620 RENAL DIALYSIS UNIT

INDEX

INTRODUCTION

Preamble

620 .1.00 Renal Dialysis Units (referred to as Unit/s) are used by persons requiring haemodialysis and peritoneal dialysis services. Units may be located in a satellite centre or in a hospital.

Haemodialysis is a treatment for end stage renal failure where the function of the kidneys to remove substances from the blood is replaced by a machine. Treatment requires the patient to be attached to the machine for 3-6 hours per day on three days of every week. This process may be undertaken in a satellite dialysis centre or hospital, or a dialysis machine may be installed in a patient's home.

Peritoneal dialysis is an alternative to haemodialysis. Peritoneal dialysis involves the exchange of fluid to and from the abdomen on several occasions each day either manually or with the assistance of a machine. Peritoneal dialysis is usually performed at home but training in technique and problem solving may occur at the satellite dialysis centre or in a hospital.

Purpose

620 .2.00 This guideline has been developed for the use of:

- Health service personnel involved in the planning and design of a Unit;
- Architects, engineers and others who have been engaged to plan and design a Unit;
- NSW Health personnel who are assessing the appropriateness of renal dialysis unit capital projects.

The inclusion of standard requirements for all aspects of the Unit is aimed at ensuring a consistent approach to the design of efficient Units which meet all necessary statutory and regulatory requirements. The standards set included in this guideline will be seen as the benchmark. While it is accepted that standards and requirements will change over time, any non-compliance with the guidelines will need to be justified to gain approval to the proposed non-compliant components.

Introduction

620 .3.00 The role of the Unit is to provide an easily accessible, safe and serviced environment in which people can undertake haemodialysis on a regular basis. The Unit must be able to provide a reliable service for regular attendees as well as people who require unusual episodes of care because they are visiting the area or require dialysis while recovering from another illness.

The Unit will also provide treatment to people with infectious diseases including Vancomycin Resistant E Coli (VRE) and Acinetobacter. Every aspect of the design and fit out of the Unit must pay attention to design for infection prevention and control as well as the specific accommodation of persons with infectious diseases.

Policy Statement

620 .4.00 Current NSW Health policy directions advocate the provision of sufficient renal dialysis capacity to meet the current and future needs of the population.

NSW Health is in the process of developing a Statewide Plan for Renal Dialysis to guide the future implementation of renal services across NSW. This guideline may require modification after that plan has been developed and approved.

Reference should also be made to the directions of the State Renal Services Planning Group which has been established by NSW Health to provide advice to the Director General on issues relating to the planning and development of Renal Services.

The Renal Services Network, which is comprised of renal clinicians (medical, nursing and allied health), consumers and NSW Health representatives will also act as an advisory resource to renal services across NSW.

Description of the Unit

620 .5.00 Most units will treat adults only with some specific units designated to treat children. The functions of the Unit are to:

- receive and provide dialysis services to people who have been referred from the community or a hospital inpatient unit;
- provide training for people, family members and/or relevant others in procedures related to haemodialysis and/or peritoneal dialysis (optional);
- act as a resource to the community, other staff and agencies with regards to the requirements of renal health services.

PLANNING

Operational Models

620 .6.00 The following issues should be considered in developing the operational model for the Unit, as they will impact on appropriate space provision.

620 .7.00 ROLE DELINEATION OF THE ASSOCIATED HOSPITAL

Although the basic nature of the services is the same, there are different requirements for services providing a large tertiary service and those that may provide a satellite service. The role delineation of the associated hospital will influence the level of service provided as will the support systems able to be provided by the associated renal network to which the service belongs.

Operational Models

620 .8.00 METROPOLITAN VS. RURAL LOCATION

Whether the service in located in a metropolitan or a rural location will have an effect on factors such as flexibility of the service, security issues, sharing of staff and other resources and the types of patients accepted for treatment.

The demand for renal services will also influence the size of the unit as will the availability of appropriately qualified clinicians and access to support medical services.

620 .9.00 HOSPITAL-BASED OR SATELLITE UNIT

A distinction has been made in this document between a Unit located within a hospital and a 'satellite' or 'stand-alone' Unit which may or may not be located on a hospital site. This distinction has been made for the purposes of determining the extent of support services required e.g. laundry and waste collection, meal delivery, security requirements etc. Operationally this distinction does not infer that 'satellite' Units manage persons of a lesser equity.

620 .10.00 ACADEMIC AND TEACHING ROLES

This factor will influence the requirements for meeting rooms, office space and general administrative space.

620 .11.00 STAFF STRUCTURE

The staff structure of the Unit will have an impact on the nature, size and location of the Staff Station, office and administrative spaces, staff facilities such as staff rooms, toilets and property bays.

The staffing structure of the proposed Unit, including academic staff, should be developed prior to planning any new Unit.

620 .12.00 NATURE OF PATIENT ACUITY AND COMPLEXITY

A clear understanding of the nature of the patient population to be served should be clearly articulated prior to planning a new unit. Factors that need to be taken into account are:

- The age mix of the patient group;
- Severity of the illness of the proposed patient group (acuity);
- Any comorbidity that may be expected in the patient group;
- The rate of infectious diseases to be expected in the patient group.

Operational Policies

620 .13.00 Operational Policies have a major impact on facility requirements and the capital and recurrent costs of the Unit. These policies should be clearly articulated prior to the commencement of capital planning so that the facility design can reinforce the new practices proposed for the service.

While it is not possible to anticipate the full range of operational policies required for all new units, the following are offered as a guide for review and adaptation when a new service is proposed or an existing service is to be redesigned.

620 .14.00 ACCESS - EXTERNAL

The Unit should be easily accessible to the public. A majority of persons requiring regular treatment will arrive at the Unit by vehicle. Easy and convenient access should be provided either horizontally or vertically (lifts, escalators).

Designated parking and covered drop-off areas for persons close to the entry point must also be considered.

Ambulance services may drop off and collect persons in a routine or urgent manner. Adequate covered space and parking needs to be designated for this purpose.

