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Standards for Renal Dialysis

Services

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The Health Policy and Standards Department (HPSD) developed this Standard in collaboration with Subject Matter Experts and would like to acknowledge and thank these health professionals for their dedication toward improving quality and safety of healthcare services in the Emirate of Dubai.

Health Regulation Sector

Dubai Health Authority

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INTRODUCTION

Health Regulation Sector (HRS) plays a key role in regulating the health sector. HRS is mandated by the Dubai Health Authority (DHA) Law No. (6) of the year (2018) with its amendments pertaining to DHA, to undertake several functions including but not limited to:

- Developing regulation, policy, standards, guidelines to improve quality and patient safety and promote the growth and development of the health sector;
- Licensure and inspection of health facilities as well as healthcare professionals and ensuring compliance to best practice;
- Managing patient complaints and assuring patient and physician rights are upheld;
- Governing the use of narcotics, controlled and semi-controlled medications;
- Strengthening health tourism and assuring ongoing growth; and
- Assuring management of health informatics, e-health and promoting innovation.

The Standards for Renal Dialysis Services aims to fulfil the following overarching DHA Strategic Priorities (2026):

- Pioneering Human-centered health system to promote trust, safety, quality and care for patients and their families.
- Make Dubai a lighthouse for healthcare governance, integration and regulation.
- Leading global efforts to combat epidemics and infectious diseases and prepare for disasters.
- Pioneering prevention efforts against non-communicable diseases.

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- Strengthening the economic contribution of the health sector, including health tourism to support Dubai economy.

EXECUTIVE SUMMARY

The purpose of this document is to assure the provision of the highest levels of safety and quality in renal dialysis services at all times. The standards have been developed to align with the evolving healthcare needs and international best practice. The standards include several aspects required to provide effective, efficient, safe and high-quality renal dialysis services. The standards include the registration and licensure procedure requirements as well as the licensure of health facilities and professionals. The standards for renal dialysis services provide clear insight into the minimum requirements that should be met for the establishment of renal dialysis services, onsite or at home. It will also assist renal dialysis providers in developing their quality management systems and in assessing their own competence to ensure compliance with DHA regulatory requirements and the United Arab Emirates (UAE) federal laws.

The standard focuses on the following:

- The health care professional requirements and permitted services for renal dialysis services
- The health facility design requirements for renal dialysis services aligned with the DHA Health facility guidelines.
- The policies, procedures, protocols and clinical governance that should be in place for the management of a renal dialysis unit.
- The general requirements for patient eligibility, consent, admission, referral and management.
- The general requirements peritoneal dialysis and renal dialysis at home

DEFINITIONS

Dialysis Stations are smaller units or cubicles within the Renal Dialysis Unit where individual patients receive dialysis treatment.

Haemodialysis units are standalone dialysis units that may be located on a hospital site, a community health centre or other location. Selected satellite services may also provide training for home dialysis, both haemodialysis and peritoneal dialysis.

Haemodialysis a treatment for renal failure where the function of the kidneys is replaced by a machine. The machine uses a process that uses a synthetic membrane (dialyzer) to remove wastes, such as urea, from the blood, restore the proper balance of electrolytes in the blood, and eliminate extra fluid from the body.

In-centre haemodialysis units will be collocated in a hospital with other acute services and provide HD and HDF treatment for acute renal disease emergencies. A high level of medical support is needed, as patients are typically medically unstable. Plasma exchange services may also be provided in these units.

Peritoneal dialysis is a process that uses the patient's own body tissues inside the abdominal cavity as a filter. A plastic tube called a dialysis catheter is surgically placed through the abdominal wall, into the abdominal cavity.

Renal Dialysis is the clinical purification of blood by dialysis, as a substitute for the normal function of the kidney. There are two main types of dialysis: Haemodialysis, and peritoneal dialysis.

Self-care haemodialysis is provided for patients who can manage their own dialysis, however, in the event that they are unable to undertake it at home due to poor water supply or unstable accommodation etc. An appropriately equipped area in the health facility should be established and staffing is provided to the level of carer support.

Sentinel Event is an unanticipated occurrence involving death or major permanent loss of function unrelated to the nature course of the patients' illness or underlying condition.

Treatment room is a specialized area designed for administering medical or therapeutic procedures. It is equipped with necessary equipment's.

ABBREVIATIONS

| | | |
|---------------|---|--|
| AAMI | : | Association for the Advancement of Medical Instrumentation |
| ACLS | : | Advanced Cardiac Life Support |
| AII | : | Airborne Infection Isolation |
| ALT | : | Alanine aminotransferase |
| AV | : | Arteriovenous |
| BLS | : | Basic Life Support |
| CVVD | : | Continuous Venovenous Dialysis. |
| CVVHD | : | Continuous Veno-Venous Haemodialysis |
| CVVHDF | : | Continuous Veno-Venous Hemodiafiltration. |
| DHA | : | Dubai Health Authority |
| ECG | : | Electrocardiography |
| HBsAg | : | Hepatitis B surface antigen |
| HBV | : | Hepatitis B virus |
| HCV | : | Hepatitis C virus |
| HD | : | Haemodialysis |
| HDF | : | Hemodiafiltration |
| HIV | : | Human Immunodeficiency Virus |
| LFT | : | Liver Function Test |
| MOHAP | : | Ministry of Health and Prevention |
| PALS | : | Paediatric Advanced Life Support |

| | | |
|------------|---|----------------------------|
| RDU | : | Renal Dialysis Unit |
| RN | : | Registered Nurse |
| RO | : | Reverse Osmosis |
| UPS | : | Uninterrupted Power Supply |

1. BACKGROUND

Renal dialysis is a medical process that becomes necessary when the normal functions of the kidneys become compromised by reduced Renal function leading to Renal failure. This may be due to disease, injury, infection or genetic factors. Renal failure may be classified as either acute kidney injury or chronic kidney failure. Haemodialysis and peritoneal dialysis services involve filtering the blood of excess fluid, and waste products normally filtered by the kidneys.

