

CARDIAC CATHETERIZATION AND ELECTROPHYSIOLOGY**1.0 Scope of Services**

The Cardiac Catheterization and Electrophysiology Laboratories provide diagnostic and therapeutic cardiovascular procedures to adult and pediatric outpatients and inpatients. These services employ state of the art technologies and equipment to remain at the forefront of the diagnosis and treatment of heart disease.

Cardiac catheterization procedures include hemodynamic and angiographic diagnostic studies, endomyocardial biopies, coronary and other angioplasties, valvuloplasties, placement of intravascular stents, embolization of vascular structures, occlusion of intracardiac defects, direct emergency revascularization of acute myocardial infarction, and minor surgical procedures primarily for vascular access or in conjunction with cardiothoracic surgery for snaring of ASD's.

The Cardiac Electrophysiology (EP) services function within catheterization laboratories to provide diagnostic and therapeutic services for adult and pediatric inpatients and outpatients with cardiac arrhythmias. These potentially life-threatening conditions are treated through the use of cardioversion, selective tissue destruction (catheter ablation), and the implantation of pacemakers and automatic defibrillators.

1.1 Capacity Assumptions

All of the cardiology invasive clinical services anticipate significant growth, because of demographic changes, technological advances, and more aggressive contracting. Within medicine in general, and especially in cardiology we expect the trend to substitute "less invasive" procedures for surgical operations to continue.

Factors include:

- Aging of population - The population over age 65, the demographic group most needing cardiac procedures, is expected to increase significantly
- Extension of percutaneous revascularization to many more patients because of improving technology.

Possible new modalities such as intracoronary radiation to suppress restenosis, direct trans-ventricular myocardial revascularization, improved stenting permitting definitive treatment of patients with multi-vessel coronary artery disease

- Extension of indications for ICD's to new clinical situations
- Technological advances in other catheter-based cardiac procedures reducing the need for the prolonged inpatient hospitalization associated with surgical treatment of cardiovascular disease
- Greater coordination with cardiac surgeons for more combined surgical/interventional procedures

The **EP** service projects increase in volume due to the following:

- ICD implants expected to grow
(devices for patients with life-threatening rhythm disturbances)
- Further improvements of RF ablation procedure, with possible RF ablation of atrial fibrillation (potentially huge population)
- Heart failure patients expected to increase, with need for diagnostic and ablation EP studies and ICDs

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The population of patients with congenital heart disease who may benefit from EP procedures will continue to grow. Health System is currently opening a clinic for evaluation and management of patients at risk for life threatening arrhythmias. This patient population frequently requires diagnostic catheters in association with EP studies (requiring biplane imaging and hemodynamic evaluation).

2.0 External Adjacencies

Although the physical facilities and staff should be designed to allow some sharing of resources, the separate clinical and procedural services will have somewhat different needs for adjacencies, as indicated below.

Adult Cath Primary:

- Emergency Medicine
- CCU & COU
- 23 Hour Observation Unit (OOU)
- Perioperative Services
- Interventional Radiology
- Radiation Oncology
- Transportation
- Heli-Port

Adult Cath Secondary:

- Non-Invasive Cardiology
- Other Patient Care Areas
- Clinical Laboratory
- Surgical Pathology
- Pharmacy

Pediatric Cath Primary:

- 23 Hour Observation Unit (OOU)
- NICU, PICU & Cardiothoracic ICU (CTICU)
- Blood Gas Laboratory

Pediatric Cath Secondary:

- Perioperative Services

3.0 Planning and Design Requirements

- The (Adult & Pediatric) Cardiac Catheterization and Electrophysiological Laboratories should be co-located with other interventional procedure areas (Vascular / Interventional Radiology, Neuroradiology, Electrophysiology and Perioperative Services) due to the following:
 - ✚ Immediate access to operating rooms when conditions require surgery; sterile environment required for procedures; to benefit from shared staff and support resources.
- Procedure rooms shall be designed and planned so as to provide maximum flexibility. Standardizing the size and co-locating similar rooms allows the flexibility to change as needs evolve (with minimal construction costs and down-time).

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- Pediatric & adult procedure rooms shall not be dedicated solely for each service.

Rooms primarily used for pediatric patients shall be designed with a pediatric environment understanding that at times the room may be used by adult patients as well. This will increase room utilization.

