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CHAPTER 277: VETERANS HEALTH ADMINISTRATION - RADIATION THERAPY SERVICE

1. PURPOSE AND SCOPE

This document outlines space planning criteria for VA Handbook 7610 Chapter 277: Radiation Therapy Service. It applies to all medical facilities at the Department of Veterans Affairs (VA).

2. DEFINITIONS

A. Block / Mold Room: Dedicated area in which blocks are created for the purpose of shielding areas that need to be spared from treatment. These are then filled with a molten alloy to form the needed shielding for the patient as designed by the Radiation Oncologist. In addition, stints, bite blocks, bolus and other specialized devices are generated in this area. On a case-by-case basis, depending on the linear accelerator used, a block-mold room is not always required.

B. CT Simulation: CT Simulators are in the process of overtaking the conventional simulator for the treatment simulation/planning process. The CT-Simulator (CT-sim) provides the same type of images, described in the CT section of Chapter 276-Radiology while the patient is in the treatment position. This allows for immediate localization of treatment volume and subsequent planning. Using a CT-sim combines both conventional simulation and the planning CT scan. Since tumor localization and planning can be done in "real time" while the patient is present, It can also eliminate second simulations after the planning process is completed.

C. Concept of Operations: A user-developed guide to the functional operation of the VA healthcare facility. It defines the function of the facility and the scope of medical services to be provided in the new or remodeled space.

D. Input Data Statement: A set of questions designed to elicit information about the healthcare project in order to create a Program for Design (PFD) based on the criteria parameters set forth in this document. Input Data Statements could be Mission related, based in the project's Concept of Operations; and Workload or Staffing related, based on projections and data provided by the VHA or the VISN about the estimated model of operation. This information is processed through mathematical and logical operations in VA-SEPS.

E. Intensity Modulated Radiation Therapy (IMRT): IMRT is one of the most advanced external beam radiation technology available for radiation treatment. This therapy varies the shape and intensity of the radiation beam across the treatment area minimizing damage to surrounding normal cell structures. IMRT uses the same medical linear accelerators that deliver x-ray beams in conventional Radiation Therapy, employing multi-leaf collimators, (computer-controlled devices) to conform the radiation beam to the shape of the tumor from any angle, and deliver higher or lower radiation doses to protect adjacent tissue.

F. Net-to-department gross factor (NTDG): A factor that when multiplied by the programmed Net Square Foot (NSF) area, determines the Departmental Gross

Square Feet (DGSF). The **NTDG** factor adopted for **Radiation Therapy Service** is **1.60**.

G. Picture Archiving and Communication System (PACS): The digital capture, transfer and storage of diagnostic images. A PACS system consists of workstations for interpretation, image/data producing modalities, a web server for distribution, printers for file records, image servers for information transfer and holding, and an archive of off-line information. A computer network is needed to support each of these devices.

H. Procedure / Suite Stop: A procedure / suite stop is one encounter of a patient with a healthcare provider. Per these criteria, the procedure / suite stop is the workload unit of measure for space planning. One individual patient can have multiple procedure / suite stops in a single visit or in one day.

I. Program for Design (PFD): A space program based on criteria set forth in this document and specific information about Concept of Operations, Workload projections and Staffing levels authorized.

J. Radiation Therapy: The use of high-energy X-Ray beams to produce ionizing radiation that may be used to treat cancer and some benign diseases. The modern linear accelerator provides both photon (X-Ray) and particle (electron) beams. Typically, the photons are available in two intensities that can be chosen as a function of the thickness of the body part to be treated. Radiation Therapy is also referred to as Radiotherapy or Radiation Oncology.

K. Room Efficiency Factor: A factor that provides flexibility in the utilization of a room to account for patient delays, scheduling conflicts, and equipment maintenance. Common factors are in the 80 to 85% range. A room with 80% room efficiency provides a buffer to assume that this room would be available 20% of the time beyond the planned operational practices of the room. This factor may be adjusted based on the actual and/or anticipated operations and processes of the room/department.