Haemodialysis may be undertaken in the following locations:

- Hospital
- Renal Dialysis Unit/Centre (RDU)
- Home Dialysis Services.

The functions of the RDU are:

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

2. SCOPE

2.1. Renal dialysis services in DHA licensed health facilities and home healthcare services.

3. PURPOSE

- 3.1. To assure provision of the highest levels of safety and quality of renal dialysis services in Dubai Health Authority licensed health facilities.

4. APPLICABILITY

- 4.1. DHA licensed healthcare professionals and health facilities providing renal dialysis services.

5. STANDARD ONE: REGISTRATION AND LICENSURE PROCEDURES

- 5.1. All health facilities providing renal dialysis services shall adhere to the United Arab Emirates (UAE) Laws and Dubai regulations.
- 5.2. Health facilities aiming to provide renal dialysis services shall comply with the DHA licensure and administrative procedures available on the DHA website <https://www.dha.gov.ae>.
- 5.3. Licensed health facilities opting to add renal dialysis services shall inform Health Regulation Sector (HRS) and submit an application to HRS to obtain permission to provide the required service.
- 5.4. The Medical Director of the renal dialysis facility or section should be a full time DHA licensed Consultant Nephrologist.
- 5.5. The health facility should develop the following policies and procedure; but not limited to:
 - 5.5.1. Patient acceptance criteria
 - 5.5.2. Patient assessment and admission
 - 5.5.3. Patient education and Informed consent

- 5.5.4. Patient health record
 - 5.5.5. Infection control measures and hazardous waste management
 - 5.5.6. Incident reporting
 - 5.5.7. Patient privacy
 - 5.5.8. Medication management
 - 5.5.9. Emergency action plan
 - 5.5.10. Patient discharge/transfer.
- 5.6. The health facility shall provide documented evidence of the following:
- 5.6.1. Transfer of critical/complicated cases when required
 - 5.6.2. Patient discharge
 - 5.6.3. Clinical laboratory services
 - 5.6.4. Equipment maintenance services
 - 5.6.5. Laundry services
 - 5.6.6. Medical waste management as per Dubai Municipality (DM) requirements
 - 5.6.7. Housekeeping services.
- 5.7. The health facility shall maintain charter of patients' rights and responsibilities posted at the entrance of the premise in two languages (Arabic and English).
- 5.8. The health facility shall have in place a written plan for monitoring equipment for electrical and mechanical safety, with monthly visual inspections for apparent defects.

6. STANDARD TWO: HEALTH FACILITY REQUIREMENTS

- 6.1. Health facilities should align with the [DHA Guidelines for Health facility design; section B, 400- Renal Dialysis Unit](#) to provide a safe environment for patients, renal dialysis unit staff, and visitors.
- 6.1.1. Health facilities shall align with the guideline to maintain patient flow to ensure auditory and visual privacy (as applicable).
- 6.1.2. Health facilities shall align with the guideline regarding the numbers of rooms required.
- 6.2. The Renal Dialysis Unit (RDU) shall be designed to provide:
- 6.2.1. Ease of public access for patients who may arrive either walking, using mobility equipment, families with children, on an ambulance stretcher or patient trolley.
- 6.2.2. Ease of access to public parking for patients who are often debilitated and who may need to visit the unit on a regular basis.
- 6.2.3. Ease of delivery of large amounts of fluids (dialysate) on palettes to the Unit on a regular basis
- 6.3. The facility shall ensure having backup dialysis machines available when needed.
- 6.3.1. All dialysis machine shall have backup batteries.
- 6.3.2. If the facility is providing modern machines shall ensure that the machine serves alternative to an external electricity source in case of a power outage.
- 6.4. A reception desk shall be located to provide visual control of the entrance and to provide access to patient files and records.

- 6.5. Waiting areas should be present near reception area and shall accommodate at least one wheelchair within the waiting area.
 - 6.5.1. Ensure an optimal seating ratio in the facility, maintaining a balance between patient comfort and efficient use of space.
- 6.6. Where paediatric services are provided, the health facility shall designate a separate controlled area for paediatric patients.
- 6.7. Toilet(s) for public and patient use shall be conveniently accessible from the waiting area without passing through patient care or staff areas.
- 6.8. The RDU shall ensure easy access to the health facility and treatment areas for all patient groups.
- 6.9. The RDU design shall provide assurance of patients and staff safety.
- 6.10. Treatment rooms shall be equipped with the following:
 - 6.10.1. Hand sanitisation dispensers in addition to hand-washing stations.
 - 6.10.2. A lockable refrigerator for medications use.
 - 6.10.3. The temperature of the refrigerator shall be monitored and recorded twice daily.
 - 6.10.4. A counter or shelf space for writing and documentation shall be provided.
- 6.11. Consultation/Examination rooms should ensure having a hand washing station with hands-free regulator (tap) and liquid or foam soap dispensers shall be provided in all examination room(s).
- 6.12. Nursing stations shall be located and designed to provide visual observation of all patients in all dialysis treatment area.

- 6.12.1. The nursing station should also be within the range of hearing warning sounds from the machines for prompt corrective action.
- 6.13. The RDU should install and operate equipment required for provision of the proposed services in accordance to the manufacturer's specifications.
- 6.14. The RDU shall have appropriate equipment and trained healthcare professionals to manage critical and emergency cases.
- 6.15. The dialysis treatment area shall be separate from administrative and waiting areas.
- 6.16. The dialysis area specifications and requirements shall include:
- 6.16.1. Enough space to accommodate the number of provided dialysis stations.
 - 6.16.2. The dialysis station shall be easily accessible in times of emergency and with adequate space for resuscitation to be carried out.
 - 6.16.3. The layout shall ensure visual and acoustical privacy for all patients.
 - 6.16.4. Hands free hand washing facility must be provided and easily accessible from all dialysis stations.
 - 6.16.5. Alcohol-based hand rub/sanitizer dispensers should be available in all dialysis stations.
- 6.17. In the RDU, head end of each bed should have stable electrical supply with at least three outlet of 5/15 amps, oxygen and vacuum outlet, treated water inlet, and drainage.
- 6.18. Electric sockets must be provided and close to every dialysis station. The wires from the socket should be in such a way that they do not pose a threat or come in the way of the patient or staff during the whole dialysis process.

