Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 6, Issue 2, pp: (1740-1748), Month: May - August 2019, Available at: www.noveltyjournals.com

Nursing audit: The gap between the current nursing management and nursing care standards for patients undergoing hemodialysis at Ma,an Hospital- Jordan

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Abstract: **Nursing audit is performed after discharge from the care facility, using the patient's record. To assure effective patient care, comprehensive audit tools are required. An aim of this study was to assess current nursing performance for patients undergoing hemodialysis, and identify the gap between the current nursing management and nursing care standards for those patients. Research design: Exploratory research design was used. Setting: The study was conducted in dialysis unit at Ma'an governmental hospitals- Jordan Subjects: The sample in this study is composed of all available nurses (40 nurses) who are providing direct care to patients in hemodialysis units at previously mentioned hospital. Tools of Data Collection: Self-Administered Interview Questionnaire sheet, an observational check, developed Nursing Care Standards for Patients undergoing haemodialysis, and Nursing Care Standards checklist. Results: The majority of nurses performing all steps of observation checklist for patients before, during, and after hemodialysis procedure correctly except one quarter of nurses perform after dialysis steps incorrectly .There was no statistical significant difference between routine care and standers nursing care for patient undergoing hemodialysis. Conclusion: about quarter of nurses perform after dialysis steps incorrectly. There was no statistical significant difference between routine care and standers nursing care for patient undergoing hemodialysis. Recommendations: Written standards of care against which to evaluate nursing care. Training for auditors should include a group discussion to see how the group rates the care received using the notes of a patient.**

Keywords: **Auditing, Gap, Standers, Nursing Care, Hemodialysis Patients.**

1. INTRODUCTION

Audit is a systematic and critical examination to examine or verify. Nursing audit; it is the assessment of the quality of nursing care and uses a record as an aid in evaluating the quality of patient care **(Viana et al., 2016).**

Nursing audit is the process of collecting information from nursing reports and other documented evidence about patient care and assessing the quality of care by the use of quality assurance programmes **(Johnson, Jefferies, & Langdon, 2010).**

A concurrent nursing audit is performed during ongoing nursing care. A retrospective nursing audit is performed after discharge from the care facility, using the patient's record. To assure effective patient care, comprehensive audit tools are required **(Johnston G, 2010).**

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Care Audit Evaluation; Since the existence of high-quality patient records does not guarantee high-quality care, a care quality audit tool must also be used. Such a tool examines if the patient's condition is noted upon his arrival at a facility, if it is updated periodically and at discharge. A patient diagnosis should be examined by a third party to determine if the diagnosis is accurate and if the subsequent treatment is appropriate. Although each patient's situation is different, written guidelines should be available showing that types of treatment are appropriate for each condition **(Frank, 2013).**

Clinical audit is a part of the continuous quality improvement process. It consists in measuring a clinical outcome or a process against well-defined standards, established using the principles of evidence-based medicine. The comparison between clinical practice and standards leads to the formulation of strategies, in order to improve daily care quality **(Esposito & Dal Canton 2014)**.

Nursing services are necessary for every patient seeking care of any type, including health promotion, diagnosis and treatment. With the changing trends in the health care delivery, the role of the nurse manager is becoming largely devoted to the holistic care of patient which can only achieved through the careful appraisal of the services in order to make further reforms **(Amanda, 2014).**

A profession concerns for the quality of its service constitutes the heart of its responsibility to the public. An audit helps to ensure that the quality of nursing care desired and feasible is achieved **(Jamtvedt, 2010).**

The function of nurse auditor is expanding in the job market, mainly regarding the analysis of the hospital accounts, which consists in verifying the compatibility between what was consumed, what is being charged and the procedures actually performed **(Hess, 2010).**

Aim of study:

The aim of this study was to evaluate the gap between the current nursing management and nursing care standards for patients undergoing hemodialysis at Ma,an Hospital- Jordan .

2. SUBJECTS AND METHOD

Research design:

Exploratory research design has been utilized to achieve the aim of the study.

Technical Design:

Setting of the study:

The study was conducted in dialysis unit at Ma'an governmental hospitals- Jordan (Ma'an governmental hospitals and Ministry Queen Rania Al Abdullah Hospital)

Study Subjects:

The sample in this study was composed of all available nurses (40 nurses) who were providing direct care to patients in hemodialysis units at previously mentioned hospitals.