L. SEPS (VA-SEPS): Acronym for Space and Equipment Planning System, a digital tool developed by the Department of Defense (DoD) and the Department of Veterans Affairs to generate a Program for Design (PFD) and an Equipment List for a VA healthcare project based on specific information entered in response to Input Data Statements. VA-SEPS incorporates the criteria set forth in this chapter as well as all chapters in VA's Handbook 7610. VA-SEPS has been designed to aid healthcare planners in creating a space plan based on a standardized set of criteria parameters.

M. Simulator Unit: The simulator unit allows the radiation therapy to examine under fluoroscopic means the possible treatment field size and determine treatment volumes and daily setup parameters.

N. Tomotherapy: A form of cancer radiation therapy that combines the precision of a CT scan with the potency of radiation treatment to selectively destroy cancerous tumors while avoiding surrounding tissue. Tomotherapy rotates the beam source around the patient, thus allowing the beam to enter the patient from many different angles in succession. Thus, the tumor is more precisely targeted and the healthy tissue surrounding the tumor is subjected to much lower doses of radiation.

O. Treatment Planning Unit: In the planning unit, the planning of the patient's treatment is determined by precisely locating the diseased areas and deciding the best method of treatment.

P. Workload: Workload is the anticipated number of procedures or suite stops that is processed through a department/service area. The total workload applied to departmental operational assumptions will determine overall room requirements by modality.

3. OPERATING RATIONALE AND BASIS OF CRITERIA

A. Workload projections or planned services / modalities for a specific VA medical center, hospital or satellite outpatient clinic project are provided by the VA Central Office (VACO) / VISN CARES Capacity Projection Model. Workload projections are generated by methodology based upon the expected veteran population in the respective market / service area. Health care planners working on new or renovation projects for VA medical centers, hospitals or satellite outpatient clinics, shall utilize workload criteria set forth herein to generate a space program for each project.

B. Space planning criteria have been developed on the basis of an understanding of the activities involved in the functional areas of the Radiation Therapy Service and their relationship with other services of a medical facility. These criteria are based on established and/or anticipated best practice standards as adapted to provide environments supporting the highest quality health care for Veterans.

C. These criteria are based on established and anticipated standards, which are subject to modification relative to development in the equipment, medical practice, vendor requirements, and healthcare planning and design developments. The final selection of medical equipment for Radiation Therapy is approved by VACO Radiology Service based upon Veterans Health Administration (VHA) anticipated medical needs.

D. Authorization for Radiation Therapy will be determined on an individual project basis and conditional on workload projections and availability of contractual or shared services with local community, federal or university facilities. Selection of types of therapy treatment systems and staffing requirements will be provided by VHA.

E. Radiation Therapy Services, as used in these criteria, includes the diagnostic imaging modality of Radiation Therapy, CT Simulation and Ultrasound when applicable.

F. Room capacity per year should be based on:

$$\frac{\text{Operating days per year x Hours of operation per day}}{\text{Minutes per procedure / 60 minutes}} = \text{Number of annual procedures}$$

1. The general planning model for VA facilities assumes 250 Operating Days per Year and 8 Hours of Operation per Day. Room capacity will fluctuate as hours of operation are modified, i.e., additional capacity may be generated by extending the daily hours of operation within the same physical setting.

2. Basic Room Efficiency Factor is 80%.

   a. Modalities with routine, scheduled procedures and backup equipment (more) than one piece of the same type of equipment in the department) should plan for an efficiency factor of 85%.

   Example: Assume a modality room that averages 30 minute per procedure/ suite stop:

   $$\frac{\text{250 operating days per year x 8 hours of operation per day}}{\text{30 minutes per procedure / 60 minutes}} = \text{4,000 annual procedures}$$

   A maximum capacity of 4,000 procedure/suite stops per year, assuming 100% utilization. However, 100% utilization is not realistic to achieve, thus, it is not an accurate design standard. Apply Room Efficiency Factor:

   4,000 x 80% = 3,200 annual procedures.