- 6.19. A dialysis station may be designed to have comfortable couches or chairs specially designed for dialysis purposes, however, it is recommended to have at least two (2) beds for elderly patients.
- 6.20. Equipment to be provided in the dialysis station include:
- 6.20.1. Every dialysis station must have outlets for oxygen and vacuum (suction). Or portable O2 tank, Portable suction equipment must be available in the nearest crash cart.
 - 6.20.2. Airway equipment: appropriately sized oral airways, endo-tracheal tubes, laryngoscopes, normal masks and laryngeal masks.
 - 6.20.3. Defibrillator.
 - 6.20.4. Double tourniquets if the practice performs Bier blocks.
 - 6.20.5. Pulse oximeter.
 - 6.20.6. Electrocardiographic (ECG) monitor.
 - 6.20.7. Temperature monitoring system for procedures lasting more than 30 minutes.
 - 6.20.8. Blood pressure apparatus with different size cuffs.
 - 6.20.9. Emergency crash cart.
 - 6.20.10. A refrigerator for pharmaceuticals and double-locked storage for controlled substances shall be provided.
- 6.21. Every dialysis station must have a waste disposal bin.
- 6.22. For a regular dialysis patient, the waste disposable bags used should be Black in colour.

- 6.23. For patients with communicable diseases, it is mandatory that the waste disposable bags used should be Yellow in colour.
- 6.24. Medical waste disposal must be done after each patient and General waste disposal can be done after every two (2) patients and must be taken outside to the soiled workroom for disposal.
- 6.25. Solid workroom shall be provided in close proximity to the dialysis unit and shall contain the following:
- 6.25.1. Flushing-rim sink
 - 6.25.2. Hand-washing station
 - 6.25.3. Work counter
 - 6.25.4. Storage cabinet
 - 6.25.5. Waste receptacles
 - 6.25.6. Solid linen receptacle
- 6.26. Dialysis machines shall be equipped with monitors and audio-visual alarms to ensure safe dialysis.
- 6.27. The dialysis nurse in-charge or head of dialysis unit is ultimately responsible to ensure that all dialysis equipment is in proper working condition and that the necessary safety devices and fitted and working in order.
- 6.28. Freestanding dialysis centres may require the provision of parking on the facility premises for patients and staff.
- 6.29. Considerations shall be given when designing access for people of determination.

- 6.30. Clear and visible signage shall be provided to direct people to the areas of the RDU.
- 6.31. Health facilities providing renal dialysis services shall ensure that the facility is fully air-conditioned to achieve 21-22 Celsius temperatures and 55-60% humidity.
- 6.32. Clean supply room shall ensure preparing patient care with the following:
- 6.32.1. Work counter
 - 6.32.2. Hand-washing station
 - 6.32.3. Storage facilities for clean and sterile supplies. This room is used only for storage and holding as part of a system distribution of clean and sterile materials.
- 6.33. Support areas for Dialysis patient care shall ensure the following:
- 6.33.1. Each dialysis unit shall make provisions to support administrative activities, filing and clerical space or rooms for typing and clerical work.
 - 6.33.2. Multi-use rooms for meetings, and health education.
- 6.34. Medication station shall ensure the following:
- 6.34.1. There shall be a medication dispensing station or a medication preparation area.
 - 6.34.2. Provision shall be made for controlled storage, preparation, distribution, and refrigeration of medications.
- 6.35. A nourishment station for dialysis services shall be provided.
- 6.36. Design considerations shall be given to the disposal of liquid waste from the dialysing process to prevent odour and backflow.
- 6.36.1. The product water distribution system shall not contribute chemicals such as copper, zinc and lead, or bacterial contamination to the treated water.

- 6.37. There shall be an uninterrupted power supply (UPS) for backup, the power supply of which should be able to support all functions of the dialysis machines.
- 6.38. All serology tests required for admission to receive haemodialysis must be conducted by DHA or MOH certified laboratory to ensure the accuracy and reliability of the results.
- 6.39. RDU shall have separate areas/room(s) in the facility for dialysing patients with conditions that require isolation.
- 6.39.1. This area should have independent water supply and drainage facilities.
- 6.39.2. Ensure the water supply and drainage has no backflow.
- 6.40. Isolation room shall include having a viewing window from outside the room for staff safety.
- 6.41. Isolation rooms must be categorised as follows:
- 6.41.1. Airborne Infection Isolation (All) room.
- 6.41.2. Blood-borne infection isolation room(s):
- a. Facilities that dialyze patients with known blood-borne pathogens shall have at least two separate rooms to use for patients as follows:
- i. Room colour code BLUE for HBV patients.
- ii. Room colour code YELLOW for HCV patients.
- 6.42. Clean linen storage area shall be provided with the following requirements:
- 6.42.1. Location of the clean linen storage area within the clean workroom.
- 6.42.2. A separate closet or an approved distribution system shall be permitted.
- 6.42.3. If a closed cart system is used, storage in an alcove shall be permitted, it must be out of the path of normal traffic and under staff control.

6.43. Insertion haemodialysis can be done in outpatient with privilege physician, while permanent dialysis can be done in hospital setting.

7. STANDARD THREE: HEALTHCARE PROFESSIONALS REQUIREMENTS

7.1. A DHA licensed consultant nephrologist with minimum 5 years' experience in dialysis, shall be nominated as medical director of the dialysis unit.