Tool of Data Collection:

The tool of the study were utilized for data collection and developed by the researcher, it included the following parts:

Part 1: Personal and demographic data of the nurses as age, level of education and years of experience …..etc.

Part: Observation checklist sheet for assess nurses performance regarding patient undergoing hemodialysis:

An observational check list was used to assess practice of nurses during hemodialysis session, (initiation of dialysis, nursing intervention with common problems during hemodialysis session and at termination of dialysis).

Scoring system:

The total score for all items was 130 marks .each correct done was given one score. Those who abstained less than 50% were considered having poor level of performance. While those who obtained from (50 %-70 %) fair, but above 70% were considered having good level of performance.

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Tool III: Checklists sheet for nurse's performance about dialysis according to Nursing Care Standards:

This tool was developed by the researcher to achieve the aim of study and to identify the gap between the current nursing performance and nursing care standards for patients undergoing hemodialysis. It cover the four standard, standard (1) was covered items about ensure that hemodialysis room environment is safe to receive the patients. Standards (2) which covered items about ensure that infection control is properly followed in hemodialysis unit. Standards (3): Ensure that nursing care is provided for Patients undergoing Hemodialysis. This covered items about (Nursing care before, during and after hemodialysis. Finally standards (3): which included items about ensure that patient is properly educated before discharge. Each stander had sub-items and each sub items were observed by the researcher and cheeked done, not done or not applicable.

Methods

Operational design:

Tool testing and pilot study:

Pilot study: A pilot study was conducted on 10% of the study sample (4 nurses) in a selected setting to evaluate the applicability & clarity of the tools. According to this pilot study, the required modifications were made. Those patients who were involved in the pilot study were not included in the study.

Technique for data collection:

- observational technique was utilized to fill out the checklist for practice of nurses and Checklists sheet to assess nurse's performance about dialysis: (Nursing Care Standards)

Administrative design:

Permission to carry out the study was obtained from Dean faculty of nursing , ministry of health and the responsible hospital authorities of Ma'an Governmental hospital.

Ethical considerations:

1. Research proposal was approved from Ethical Committee in the faculty of nursing.
2. There is no risk for study subject during application of research.
3. The study was following common ethical principles in clinical research.
4. Written consent was obtained from nurses that who are willing to participate in study, after explaining the nature and purpose the study.
5. Confidentiality and anonymity was assured.
6. Study subjects had the right to refuse to participate and or withdraw from the study without any rational at any time.
7. Study subject privacy was considered during collection of data

Procedure:

The study was carried out on 3 phases:

Phase (1): preparatory phase:

In this phase, the researcher designed and tested the developed nursing care standard after extensive literature review (nursing and medical textbooks, journal, internet resources, etc.) about dialysis and assessment of nurses, knowledge and practice in this regard (preparation of data collection tool).

Content validity: It was established by a jury of five experts (2 professors in medical surgical nursing and 3 professors in urology specialty) who was reviewed the instruments for clarity, relevance comprehensiveness, understanding, applicability, and easiness for administration.

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Phase (2): planning phase:

Based on finding of the exploratory phase, the developing nursing care standard was developed, after extensive literature review considering nursing needs and their level of understanding.

Phase (3): Implementing Phase: The third phase (implementation phase), in which an official permission to proceed with the proposed study was obtained from the head of dialysis units.

At initial interview the researcher introduce himself to initiate communication, explain the nature and purpose of the study and .The researcher fills out observation checklist to assess nurse's performance.

Statistical analysis:

An appropriate statistical methods &tests will be used for analysis of the results. Data collected will be analyzed & tabulated using frequency percentage & the suitable tests.

