
B Inpatient Services

B4 INTENSIVE/STEPDOWN CARE UNITS

B4.1 SERVICE DESCRIPTION

B4.1.1 Scope of Clinical Services

This section B4 sets out the requirements for the centralized facilities for the Facility's Intensive/Stepdown Care Units (ICU/SDCU) to be achieved or accommodated by Project Co in providing the Works and the Services.

This component contains patient care, staff support, and visitor support facilities used in the provision of "critical" care to medical and surgical adult patients. Pediatric patients will generally not be accommodated here, but will be accommodated on the Pediatric Inpatient Unit or be stabilized only and transferred to B.C.'s Children's Hospital. Specialized medical and nursing services are provided to patients requiring intensive care and/or observation, electronic monitoring and/or mechanical life support in a family-centred environment.

The Intensive/Stepdown Care Units includes a 10-bed Intensive Care Unit and a 8-bed Stepdown Care Unit with shared support areas.

Patients admitted for intensive care require at least one of the following examples of specialized care/treatment:

- Close and constant observation in a high nurse/patient environment
- Hemodynamic monitoring
- Respiratory support (mechanical ventilation)
- Acute unstable hemodialysis (multi-system failure patients only)
- Administration of vasoactive and cardioactive drugs
- Anesthesia and pain management
- Responding to cardiac arrest situations within the component
- Surgical post-operative care

Patients admitted for stepdown care require at least one of the following examples of specialized care/treatment:

- Close and constant observation in a high nurse/patient ratio
- Cardiac monitoring
- IV infusion of specific medications
- Closely supervised in conjunction with telemetry monitor

All patients requiring acute care mechanical ventilation will be accommodated in this component and will be connected to monitors, with full hemodynamic monitoring capability available. Intravenous medication and nutritional interventions will be regularly used here.

Care services in the unit will include, among others:

- Receiving all patients after admitting procedures
- Assessing and monitoring patients' physical, psychological and spiritual needs
- Planning and implementing routine nursing care including examinations and treatments
- Providing emergency nursing assessments and treatments
- Administering medications, consulting with physicians and pharmacists as appropriate
- Preparing patients for diagnostic and treatment services
- Facilitating patient comfort and relaxation, recreation and activation

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- Providing family and/or visitor support and consultation
- Liaising with community agencies and services
- Educating patients, family, staff, and students
- Documenting patients' progress on patient charts
- Maintaining patient charts/records
- Conducting shift reports and participating in interdisciplinary patient conferences
- Coordinating, implementing, communicating, administering, scheduling, and evaluating the overall operations of the unit

Medical services in the unit will include, among others:

- Collecting and documenting historical medical information
- Maintenance of donor patients prior to organ retrieval
- Ordering medical diagnostic and treatment procedures
- Performing physical examinations and some medical procedures
- Prescribing medications, consulting with nursing staff and pharmacists as appropriate
- Providing emergency medical examination and treatment
- Educating patients, family, staff, students, and residents
- Documenting patients' medical progress on patient charts
- Participating in interdisciplinary patient conferences

Most clinical support service team members (e.g., social work, education, psychology, physiotherapy, occupational therapy, dietetics, laboratory, pharmacy, spiritual care) will travel to the Intensive/Stepdown Care Units from their central components, as required. Respiratory therapy will be fully accommodated within this component, including provisions for ventilator maintenance and storage, and blood gas analyses.

Respiratory therapy services emphasizes inpatient service and equipment handling. It is responsible for the operation, maintenance and cleaning of mechanical ventilators and other therapeutic equipment used in treating respiratory conditions and illnesses. Services included and performed within the component will include:

- Administration of respiratory therapy patient cares, plus performance monitoring, cleaning and maintenance and holding of respiratory equipment (e.g., ventilators and specialty equipment used on general wards)
- New equipment undergoing evaluation

The Abbotsford Hospital respiratory therapy service will also provide respiratory services to the Cancer Centre including respiratory assessment, care and patient education (e.g. aerosol treatment, metered dose inhaler instruction, etc.), arterial blood gas sampling as required, non-invasive (oximetry) monitoring, tracheostomy tube change, etc.