7.1.1. The medical director shall be responsible for overall management of the patients receiving renal dialysis services.

7.2. The RDU shall have one (1) nephrologist on call per shift to address renal dialysis patient requirements.

7.3. Maintain a staff ratio of nephrologist to patient, ensuring that adequate medical supervision and care are provided to meet the unique needs of renal dialysis patients.

7.4. Health facilities providing paediatric renal dialysis services shall have at least one (1) DHA licensed paediatric nephrologist present.

7.4.1. The paediatric nephrologist must be present physically in presence of non-stable paediatric patients.

7.5. In emergency situations, the attending nephrologist shall ensure the correct measures are taken for renal dialysis patients to be referred for emergency management.

7.6. All nurses in-charge must be either a DHA licensed Dialysis Nurse or registered nurse (RN) with adequate nephrology training and have minimum two (2) years' experience in renal dialysis services.

- 7.7. All nurses working in the dialysis unit must have adequate nephrology training and minimum six (6) months training or experience in dialysis.
- 7.8. Ratio of trained RNs to dialysis patients should be 1:4.
- 7.9. The attending RN is responsible for general check-up of the patient which includes:
 - 7.9.1. Vital statistics, and vascular access examination.
 - 7.9.2. Maintaining the initial assessment in the medical records.
- 7.10. The RN shall have appropriate training in handling resuscitation equipment and dealing with cardiac emergencies.
 - 7.10.1. All nursing staff shall undergo formal training in certified basic life support (BLS) training that should be up to date and available.
- 7.11. Renal dialysis technologist must be DHA licensed and competent in dialysis water practices.
 - 7.11.1. Renal dialysis technicians must have DHA license and competent in dialysis water practices, but will not have patient care responsibilities while the technologist can have patient care responsibilities.
- 7.12. The ratio of renal dialysis technologist OR nurses to the dialysis patients shall be 1:8.
- 7.13. The renal dialysis technologist must monitor the dialysis machine at all times and must be able to handle any complications related to the machine.
- 7.14. Renal dialysis technologist shall refer to PQR for qualification and experience.

- 7.15. There shall be at least one Clinical Dietician who will maintain the progress notes of all patients treated in renal dialysis in the health facility and evaluates the patient's nutritional status, progression and follows up with the healthcare professional.
- 7.16. A DHA licensed pharmacist shall be in charge of maintaining any medications and/or solutions that would be administered to patients.
- 7.16.1. For standalone centres this staff can be supported from the network hospital.
- 7.17. There should be at least one medical social worker or licensed clinical psychologist present in the health facility who will be responsible for the following:
- 7.17.1. Psychosocial evaluation of the patient.
- 7.17.2. Casework and counselling of the patient and families.
- 7.17.3. Evaluation and facilitation of rehabilitation.
- 7.18. There should be at least one DHA licensed registered nurse responsible for infection control within the renal dialysis facility/centre.
- 7.18.1. To perform regular audits, conduct surveillance of cultures and ensure best practice for patients.
- 7.18.2. For stand-alone centres this staff can be supported from the network hospital.
- 7.19. The RDU must maintain records of BLS, ACLS, and PALS for licensed staff, and the requirements for these certificates depends on the PQR criteria; not all staff members are obligated to obtain all of the three certificates.
- 7.20. Maintain a staff ratio of nephrologist to patient, ensuring that adequate medical supervision and care are provided to meet the unique needs of renal dialysis patients.

8. STANDARD FOUR: PATIENT ELIGIBILITY AND INFORMED CONSENT

- 8.1. Healthcare professionals should maintain patient's information confidentiality at all times.
- 8.2. Healthcare professionals working in the facility should be aware of their ethical responsibilities and comply with the ethical code of conduct, which is governed by the principle of patient centeredness where the patient is the centre of all activities.
- 8.3. The RDU shall have policies and procedures on patient assessment:
 - 8.3.1. On admission,
 - 8.3.2. Following a change of health status
 - 8.3.3. After a fall
 - 8.3.4. When patient is transferred from one level of care to another.
- 8.4. The RDU physician must obtain a signed informed consent from the patient before beginning dialysis treatment.
- 8.5. Informed patient consent shall be written and include the following:
 - 8.5.1. Patients shall be provided information about their condition and the likely outcome of their condition with or without dialysis.
 - 8.5.2. The patient should be given information about all treatment options including:
 - a. Hospital or satellite haemodialysis
 - b. Peritoneal dialysis
 - c. Home dialysis options
 - d. Non-dialysis options such as supportive care without dialysis
 - e. Kidney transplant.

- 8.5.3. Explain the risks and complications associated with dialysis and its maintenance.
- 8.5.4. Provide the patient with information on their rights and responsibilities in relation to their healthcare.
- 8.5.5. Physician shall explain to the patient that they will require regular blood tests, routine investigations, and the need for monitoring for transmissible infections such as viral hepatitis control.
- 8.5.6. Make sure the patient or their guardian voluntarily signs the written informed consent document.
- 8.5.7. For further information refer to DHA Guidelines for Patient Consent.