   TABLE 1: WORKLOAD PARAMETERS CALCULATION

PROCEDURE	AVERAGE LENGTH OF PROCEDURE (minutes)	ANNUAL PROCEDURES PER ROOM (rounded)	MINIMUM WORKLOAD TO GENERATE ONE ROOM
Linear Accelerator (IMRT) Room	15	6,400	1,920
CT Simulator Unit Room	60	1,600	480
Ultrasound Planning Unit Room	50	1,900	570

   The number of annual procedures per room will be used as a criteria parameter to calculate the number of procedure rooms in the Space Criteria section of this document. The minimum workload to generate one room is 30% of the calculated annual procedures per room.

4. PROGRAM DATA REQUIRED (INPUT DATA QUESTIONS)

A. Mission Input Data Statements

1. Is 3D equipment authorized? (M)
2. Is a Treatment Planning Computer Room – Dosimetry authorized? (M)
3. Is PACS authorized? (M)
4. Is Teaching Viewing / Consultation authorized? (M)
5. Is Tele-Radiology authorized? (M)
6. Is a Radiation Therapy Residency Program authorized? (M)
7. Is a Quality Assurance Office authorized? (M)
8. Will Radiation Therapy procedures be film based? (M)
9. Will the Linear Accelerator include a Maze Room? (M)

B. Workload Input Data Statements

1. How many annual Linear Accelerator (IMRT) procedures are projected? (W)
2. How many annual CT Simulator Unit procedures are projected? (W)
3. How many annual Ultrasound procedures are projected? (W)
4. How many Linear Accelerators will be CR capable? (M)

C. Staffing Input Data Statements

1. Is a Data Processing Administrator position authorized? (S)
2. Is a Secretary to the Chief authorized? (S)
3. Is a PACS Administrator position authorized? (S)
4. Is a dedicated Scheduler position authorized? (S)
5. Is a dedicated Transcriptionist position authorized? (S)
6. How many Nurse positions are authorized? (S)
7. How many Physicist positions are authorized? (S)
8. How many professional / non-physician FTE positions are authorized? (S)
9. How many Resident / Intern positions are authorized? (S)
10. How many Staff Physician positions are authorized? (S)
11. How many Technologist Supervisor positions are authorized? (S)
12. How many Radiation Therapy student positions are authorized? (S)

D. Miscellaneous Input Data Statements

1. How many Clerical Employee positions requiring a cubicle are authorized? (MISC)
2. How many Clerical Employees positions requiring an office are authorized? (MISC)
3. How many FTEs for whom office space is not authorized? (MISC)
4. How many FTEs for whom lockers are authorized? (MISC)
5. How many male FTE positions are projected? (MISC)
6. How many female FTE positions are projected? (MISC)
7. How many Linear Accelerators will be CR capable? (MISC)

5. SPACE CRITERIA

A. Reception Areas

1. **Waiting (WROC1)..... 120 NSF (11.2 NSM)**
   Minimum NSF. Add 45 NSF per each additional Linear Accelerator Room, CT Simulator Unit Room, Exam Room, and Procedure / Exam Room greater than one.

   This area provides circulation and seating area for patients and visitors. The Waiting Room should be connected to the patient entrance corridor and be under visual control of the Radiation Therapy receptionist.

2. **Reception (RECP1) .....80 NSF (7.5 NSM)**
   Minimum NSF. Add 10 NSF for each additional Linear Accelerator Room, CT Simulator Unit Room, Exam Room, and Procedure / Exam Room greater than one.

3. **Patient Education Kiosk / Alcove (CLSC1).....30 NSF (2.8 NSM)**
   Provide one per Radiation Therapy Service.

4. **Public Toilet (TLTU1) .....50 NSF (4.7 NSM)**
   Provide one for male and one for female.

B. Patient Areas

1. **Sub-Waiting (WROC1) .....60 NSF (5.6 NSM)**
   Minimum NSF. Add 15 NSF per each additional Linear Accelerator Room, CT Simulator Unit Room, Exam Room, and Procedure / Exam Room greater than one.