Bulk storage of backup medical gas cylinders will take place outside of this component in the areas associated with the E7 Service Category.

Soiled respiratory equipment will be received from use areas in this component, where equipment will be disassembled, cleaned, and/or sterilized. All items requiring sterilization will be processed in Sterile Processing Services. The bulk of respiratory therapy equipment (mainly ventilators) will be held in this component. The equipment that is soiled will be stored separately from equipment that is clean. The equipment will then be reassembled and undergo pre-use checking and calibration in this component.

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All equipment requiring repair will be sent to the Biomedical Engineering component prior to being redistributed.

Any of the above clinical support services may be involved in interdisciplinary patient conferences.

B4.1.1.1 Current Trends

In providing the Works and Services, Project Co shall take into account the following trends:

- *An aging population's impact on case mix complexity and the move towards a more aggressive treatment regime for the elderly to improve success rates.*
- *The move to consolidate critical care within the service area and within the region.*
- *Life support systems appear to be trending away from 'headwalls' toward 'freestanding' models.*
- *Direct care will be decentralized closer to the bedside with central functions, including a 'unit clerk', central monitoring and a place for non-resident interdisciplinary team members.*
- *Rooms will be larger, designed for more equipment and procedures such as line insertions.*

B4.1.2 Scope of Education Services

The Intensive/Stepdown Care Units will provide clinical resources in support of teaching programs for the following types and numbers of students:

- Medical/surgical residents, 4 at a time
- Medical undergraduates, up to 4 at a time
- Nursing (diploma, undergraduate and graduate) students, up to 8 at a time (on one shift)
- Pharmacy undergraduates/residents, 1 at a time
- Physiotherapy students, up to 2 at a time
- Occupational therapy students, up to 2 at a time
- Dietetic intern, 1 at a time
- Social work students, up to 3 at a time
- Respiratory therapy students for vents, 2 to 3 at a time
- Unit clerk students, up to 1 at a time

Inservice education and patient teaching programs will also occur within the Unit.

B4.1.3 Scope of Research Services

Clinical research may be conducted within the component generally occurring within available space provided in support of service functions.

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B4.1.4 Specific Exclusions

This specification excludes critical care services/requirements provided elsewhere, including:

- Coronary care and coronary telemetry care provided in Comprehensive Cardiology Care Unit (see section B1 Comprehensive Cardiology Care Unit).
- Long term chronic assisted ventilatory patients in other FHA hospitals, community facilities or at home.
- Other aspects of respiratory services included with Pulmonary Diagnostic Services (see C1 Diagnostic Services).

B4.2 OPERATIONAL DESCRIPTION

B4.2.1 Minimum Hours of Operation

The Intensive/Stepdown Care Units will be staffed 24 hours a day, 7 days a week.

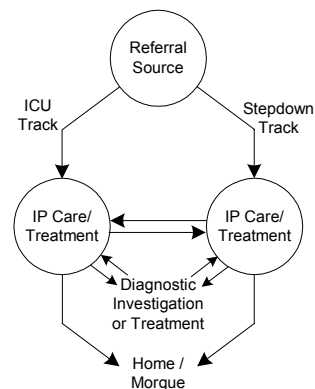
The respiratory therapy area will be staffed 24 hours a day, 7 days a week.

B4.2.2 Patient Management Processes

B4.2.2.1 Referral Source

Most patients will be admitted from the Surgical Suite following surgery or Emergency after resuscitation/stabilization. Others may come from the Surgical Day Care/Same Day Admission Unit or may be transferred from other inpatient areas of the hospital or other community hospitals/long-term care homes. Following the initial acute episode, patients will be transferred to the Stepdown Care Unit for monitoring.

Patients will normally arrive on a stretcher. Patient will be accompanied by a porter and a nurse when transferred to and from the unit.



Patient Flow Diagram

B4.2.2.2 Inpatient Care/Treatment

The unit will, of necessity, contain an increasing variety and complexity of technical equipment and can be quite noisy and active, especially in emergency situations.

Patients are very sensitive to noise disturbance. The design should strive to contain/absorb noise wherever possible, especially for cardiac patients.

Each patient bed area is to be provided with visual and acoustical privacy from activities in adjacent spaces.