9. STANDARD FIVE: RENAL DIALYSIS UNIT MANAGEMENT AND INFECTION CONTROL

- 9.1. Outpatient care services, if provided, must be under the direction of qualified physicians as determined by the RDU and shall be responsible for the quality and scope of outpatient services.
- 9.2. The initial medical assessment may include, but not limited to:
 - 9.2.1. The reason for the visit,
 - 9.2.2. Vital signs,
 - 9.2.3. Medical history,
 - 9.2.4. Pain assessment,
 - 9.2.5. Physical and psychological assessment of patient's needs.
- 9.3. The nephrologist in charge of the RDU shall ensure that the facility can accommodate for the following:

- 9.3.1. Emergency resuscitations
- 9.3.2. Documented protocols/procedures to deal with cardiopulmonary collapse
- 9.3.3. Urgent medical treatment for dialysis patients that may develop the following during treatment:
 - a. Hypotension
 - b. Fits or collapse during dialysis.
- 9.4. RDU physicians shall not perform unnecessary diagnostic imaging investigations and laboratory testing to avoid serious health implications and financial burden to the patient.
- 9.5. During emergency services, the nephrologist in charge must:
 - 9.5.1. Ensure that there are prior arrangements made for patients receiving dialysis to be admitted in a hospital nearby.
 - 9.5.2. Ensure that there are standing arrangement with other healthcare professionals to provide immediate medical care in the event that the nephrologist in charge is not available.
 - 9.5.3. Ensure there is an ambulance/DCAS available at any given time to transfer the patient to a hospital in case of any medical emergency.
 - 9.5.4. Ensure that ambulance services are accessible and at close proximity.
 - 9.5.5. Emergency medication, devices and equipment must be available for immediate use in the emergency area.
- 9.6. Standard infection control practices precautions shall be used on all patients regardless of whether the Hepatitis B, Hepatitis C and HIV status is known.

- 9.7. Physicians and attending staff shall wear disposable gloves when handling biohazardous materials.
- 9.8. Hepatitis B vaccination of all staff that has contact with blood and body fluids is strongly recommended.
- 9.8.1. This applies to dialysis attendants/sanitation personnel of the renal dialysis unit.
- 9.8.2. Routine screening of staff for anti-HCV may be done where necessary.
- 9.9. Blood products should be stored, transferred and administered in accordance with the relevant authority guidelines.
- 9.10. Draining, disinfection and rinsing procedures shall be performed after each dialysis.
- 9.10.1. If a blood leak occurs in a recirculating system, the usual rinsing and disinfection procedure shall be performed twice before the system is used on a different patient.
- 9.11. Provision of acute haemodialysis for patients that are on an emergency or semi-emergency basis.
- 9.11.1. Isolation facilities are not required unless the patient has an infection associated with another disease that requires isolation.
- 9.12. For acute haemodialysis patients, attending staff shall use disposable dialyzers and bloodlines shall be used.
- 9.12.1. Dialysis machines shall undergo complete chemical disinfection in accordance to the manufacturers' recommendations after each use of patients with unknown HBsAg, anti-HCV and HIV status.

- 9.13. Patients who require chronic haemodialysis at dialysis centres shall be tested for Hepatitis B, Total Hep B core antibodies, Hepatitis C and HIV before they are admitted to the centre.
- 9.13.1. In urgent cases requiring dialysis, Patients shall be treated in isolation until the results of hepatitis C, hepatitis B, Total Hep B core antibodies, and HIV serology tests are received.
- 9.13.2. The dialysis centre shall maintain records of patients' latest results in accordance to the current international guidelines.
- 9.14. All patients with Hepatitis B surface below 100 international units should be given a full course and booster of hepatitis B vaccine.
- 9.14.1. Patients with negative Hepatitis B surface Ag and have low Hepatitis B surface antibody titers below 10 international units/L are considered Hepatitis B susceptible and should be vaccinated with hepatitis B vaccine as following:
- a. Adults patients: Engerix 40 mcg IM in 0, 1,2 and 6 months or Recombivax HB 40 mcg IM on 0,1 and 6 months.
- 9.14.2. Susceptible patients for hepatitis B who received hepatitis B vaccine series should have their Hepatitis B antibody checked 1-2 months after completion of hepatitis B vaccine series. Those Hepatitis B surface antibody titers remain below 10 international units/L should undergo another full hepatitis B vaccine series as the first one.

- 9.14.3. Patients who initially developed an antibody response to hepatitis B vaccination but later their antibody titer falls to 10 international units/L or less should receive a booster dose.
- 9.14.4. Responder to hepatitis B vaccine antibody titer above 10 international units/L should have their antibody repeated annually.
- 9.15. A Liver function Test (LFT) must to be conducted on monthly basis.
- 9.16. Haemodialysis patient must check their ALT level on monthly basis.
- 9.17. The rooms for treating HBV and HCV patients should be colour coded and strictly used only for these patients.
- 9.17.1. HBV- Blue Colour
- 9.17.2. HCV- Yellow Colour
- 9.18. Patients who are HBsAg positive shall be isolated in a separate room that is colour coded (Blue) designated for HBsAg positive patients only.
- 9.19. Dedicated dialysis equipment shall be used for HBsAg positive patients.
- 9.19.1. After each dialysis, non-disposable equipment shall be appropriately cleaned and disinfected or sterilized.
- 9.19.2. Dialyzers and AV bloodlines must not be shared among patients. Bloodlines shall be used once and discarded.
- 9.19.3. Dedicated nurse to care for isolation patients.
- 9.20. Hepatitis C patients are to be dialyses in separate isolation rooms that have to be clearly colour coded (Yellow) and used only for Hepatitis C patients.

9.21. To ensure patient safety the RDU shall take precautions for patients dialysed in high-risk countries, or who leave the unit to travel to high-risk countries and subsequently come back to the dialysis unit:

9.21.1. The patient should be dialysed on an isolation machine for three months until they are confirmed negative for Hepatitis B and Hepatitis C.

9.21.2. Dedicated machine for hep C patients

9.21.3. For further information, refer to Centre of disease and control prevention website.

9.22. Death in the RDU shall be considered a sentinel event.

9.22.1. A policy for mortuary management covering this rare and tragic event shall be available in the facility.

9.23. A record of such sentinel events shall be maintained by the RDU.

9.24. All deaths occurring whilst on dialysis or as a consequence of dialysis or any procedure related to dialysis must be reported immediately to the DHA.

9.25. For Outpatient centre; there should be inclusion and exclusion criteria for admission depends on patient condition and comorbidity level.