There should be easy access for regular and large amounts of disposable products and supplies to be delivered on palettes to the Unit's main store room by a mechanized palette lifter.

It should be easy and discreet to deliver food, laundry and other supplies to the Unit and take away general and contaminated waste as well as dirty laundry several times per day without disrupting the operations of the unit.

620 .15.00 ACCESS - INTERNAL

The Unit (if on a hospital site) should be located for easy access to other relevant hospital departments such as inpatient units and clinical support services.

Within the unit, functional relationships should enable the easy execution of all tasks in a safe environment. This includes the provision of two egress points from each consultation/treatment room as stated in other sections of this document.

620 .16.00 ADAPTABILITY AND FLEXIBILITY

While the functions of many of the core spaces within the Unit are set, there should be a high degree of flexibility to alter the function of support areas to meet changing demands. For example, storage areas may become office spaces and vice versa. Consult rooms may be used for training, meeting and interview spaces.

620 .17.00 AMENITIES - PATIENTS

A full range of necessary amenities should be located within the Unit or in close proximity for the convenience of people receiving treatment. These should include:
- Toilet
- Shower
- Telephone
- Audiovisual entertainment
- Access to food and beverages

620 .18.00 AMENITIES - STAFF

A range of amenities and services are required by staff so that they can perform their duties at an optimal level. These may be provided within the Unit or may be shared with another area adjacent to the Unit:

- Toilet
- Food and beverage preparation area
- Property bay in a secure environment
- Meeting room
- Recording space
- Computer, facsimile and printer access
- Internet/intranet access

620 .19.00 AMENITIES - VISITORS

People receiving haemodialysis often require the support of family and friends to bring them to, and take them home from, their treatments and to provide them with ongoing support and assistance. Family and friends will need to be provided with amenities including:
- Toilet
- Beverage preparation area
- Consultation room access

- Comfortable waiting areas

620 .20.00 CALL SYSTEM

The following call systems are required in the Unit:

- Patient call system back to staff station if all persons are not able to be in full view of staff at all times;
- Call buttons in toilets, showers and other areas where patients may need to call for assistance;
- Emergency call at the staff station (if the Unit is part of a campus such as a hospital) to a designated responder trained to provide a prompt and appropriate response;
- Duress alarm at the staff station to a designated responder trained to provide a prompt and appropriate response.

620 .21.00 CATERING SERVICES/FOOD SAFTY

It is usual to provide a light meal to people receiving treatment and have beverages available. Food will be prepared elsewhere and delivered to the Unit for consumption in accordance with current catering standards.

An area is to be provided for relatives and friends to prepare light meals and beverages for persons receiving treatment (beverage bay).

Food supply and preparation must meet the requirements of the Food Safety Standards as defined in the Food Production (Safety) Act.

620 .22.00 CLEANING REQUIREMENTS

The Unit requires a high standard of cleanliness to guard against infection:

- High levels of cleaning are conducted in the Unit including daily thorough cleaning of the Unit and 'terminal' cleaning of isolation rooms at least twice per day.
- All surfaces should be easy to clean and be absent from seams and creases which may harbour bacteria.

- Vinyl that requires a warm water wash and does not require daily polishing should be included in all treatment areas.

- Skirting should be coved to prevent dirt congregating in corners.

- Washable paint should be applied to all walls, ceilings and other unsealed surfaces.

- The Unit must be air conditioned and the system must be serviced regularly and filters cleaned or replaced in accordance with the manufacturer's requirements.

- Air agitation devices such as vacuum cleaners and air hand dryers should be omitted or used sparingly to prevent the production of air borne particles.

- Windows and other glass should be kept clean.

- Toilet and shower areas should be lined with vinyl with coving up walls in a seamless manner to enable easy and thorough cleaning.

- Kitchen areas should be kept clean including appliances such as microwaves and refrigerators.

- Cleaner's paper supplies are to be kept separate from cleaner's wet equipment in separate spaces to prevent contamination.

620 .23.00 DECEASED PERSON MANAGEMENT

Any person becoming deceased in the Unit will be moved to an enclosed space (e.g.

consult room, isolation room) until transferred discreetly to the mortuary, a hospital or collected by an undertaker.

620 .24.00 ENERGY EFFICIENCY

The design of the Unit and the engineering systems included to meet service needs must take into consideration the need for efficient energy use to reduce consumption and minimise operating costs.

The Premiers' Memorandum 2003 – 2 High Environmental Performance for Buildings, requires that government agencies incorporate the requirements of the Environmental Performance Guide for Buildings in any asset strategies (including capital planning). This performance guide can be found at http://asset.gov.com.au/environmentguide/ and should be completed for all new building designs.

620 .25.00 INFECTION CONTROL (ALSO REFER TO CLEANING REQUIREMENTS)

Infection prevention and control involves identification of transmissible agents and intervention to minimise the spread of these infections. The design of all aspects of the Unit should take into account the need to ensure a high level of infection control in all aspects of practice.

Key factors that should be taken into consideration are:

•□All surfaces and fixtures are to be designed to enable easy and thorough cleaning on a regular and repeated basis.

•□The design should support high levels of handwashing by staff and other persons by the convenient and adequate placement of suitable hand wash basins at a rate of one per three (3) treatment bays as well as in all separate treatment areas, utility areas, toilets and showers.

•□Alcohol hand-rub dispensers should be at the entrance of each treatment room and within each treatment bay for easy access by staff.

•□Class S isolation rooms should be provided at the rate of one isolation room to every five (5) treatment bays (in hospital-based and Satellite Units) giving a cluster of six (6) treatment spaces. A Class S room is a single room with a shower/toilet en suite that is not shared. There is no special requirement for the air-conditioning system but a hand basin and a self-closing door is recommended. A Personal Protective Equipment (PPE) Bay should be provided immediately outside the room to hold gloves, goggles, face shield masks, gowns and a waterless alcohol-based hand rub dispenser. A PPE Bay can be shared between two isolation rooms.