2. **Patient Consultation Room (OFDC2).....120 NSF (11.2 NSM)**
   Provide one per Radiation Therapy Service.

3. **Linear Accelerator (IMRT) Room (XTLA1) .....1,240 NSF (115.2 NSM)**
   Divide the projected number of annual procedures by 6,400; provide one room for each whole increment of 6,400 and remainder of 1,920 or more. Minimum annual workload to provide a room is 1,920 (see Table 1).

   Area includes an allowance of 720 NSF for Procedure Room and 520 NSF estimated for wall thickness / shielding. Tomotherapy procedures are performed here.

4. **Entrance Maze (XTEM1).....140 NSF (13.1 NSM)**
   Provide one per Linear Accelerator Room and if in Concept of Operations.

5. **Control Area (XTLC1).....120 NSF (11.2 NSM)**
   Provide one per Linear Accelerator Room.

6. **Patient Toilet (TLTU1) .....50 NSF (4.7 NSM)**
   *One minimum. Provide an additional one per every two Linear Accelerator and CT Simulator Rooms greater than one***.**

7. **Procedure / Examination Room (EXRG3).....160 NSF (14.9 NSM)**
   Provide one per Linear Accelerator Room.

8. **Exam Room (EXRG3)..... 120 NSF (11.2 NSM)**
   Provide two per Linear Accelerator Room.

   Exam Rooms are used for evaluations of patients on initial consultations, examination during treatment and after completion of therapy. Exam rooms shall be located in proximity to Linear Accelerator Room and to Treatment Planning Area.

9. **Patient Toilet (TLTU1).....50 NSF (4.7 NSM)**
   One minimum. Provide one per three Exam Rooms.

10. **Dressing Room / Cubicle (DR001).....35 NSF (3.3 NSM)**
    Two minimum. Provide an additional one per Linear Accelerator Room and CT Simulator Unit Room greater than one.

    Locate Dressing Room / Cubicles in proximity to Linear Accelerator Room and Treatment Planning Area.

11. **Patient Stretcher Holding Bay (WRL01)..... 80 NSF (7.4 NSM)**
    Provide one per Linear Accelerator Room and CT Simulator Unit Room.

    Provides space for staging/observation of patient pre/post procedure.

    Stretcher waiting should be adjacent to reception because patients transported by stretchers may require closer supervision.

C. Treatment Planning Unit Areas

1. **CT Simulator Unit Room (XTSG1) .....400 NSF (37.2 NSM)**
   Divide the projected number of annual procedures by 1,600; provide one room for each whole increment. Minimum annual workload to provide a room is 480 (see Table 1).

2. **Control Area (XTSC1) .....120 NSF (11.2 NSM)**
   Provide one per CT Simulator Room.

3. **Film Processing (XFSA1) .....120 NSF (11.2 NSM)**
   Provide one if in Concept of Operations.

   Locate this room next to and with direct access to the simulator room. This area consists of a dark room and a light room and is used for developing and printing plates and film used in patient treatment.

4. **Block / Mold Room (XTMF1).....220 NSF (20.5 NSM)**
   Provide one per Radiation Therapy Service.

   This room provides space for producing wedges, casts, tissue compensators, bolus devices, beam limiting devices, etc. It may house light duty machinery equipment, cutting devices, lathes, grinding machines, drill presses, melting pots and material storage. Materials stored are lead, copper, plastics, plaster, etc. Mold room needs to be in proximity to CT Simulator Unit Room.

5. **Ultrasound Planning Unit Room (XDUS1).....180 NSF (16.8 NSM)**
   Divide the projected number of annual procedures by 1,900; provide one room for each whole increment. Minimum annual workload to provide a room is 570 (see Table 1) and if in Concept of Operations.

This room provides space for a general purpose scanning device which can be used for therapy planning, initial examinations and follow-up examinations of patients.

6. **Treatment Planning Computer Room / Dosimetry Room (XTTP1) .....300 NSF (27.9 NSM)**
   Provide one if in Concept of Operations.