Table 1: Frequency distribution of demographic characteristic among nurses participant n=32

Variables	*N*	*%*
Age group		
18 ≥ 20 years old	*0*	*0*
20 ≥ 30 years old	*19*	*59.4*
30 ≥ 40	*9*	*28.1*
40 years and above	*4*	*12.5*
Sex		
Male	*22*	*68.8*
Female	*10*	*31.3*
Marital status		
Single	*9*	*281*
Married	*22*	*68.8*
Divorced	*1*	*3.1*
Widow or widower	*0*	*0*
Level of education		
School of Nursing	----	---
Nursing Institute	*4*	*12.5*
Nursing College	*28*	*87.5*
Years of experience		
Less than 5 years	*17*	*53.1*
More than 5 years	*15*	*46.9*
Have you received specialized training in dialysis ?		
Yes	*11*	*34.4*
No	*21*	*65.6*
Total	*32*	*100.0*

Table 1: *shows that more than half of nurses were aged between 21 to less than 30 years old, male, married, have more than five years of experience and haven't received specialized training courses in dialysis. Regarding the level of education; the majority of studied sample had a college education.*

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Fig.1: Frequency distribution for nursing care of total observation checklist for patients undergoing hemodialysis dialysis n=32

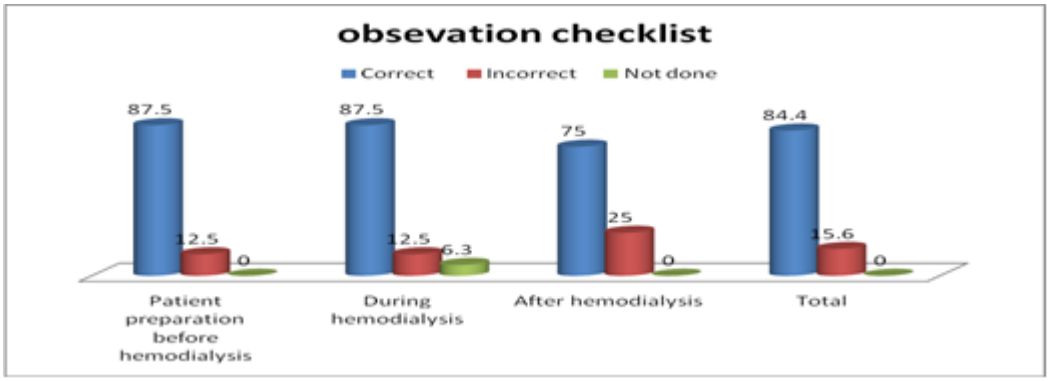

Fig.1: *The majority of nurses performing all steps of observation checklist for patients before, during, and after hemodialysis procedure correctly except one quarter of nurses perform after dialysis steps incorrectly.*

Fig.2: Total standers nursing care is provided for Patients undergoing Hemodialysis. n=32

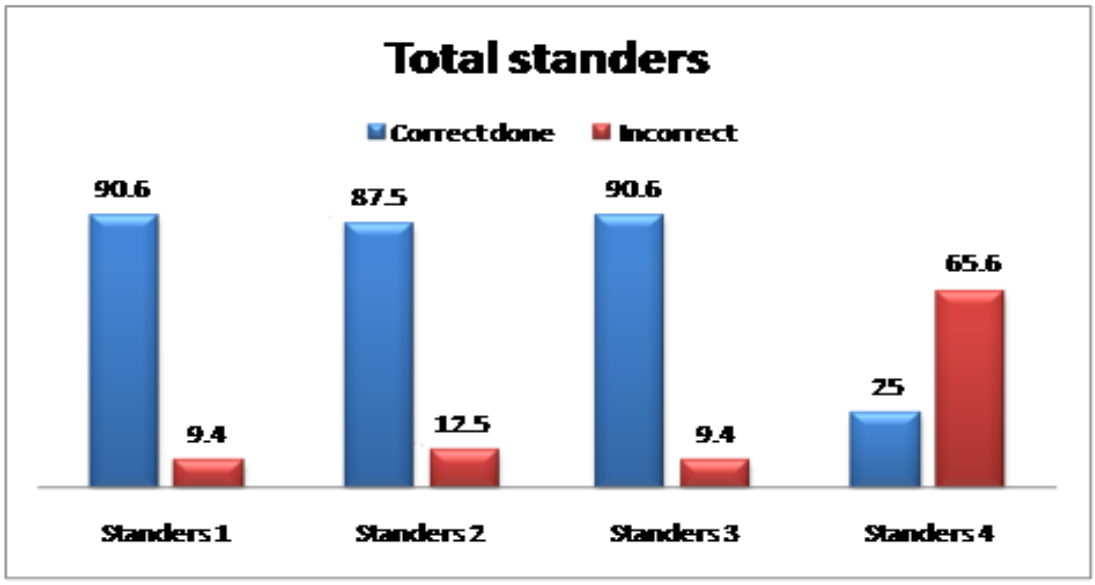

Fig.2: *This fig. shows that the majority of nurses perform the steps of first, second and the third standards correctly, while more than half of nurses perform the steps of the fourth standard incorrectly.*