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A patient sitting area is required in the patient cubicle to encourage patients to get out of bed as soon as possible.

Lighting systems must be designed to provide for adequate nursing care yet maintain optimum patient comfort. Patients can be quite sensitive to intense levels of lighting and use of dimmers may be appropriate. Night-time lighting must facilitate patient sleeping while maintaining nurse-patient observation.

Patients should at least be aware of time and day (day/night orientation) and weather conditions. Natural lighting will help maintain circadian cycles and decrease problems of "ICU psychosis." All patient beds in the unit should provide exterior views to provide patients with an alternative to a very technical environment and to provide relief to staff working in the units. The ability to see vegetation and activity is very desirable. Windows will be operable to offer natural ventilation and have low sills to afford views to prone patients.

The patient bed cubicles will all be the same size and will be closed, with sliding glass doors at the corridor and between rooms to allow for maximum accessibility and observation.

Room finishes as well as furnishings will be selected so as to create a bright, cheerful, positive environment for patients undergoing a high degree of stress.

A clothes closet, plus shelves for personal effects, etc. will be provided. Space will also be provided for a supply cart in each cubicle.

Critically ill patients are generally relatively immobile and unable to move any distance to use a washroom. It is intended that commodes will be used for this purpose. Folding toilets built into the bed cubicles are considered undesirable.

Provide for visual privacy between each adjacent patient bed and the corridor, ideally by means of intrinsic louvre blinds built into double-glazed windows in doors and walls.

B4.2.2.3 Visitor Control

Opportunity must be provided for emotionally distressed or grieving family members to find privacy areas away from other patient visitors. Overnight sleeping facilities will also be provided.

Unnecessary traffic to the unit will be carefully controlled. Relatives and friends of critically ill patients will wait in an adjacent area until being admitted to the unit. This waiting area will be large enough to accommodate extended families and will be discretely located to allow for the needs of the bereaved. It will be equipped with a communication device, monitored by staff at the nurses' station. Patient areas should not be visible from visitor areas. Overnight accommodation will be provided nearby for 1 or 2 relatives of unstable/terminally ill patients.

B4.2.3 Patient Information Management

Refer to Output Specifications, Section 3: Non-Clinical Services, subsection D1 Information Management; Section 5: Design and Technical, subsection 5.3.17 Technology and Communication Systems; and Section 6: IT/Tel Services.

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B4.2.4 Staff Work Processes

B4.2.4.1 Care Delivery

Nursing care is based upon a concept known as decentralized client-centred care. Generally, one registered nurse is assigned the total care of one or two patients in the ICU. In the Stepdown Care Unit, a nurse may be assigned the care of as many as two to three patients.

Both nurses and physicians will have areas where they can discuss a patient's condition/information in private. Although the nurses' station will not be accessible to patients, an acoustically private conference area will also be provided. Dictation areas will be designed for acoustic privacy.

The physical environment, supplies and material resources will be planned and developed to maximize nursing time at the bedside. Distance from the patient beds to support areas will be as short as possible to minimize travel time to/from the bedside.

All patient bed areas must be provided with generous space at the sides, head and end of the bed to accommodate life support and monitoring equipment and often a large number of staff, and to allow access around the patient's head in an emergency. Room should also be provided for bedside computer charting.

All patients must be directly visible from adjacent nurse work areas. It is important that visual contact be maintained at all times between nursing staff and patients. Nursing staff must have direct views of a patient's head and face without being isolated from other activities in the unit.

The unit clerk's office could be peripheral.

Provide a semi-enclosed nurse substation/charting area directly adjacent to each pair of bed cubicles with direct observation, through a window, of each of the patients and the patient monitor screens.

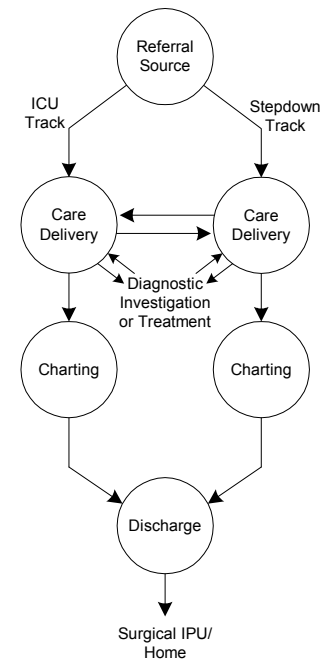
The substation will be large to be used by one nurse if the nurse to patient ratio is 1:2 or by 2 nurses if the ratio is 1:1.

B4.2.4.2 Staff Services

Outer clothing will be stored in coat closets located in a lockable coat hanging area. Students and volunteers will also have space for coat storage in the coat closets. Purse lockers will be provided for personal valuables and will be shared across shifts. A small staff break room will be provided for beverage making, staff debriefing, grieving and rest.

Facilities will be provided for on-call medical staff to stay overnight.

The staff conference room will also be available for use as a visitors' quiet room and will be available for a large family group, from time-to-time, but will primarily serve as an education and training room, skills lab and student conference room.



Process Flow Diagram

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B4.2.5 Materiel Services

Refer to Output Specifications, Section 4: Facility Management Services, subsection E7 Materiel Services, and Section 2: Clinical Services, subsection C8 Sterile Processing Services.

B4.2.6 Linen/Housekeeping Services

Refer to Output Specifications, Section 4: Facility Management Services, subsections E5 Housekeeping Services and E6 Laundry/Linen Services.

B4.2.7 Equipment Asset Management

Refer to Output Specifications, Section 4: Facility Management Services, subsection E2 Biomedical Engineering; and Section 7: Equipment.

B4.3 ACTIVITY INDICATORS

The table below summarized the projected activity for critical care services which must be addressed by Project Co in performing the Works and the Services.

B4.3.1 HOSPITAL ACTIVITY

Unit	Minimum Projected Yearly Activity
<u>Intensive Care Unit</u>	
# Cases	1,596
# Patient-Days	5,585
ALOS (Days)	3.5
% Occupancy	85.0
# Beds Set-Up	10
<u>Stepdown Care Unit</u>	
# Cases	620
# Patient-Days	2,482
ALOS (Days)	4.0
% Occupancy	85.0
# Beds Set-Up	8
<u>Respiratory Therapy</u>	
Procedures Inpatients (ICU)	28,552

B4.3.2 Cancer Centre Activity (Incl. in Hospital Activity above)

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B4.4 PEOPLE REQUIREMENTS

This component will have a total staff complement in the range of 52 FTE, consisting of 39 nurses, 1 educator, 8 therapists and 4 clerical/administrative personnel.

It is anticipated that the key functional areas in the component will need to accommodate the following maximum number of people.

Functional Areas	Patients	Staff	Visitors	Others	Total
<u>Intensive Care Unit Area (8 beds)</u>					
Patient Care Area	10	12-15	15-20	3-4	40-49
Staff Work Area	0	12-15	1-2	3-4	16-21
<u>Stepdown Care Unit Area (10 beds)</u>					
Patient Care Area	10	7-8	15-20	5-6	37-44
Patient Care Support Area	6	3-4	1-2	1-2	11-14
Staff Work Area	0	7-8	1-2	3-4	11-14
<u>Shared Support Area</u>					
Respiratory Therapy Area	0	5-6	0	2-3	7-9
Patient Care Support Area	0	2-3	0	1-2	3-5
Shared Administrative Area	0	15-20	2-3	2-3	19-26
Shared Visitor Support Area	0	1-2	18-20	1-2	20-24
Shared Staff Facilities Area	0	12-15	0	1-2	13-17