- Rooms used primarily for adult patients will be designed with the understanding that at times they may be used for pediatric patients as well.
- At least one of the pediatric rooms should have surgical level of sterility, to permit performance of collaborative procedures between cardiologists and cardiac surgeons.

At least one of the adult rooms should likewise have a surgical level of sterility to permit appropriate conditions for implantation of permanent devices.

- To optimize efficiency, staff shall be cross-trained to a degree still allowing specialization to provide the highest quality of care.
- Adult and pediatric services shall share equipment when possible.
- All procedure rooms shall have lead lining, medical gases and independent temperature / humidity controls for maximum flexibility in room utilization.
- Each procedure room shall be video equipped and electronically linked for teaching activities within the Conference Center, the School of Medicine and elsewhere.
- Control rooms shall be separated to avoid possible confusions in procedure directions.
- Special considerations shall provide for electrical hazard control, emergency power, radiological exposure hazard control, adequate isolation capability, aseptic environmental characteristics, controlled access via functional flow arrangement, demarcation lines, graphics / physical barriers and a waste gas exhaust system.

Pre & Post Procedure

- The 23 Hour Observation Unit will provide pre and post procedural care for adult patients. This shall be located adjacent for immediate access.
- The 23 Hour Pediatric Observation Unit to be located in the Children's Hospital will provide pre- and post- procedure care for pediatric patients.
- Inpatients will be held and prepped in the pre-procedure holding area with visual separation from recovering patients. Pediatric patients should be held in a separate, segregated part of the holding area.
- Pediatric pre & post procedure patients would be better served within Children's Hospital located ideally near the PICU (due to staff specialties).
- Planning should focus on patient flow so that there is a separation between inpatients, outpatients, pre-procedure and post-procedure patients.
- There needs to be a balance of security and accessibility so that physicians and house staff have ability to personally communicate with physicians during procedure and have access to view images.

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- Technology is critical for the highest level of patient care and to be as operationally efficient as possible. The information infrastructure should consist of PACS, Cardiology IS, RIS, HIS, Radiology AIS, automated supply and medication storage systems and phones.
- Staff lounge, locker, shower and toilet facilities shall be shared with other procedural services located adjacent.

4.0 Operational Systems

Patient Transportation

- Patients will be transported by 23 Hour Observation Unit staff and/or by Patient Transport.
- Provide trauma elevator(s) link between Emergency, Heli-port and the invasive floor.
- Provide dedicated ICU elevators for transport to and from Critical Care Units

Material Movement System

- Procedure rooms shall be supported by a sterile core with separate access for sterile and soiled items.
- Automated supply storage systems shall be utilized and supplied daily with catheters and other procedural devices and supplies.

INTERVENTIONAL RADIOLOGY

1.0 Scope of Services

Vascular / Interventional Radiology & Interventional Neuroradiology provide imaging guided, minimally invasive procedures to adult and pediatric inpatients and outpatients who can be relatively well or critically ill. These procedures may be performed under fluoroscopy, MR, CT or ultrasonographic guidance.

Vascular / Interventional Radiology services include diagnostic vascular studies, vascular access & reconstruction, biopsies, biliary & GI procedures and other miscellaneous procedures. Some procedures are performed to assist procedures in the operating room by Surgery, Urology or Gastroenterology.

Interventional Neuroradiology performs diagnostic studies as well as interventional treatments for tumors, vascular malformations, aneurysms, ischemic disease, stroke and spinal lesions.

This field is expected to continue to increase due to the increased need for minimally invasive imaging-guided procedures and because these procedures are generally more cost effective than alternatives.

2.0 External Adjacencies

Primary:

- Holding Room
- Anesthesia
- Supply Processing & Distribution
- Perioperative Services
- Intensive Care Units (via elevators)
- Emergency Medicine (via elevators)
- Heliport
- CT/MR
- Diagnostic Radiology

Secondary:

- Clinical Labs
- Acute Care Units (via elevators)
- Admissions
- Radiology Check-in
- Pharmacy
- SPD / Materials Mgmt
- Observation Unit
- Physician Offices
- Housekeeping
- Transport
- Computing Services
- Accounting Services

INTERVENTIONAL RADIOLOGY

3.0 Planning & Design Requirements

- The benefits of co-locating Vascular / Interventional Radiology & Neuroradiology with other interventional procedure areas (Cardiac Cath, Electrophysiology and Perioperative Services) include the following:
 - ✚ Immediate access to operating rooms when conditions require surgery
 - ✚ Sterile environment required for procedures
 - ✚ To benefit from shared staff and support resources.
- The benefit of co-locating Vascular/Interventional Radiology and Neuroradiology with Diagnostic Radiology are two fold:
 1. Other than an inpatient bed, patients are more likely to come from or go to Diagnostic Radiology than any other location.
 2. Interventional Radiologists are more likely to require interaction with diagnostic radiologists to manage one of their patients than with a physician in one of the other procedural areas.
- Procedure rooms shall be designed and planned so as to provide maximum flexibility. Standardizing the size and co-locating similar rooms allows the flexibility to change as needs evolve (with minimal construction costs and down-time).
- CT/MR are incorporated into a new neuroradiological modality to combine DSA/CT or DSA/MR or OR/MR.

These combined rooms shall be used independently most of the time but may be opened into a large room for combined use.

Magnetic Resonance Imaging (MRI) requires special construction.

- All procedure rooms shall have lead lining, medical gases and independent temperature / humidity controls for maximum flexibility in room utilization.
- Each procedure room shall be video equipped and electronically linked for teaching activities within the Conference Center, the School of Medicine and elsewhere.
- Special considerations shall provide for electrical hazard control, emergency power, radiological exposure hazard control, adequate isolation capability, aseptic environmental characteristics, controlled access via functional flow arrangement, demarcation lines, graphics / physical barriers and a waste gas exhaust system.
- Information System infrastructure to include: PACS, RIS, HIS, Omnicell, Radiology AIS, Phones.

INTERVENTIONAL RADIOLOGYPre & Post Procedure

- The 23 Hour Observation Unit will provide pre and post procedural care for most patients. Some patients will require care in OR recovery. This shall be located adjacent for immediate access. (Vertical adjacency is acceptable.)
- Inpatients will be held and prepped in the pre-procedure holding area with visual separation from recovering patients.
- A separate small recovery area (fully monitored) shall be located directly adjacent to the procedure rooms for those occasional patients requiring immediate, high level care.

The PACU would likely be too remote and the 23 Hour Observation Unit would likely not have the staffing expertise for such situations.

- Planning should focus on patient flow so that there is a separation between inpatients, outpatients, pre-procedure and post-procedure patients.
- There needs to be a balance of security and accessibility so that physicians and house staff have ability to personally communicate with physicians during procedure and have access to view images.
- Technology is critical for the highest level of patient care and to be as operationally efficient as possible. The information infrastructure should consist of PACS, RIS, HIS, Radiology AIS, automated supply and medication storage systems and phones.
- Staff lounge, locker, shower and toilet facilities shall be shared with other procedural services located adjacent.

4.0 Operational SystemsPatient Transportation

- Patients will be transported by 23 Hour Observation Unit staff and/or by Patient Transport.
- Provide trauma elevator(s) link between Emergency, Heli-port, the invasive floor, and Diagnostic Radiology.

Material Movement System

- Procedure rooms shall be supported by a sterile core with separate access for sterile and soiled items.
- Automated supply storage systems shall be utilized (supplied daily) for catheters, wires, dilators, stents and other procedural devices and supplies.

PERI-OPERATIVE SERVICES

1.0 Scope of Services

Peri-Operative Services is responsible for performing elective and emergency surgical procedures for adult and pediatric patients on a 24 hour basis. Peri-Operative Services is also responsible for operating the Urological Procedure Unit, Post Anesthesia Recovery Unit (PACU), Surgical Admissions Unit (SAU), and Sterile Processing.

Surgical Programs: General Surgery, Pediatric Surgery, Cardiothoracic Surgery, Neurosurgery, Orthopaedic Surgery, Head & Neck Surgery / Otolaryngology (ENT), Surgical Oncology & Plastic / Reconstructive Surgery, Dental Surgery, Oral/Maxillary Facial Surgery, OB/GYN, and Urology.

2.0 External Adjacencies

Primary:

- Emergency Services (Trauma)
- Imaging (CT, MRI)
- Anesthesiology
- Heli-Port
- Pathology (Frozen Section)
- Sterile Processing
- LDR
- Critical Care Units (CTICU & Liver Transplant ICU immediately adjacent).

Secondary:

- NICU
- Blood Bank
- Environmental Services

3.0 Planning and Design Requirements

General

- While inpatient surgical services (operating/procedure rooms, Anesthesia & Sterile Processing) will be separate from outpatient services, coordination of resources and services will be important for efficient operations of both.

Some outpatient procedures may be performed within the hospital.

- Catheterization, Angiography and Invasive Imaging Services will be co-located with Peri-Operative Services in the hospital and will serve both inpatient and outpatient populations.
- Observation Unit (24 hour Transient area for short-term stays) should be available for post-surgical patients.
- Recovery from hospital-based outpatient procedures will be within the PACU and/or the Observation Unit.

PERI-OPERATIVE SERVICES

Surgical Suite

- Operating/procedure rooms shall be designed and planned so as to provide maximum flexibility for various procedures (multi-functional).

Standardizing the size and co-locating similar rooms allows the flexibility to change as needs evolve (with minimal construction costs and down-time).

Operating rooms should be as much as possible similarly equipped.

- Although designed in a modular fashion, OR's can be customized to meet the specific equipment needs of cardiothoracic surgery, neurosurgery, orthopaedic surgery and transplant surgery.
- 4 - 6 OR rooms per module is desirable.
- Separate operating rooms should be provided for adult and pediatric patients.
- Image guidance and functional imaging capabilities should be designed into the operating suites.

Movable MRI and portable CT and Angiographic equipment is predicted to be readily accessible.

- A Pathology frozen section lab should be planned within Peri-Operative Services.
- Decentralized storage for large equipment is required.
- Each operating/procedure room shall be video conferencing equipped and electronically linked for teaching activities within the Conference Center, the School of Medicine and elsewhere.
- An overhead, voice activated telephone should be at the surgeon's position. Operating/procedure rooms should have modem connections and an intercom to nursing and Anesthesiology.
- Operating suites should be designed to accommodate dedicated OR supply elevator and dumb waiter (delivery of case carts and assistance in emergency instrument use, etc.).
- All operating/procedure rooms shall have individually controlled (also controlled in room) independent temperature / humidity controls for maximum flexibility in room utilization.
- There should be a patient tracking system which automatically registers when a patient enters and exits operating/procedure rooms. This should be monitored at the nurses' station.
- Provide individually controlled built in music/stereo system in operating/procedure rooms.
- Special considerations shall provide for electrical hazard control, emergency power, radiological exposure hazard control, adequate isolation capability, aseptic environmental characteristics, controlled access via functional flow arrangement, demarcation lines, graphics / physical barriers and a waste gas exhaust system.
- PACs and Pathology Imaging devices should be provided with sufficient network capacity.

PERI-OPERATIVE SERVICESSupport Areas

- Sufficient equipment and supply storage must be provided.
- Front Desk area with view banks for viewing continuous schedule updates as well as video feed from individual OR rooms should be located at the front of the OR suite.
- Scheduling area should be provided adjacent to the Front Desk for scheduling staff and Nurse Manager.
- Other patient care areas include an anesthesia induction room and a minor procedure room for vascular access.
- A separate work area adjacent to operating rooms should be provided for support staff (with computer hook-ups).
- Work room for Anesthesia assistants should be provided.
- Surgery faculty work stations are required. (equipped with phones, computers, fax, etc.)
- Lounge and Lunch areas for surgeons, anesthesiologists, residents and nursing staff is required.(w/ refrigerators, vending machines)

Pre & Post Procedure

- The anesthesia line room - area for starting central lines and catherizations (transitional room as part of SAU) should be located with contiguous connection to OR.

This room should provide immediate post-procedure care of patients with continuous monitoring (telemetry) by licensed personnel.

The PACU also provides pre-procedure therapeutic medications, pre-procedure invasive line placement and monitoring.

- Planning should focus on patient flow so that pre-procedure patients do not have visual contact with post-procedure patients.
- Although procedure rooms will be shared between inpatients and outpatients, a separation shall be provided for outpatient flow, pre-procedure holding and post-procedure recovery.

4.0 Operational SystemsPatient Transportation

- Provide trauma elevator link from heli-port directly to the surgical suite.
- Elevators and doors to operating/procedure rooms should be sized to accommodate patients in beds with traction, ventilators and other life support systems.

PERI-OPERATIVE SERVICES

Material Movement System

- All sterile processing (other than for Ambulatory Surgery) shall be consolidated in Perioperative area. Equipment and trays for Surgery, ICU's and Emergency shall be standardized with general and specialty items for higher utilization (in lieu of department or physician customization).
- A distribution team shall be part of this service (instead of using nurses for some functions). This team should deliver, breakdown, verify inventory and stock items to support all invasive procedures.
- A case cart system shall be employed for all invasive services. An exchange cart system will be employed for the distribution of linen and supplies.
- A sterile core is planned to support all operating and procedure rooms on the invasive floor. A dedicated clean elevator shall provide immediate access to this sterile core. This elevator also allows personnel to quickly deliver needed items during a procedure.

Equipment Cleaning and Sterilization

- Instrument cleaning, inspection and tray packaging will occur in Sterile Processing. Sub-sterile rooms in the surgical suite will be provided for quick sterilization of dropped/contaminated instruments.
- The soiled utility room will temporarily hold soiled supplies and exchange carts to be transported to the soiled receiving area of Sterile Processing via a dedicated soiled elevator.

INTENSIVE CARE UNITS**1.0 Scope of Services**

The Intensive Care Unit is responsible for providing constant observation, treatment and expert nursing care of adult patients experiencing acute life-threatening impairments due to medical, surgical, cardiac or neurological conditions. The cardiothoracic intensive care units serve neonates and pediatric patients in addition to adults. All other ICUs serve adult patients.

2.0 Primary External AdjacenciesMedical Intensive Care Unit

- Radiology
- Clinical lab (stat)
- Respiratory Therapy
- Endoscopy/Fluoroscopy procedure unit
Patients are referred for CT scans, chest and abdominal x-rays, and interventional radiology procedures

Transplant/Surgical Intensive Care Unit

- Peri-operative services
- Emergency department and observation unit
- Step down unit
- Pharmacy
- Clinical lab (stat)
- Respiratory therapy
- Non-invasive diagnostics (radiology)
100% of patients are referred outside department for diagnostic testing and treatment, most frequently to radiology (ultrasound, CT, MRI, PFT, x-ray)

Cardiac Care Unit

- Cardiac observation unit
- Emergency medicine center
- Cardiac catheterization
- Cardiodiagnostics
- Cardiopulmonary procedure lab
- Pharmacy
- Clinical lab (stat)
- Respiratory therapy
>90% of patients are referred by outside departments for diagnostic test or treatment (cath lab, CPL, cardiodiagnostics, etc.)

Cardiothoracic ICU

- Peri-operative services
- Catheterization lab
- Pharmacy
- Clinical lab (stat)
- Medical observation unit
- Respiratory therapy
- Peds ICU
- NICU
- CCU
- On-call room(s)

INTENSIVE CARE UNITSNeurosurgery Intensive Care Unit

- Radiology (MRI Suite, CT)
- Surgery
- Emergency department and observation unit
- Respiratory therapy
- Pharmacy
- Clinical lab (stat)

3.0 Planning and Design RequirementsPatient Rooms

- Patient beds are to be provided in single room accommodations.

The beds will have an exterior window.

Visual and audible control of all beds from the central communication center or decentralized chart stations is required. This will be accomplished with glass partitions and charting alcoves between patient rooms.

- Lighting provision for each patient bed area will require multi-level general room illumination with dimmers, examination light (appropriate for surgical procedures) and night light.

The lighting design should separate patient areas, family areas and staff work areas. IV tracks should be located in the ceiling.

- Headwall (or power column or ceiling mount) system should allow for changes in electrical, mechanical and plumbing systems.

Each bed area will have various medical gases, vacuum, medical air, portable x-ray and electrical outlets. All electrical outlets will be on emergency power.

Each bed will have a nurse call system linked directly from the patient bed to the communication center.

Rooms should be planned for hooking up to other gases (i.e. nitric oxide, helium).

Patient rooms should be designed so that access to the head is unimpeded.

- Headwall (or power column or ceiling mount) system should have space reserved for respiratory therapy equipment.

The reserved space should not be positioned behind the head of the bed.

- Adequate floor space is required for mechanical ventilation and future technologies. Optimal placement of this floor space is directly in front of the reserved wall space.
- Patient rooms need to accommodate cardiac and EEG monitors in addition to TV, IV pumps, cooling blankets, dialysis machines and other invasive monitors
- Hard-wired physiological monitoring from beds to the nursing station is required.
- All ICU patient rooms should be piped for dialysis.

INTENSIVE CARE UNITS

- Percentage of beds to be isolation capable: 30% minimum, 50% optimum, 100% preferred.
- Patient rooms should be easily wired for future technologies.
- Thermostats and controls in each patient room, available at bed side (with a range of appropriate “end points” to avoid inappropriate use).

The neurosurgery ICU requires a high capacity air conditioning system and may require special wall plumbing connections for water circulation cooling systems.

- Patient rooms will be designed to provide adequate levels of: patient care and care giver space, family space, technology and supporting infrastructure.

Patient rooms need to be large enough to accommodate surgical procedures taking place in the rooms.

Rooms need to be able to accommodate heart-lung bypass, dialysis and pheresis machines simultaneously in addition to staff.

Work space in each patient room for setup trays for procedures is needed.

- Storage for patient belongings and supplies should be provided in each patient room.

This space should include adequate wardrobe space, for patient and guest.

- Patient rooms will have flush systems that will be hidden.

Patient rooms in the cardiac care ICU will have private toilet/shower facilities.

- Strategically/abundantly placed hand washing fixtures are imperative in the ICU units.
- Provide large break away glass doors at entry to patient room.

Communication Areas

- Decentralized charting stations will be positioned between patient rooms.
- Storage space should be adequate for storing decentralized supplies and equipment.
- ICU patients are involved in numerous clinical and drug studies. Thus, ICUs should have adequate storage (shelf space and file cabinets) and working space (including a computers terminal) for research activities.
- Small workspace on units will be necessary for admitting personnel.
- The communication center will house the unit secretary/reception and unit assistant staff.
- Unit should be designed to ensure access to the following items:
 - EDP/MIS equipment
 - Central monitoring area
 - Pneumatic tube system
 - Administration/Open work stations
 - Emergency cart park

INTENSIVE CARE UNITS

Unit Design

- The ICU will be configured as a twelve bed unit. Patient rooms will have a glass break away door between rooms. This will provide shared observation, charting and continuum of care.
- Patient units should be located close to a vertical transportation core which will move patients and service traffic. Visitors will be moved via a separate vertical core. Patient and service transport should be separate from and mix as little as possible with visitor traffic.
- It is desirable to provide two entries into the patient unit, one for staff and patient transport and one for visitor traffic.
- Floors need to absorb shock on feet and noise reduction in the unit needs to be built into the design
- Only those administrators crucial to the daily operations of the unit will require office space in the unit. Other offices will either be in other locations within the hospital or in an off-site location.
- Hoteling workspace will be created for individuals who are not permanently assigned to the unit yet spend a significant amount of time floating between units. (i.e. case managers, research staff, chaplains, etc.)

Hoteling workspace should include phones and computer hookups and be easily wired for anticipated technologies.

- Services Located adjacent to the communication center and central to patient beds should be:
 - Medication room (with space for automated supplies)
 - Nourishment center
 - Clean linen room
 - Clean supply room (including automated supply)
 - Soiled utility
 - Janitors closet
 - Consultation room
- Other services in the unit should be:
 - Care team workroom with shelf space for medical texts, library of electronic medical text, access to the hospital information system and the internet, etc.
 - Conference room with a white board, multimedia computer, network connections to the hospital information system, etc.
 - Office (Hoteling)
 - Staff lounge/lockers
 - Staff toilet/shower facilities
 - Crucial staff offices
 - Alternate site testing area.
- Located outside the nursing unit and could possibly be shared with other ICU units on the floor are:
 - Satellite respiratory therapy room
(to be equipped with at least one outlet of oxygen, medical air and vacuum, computer, ventilator storage space)

INTENSIVE CARE UNITS

- Family waiting
(Located in such a manner that it is not necessary to go through it or by it on the way to the unit.)
- Family sleep rooms with showers
- Consultation room
- Public telephones
- Public toilets
- Satellite Pharmacy
- Procedure Suite
- Staff offices (social workers, admitting, dietary, discharge planners, etc.)
- Staff on-call rooms
- Team Room
- Classrooms
- Dietary Warming Kitchen
- Storage areas
- Radiology storage/processor room

4.0 Operational Systems

Patient Transportation

- Patients will be transported to and from other hospital departments by the critical care transportation team.
- Critical care elevators will link the unit with the emergency department, surgery, special procedures and the heli-port.

Material Movement System

- Par level replenishment system will be employed for the distribution of linen and supplies.
- The soiled utility room will hold soiled supplies and linens to be picked up and transported by environmental services.
- A pneumatic tube station will be located in the communication center of the unit to be connected to designated areas.