Table 2: Comparison between routine care and standers nursing care for patient undergoing hemodialysis n=32

Items	*Stander nursing care Done correct*		*Routine nursing care Done correct*		*p.value*
	N	*%*	*N*	*%*	
Prepare patient room	*27*	*84.4*	*0*	*0.00*	*0.00*
Prepare all equipment	*30*	*93.8*	*26*	*81.3*	*0.00*
preventing patient falls	*22*	*68.8*	*0*	*0.00*	*0.00*
Principle of aseptic technique in all procedure	*9*	*28.1*	*0*	*0.00*	*0.00*
Identify and supervise methods of disinfecting	*10*	*31.3*	*0*	*0.00*	*0.00*

Using universal precaution, hand washing	*13*	*40.6*	*0*	*0.00*	*0.00*
Applying sterile gloves	*14*	*43.8*	*0*	*0.00*	*0.00*
Wearing mask:	*17*	*53.1*	*0*	*0.00*	*0.00*
Wearing gown	*28*	*87.5*	*0*	*0.00*	*0.00*
Nursing care before hemodialysis(Measuring patient's vital signs ,patient assessment, Measuring patient's PH and electrolytes	*32*	*100*	*27*	*84.4*	*0.26*
Nursing Care During Hemodialysis: monitors patient	*30*	*93.8*	*28*	*87.5*	*0.33*
Nursing Care After Termination of the Dialysis Session	*30*	*93.8*	*24*	*75.0*	*0.04*
Protect your catheter	*25*	*78.1*	*28*	*87.5*	*0.00*
Activity progression	*7*	*21.9*	*0*	*0.00*	*0.00*
Healthy Diet	*7*	*21.9*	*0*	*0.00*	*0.00*
Side Effects of Hemodialysis	*5*	*15.6*	*0*	*0.00*	*0.00*
Medications for dialysis patients	*10*	*31.3*	*0*	*0.00*	*0.00*

Table 2: *This table clarify that there was no statistical significant difference between routine care and standers nursing care for patient undergoing hemodialysis*

3. DISCUSSION

Nursing audit is defined as the evaluation of nursing care in retrospect through analysis of nursing records. It is a systemic format and written appraisal by nurses of the quality of content and the process of nursing service from the nursing records of the discharged patient. Nursing audit is a management tool capable of assisting in the improvement of care quality and efficiency of hospital charges and may be performed concurrently, in other words, while the patient receives care. A clinical audit can identify activities that should or should not be performed in clinical settings. It not only improves care quality but also helps nurses to acquire and use the knowledge, skills, and attitudes necessary for creating a meaningful, productive, and satisfying working environment **(Poortaghi, et al, 2015).**

I: Nurses and demographic data:

The results of the present study revealed that more than half of nurses were aged between twenty to less than thirty years old, male, married, have less than five years of experience and haven't received specialized training courses in dialysis. Regarding the level of education; the majority of studied sample had a nursing college education.

(Ahmed, 2011); was in the same line with the present study results except concerning the gender of nurses , educational level, and their years of experience as reported that "the majority of the nurses their ages ranged from twenty to thirty years, married, females, and have diploma of nursing. The majority of them have in-service training courses related to infection control but the majority of them have no in-service training courses related to dialysis. The majority of them their experiences range from five to more than ten years".

Also, **(Mustafa, 2010);** in the same line with the current study findings except regarding to the gender of nurses and their educational level who conducted a study in kidney dialysis unit of El Minia University Hospital entitled "Measuring nurses' compliance with patients' safety measures during hemodialysis" which revealed that the majority of nurses were married, females, their age ranged from twenty to twenty nine years, have a diploma qualification, years of experiences in hemodialysis less than five years and haven't in-service training courses related to dialysis.