9.26. The RDU shall follow the DHA [Standard for mortuary services](#) when handling dead bodies.

10. STANDARD SIX: WATER AND DIALYSATE QUALITY

10.1. To ensure the quality of water for dialysis, the water shall be treated by reverse osmosis (RO) and/or deionizers.

10.1.1. Water quality shall meet the standards listed in **appendix 1**.

- 10.2. The water used to prepare the dialysate shall have a bacteriological count of less than 200 per ml after 48 hours of incubation (AAMI).
- 10.2.1. Total viable counts shall be obtained using conventional microbiological assay procedures (pour plate, spread plate).
- 10.2.2. The calibrated loop technique shall not be used. Alternatively, the water shall have a bacterial lipopolysaccharide concentration of less than 1 ng/ml or 5 Endotoxin units as measured by the Limulus amoebocyte lysate assay.
- 10.3. Regular tests of the quality of the water must be carried out, at a minimum of one monthly interval and recorded to ensure that standards are met.
- 10.4. Regular sterilization of the plant equipment and pipes at a minimum of monthly interval.
- 10.4.1. Each water point has to be tested along with chemical analysis.
- 10.5. The nephrologist in charge or the medical director of the renal dialysis unit is responsible for ensuring that these tests are carried out by DHA licensed laboratory registered to perform these assays.
- 10.5.1. An in-house chemical laboratory is preferable.
- 10.5.2. The records shall be kept and made available for inspection by DHA.
- 10.6. Temperature of the water needs to be regulated to avoid water related hyperthermia.
- 10.7. The dialysate fluid shall be a non-sterile aqueous solution with an electrolyte composition near that of normal extracellular fluid.
- 10.8. The feed tank should have sufficient volume to supply the RO system. The RO system should supply water to the dialysis machines in accordance to the RO specifications.

- 10.9. The RO system should not be connected directly to the main supply and the water supply should be uninterrupted.
- 10.10. The RDU shall be approved by the Dubai Electric and Water Authority (DEWA) to ensure uninterrupted flow of water.
- 10.11. A water reserve Pre-RO tank is required to avoid interruption.
- 10.12. The tank should be of an adequate size and that the pipe size of water supply to the RO is sufficiently large.
- 10.13. The feed from the RO must be sufficiently large.
- 10.14. The RO should be in a separate room.
- 10.15. In case of a portable RO, it should be within a recommended distance from dialysis machines as specified by the manufacturer.
- 10.16. The RO system must not be linked to general toilet facilities or placed in general bathrooms.
- 10.17. There should always be a backup machine available for patients.
- 10.18. The water used to prepare the dialysate must have a bacteriological colony count of less than 100/ml.
- 10.19. The composition of the dialysate fluid is summarised in appendix 2.
- 10.20. Bacteriological requirements:
- 10.20.1. The colony count in dialysate samples collected at the termination of dialysis:
- a. In a single pass system or

- b. In a recirculating single pass system at the periphery of the recirculating chamber, containing the dialyzer shall be less than 2000 colony-forming units/ml (AAMI).

10.20.2. Bacteriological analysis of the dialysate shall be carried out at least two (2) monthly.

10.21. The nurse in charge or the medical director shall be responsible for arranging the analysis of the dialysate.

10.21.1. Its chemical composition shall be clearly labelled.

10.21.2. The results of analysis, bearing the name of the renal dialysis unit and the healthcare professional analysing the dialysate shall be made available on request as and when required.

10.22. All chemical analysis test results for feed and dialysis water received from the in-house or third-party testing laboratory must be documented.

10.22.1. These results must be reviewed by the nurse in charge of the dialysis unit, reviewed, and signed off by the medical director annually.

11. STANDARD SEVEN: TRANSFER, DISCHARGE AND OUTPATIENT FOLLOW UP

11.1. The RDU shall maintain policies and procedures concerning patient transfer, which reflect acceptable standards of practice and compliance with applicable regulations in Dubai.

11.2. The RDU shall adhere to the [Patient Referral and Inter-Facility Transfer Policy](#).

- 11.3. The RDU shall ensure continuity of patient care during transfer by informing the other facility about the case and approval to transfer should be documented in the patient health record.
- 11.4. The physician present at the RDU is responsible for the timely coordination of the transfer of appropriate information and discharge notice from the RDU facility or another health facility.
- 11.5. A dialysis transfer sheet should be prepared for all patients being transferred from the unit requiring further dialysis.
- 11.5.1. Current Hepatitis serology, Hepatitis B & C, HIV and Hepatitis antibody level should be included in the dialysis transfer sheet.
- 11.6. A referral letter shall be given to the patient or patients' next of kin.
- 11.6.1. The patient should not be sent under any circumstances to another facility without prior approval.
- 11.7. Mode of transport shall be based on the condition of the patient.
- 11.7.1. The treating physician and the ambulance team shall decide who should accompany the patient e.g. doctor present, trained nurse or anesthetist in emergency/critical care.

12. STANDARD EIGHT: PERITONEAL DIALYSIS SERVICES

- 12.1. Peritoneal dialysis (PD) catheter implantation shall be performed by appropriately trained nephrologists, surgeons, urologist and interventional radiologist in patients without contraindications.

