock using an imprest system. The medical gases will continue to be located at the vicinity of the loading dock. The medical gas manager is to be located in