•□Air-conditioning rather than natural ventilation should be provided to the Unit. All air-conditioning filters for the systems that service the Unit should be changed/cleaned at a rate consistent with the manufacturer's requirements.

•□Floors. Coverings must be easy to clean and resistant to disinfection procedures. All treatment areas should not be carpeted. Floors in food preparation areas should be water resistant and greaseproof. No joins or seams that are pervious to moisture should be included.

•□Skirting. Wall bases in treatment areas, kitchens, clean and dirty utility rooms and toilets should be made integral to the floor, tightly sealed against the wall and constructed without voids. Skirting in showers should extend all the way up the wall to protect all potentially wet areas from infiltration.

•□Walls. Wall finishes must be scrubbable and should be smooth and water-resistant especially in the immediate vicinity of plumbing fixtures.

•□Ceilings. All exposed ceilings and ceiling structures must be easy to clean. All areas where dust fallout would present a potential problem must have finished ceilings that cover all conduits, piping, duct work and open construction systems.

•□Window furnishings. Washable blinds are preferable to curtains as they retain less

dust and are easier to clean.

Further reference should be made to:

- NSW Health, Infection Control Policy – Circular 2002/45.
- NSW Health, Part D – Infection Prevention and Control, Health Facility Guidelines, 2004.
- Standards Australia HB 260 – 2003.
- NSW Health, Technical Series 11 - Engineering Services Guidelines, 2003

620 .26.00 INFORMATION TECHNOLOGY

The following systems should be provided in the Unit:

- Telephone, facsimile and computer access;

- Intranet and internet access;

- Access to all ordering and recording systems currently utilised by the Area Health Service to supply and collect data;

- Teleconferencing and videoconferencing amenities may be useful to either access information or provide information.

- Closed circuit television (CCTV) may be required to ensure staff can oversee entry and egress points.

- A decision about the need for other Telehealth technology (such as access to digital radiology or pathology systems) should be made early in the planning process in consultation with the AHS and NSW Health.

620 .27.00 LAUNDRY MANAGEMENT

Suitable areas are to be provided for storing clean laundry in an orderly and easily accessible manner.

A holding area for bagged used laundry is to be provided for safe storage prior to collection. Ideally this holding area should be located on the external perimeter of the Unit so that the collector does not need to enter the Unit.

620 .28.00 MAINTENANCE

The Unit must have a fully developed and documented Asset Maintenance Plan in place to ensure that replacements and upkeep are undertaken on a preventative basis for all equipment and engineering systems. Where the Unit is a part of a larger hospital this plan should be part of the campus-wide strategy.

620 .29.00 MEDICAL RECORDS MANAGEMENT

Medical records for all persons receiving treatment in the Unit are to be kept in a central location that can be appropriately secured.

Where the Unit is part of a hospital the records should be integrated with other medical records for each patient as part of an integrated medical record system.

Once a person is no longer receiving treatment in the Unit the medical records shall be returned to the central records management department.

Where an electronic medical records management system is in operation, the Unit's information management system shall be designed to participate in this system.

620 .30.00 MEDICATIONS MANAGEMENT

All medications will be held in the locked Pharmacy Store in the Clean Utility Room. Scheduled drugs will be stored in the Pharmacy Store in accordance with the requirements of the Poisons Regulations.

620 .31.00 OPERATING HOURS

Units commonly operate between 7am and 9 pm, per day, allowing two sessions per machine per day.

Units will operate a varying number of days per week from three (3) days in a small rural Unit to six (6) days in a large tertiary Unit depending on demand.

There will be a wide range of variations to these operating hours depending on the needs of the patient group, staff availability and the demand that needs to be addressed.

620 .32.00 RESUSCITATION

All areas of the Unit accessed by patients must enable the delivery of resuscitation in an appropriate manner. This requires:

- Central location (adjacent to the centralised Staff Station) for the Resuscitation Trolley;
- Adequate space in each treatment space/room for resuscitation procedures to be performed;
- Oxygen and suction sources either piped to each space and room or from mobile units.
- Emergency call system to gain a prompt response from extra support resources, as required.

620 .33.00 SAFETY

All aspects of the Unit must ensure the required standards of personal safety for people visiting the Unit and staff. Issues that need to be considered include:

- Application of Occupational Health and Safety standards to all components of the Unit.

- Sufficient space to enable the required activities to be undertaken in a safe manner.

- Recognition of the fact that people using the services may have varying degrees of physical and sensory disability that require consideration during their stay.

- The Unit must be fully accessible for persons in wheelchairs or being moved around the Unit on a patient trolley or patient bed.

- Wherever possible, especially in newly designed units, palette lifters will be used to deliver supplies to the Storeroom and this must be achieved in a safe and unobstructed manner.

- Fittings and fixtures must be robust and of safe design to prevent injury.

- Large pieces of equipment (e.g. haemodialysis units) and furniture (e.g. patient chairs) must be selected for their ease of movement by staff as well as their appropriate design features.

- Chemicals and concentrates utilised within the Unit will be handled as per their 'Material Safety Data Sheets'.

- Reference should be made to the following policy documents:

o NSW Health, Health Facility Guidelines – Safety and Security (PD 2005-293), Working Draft, January 2005;
o NSW Health, Protecting People/Property: NSW Health Policy/Guidelines for Security Risk Management in Health Facilities (PD2005_339), January 2005

620 .34.00 SECURITY

A secure environment needs to be provided which complies with the requirements of the NSW Health Safety and Security Standards Manual.

Key features that need to be included are:

•□Unit design must facilitate good sight lines for staff to all key areas of the Unit;

•□Controlled access through the clustering of functional spaces or grouping of spaces, as required;

•□Minimise entry and exit doors and ensure staff areas are optimally places to oversee entry/exit points;

•□Provide staff with duress and emergency call capabilities and procedures especially after hours;

•□Procedures must be in place for management of persons who are aggressive or a threat to patients and staff;

•□Patient files must be kept in a secure environment that prevents access by unauthorised persons;

•□Non-removable 'Asset No.' on all equipment above a predetermined value;

•□Dangerous drug safe in the Clean Utility Room;

•□Provision of lockers for staff personal effects in a secure environment;

•□Closed Circuit Television may be required to provide an adequate view of external areas. This should be considered during the detailed design phase of planning.