- 12.2. Insertion of PD catheter should take place under complete aseptic conditions using sterile technique.
 - 12.2.1. Insertion of PD can be done in hospital setting.
- 12.3. Once the catheter is healed, the patient shall receive instructions on how to care for the catheter exit site (the skin around your catheter) by the dialysis nurse.
- 12.4. The timing of the PD catheter implantation shall be planned to accommodate patient convenience, medical requirement as per his/her condition and commencement of training between 10-14 days after catheter insertion and 4 weeks to enable correction of early catheter-related problems without the need for temporary haemodialysis.
- 12.5. Patient training includes how to:
 - 12.5.1. Prepare the cyclor.
 - 12.5.2. Connect the bags of dialysis solution.
 - 12.5.3. Place the drain tube.
 - 12.5.4. Fill peritoneal cavity with fresh solution through the catheter.
 - 12.5.5. Wait for dwell time where the dialysis occurs.
 - 12.5.6. Recognizing signs and symptoms of tunnelitis and peritonitis.
- 12.6. The patient should be re-trained after each peritonitis regarding hand hygiene and the procedure itself.
- 12.7. Dialysis Solutions Dialysis solution is made up of:
 - 12.7.1. Sterile water
 - 12.7.2. Chemicals/electrolytes

12.7.3. Dextrose

12.8. The nephrologist and PD nurse shall select of the appropriate dialysis solution for the patient based on the following:

12.8.1. Weight,

12.8.2. Blood pressure and

12.8.3. According to your symptoms and response to the dialysis therapy.

12.9. Patients should complete and thorough record of your treatment is necessary for physician and nurse to assess progress at home and identify if any changes should be made to the treatment.

12.10. Nephrologist shall ensure monitoring the patient at least once a month.

13. STANDARD NINE: IN-HOME RENAL DIALYSIS SERVICES

13.1. Home haemodialysis patients must be able to manage their dialysis safely, and monitor their condition.

13.2. Modality decisions should be supported by a full assessment of clinical and social circumstances, as well as the home environment, including a discussion of the impact of therapy on others within the household.

13.3. Patients requesting in-home renal dialysis services shall have an agreed individualised prescription for home haemodialysis, taking into account lifestyle goals, with the same dose and time target.

13.4. The RDU shall train patients and/or care partners to achieve a defined set of competencies, using an individualised approach to training method and speed.

- 13.5. Training shall be on a '1 to 1' basis with a specific training staff is widely accepted as optimal, with the learning style and training duration adapted to the individual.
- 13.6. Home training areas will only be provided at selected sites within the RDU.
- 13.6.1. Space requirements will be dependent on the expected type and volume of training.
- 13.7. All storage room shall ensure having the following:
- 13.7.1. Storage for the accommodation of home dialysis machines, home reverse osmosis machines and other items will need to be considered.
- 13.7.2. The storage area should be easily accessible.
- 13.7.3. The temperature should be controlled.
- 13.7.4. Adequate shelving for storage of dialysis fluids, membranes and catheters.
- 13.7.5. All materials should be clearly marked with expiration dates.
- 13.7.6. Storage of medicines should be in accordance with current guidelines, including storage and dispensing of controlled medication.
- 13.8. Area requirement will depend on need to store home dialysis equipment. All machines require connection to power and plumbing.
- 13.8.1. Training machines may be stored with training areas if dedicated service provided.
- 13.9. The training with patients shall outline the responsibilities, which include:
- 13.9.1. An agreement to dialyse as per prescription and trained technique,
- 13.9.2. A policy for re-imburement of directly arising patient costs.

13.10. The RDU shall support patients with a specific team including nephrologists, technicians, and nurses, with rapid access to dialysis in-centre when required.

13.11. The RDU shall ensure adequate safety training and an enhanced risk assessment for patients with blood-borne viruses.

13.12. The RDU shall provide and install the dialysis machine and all the equipment required.

13.13. Patients home shall require the following for in-home dialysis services:

13.13.1. A dedicated clean area to have the dialysis in,

13.13.2. An electrical outlet,

13.13.3. An easily accessed water source and

13.13.4. A plumbing system for draining away wastewater.

13.13.5. Dry storage space away from damp or direct heat to store supplies which includes:

a. The dialysis fluid,

b. Needles and

c. Cleaning products.

13.14. Home haemodialysis patients should receive the same level of medical supervision, and the same monitoring and dose considerations as in-centre patients, and as for other patients, the schedule should be individualised depending on patient values and therapeutic goals.

13.15. Home renal-dialysis must be supervised by health care professionals to prevent complications and infections.

13.15.1. Health care professionals shall have regular visits to home haemodialysis patients and whenever condition requires, especially during the session post hospital

discharge to ensure patient safety and tolerance for the dialysis and change prescription if required.

13.16. Dialysis dose should be quantified as for other augmented schedules, but should be interpreted with the flexibility of the patient's schedule also in mind.

13.16.1. To ensure that the home dialysis team can provide the best possible support that is responsive to the individual, recording of sessional details by the patient or carer is desirable.

13.17. If home dialysis performed by the health facility, all in-home renal dialysis services must maintain an electronic record, including comprehensive documentation of all procedures and performance metrics, to ensure adherence to established Key Performance Indicators (KPIs).

14. STANDARD TEN: PORTABLE RENAL DIALYSIS DEVICE.

14.1. Portable renal devices shall be classified based on intended use, complexity, and potential risks.

14.1.1. Class I – low risk, Class II- moderate risk, Class III- high risk

14.2. Portable renal devices must be designed to ensure patient safety, reliability, ease of operation and ensure quality of clearance.

14.3. Materials used shall be suitable for medical applications.

14.4. Devices should provide alarms and alerts for critical conditions, ensuring timely response and interventions.

14.5. The patient must be clearly trained about the device before using it.

- 14.6. Regular audits and inspection are encouraged to ensure ongoing compliance.
- 14.7. Clear instruction for patients must be provided with the device.
- 14.8. Labels should include essential information such as device specifications, warnings, and proper maintenance procedures.
- 14.9. Packaging must protect the device during transportation and storage.