Also, **(Al- mawsheki, et al, 2016)**; in the same line with the current study findings except regarding to the gender of nurses and their educational level and reported that " the majority of study sample were females, and more than half of studied nurses their ages ranged between twenty to less than thirty years. More than half of studied nurses had diploma of nursing. Half of studied nurses had experience from one year to less than ten years, and more than one third of studied nurses were attended training courses about patients care in Hemodialysis Unit".

Also, **(Bakey, 2014)**; was agreeing with the study results according to nurses' gender who performed a study at Baghdad teaching hospitals on Evaluation of Nurses' Practices throughout Hemodialysis Treatment for Patients in hemodialysis unit stated that "more than half of nurses studied are males".

While this is in disagreement with **(El-Moghazy, 2013)** that performed a study titled Nurses Knowledge and Practice Regarding Intradialytic Complications for Hemodialysis Patient stated that "more than half of nurses aged more than thirty years".

II- Nurse's skills about nursing care of patients undergoing hemodialysis:

The majority of nurses in the current study perform correctly all basic steps before hemodialysis procedure except two steps (Draw blood sample, review blood chemistries, Dispose gloves and wash hands). Regarding Cannulation of arterio-venous fistula; the majority of nurses perform all steps correctly except Infuse flush solution, and reclamp needle it was not done. The majority of nurses performing all steps of accessing a vascular catheter correctly. Finally, the majority of nurses performing most steps of observation checklist for patients before, during, and after hemodialysis procedure correctly

(Ali, 2013); who performed a study to assess nurses' knowledge and practice provided to the patients undergoing hemodialysis at Cairo University Hospital was in the same line and stated that " nearly two thirds of nurses had a satisfactory level of practice regarding care during hemodialysis". The present study showed a significant

While, **(Goodkin, et al, 2010);** was disagreeing with these results as stated that "The current study results revealed that the studied nurses had unsatisfactory practice regarding care for patients during hemodialysis. It might be due to the lack of nurses' application of knowledge especially regarding to nursing interventions with common complications that occur and misunderstanding of their roles as there is no job description or definition of responsibilities in the hemodialysis unit and due to carelessness of nurses". Also, these findings in a disagreement with **(Hassona, 2011)**; who stated that all nurses had unsatisfactory knowledge and practice regarding care during hemodialysis.

This is compatible with findings of a study in Sudan by **(Abdelsatir, 2013);** who found that "nurses' performance among nurses of hemodialysis was moderate such as hand washing, assessing patients when there were nausea, dizziness, muscle cramps, checking vital signs, withdraw blood samples for testing serum electrolytes and waste products and patient education".

The current study revealed that "there was no any statistical significant difference between routine observation checklist for nurses (nurses' practice) undergoing hemodialysis and level of nurses' knowledge". **(Al- mawsheki, et al, 2016)**; was in the same line with the current results as mentioned that" There is no statistical significant difference between nurses' knowledge and their practice". Also, **(Ahmed, 2011);** reported that" The results in the present study showed no significant difference between nurses' knowledge and their practice observed during the pre-test. This may be attributed to insufficient courses related to hemodialysis included in their undergraduate curriculum of nursing education and also there are no available Arabic sources for updating and continuing their education".

III- Nurse's care standards for patients undergoing hemodialysis:

The majority of nurses perform correctly all steps of **the first standard which is ensures that hemodialysis room environment is safe to receive the patients** which are (Prepare patient room, Prepare all equipment, preventing patient falls, Reporting accidents and errors / Fire safety, and Maintaining safe environment and administration of medications).

(Blankschaen, et al, 2016) were in the same line as mentioned that" Physical environment requirements of the dialysis unit safety, equipment maintenance, the patient care setting, emergency preparedness, and fire safety. This includes the ensurance of proper maintenance and repair of such items as the dialysis equipment, operating systems, water treatment systems, and physical building and grounds. In a health care space such as a dialysis facility, patients usually occupy nearly seventy percent of the space, with other services using the remaining thirty percent. Full visibility is a part of the standards and requires all patients to be fully visible to staff at all times. The space should be both safe and efficient, but also pleasant and conducive to patient needs during treatment, as well as during other activities in the facility. The dialysis facility must ensure that all equipment (including that for emergencies, dialysis, and water treatment) is maintained and operated following the manufacturer's recommendations".

the majority of nurses perform incorrectly steps of **the second standard which is ensure that infection control is properly followed in hemodialysis unit regarding Principle of aseptic technique** in all procedure which are (basics of aseptic technique, Identify and supervise methods of disinfecting , Using universal precaution as hand washing and Applying sterile gloves).