620 .35.00 STORAGE

Large quantities of liquid substances, disposable equipment and other supplies are delivered on palettes to the Unit on a regular basis. This activity requires the following:

•□Provision of an adequately sized main storeroom with sufficient aisle width to enable access by a palette lifter. A roller door access may be required to provide adequate width to the entry into this space;

•□Areas designated as wet and dry need to be provided to prevent the contamination of dry sterile stores and meet the requirements of AS/NZS 4187:2003.

•□Location of the main storeroom on the external perimeter of the Unit with a roller door to facilitate palette lifter access.

•□Easy access from a loading dock to the main storeroom;

•□Heavy duty shelving to hold the large quantities of supplies in an orderly manner;

•□Additional dispersed storage to enable the Unit to be kept clear of collision obstacles;

•□The stability of liquid concentrates (especially those which are glucose-based) is dependent on air temperature. Consideration should be given to the need for air-conditioning in some storage areas if the temperature cannot be maintained within required limits. Reference should be made to the storage requirements of stored items to determine the need for this requirement.

620 .36.00 WASTE MANAGEMENT

Substantial quantities of waste (both general and contaminated) are generated by the Unit. Waste management practices must include:

•□Application of Universal Precaution Standards in the management of waste;

•□Provision of suitable receptacles for all waste categories that are convenient to use, service and move;

•□Provision of adequate storage areas to hold waste (general, contaminated, sharps etc) in an appropriate manner while awaiting collection;

•□Provision of a disposal room on the external perimeter of the Unit to enable collection of used laundry and waste without intruding into the Unit.

Functional Areas

620 .37.00 The Unit includes clusters of spaces for the following:

•□Reception/waiting,
•□Treatment,
•□Staff areas,
•□Support areas.

There are various ways in which these components of the service can be configured to ensure efficient and thoughtful management practices that make each day easier for people receiving treatment, their relevant others and staff.

620 .38.00 KEY INTERNAL RELATIONSHIPS

•□Staff Station requires an unobtrusive view of all patient treatment areas;
•□Reception requires a clear view of entry and exit/egress points of the Unit;
•□Easy access from the Waiting Area to the Patient Treatment Area for the convenient arrival and departure of patients.
□
A Functional Relationship Diagram which displays the above associations is included in the Appendices.

620 .39.00 KEY EXTERNAL RELATIONSHIPS

•□Easy access to the Unit where a high percentage of people will arrive by car on a daily basis. This should include convenient, designated parking spaces close to the entry point with direct horizontal or vertical travel to the Unit.

•□Easy access to the Unit's Main Storeroom from the loading dock for the regular delivery of stores on a palette lifter.

620 .40.00 SIGNAGE/PATHFINDING

•□Access to the Unit should be identified from all site access points with clear directions to parking areas and building entry.

•□If the Unit is not directly accessible from external areas, clear signage must provide direction to the Unit.

Functional Relationships

620 .41.00 •□The satellite Unit must be self-sufficient with easy access for walking persons and those arriving by vehicle for treatment. There must be easy access for the delivery of food, clean laundry, equipment, supplies and files and the removal of waste and dirty laundry.

620 .42.00 •□The hospital-based Unit will ideally require the following:

o Pathology. Easy access for staff to attend the Unit to collect specimens. Inclusion in the pathology results management system to access results in a timely manner.

o Medical Imaging. Easy access to the Medical Imaging Department to allow portable equipment to be brought to the Unit and for persons to travel to the Unit for procedures.

o Medical Records. If a hard copy system is in use, there should be easy access to the Medical Records Unit for the retrieval of files and the return of files after treatment is completed. If an electronic system is in use, the Unit must have the necessary workstations to permit staff the required level of access to patient files.

o Inpatient Units. The Unit should be closely related to any inpatient unit which refers or accepts patients from the Unit.

o Pharmacy. Easy access for staff to retrieve supplies and for Pharmacy staff to provide inventory and counseling services to the Unit.

o Mortuary. Easy and discreet access to the mortuary for the delivery of persons who may become deceased in the Unit.

o Security. The hospital-based Unit should enjoy the same level of scrutiny from Security Services as all other sections of the hospital to maintain a high level of security integrity. For satellite Units, a standard of security should be in place commensurate with the requirements of the Unit and any untoward factors that may compromise security such as extended operating hours, location on a busy road etc.

DESIGN

General

620 .43.00 Reference should be made to NSW Health, Health Facility Guidelines, Part C – Design for Access, Mobility, OHS and Security, 2004, for detailed information on the design features of the Unit.

620 .44.00 The following categories are covered in Part C which is of relevance to the Unit:
- Corridor widths;
- Ceiling Heights;
- Ceiling reinforcement for fitted patient lifters;
- Door types;
- Door widths;
- Door swing;
- Doors in the path of fire egress;
- Doors – security;
- Door openings;
- Door handles;
- Door grilles and undercuts;
- Hold-open devices;
- Locks;
- Self closers;
- Observation glass;
- Handwashing facilities;
- Window Types;
- Window sizes;
- Window cleaning;
- Window security;
- Fixtures and fittings with regards to ergonomics, human engineering, safety, security and infection control;
- Ceiling, Floor, Surface and Wall Finishes, and Protection;
- Acoustics.

620 .45.00 SAFER BY DESIGN

Many satellite units are not part of an integrated building and are therefore more susceptible to security breeches. The Design Team should be mindful of this in

planning the Unit in a way that promotes a secure environment.