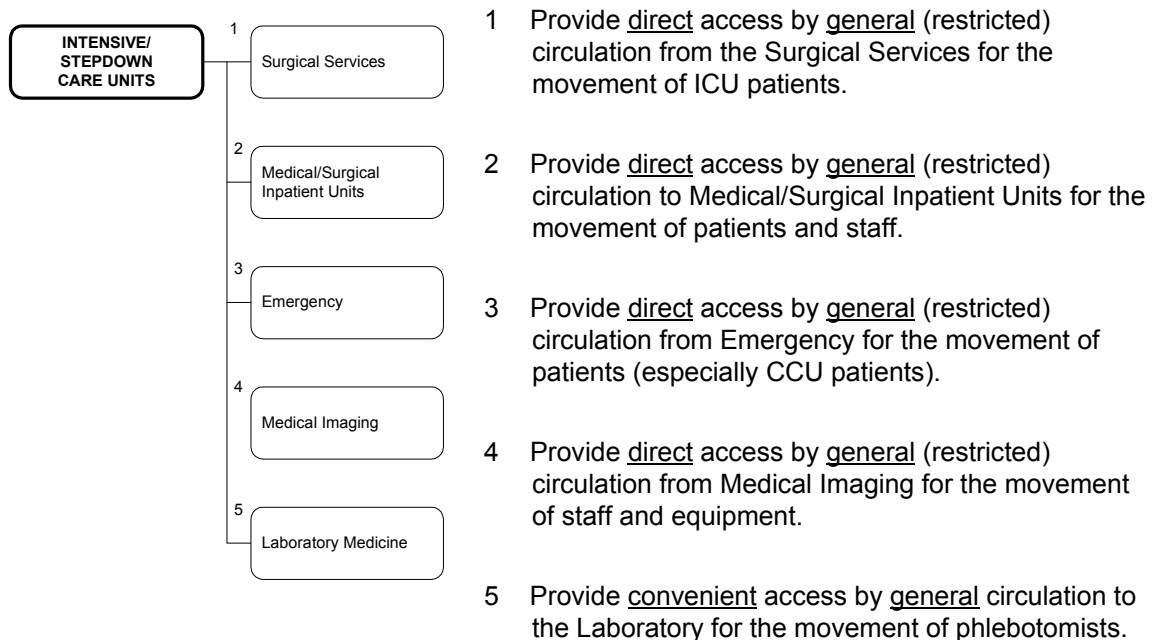
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B4.5 DESIGN CRITERIA

B4.5.1 Key External Relationships

The following key relationships will be achieved in the priority order as numbered for the purposes stated:



B4.5.2 Key Internal Relationships/ Environmental Considerations

The following will be achieved:

B4.5.2.1 Zoning

The component will be generally organized into two zones of patient care activity, one for the ICU, and one for the Stepdown Care Unit but some areas will be shared and require accessibility from both.

B4.5.2.2 Future Expansion

Refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.3.3 Flexibility and Expandability.

B4.5.2.3 Room Isolation Capability/Infection Control

Refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.4.5 Infection Control; and Section 5: Design and Technical, Division 15 Mechanical.

B4.5.2.4 Hemodialysis

All bed cubicles in the ICU will be provided with special plumbing for hemodialysis.

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B4.5.2.5 Doors to Units

All doors leading into or out of the units will be automatic and hand-activated.

B4.5.2.6 Doors to Bed Cubicles

It is essential that the sliding doors between the corridor and the bed cubicles open up to provide a wide opening (minimally 2.4 metres) to allow maximum accessibility during an emergency.

B4.5.2.7 Respiratory Therapy Accessibility

Provide close access from the central respiratory therapy equipment/store workroom for the movement of equipment and supplies, and locate it as close as possible to the ICU/SDCU in order to minimize response time to equipment alarms.

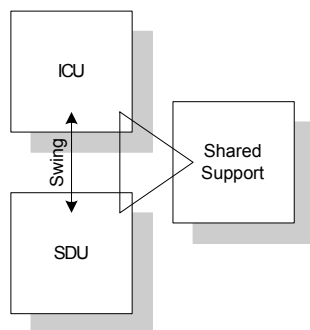
B4.5.2.8 RO Water

As Renal Services, Laboratory Medicine, and Intensive/Stepdown Care Units will all require a RO water treatment system, consideration should be given to the proximate locations of these functions to facilitate sharing of a single system.

B4.5.2.9 Component Functional Diagrams

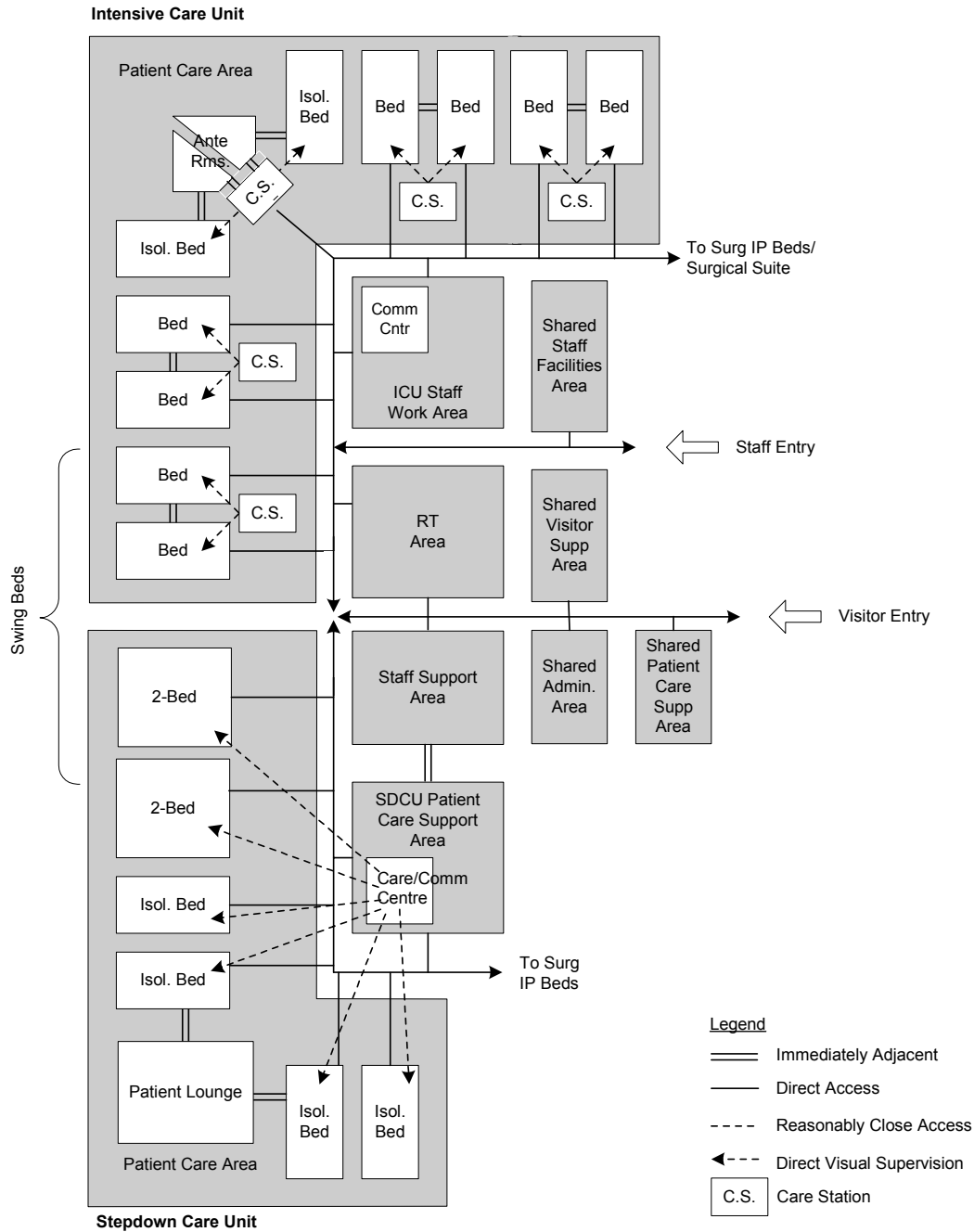
The spatial organization of this component will be generally as shown in the diagrams below.

B4.5.2.9.1 *Macro Relationship Diagram*



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B4.5.2.9.2 Micro Relationship Diagram



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B4.5.3 Schedule of Accommodation (Note: Spaces listed in parentheses () are spaces supporting services provided by Project Co and are included in the total net square metres.)

Ref	Space	Area Requirements		
		units	nsm/unit	nsm
Intensive Care Unit Area (10 beds)				
<u>Patient Care Area</u>				
01	Bed Cubicle, Private, Intensive Care	6	24.0	144.0
02	Washroom, Patient, Wheelchair Type	1		4.5
03	Bedroom, Isolation	4	24.0	96.0
04	Washroom, Patient, Wheelchair Type	2	5.5	11.0
05	Unassigned Reference Number	0	0	0.0
06	Care Substation	5	6.0	30.0
Subtotal				285.5
<u>Staff Work Area</u>				
07	Communications Centre	1		20.0
08	Pneumatic Tube Station	1		1.0
09	Crash Cart Alcove	1		0.5
10	Physician Dictation/Work Area	1		(6.0)
11	Medications Room	1		10.0
12	Nourishment Centre	1		(5.0)
13	Washroom, Staff	1		2.5
14	Clean Supply Holding Room	1		(15.0)
15	Soiled Utility Room	1		(10.0)
16	Soiled Holding Room	1		(10.0)
Subtotal				80.0

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Ref	Space	Area Requirements		
		units	nsm/unit	nsm
Stepdown Care Unit Area (8 beds)				
<u>Patient Care Area</u>				
17				
17-1	Bedroom, Private (Isolation with Ante Room B4-18)	1	15.0	15.0
17-2	Bedroom, Private (with Ante Room B4-18)	1		15.0
18	Ante Room	2	4.0	8.0
19	Washroom, Patient, Wheelchair Type	2	5.5	11.0
20	Bedroom, Semi-Private	3	26.0	78.0
21	Washroom, Patient, Wheelchair Type	3	5.5	16.5
Subtotal				143.5
<u>Patient Care Support Area</u>				
22	Washroom, Assisted, Special	1		6.0
23	Lounge, Patient/Family/Visitor	1		15.0
24	Quiet Room	1		12.0
Subtotal				33.0
<u>Staff Work Area</u>				
25	Care/Communications Centre	1		25.0
26	Pneumatic Tube Station	1		2.0
27	Crash Cart Alcove	1		0.5
28	Physician Dictation/Work Area	1		6.0
29	Medications Room	1		8.0
30	Nourishment Centre	1		(5.0)
31	Washroom, Staff	1		2.5
32	Clean Supply Holding Room	1		(15.0)

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Ref	Space	Area Requirements		
		units	nsm/unit	nsm
33	Soiled Utility Room	1		(10.0)
34	Soiled Holding Room	1		(10.0)
	Subtotal			84.0
	Shared Support Area			
	<u>Respiratory Therapy Area</u>			
35	Service Room	1		24.0
36	Project Room	1		11.0
	Subtotal			35.0
	<u>Patient Care Support Area</u>			
37	Food Service Galley	1		(20.0)
38	Storage, Equipment	1		45.0
39	Mobile X-Ray Alcove	1		3.0
40	Housekeeping Closet	1		(5.0)
	Subtotal			23.0
	<u>Shared Administrative Area</u>			
41	Office, Medical Director	1		9.0
42	Office, Patient Care Manager	1		9.0
43	Office, Nurse Clinicians	1		12.0
44	Office, Pharmacists	1		12.0
45	Office/Interview, Social Worker	1		12.0
46	Conference Room	1		24.0
	Subtotal			78.0
	<u>Shared Visitor Support Area</u>			
47	Waiting Area, Visitor	1		23.0

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Ref	Space	Area Requirements		
		units	nsm/unit	nsm
48	Scrub Sink, Alcove	2	1.0	2.0
49	Quiet/Grieving/Interview Room	1		9.0
50	Family Room	1		10.0
51	Washroom, Public, Wheelchair Type	1		5.0
	Subtotal			49.0
	<u>Shared Staff Facilities Area</u>			
	On-Call Room			0 ¹
52	Break Room, Staff	1		24.0
53	Staff Coat Closet	1		4.0
54	Washroom, Staff	1		2.5
	Subtotal			30.5
	Total			891.5

B4.6 DESIGN GUIDANCE

None

B4.7 OTHER SPECIFICATIONS

Intensive/stepdown care services are primarily based in the Intensive/Stepdown Care Units, however, other specifications that will be consulted are:

- A2 Emergency
- A4 Renal Services
- B1 Comprehensive Cardiology Care Unit
- B2 General Medical/Surgical Inpatient Care Units
- B5 Maternal Child Program
- C7 Surgical Services

¹ See B2 General Medical/Surgical Inpatient Care Units.

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