15. STANDARD ELEVEN: EMERGENCY MEDICATION REQUIREMENTS.

- 15.1. Emergency medication shall be stored securely in a designated area with controlled access.
- 15.2. A registration log book must be maintained for all controlled medications present in the renal dialysis centre.
 - 15.2.1. The logbook should include entries of each transaction, detailing the date, time, medication type, dosage, and the names of personnel involved.
- 15.3. Dopamine is strictly prohibited for use in renal dialysis centres.
- 15.4. The crash cart must be readily available in the renal dialysis centre for immediate response to emergencies.
 - 15.4.1. A crash cart shall be regularly inspected and stocked with the necessary emergency medications.
- 15.5. The facility shall maintain a comprehensive emergency protocol, ensuring the immediate availability and accessibility of essential medications such as calcium gluconate, to prevent the effect of hyperkalemia on the heart by stabilization of membrane.

16. STANDARD TEWELVE: PATIENT MANAGEMENT.

- 16.1. Patients who are at undue risk for complications shall be referred to an appropriate facility for further management and care.
- 16.2. Each Licensed Renal Dialysis Center shall have effective and efficient scheduling processes to minimize cancellation and delays, and reducing waiting times.
- 16.3. Each Renal Dialysis Centre shall ensure that all patients are provided with relevant information at every phase of management making sure that the patient and/carer fully understands the information given. It shall also foster a safe environment in which questions are welcomed and feedback provided.
- 16.4. Pre-Dialysis Preparation:
 - 16.4.1. Each nephrologist providing renal dialysis shall maintain effective communication and clear explanation at every stage of patient management to reassure the patient.
 - 16.4.2. The Nurse must ensure that all necessary equipment including monitoring and emergency equipment is present and in working order before starting the renal dialysis.
 - 16.4.3. The Nephrologist will be responsible to arrange appropriate dialysis access care (perform himself or arrange for insertion of vascular catheters or arrange for creation of arterio-venous fistula, AV graft or permanent catheterization.
 - a. Permanent catheterization, AV graft and AV fistula should only be done in appropriately equipped surgical facilities.



- b. Insertion of temporary haemodialysis catheter can be done in outpatient with privilege physician, while permanent dialysis catheter should be done in hospital setting.
- 16.4.4. Registered nurse shall perform an appropriate assessment prior to the dialysis and report and notify the nephrologist to review the patient's condition.
- 16.4.5. Patient should be reassessed prior the dialysis after undergoing any surgery, hospitalization or invasive procedure.
- 16.4.6. Vital signs shall be measured every half hour during the dialysis session and rechecked at the end of the session.
- 16.4.7. Orthostatic blood pressures, respirations, and lung sounds and weight should be assessed only post dialysis.
- 16.4.8. Vascular access site should be assessed by nurse prior initiating the dialysis session for any inflammation, bleeding, discharge in case of catheters, and to confirm functionality by assessing for pulsations and bruit in addition to signs if infection in case of fistula or graft.
- 16.5. Respiratory rate, temperature, pain score and level of consciousness to be checked every 30 minutes.
- 16.6. Intradialytic Monitoring:
- 16.6.1. Vital signs shall be monitored continuously through the monitor and documented on the treatment record of each patient at least every 30 minutes including the following minimum criteria:

- a. Patient's blood pressure, respiration rate, temperature and pulse
- b. Inspection of the vascular access to note blood loss or leakage
- c. Arterial and venous pressures, and blood flow rate
- d. Pain score
- e. Level of consciousness.

16.6.2. Dec clotting using alteplase installation is being used in dialysis centres safely, however using heparin infusion has to be done in hospital setting.

16.7. Post-dialysis Care

- 16.7.1. Assessment and documentation of vital signs, weight, and vascular access site condition shall be conducted.
- 16.7.2. Assessing for dialysis disequilibrium syndrome, with headache, nausea and vomiting, altered level of consciousness; and hypertension.
- 16.7.3. Assessing for other adverse responses to dialysis, such as dehydration, nausea and vomiting, muscle cramps, or seizure activity.
- 16.7.4. Assessing for bleeding at the access site or elsewhere. Standard precautions should be practiced at all times.
- 16.7.5. If a blood transfusion is given during dialysis, monitoring for possible transfusion reaction (e.g., chills and fever; dyspnea; chest, back, or arm pain; and urticaria or itching). Close monitoring during and after the transfusion is important to identify early signs of a reaction.

16.8. All emergencies to be referred and treated at hospital level.

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APPENDIX

APPENDIX 1: WATER QUALITY MEASUREMENTS

| Contaminant | Maximal Allowable Level (mg/l) |
|---|--------------------------------|
| Contaminants with documented toxicity to haemodialysis | |
| Fluoride | 0.2 |
| Chloramines | 0.1 |
| Copper | 0.1 |
| Aluminium | 0.01 |
| Lead | 0.005 |
| Total Chlorine | 0.1 |
| Nitrate (as N) | 2 |
| Sulfate | 100 |
| Zinc | 0.1 |
| Total dissolved solids | 5-1000 |
| Trace elements | |
| Antimony | 0.006 |
| Arsenic | 0.005 |
| Barium | 0.1 |
| Beryllium | 0.001 |
| Cadmium | 0.001 |
| Chromium | 0.014 |
| Mercury | 0.0002 |
| Selenium | 0.09 |
| Silver | 0.005 |
| Thallium | 0.002 |

(Extracted from Association for the Advancement of Medical Instrumentation (AAMI) & CSA- ISO)

APPENDIX 2: COMPOSITION OF THE DIALYSATE FLUID

The concentration of haemodialysis solutions shall be such that after dilution to the stated volume the final concentrations of the ions expressed as mmol/l are usually in the following ranges:

| Cations | |
|-----------|----------|
| Sodium | 135-145 |
| Potassium | 0-3.0 |
| Calcium | 1.0-2.0 |
| Magnesium | 0.25-1.0 |

| Anions | |
|---|--------|
| Acetate or Lactate expressed as bicarbonate equivalents | 32-40 |
| Chloride | 95-110 |

- Sodium concentration may be adjusted to levels outside this range by haemodialysis machines with variable sodium capabilities when prescribed by physician in charge.