The Safer by Design Program, promoted by the NSW Police Department, is based upon the principles and practice of Crime Prevention through Environmental Design (CPTED). It is a co-operative initiative involving the NSW Police, local Councils, government departments and key private sector organisations. The aim of the program is to ensure police officers and council planners trained in Crime Prevention through Environmental Design (CPTED) assess and minimise crime risk in development applications and plans.

CPTED is a situational crime prevention strategy that focuses on the design, planning and structure of cities and neighbourhoods. It aims to reduce opportunities for crime by employing design and place management principles that minimise the likelihood of essential crime ingredients from intersecting in time and space.

CPTED is primarily accomplished through the work of architects, engineers, builders and landscape gardeners and those who develop purchasing procedures. The four principles of CPTED are:

- Territorial reinforcement to stimulate community ownership and policing;
- Surveillance through supervision of those who overlook or pass the site;
- Access control through physical and symbolic barriers as well as monitoring procedures;
- Space management to ensure space is well used and maintained.

Environmental Considerations

620 .46.00 ACOUSTIC

Many functions undertaken in the Unit require consideration of acoustic privacy including:

- Discussions/interviews with people and families;
- Isolation of noisy areas such as waiting rooms from Treatment Areas;
- Staff discussions regarding confidential matters.

Solutions to be considered include:

- Selection of sound absorbing materials and finishes;
- Use of sound isolating construction;
- Planning to separate quiet areas from noisy areas;
- Changes to operational management. This may include separate areas for patients with special needs.

620 .47.00 NATURAL LIGHT AND VIEWS

Natural light contributes to a sense of wellbeing, assists orientation to building locations and improves service outcomes. The use of natural light should be maximised throughout the Unit.

Natural light and a view to pleasant and interesting outdoor areas is of particular importance for people who spend long periods of time sitting in dialysis chairs. Every effort should be made to provide a view to all treatment areas either by locating treatment bays adjacent to a window or enabling unobstructed sight lines through areas to an outdoor view.

620 .48.00 PRIVACY

Confidentiality for persons receiving treatment is a highly important consideration to be addressed. The Unit should be designed to:

- Ensure confidentiality of personal discussions and medical records;
- Provide an adequate number of rooms for discreet discussions and treatments to occur whenever required;
- Enable sufficient space within each treatment space to permit curtains to be easily

drawn whenever required;
•□Appropriately locate windows and doors to ensure privacy.

620 .49.00 DECOR

This includes style of design, furnishings, colour, textures, ambience, perceptions and taste. The décor of the Unit should be of a standard that meets the expectations of people using the services and make every effort to reduce an institutional atmosphere. This is very difficult with the high degree of equipment, services and infection control conditions that are required to deliver the service. Suggestions to achieve this balance include:

•□Use of design features such as colours and artworks to distract the sight from clinical areas;
•□Inclusion of soft furnishings that act as a design feature such as screening, lounges in waiting areas and window treatments;
•□Elimination of corridors through good design wherever possible;
•□Inclusion of corridors at the minimum required widths to meet the service need. Wide corridors are a feature that potentiates institutional environments.
•□Provision of a beverage bay for people to use while waiting;
•□Background music through a piped system or a centralised unit;
•□Television systems with head set access.

Building Service Requirements

620 .50.00 CLOCKS

A wall clock should be located in the Reception/Waiting and Treatment Areas in clear view.

620 .51.00 COMMUNICATIONS

The following communications systems will be included in the Unit:

•□Telephone (fixed and cordless for use by persons on dialysis);

•□Paging system for staff if part of the campus-wide communications system;

•□Computer with internet and intranet access;

•□Document Centre including facsimile;

•□Physical transfer systems such as pneumatic tubes and automated trolley systems for hospital-based Units if part of the campus-wide communications system;

•□Teleconferencing capability in the meeting room;

•□Videoconferencing capability if there is an identified need as part of the Area-wide strategy or network;

•□Some other Telemedicine modalities may also be required especially in remote and rural sites. This will be in accordance with NSW Health and Area-wide policies regarding access and service networks. The need for these modalities and how they are expected to operate should be confirmed prior to the commencement of capital planning.

•□Patient/nurse call system if all persons receiving treatment cannot be visualised at all times;

•□Emergency and duress systems capability in line with Area-wide policies to ensure patient and staff safety;

•□Early Warning Information System (EWIS) for evacuation warnings and public address alerts;

•□Workspaces, bench design and suspension devices must permit the appropriate accommodation of computer terminals, keyboards, drivers and printers. The centralisation of printers, scanners, facsimile machine and photocopier should facilitate shared use.

•□Closed circuit television should be considered where the functional design of the Unit does not permit staff to oversee all necessary entry and egress points.

620 .52.00 ELECTRICAL SERVICES

Refer to TS 11: Engineering and Sustainable Design, NSW Health, 2003 and Room Data Layout Sheets included in this guideline for details of electrical needs for this Unit.

620 .53.00 WATER TREATMENT SERVICE

A key component of the Renal Dialysis Unit is the need to treat water that will be used in the haemodialysis process to remove any contaminants. Different commercial water treatment systems may undertake the water treatment activities in slightly different ways but in general the main phases of water treatment occur in the following sequence:

□

Phase 1□Particle filtration to 20 microns.

□

Phase 2□Water softening to remove calcium and magnesium carbonate.

□

Phase 3□Carbon filtration to remove chlorine. Chlorine is taken out as late as possible in the process so that its disinfection properties are utilised.

□

Phase 4 □Particle filtration to 5 and 1 micron.

□

Phase 5□Reverse Osmosis Process.

Reverse osmosis (RO) is a process where water is demineralised using a semipermeable membrane to encourage mineral salts to pass out of the water to be used in dialysis. Industrial RO uses spiral wound membranes mounted in high pressure containers to activate this process.

The aim of all the above processes is to improve the purity of the water to be used by removal of particulates, salts and bacteria before it comes into contact with the person receiving haemodialysis.