(Krishnan, et al, 2014); clarify that "Infection control is the responsibility of the medical director, and a detailed discussion is beyond the scope of this article. Infection control issues are often cited by state surveyors. All facility staff should be held accountable for infection control. Hand washing is essential for infection control in a hemodialysis unit. Gloves should be worn prior to patient contact or equipment manipulation. Hands should be washed before and after use of gloves. Gloves should be changed when soiled or when moving from one patient chair to another, as well as any time that access manipulation or intravenous medication administration occurs. The facility must be designed with enough sinks to facilitate hand washing, with separate utility sinks for cleaning equipment. Staff should wear personal protective equipment, which includes designated garments with sleeves appropriate to the anticipated potential exposure. The most robust protection should be used during high risk components of the dialysis procedure, such as treatment initiation and termination. Any items that are in the patient's dialysis station could become contaminated and should be handled with caution and cleaned after the treatment (ie, a patient's blanket).

Also, **(Allegranzi, et al, 2011);** mentioned that "It is universally recognized that the consistent and rigorous implementation of infection control measures reduces considerably the incidence rates of nosocomial infections. Interventions to improve adherence to infection control policies could reduce the prevalence of these infections, allowing more resources to be allocated to other areas of healthcare delivery".

(Al Qahtani & Almetrek, 2016); was disagreeing with the study results as reported that "Nurses enrolled in this study showed an overall satisfactory level of practice of infection control procedures reflected by their overall scores of 92.11%. However, the Inquiry into the practice in different areas related to infection control procedures showed that nurses in dialysis unit are adherent more frequently to certain procedures than others. One of the lessons learnt from this study is that knowledge about infections and means of controlling it in healthcare setting is important"

the majority of nurses perform correctly all steps of **the third standard which is ensure that nursing care is provided for Patients undergoing Hemodialysis** which are part one includes (basic steps of Nursing care before hemodialysis, Measuring patient's vital signs, and Measuring patient's PH and electrolytes). Also, Part two which includes Nursing Care during Hemodialysis, and Part three which includes Nursing Care after Termination of the Dialysis Session steps were performed correctly by the majority of nurses.

(Safadi, et al, 2010); was disagreeing with the present study findings as reported that "Nurses showed high practice level regarding regular investigations from patients and types of routine investigations, On the other hand, participants showed moderate level of practice, in which their skills was high regarding measurement of vital signs and weight measuring before dialysis, steps of preparing a hemodialysis machine and meet patients needs during dialysis. But they showed less skills regarding proper use of infection control methods, measuring blood pressure during dialysis and method of counseling".

the majority of nurses perform incorrectly steps of **the fourth standard which is Ensure that patient is properly educated before discharge** which are consisting of (Protect the catheter, Activity progression, Healthy Diet) while, nearly half of nurses incorrectly perform the steps of managing the Side Effects of Hemodialysis. Also, nearly half of them didn't know about the common Medications for dialysis patients.

Nurses often have more interaction with patients than any other healthcare professional. Therefore, they are in an optimal position to provide ongoing patient education, support and encouragement, and thus promote self-care efficacy, and overall quality of life **(Wells, 2011).** Continuous education of nurses is vital in supporting the nurses' unique role as both a patient educator and a patient advocate. Although patient education has a positive effect on knowledge as well as adherence to treatment, it is meager on its own. Combining education with goal setting and reinforcement, and providing patients with additional support can have more desirable outcomes **(Pessoa & Linhares, 2014).** Therefore, nurses should not only educate their patients but find ways to motivate them to commit to their care.

(Painter et al., 2011); emphasized the dialysis patient' education on the bio- physiological and functional aspects of managing the treatments. The content of education should include information about kidney function, the disease, and the different treatment options as well as forms of dialysis. In addition, detailed instructions for the care of vascular access sites, education on fluid restrictions, and medication management guidance are required.

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