   This room provides space for a radiation therapy treatment planning computer system.

7. **Staff Work Area (WRCH1) .....80 NSF (7.5 NSM)**
   Provide one per Radiation Therapy Service.

D. Support Areas

1. **Sealed Source Room (XTRT1) .....120 NSF (11.2 NSM)**
   Provide one per Radiation Therapy Service and if in Concept of Operations.

   This room is used to store and prepare sealed sources containing radium or other radioactive material for use in surface, interstitial or intra-cavity application. This room may need to be isolated and/or shielded to avoid radiation exposure to individuals and radiation sensitive objects in the vicinity.

2. **Physics Laboratory (XTMF1) .....300 NSF (27.9 NSM)**
   Provide one per Radiation Therapy Service.

   Radiation scientific instrumentation and highly specialized equipment used by this service are kept in this room. Personnel in this area repair and maintain measuring devices and check their accuracy and precision. Carts may be stored in this area with oscilloscope, meters and other electronic testing equipment.

3. **Support Equipment Storage (SRE01) .....200 NSF (18.6 NSM)**
   Provide one per Radiation Therapy Service.

4. **Stretcher / Wheelchair Storage (SRLW1).....40 NSF (3.8 NSM)**
   One minimum. Provide an additional one per every two Linear Accelerator, CT Simulator and Ultrasound Planning Unit Rooms.

5. **Clean Supply Room (SRSE1) .....100 NSF (9.3 NSM)**
   Provide one per Radiation Therapy Service.

6. **Soiled Utility Room (USCL1) .....80 NSF (7.5 NSM)**
   Provide one per Radiation Therapy Service.

7. **Housekeeping Aids Closet - HAC (JANC1) .....40 NSF (3.8 NSM)**
   Provide one per Radiation Therapy Service.

8. **Linen Storage Alcove (LCCL1).....20 NSF (1.9 NSM)**
   Provide one per Radiation Therapy Service.

9. **PACS / Digital Quality Control Area (XVC01)..... 100 NSF (9.3 NSM)**
   Provide one if in Concept of Operations.

10. **PACS / Digital Archival Storage Room (XFDS1)..... 140 NSF (13.1 NSM)**
    Provide one if in Concept of Operations.

11. **Viewing and Consultation Room / Non-teaching (XVC01)..... 120 NSF (11.2 NSM)**
    Provide one per Radiation Therapy Service.

12. **Viewing and Consultation Room / Teaching (XVC01)..... 250 NSF (23.3 NSM)**
    Provide one if in Concept of Operations.

    The Viewing and Consultation Room is the focal point of activity where staff and residents will review patient results. Activities also include training, film viewing, and reading.

13. **3D Workstation (XCTI1)..... 120 NSF (11.2 NSM)**
    Provide one if in Concept of Operations.

14. **Computed Radiology (CR) Reader Area (XCTI1)..... 40 NSF (3.8 NSM)**
    Provide one per CR capable Linear Accelerator.

    Locate adjacent to each Linear Accelerator Room, CT Simulator Room, Ultrasound Planning Unit Room with CR capability.

15. **Darkroom Film Processing (XFP01)..... 100 NSF (9.3 NSM)**
    Provide one if PACS will not be implemented.

    Not required if also providing a daylight processor.

16. **Daylight Processing (XFP03)..... 100 NSF (9.3 NSM)**
    Provide one if PACS will not be implemented.

    Not required if also providing a darkroom.

17. **Film Sorting Area (XFSA1)..... 80 NSF (7.5 NSM)**
    Provide one per film processing (darkroom or daylight) area.

18. **Film Files Storage (XFFA1)..... 250 NSF (23.3 NSM)**
    Provide one if PACS will not be implemented.

19. **Film Storage (XFFA1)..... 60 NSF (5.6 NSM)**
    Provide one if PACS will not be implemented.

20. **Chemical Storage (SRS01)..... 40 NSF (3.4 NSM)**
    Provide one if PACS will not be implemented.