Booster pumps may also be required to ensure a certain speed of water (at least 10 metres/second) and a certain pressure of water (varies dependent on the concentration of the salt solution on the reject side of the membrane) to enable these processes and to limit the ability of tubing contamination by bacteria and moulds. These contamination processes are also reduced by the application of heat (85 – 90 degrees Celsius), eliminating any right angle bends, ensuring the internal surfaces of tubing have a high level of smoothness and by keeping tubing runs as short as possible.

The Plant Room for water treatment is ideally located as part of the Renal Dialysis Unit to keep tubing runs short and to make it easy for staff to monitor and service the water treatment systems.

The Design Team should gain expert input from the agency that will provide these services early in the Design Process to ensure that all requirements are identified as early as possible in the planning process.

620 .54.00 DRAINAGE SYSTEM

Services that facilitate the drainage of fluids from the haemodialysis machines must be ventilated to prevent condensation and the subsequent growth of mould. This fact should be kept in mind when designing covers or screens for the drainage systems. Commercial models which comply with the relevant Australian Standards are available.

620 .55.00 DURESS ALARMS

Should be in accordance with NSW Health Policy – refer to Health Facility Guidelines, Part C – Design for Access, Mobility, OHS and Security, 2004.

620 .56.00 EMERGENCY & STAFF CALL

All treatment spaces, clinical areas, bathrooms and toilets should have access to emergency and staff call systems for patients and staff to summon the appropriate level of assistance. The Nurse Call/Emergency Call system is to comply with AS3811.

620 .57.00 LIGHTING

The lighting design needs to provide for both comfort and function and should be inherently flexible. There are different considerations for different areas within the Unit.

It should be possible to vary lighting conditions between individual treatment bays and rooms.

Refer to the Room Data Sheets for the detailed lighting requirements of each specific space.

620 .58.00 MEDICAL GASES

Patient treatment spaces and treatment rooms require access to oxygen and suction. Refer to the Room Data Sheets for the detailed requirements of each space.

COMPONENTS OF THE UNIT

General

620 .59.00 As previously advised the key components or clusters of a Unit are:

- Reception/waiting,
- Treatment,
- Staff areas,
- Support areas.

Within each of these clusters there will be variable additions to meet the special needs of each service depending on the outcomes of the needs analysis and the approved Service Plan, both of which should be completed before commencing capital planning of the Unit.

This section should be read with reference to the following sections of this guideline:

- Functional Relationships Diagram;
- Schedules of Accommodation;
- Room Data Sheets.

Standard Components

620 .60.00 The standard components in the Unit must comply with Health Facility Guidelines, NSW Health and other policy documents including the Office Accommodation Policy for Public Health Organisations and Ambulance Services, April 2005. Reference should be made to those documents for details of all standard components.

The reference documents used in developing this guideline are listed in the specific sections to which they relate for convenience and at the end of the guideline in alphabetical order.

Non-Standard Components

620 .61.00 MAIN ENTRY/WAITING AREA

This area must be inviting, have comfortable domestic furniture and a beverage pantry for the use of people waiting. The entry doors should be observable from the Reception Area.

Benchmarks Used to Determine Space

- 1m2 per person;
- Two persons per treatment space.

620 .62.00 TRAINING ROOM - OPTIONAL

Units must be able to support people who are using all forms of dialysis. Likely future requirements for services such as Peritoneal Dialysis training and Home Haemodialysis training for people and their family and/or carers should be considered. For larger units where significant numbers of people will require training and support in the Unit on a regular basis that cannot be undertaken in a spare treatment space or room, the inclusion of Training Room should be considered. This space could also be used for minor procedures such as the insertion of catheters.

620 .63.00 TREATMENT AREA

This area should be designed with treatment bays adjacent to each other in sight of a Staff Station. Each Treatment Bay is sized to take a chair or a bed. Optimally an external view should be provided for all persons participating in haemodialysis either through being adjacent to a window or by keeping sight lines to further windows clear of obstruction. This may require the slanting of chairs or beds away from the traditional vertical alignment. Instead of the foot of the chair or bed pointing at a perpendicular angle to the staff station, this could be amended to 225 degrees to facilitate the view.

For larger units several clusters of treatment bays may be designed around smaller sub staff stations for better management. It should be kept in mind that the usual management practice is for one nurse to manage four (4) persons undergoing haemodialysis at any one time. It is estimated that up to 12 treatment bays can be served by a staff station of 10 m2 .

620 .64.00 ISOLATION ROOM

Reference should be made to the following documents for further information:

- Infection Control Policy – Circular 2002/45, NSW Health, 2002.
- HB260 – 2003. Handbook: Hospital acquired infection – Engineering down the risk, Standards Australia, 2003.
- Health Facility Guidelines, Part D – Infection Prevention and Control, NSW Health, 2004.
- AS/NZS 4187:2003 Australian/New Zealand StandardTM Cleaning, disinfection and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities.

The increasing prevalence of infections such as Vancomycin Resistant E Coli (VRE) and others requires the inclusion of isolation rooms to separate infected persons during treatment. Advice on the rates of infection demonstrates that persons with a less acuity who will attend satellite renal haemodialysis units have lower rates of infection than those persons of a higher acuity who will attend a hospital-based unit. Due to this fact the ratio of isolation rooms to open treatment bays has been set as follows:

- Satellite Unit. One isolation room to each five (5) treatment bays (giving a total of six (6) treatment spaces in the cluster);
- Hospital-Based Unit. One isolation room to every five (5) treatment bays (giving a total of six (6) treatment spaces in the cluster).

Class S Isolation Rooms (standard) are required to meet the range of common infections currently encountered. Each isolation room must have access to a dedicated en suite. Each isolation room must contain a general staff hand basin.

Entry to the isolation rooms must be preceded by a Personal Protective Equipment (PPE) Bay. One PPE bay can be shared between two isolation rooms.

No special air-conditioning requirements are associated with Class S Isolation rooms. Self-closing doors are preferred.

Isolation rooms should be located close to open treatment bays.

620 .65.00 EQUIPMENT CLEANING AREA

This room is required for the cleaning and routine maintenance of haemodialysis machines and other equipment. It must include:

- Cupboards for holding commonly used supplies and parts;
- A sink with a drainer;
- General staff hand basin.

620 .66.00 WATER TREATMENT PLANT ROOM

This room must be located with easy access to the external perimeter of the Unit while being adjacent to the Treatment Area and requires the following specific attributes:

- Space for water treatment components which may include booster pumps (usually two which alternate), particle filters (approximately two), water softener, carbon filter and reverse osmosis system as well as products to keep these units operational.

- There must be workable space around all sides of the units (at least 0.5 metres) to enable routine calibration, servicing and maintenance to be conducted in a safe and easy manner.

- Sufficient space to have soft curving of tubing to prevent right angle bends.

- Adequate ventilation, air-conditioning and/or exhausting to remove the heat load generated by the equipment.

- Noise attenuation is important to prevent any sound disturbance to treatment and other areas.

620 .67.00 MAIN STORE ROOM

A space designed hold general stores, fluids and equipment.

This space must be placed on the perimeter of the Unit and have an external door of at least two (2) metres in width to allow access by a palette lifter.

There must be easy access from the loading dock to the Main Store Room either through horizontal or vertical travel.

Shelves must be heavy duty to hold 100 kg in weight and be spaced at 400 mm. Adjustable shelves are preferred.

Schedule of Accommodation

620 .68.00 The following schedules of accommodation (spaces) demonstrate the range of functional areas required for Units of 6, 12, 18, 24 and 30 treatment spaces. This table assumes that units under 18 spaces are satellite units and that units of 18 spaces and over are hospital-based. In each box the first number denoted the number of spaces and the second number the square metres of each individual space. For example "2 x 12" implies 2 spaces of 12 square metres each (a total of 24 square metres).

MAIN ENTRY/RECEPTION CLUSTER

Note 1: Training/Treatment room
OPTIONAL. Where there is a developed program of training for Home based dialysis as approved in the Service Plan a dedicated space is to be provided. This space could also be used for related procedures such as the insertion of catheters etc.

ROOM/SPACE	Standard Component	6 chairs*	12 chairs*	18 chairs	24 chairs*	30 chairs*	Remarks
MAIN ENTRY/RECEPTION CLUSTER							
MAIN ENTRY/WAITING AREA	yes	1 x 12	1 x 24	1 x 36	1 x 48	1 x 60	Public phone may be located here. Small beverage bay to be located here.
RECEPTION/CLERICAL	yes	1 x 6	1 x 8	1 x 10	1 x 12	1 x 14	
STORE/DOCUMENT PRODUCTION AREA	yes	1 x 6	1 x 8	1 x 10	1 x 12	1 x 15	Adjacent to the reception/clerical area to hold printers, facsimile, printer functions as well as files and stationery.
OFFICE - NURSE UNIT MANAGER	yes	1 x 9	1 x 9	1 x 9	1 x 9	1 x 9	
MEETING ROOM	yes	1 x 12	1 x 24	1 x 30	1 x 40	1 x 45	For staff meetings, community training and other functions. Should be fitted with teleconferencing facilities.
CONSULTATION/INTERVIEW ROOM	yes	1 x 12	1 x 12	2 x 12	2 x 12	3 x 12	
TRAINING/TREATMENT ROOM	yes	1 x 14	1 x 14	1 x 14	1 x 14	1 x 14	See note 1.
TOILET - PUBLIC	yes	No	1 x 3	2 x 3	2 x 3	2 x 3	Directly access from the waiting room. Door location should not permit a view into the toilet from the waiting
TOILET – PUBLIC (DISABLED ACCESS)	yes	1 x 5	1 x 5	1 x 5	1 x 5	1 x 5	Directly access from the waiting room. Door location should not permit a view into the toilet from the waiting
DISCOUNTED CIRCULATION		30%	30%	30%	30%	30%	

620 .69.00 TREATMENT CLUSTER

Note 2 : Treatment Bays
Bay size need to be 9 square metres with a clear width of 3 metres along the back of the bay to ensure appropriate service placement, machine accommodation and curtain track placement.

Spaces of 12m2 will need to be considered where more than 50% of patients are receiving dialysis in the unit in patient beds rather than chairs or trolleys. This is of particular relevance for Level 5 and Level 6 renal services located in tertiary referral hospitals.

* It is proposed that the Unit may utilise chairs or beds, or a combination of both.

TREATMENT CLUSTER							
STAFF STATION	yes	1 x 10	1 x 12	1 x 14	2x 10	2 x 12	May need to be subdivided in larger units
TREATMENT BAYS		6 x 9	12 x 9	18 x 9	24 x 9	30 x 9	See note 2
TOILET – PUBLIC (DISABLED ACCESS)	yes	1 x 5	1 x 5	2 x 5	2 x 5	2 x 5	For use by persons in open treatment bays
SHOWER - PUBLIC (DISABLED ACCESS)	yes	1 x 5	1 x 5	2 x 5	2 x 5	2 x 5	For use by persons in open treatment bays

ISOLATION ROOMS	yes	1 X 12	2X 12	3 X 12	4 X 12	5 X 12	Must be designed as a Class S (standard isolation) room.
PPE BAY	yes	1 x 2	1 x 2	2 x 2	2 x 2	3 x 2	A Personal Protective Equipment Bay (one shared between two rooms) outside the isolation rooms.
TOILET/SHOWER FOR ISOLATION ROOMS	yes	1 x 5	2 x 5	3 x 5	4 x 5	5x 5	One toilet/shower for the dedicated use of each isolation room
HANDWASHING BAYS	yes	2 x 1	4x 1	6 x 1	8 x 1	10 x 1	One handwashing basin per three (3) bays or part thereof is required.
KITCHENETTE/MEAL TROLLEY HOLDING	yes	1 x 4	1 x 4	1 x 5	1 x 6	1 x 6	To receive and issue meals and beverages to persons receiving treatment
DISCOUNTED CIRCULATION		35%	35%	35%	35%	35%	