E. Staff and Administrative Areas

1. **Office, Chief Radiation Therapy (OFDR1).....150 NSF (13.9 NSM)**
   Provide one per Radiation Therapy Service.

2. **Office, Secretary and Waiting (SEC01).....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

3. **Office, Staff Physician (OFDR1) .....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

4. **Office, Nurse (OFA01).....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

5. **Office, Professional Non Physician (OFDR1).....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

6. **Office, Physicist (OFA01) .....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

7. **Office, Technologist Supervisor (OFA01).....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

8. **Office, PACS Administrator (OFA01).....120 NSF (11.2 NSM)**
   Provide one per FTE position authorized.

9. **Office, Clerical Employee (OFA01) .....100 NSF (9.3 NSM)**
   Provide one per FTE position authorized and if employee will be assigned an office.

10. **Cubicle, Clerical Employee (OFA03).....60 NSF (5.6 NSM)**
    Provide one per FTE position authorized and if employee will be assigned a cubicle.

11. **Cubicle, Data Processing (OFA03).....80 NSF (7.5 NSM)**
    Provide one per FTE position authorized.

12. **Office, Quality Assurance (OFDR1) .....120 NSF (11.2 NSM)**
    Provide one if in Concept of Operations.

13. **Cubicle, Scheduler (OFA03) .....64 NSF (5.9 NSM)**
    Provide one per FTE position authorized.

14. **Cubicle, Transcriptionist (OFA03) .....80 NSF (7.5 NSM)**
    Provide one per FTE position authorized.

15. **Patient Records Filing (XFFA2).....80 NSF (7.5 NSM)**
    Provide one per Linear Accelerator and CT Simulator Unit Rooms. Add 60 NSF for each additional Linear Accelerator and CT Simulator Unit Rooms greater than one and if in Concept of Operations.

16. **Tele-Radiology Workstation (XVC01)..... 120 NSF (11.2 NSM)**
    Provide one if in Concept of Operations.

17. **Conference Room (CRR01)..... 200 NSF (18.6 NSM)**
    Provide one per Radiation Therapy Service.

18. **Copy Room (RPR01)..... 100 NSF (9.3 NSM)**
    Provide one per Radiation Therapy Service.

19. **Storage Room (SRS01)..... 120 NSF (11.2 NSM)**
    Provide one per Radiation Therapy Service.

    This space is for storing, securing and controlling unexposed film, chemical materials, auxiliary and ancillary equipment and devices.

The methodology below (20., 21., 22.) provides programming of Lounge, Lockers, Toilets at department/service/chapter level. Alternatively, sum all departments/services/chapters data for Lockers, Lounges and Toilets, and program space in Chapter 410-EMS Lockers, Lounges, Toilets and Showers. *Either/or – do not duplicate space in both this Chapter and Chapter 410.*

20. **Staff Lounge (SL001)..... 160 NSF (14.9 NSM)**
    Provide a minimum of 160 NSF; or 15 NSF for each FTE position authorized for whom lockers are provided, whichever is greater.

21. **Staff Lockers (LR001)..... 6 NSF (.6 NSM)**
    Per FTE position authorized for whom office space is not provided.

22. **Staff Toilet (TLTU1)..... 50 NSF (4.7 NSM)**
    Divide the total male FTE positions projected by 20. Provide one male toilet for each whole increment. Minimum of 6 authorized male FTE positions projected to provide a separate male toilet. Divide the total female FTE positions projected by 15. Provide one female toilet for each whole increment. Minimum of 5 authorized female FTE positions projected to provide a separate female toilet . Minimum 1 combined FM/M toilet.

Q. Residency Program

The methodology below provides programming of educational facilities at department/service/chapter level. Alternatively, sum all departments/services/chapters data for educational facilities and program space in Chapter 402- Educational Facilities. Either/or – do not duplicate space in both this Chapter and Chapter 402.

Resident spaces should be grouped in one area close to the Viewing and Consultation Room.

1. **Cubicle, Resident Intern (OFA03)..... 60 NSF (5.6 NSM)**
   Provide one per resident position authorized and if in Concept of Operations.

2. **Cubicle, Student (OFA03).....30 NSF (2.8 NSM)**
   Provide one per two student positions authorized and if in Concept of Operations.

3. **Conference / Classroom (CRR01).....300 NSF (27.9 NSM)**
   Provide one if in Concept of Operations.

6. PLANNING AND DESIGN CONSIDERATIONS

A. Net-to-department gross factor **(NTDG)** for **Radiation Therapy** is **1.60**. This number, when multiplied by the programmed net square foot (NSF) area, determines the departmental gross square feet (DGSF).

B. Centralized staff administration and support should be considered to maximize staff and space efficiency.

C. Radiation Therapy is typically a stand-alone unit to maximize privacy for patients and families. However, in new facilities options should be explored in order to share space and staff with other diagnostic imaging modalities.

D. Locate high volume services (Linear Accelerator Room) closer to patient waiting or building access point to decrease patient travel.

E. PACS reading stations maybe located centrally or remotely (in offices); coordination is required to avoid duplication of locations. It should be noted that for general viewing by physicians outside the Radiation Therapy Service, a typical flat screen monitor will suffice for reading of images. A high-end monitor system should be provided in areas where physician viewing / diagnosis occurs within the Radiology Department or remotely.

F. Provide separate outpatient intake and processing areas from inpatient circulation and holding areas when both patient types utilize the same department and/or procedure rooms.

G. Verify room sizes and equipment layouts with imaging equipment vendors prior to finalizing room layouts.

H. Corridors should be designed a minimum of 8 feet in width, to accommodate passage of two stretchers and/or wheelchairs, equipment or beds. In non-patient zones / areas, corridors may be adjusted to 6 feet.

I. With the continued move to complete PACS system, locate film file spaces to facilitate alternative use in the future.

J. The spatial organization of Radiation Therapy is predicated on four areas. These areas are (1) Reception, (2) Patient Care / Treatment Planning, (3) Support and (4) Staff and Administration. The configuration of these four functional areas must locate patient care and related treatment planning areas contiguous to one another with direct access / circulation. This area should provide direct staff access between patient care and support areas. In addition, patient care area should be configured adjacent to the reception / public components including patient waiting, patient

control and patient administration functions to permit convenient patient circulation to dressing rooms, examination rooms and diagnostic / treatment rooms.

K. Minimize travel distance from main patient entrance to Radiation Therapy Service Sub-waiting.

L. Most outpatients are typically accompanied by at least one family member or visitor who will also require waiting space. Patient Stretcher Holding Bay should be co-located with the Sub-Waiting area and Reception, and visual separation should be provided to ensure patient privacy and dignity.

M. Examination rooms should be located adjacent to the dressing rooms. They are used to evaluate patients on initial consultation, to examine patients during treatment and to see patients after the completion of therapy.

N. Dressing room may be utilized as a gowned patient holding area for patients waiting to enter a treatment or examination area.

O. The Linear Accelerator Room requires shielding to protect surrounding areas from radiation generated by the equipment. If an entrance maze is required it should be designed to minimize shielding while providing convenient access of a stretcher and equipment to the treatment room.

P. Control Area for the Linear Accelerator Room may be located in an alcove off the staff circulation corridor.

Q. Patient Stretcher Holding Bay houses a hyperthermia system and may require RF screening.

R. Refer to Department of Veterans Affairs (VA) Office of Facilities Management Handbooks, Standards, Standard Details, and Design Guides for technical criteria.

7. FUNCTIONAL RELATIONSHIP MATRIX

Relationship of Radiation Therapy Service to Services listed below:

TABLE 2: FUNCTIONAL RELATIONSHIP MATRIX

RELATIONSHIP	SERVICE	REASONS
2	Radiology Service – Main Suite	G,H
3	Ambulatory Care	G,H
3	Audiology and Speech Pathology Clinic	H
3	Intensive Care Nursing Units	H
3	Medical Research and Development Service – Animal Research	I
3	Surgical Service – Operating Suite	H

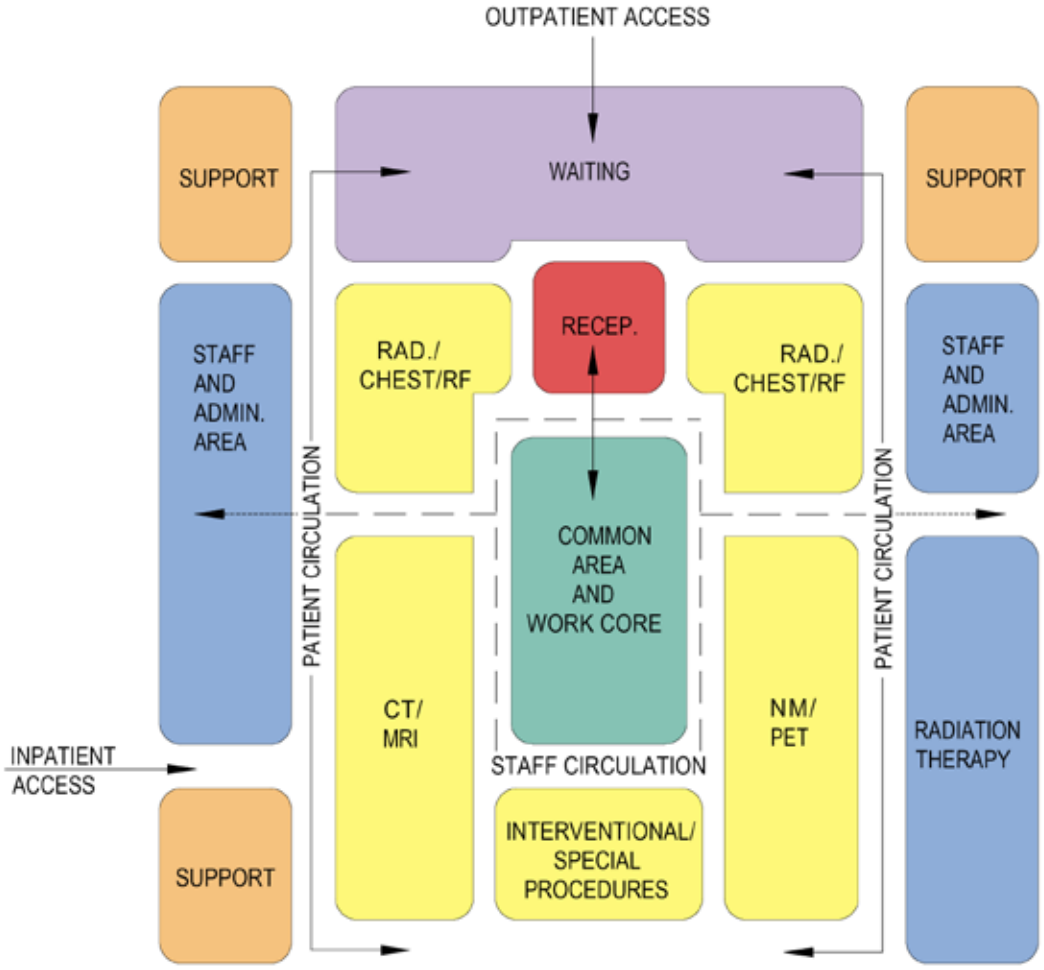
Relationship:

1. Adjacent
2. Close / Same Floor
3. Close / Different Floor Acceptable
4. Limited Traffic
5. Separation Desirable

Reasons:

A. Common use of resources
B. Accessibility of supplies
C. Urgency of contact
D. Noise or vibration
E. Presence of odors or fumes
F. Contamination hazard
G. Sequence of work
H. Patient convenience
I. Frequent contact
J. Need for security
K. Closeness inappropriate

8. FUNCTIONAL DIAGRAM 1: Radiology Service Functional Area Relationship by Modality



9. FUNCTIONAL DIAGRAM 2: Radiation Therapy Area Relationship