620 .70.00 STAFF AREAS

STAFF AREAS							
STAFF RESOURCE ROOM	yes	1 x 12	1 x 12	1 x 15	1 x 15	1 x 15	Discreet section of the Unit. May be shared if an easily accessible facility is available
TOILET - STAFF	yes	1 x 3	1 x 3	1 x 3	2 x 3	2x 3	Discreet location . Adjacent to Staff Resource Room if provided in the Unit .
PROPERTY BAY - STAFF	yes	1 x 2	1 x 2	1 x 2	1 x 2	1 x 2	Discreet and secure location. Adjacent to Staff Resource Rm.
DISCOUNTED CIRCULATION		25%	25%	25%	25%	25%	

620 .71.00 SUPPORT AREAS

SUPPORT AREAS							
CLEAN UTILITY ROOM	yes	1 X 12	1 X 12	1 X 14	1 X 16	1 X 18	
EQUIPMENT CLEANING AREA		1 x 6	1 x8	1 x 10	1 x 12	1 x 14	For the cleaning and servicing of haemodialysis and other machinery
DIRTY UTILITY ROOM	yes	1 x 10	1 x 10	1 x 10	1 x 10	1 x 10	
WATER TREATMENT PLANT ROOM		1 x 12	1 x 15	1 x 18	1 x 20	1 x 24	Close to treatment areas to reduce piping runs.
DISCOUNTED CIRCULATION		15%	15%	15%	15%	15%	

620 .72.00 STORAGE AREAS

Note 3 : Main Store Room
To hold general stores, fluids and equipment. Must be placed on the perimeter of the Unit and accessible by a palette lifter. Shelving must have 100 kg weight capacity and shelves need to be at least 400 mm apart and adjustable. A benchmark of 1m2 for each treatment bay and isolation room has been determined by assessing operational units.

Note 4 : Disposal Area
Area to hold receptacles for general and contaminated waste and dirty laundry. May be an open bay with receptacles or an enclosed room.

Note 5 : Bay - equipment holding
May be subdivided to place in convenient locations to keep wheelchairs, trolleys etc out of corridors and work areas.

Note 6 : Cleaner's Wet Store
To hold cleaning liquids, mopping, scrubbing and other equipment. Will include a cleaner's sink.

Note 7 : Cleaner's Dry Store
Cupboard to hold paper supplies and other goods that must be kept dry to eliminate potential water contamination.

Note 8 : Dialysis Fluid Bay

To hold dialysis fluid in a convenient location close to treatment bays. May be subdivided to enhance staff access. Temperature is important for some diasylate and this area may require air-conditioning.

STORAGE AREAS							
BAY - RESUSCITATION TROLLEY	yes	1 x 2	1 x 2	1 x 2	1 x 2	1 x 2	Adjacent to staff station.
MAIN STORE ROOM	yes	1 x 7	1 x 21	1 x 32	1 x 42	1 x 53	See note 3.
BAY - CLEAN LAUNDRY	yes	1 x 2	1 x 2	1 x 2	2 x 2	2 x 2	Cupboard or trolley bay to hold clean laundry
DISPOSAL AREA	yes	1 x 2	1 x 3	1 x 4	1 x 6	1 x 8	See note 4.
BAY - EQUIPMENT HOLDING	yes	1 x 2	1 x 3	1 x 4	1 x 5	1 x 6	See note 5.
CLEANER'S WET STORE	yes	1 x 5	1 x 5	1 x 5	1 x 5	1 x 5	See note 6.
CLEANER'S DRY STORE		1 x 1	1 x 1	1 x 1	1 x 1	1 x 1	See note 7.
DIALYSIS FLUID BAY		1 x 1	1 x 1	1 x 2	1 x3	1 x 4	See note 8.
DIASYLATE PREPARATION AREA		1 x 1	1 x 1	1 x 1.5	1 x 1.5	1 x 2	Space adjacent to Dialysis Fluid Bay. May be subdivided to enhance staff access.
DISCOUNTED CIRCULATION		25%	25%	25%	25%	25%	

Functional Relationships Diagram/s

620 .73.00 A diagram of key functional relationships is attached.

References and Further Reading

620 .74.00 Reference has been made to the following documents to inform these guidelines. A full review of the following documents should be taken by persons embarking on the planning and design of a Renal Dialysis Unit.

•□AS/NZS 4187:2003 Australian/New Zealand StandardTM Cleaning, disinfection and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities.

•□HB260 – 2003. Handbook: Hospital acquired infection – Engineering down the risk, Standards Australia, 2003.

•□Health Facility Guidelines, Part D – Infection Prevention and Control, NSW Health, 2004.

•□NSW Health, Health Facility Guidelines – Safety and Security (PD 2005-293), Working Draft, January 2005
•□NSW Health, Health Facility Guidelines, Part C – Design for Access, Mobility, OHS and Security, 2004

•□NSW Health, Infection Control Policy – Circular 2002/45.
•□NSW Health, NSW Health Facility Guidelines, Standard Components, 2005
•□NSW Health, NSW Standard Project, Room Data Sheets, 2005
•□NSW Health, Part A – Introduction and Instructions for Use, NSW Health Facility Guidelines, 2004

•□NSW Health, Part B – Health Facility Briefing and Planning, NSW Health Facility Guidelines, 2004

•□NSW Health, Part D – Infection Prevention and Control, Health Facility Guidelines, 2004.

•□NSW Health, Protecting People/Property: NSW Health Policy/Guidelines for Security Risk Management in Health Facilities (PD2005_339), January 2005

- NSW Health, Technical Series 11 – Engineering Services Guidelines, 2003
- Office Accommodation Policy for Public Health Organisations and Ambulance Services, April 2005.

- Poisons Regulations.
- Standards Australia HB 260 – 2003.

FUNCTIONAL RELATIONSHIP DIAGRAM –RENAL DIALYSIS UNIT

The following diagram sets out the relationships between zones in a Renal Dialysis Unit: