

Using Post-Discharge Telephone Follow-Up by Nephrology Nurses to Reduce 30-Day Readmissions and Post-Discharge Complications for Adult Patients on Hemodialysis



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The Institute of Medicine (IOM) (2001) identifies quality improvement projects that improve communication and collaboration between the patient and healthcare providers as a key to improving health care. Avoidable readmissions may be reduced through the enhancement of core discharge planning, and improving the transition and care coordination for patients with end stage renal disease (ESRD) between healthcare settings (Boutwell, Griffin, Hwu, & Shannon, 2009). Evidence-based quality initiatives that enhance coaching, provide education, and provide support for patient self-management may improve the health-related quality of life (HRQOL) for patients with chronic illnesses like ESRD. Studies remain inconclusive in determining the overall effectiveness that telephone follow-up calls have on reducing 30-day readmissions.

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Hospital readmissions are responsible for considerable health care costs. About 35% of patients with end stage renal disease (ESRD) who are hospitalized are readmitted within 30 days of discharge (United States Renal Data System, 2017). Studies point to the considerable percentage of readmissions that are preventable through effective discharge planning and patient follow-up after discharge (Mistiaen & Poot, 2006). Telephone follow up is a high-quality, low-cost method of providing discharge follow up. This project examined the effectiveness of an evidence-based quality improvement process in providing post-discharge telephone follow up to adult patients on hemodialysis by experienced nephrology nurses through standardized unit workflow and leveraging of the electronic medical record (EMR). Results indicated a lower percentage of admissions from the emergency department (59.9% pre- vs. 55.4% post-intervention) and a lower percentage of 30-day readmissions (28.4% pre- vs. 24.6% post-intervention).

Key Words: Chronic kidney disease, end stage renal disease, post-discharge follow-up, 30-day readmissions.

Chronic kidney disease (CKD) is defined by the presence of kidney damage or decreased kidney function for three or more months (Kidney Disease: Improving Global Outcomes [KDIGO], 2013). Individuals who have an estimated glomerular filtration rate (eGFR) less than 60 mL/min/1.73m² for three or more months or a urinary albumin to creatinine ratio (ACR) of 30 mg/g or higher are considered to have CKD. An estimated 14.8% of adults in the United

States have varying levels of illness related to CKD, which resulted in Medicare spending of more than \$64 billion in 2015 (United States Renal Data System [USRDS], 2017). ESRD is indicated by an eGFR of less than 15 mL/min/1.73m² and is often associated with significant co-morbidities (KDIGO, 2013). In 2015, Medicare spending for ESRD beneficiaries (\$34 billion) accounted for approximately 7.1% of total Medicare spending (USRDS, 2017).

Statement of Disclosure: The authors reported no actual or potential conflict of interest in relation to this continuing nursing education activity.

Note: The Learning Outcome, additional statements of disclosure, and instructions for CNE evaluation can be found on page 249.

Purpose of the Project

Patients on hemodialysis are at particularly high risk for readmission after discharge. Each readmission increases the patient's chances of an adverse event, such as worsening anemia, systemic infections (bacteremia), cardiovascular events (arrhythmias, myocardial infarct), and even death. Academic medical centers face enormous financial pressures to streamline their clinical, educational, and research activities because of changing reimbursement landscape. This project examines the effectiveness of a systematic quality improvement process providing scripted post-discharge telephone follow up by nephrology nurses experienced in hemodialysis to reduce 30-day readmission and post-discharge complications in a sample of adult patients on chronic hemodialysis.

Framework

The Chronic Care Model (CCM) is the theory/conceptual framework for the project because it focuses on patients with chronic medical illness. The CCM offers a multidimensional solution to improve chronic disease management through the identification of the essential elements of a healthcare system that encourage high-quality chronic disease management (Wagner et al., 2001). Proven effective in research and practice, the groundwork for CCM developed from research and was translated into interventions to facilitate patient-centered care and improve care for chronically ill patients.

Increasing providers' expertise and skill, educating and supporting patients, making care delivery more team-based and planned, and making better use of registry-based information systems led to the greatest improvements in health outcomes (Coleman, Austin, Brach, & Wagner, 2009). The CCM's three overlapping spheres (the community, health system, and provider organization) are designed to inform patients, promote self-management, and strengthen the

provider-patient relationship with the aim to transform daily care for patients with chronic illness. The use of the CCM improves care for patients with chronic disease, reduces disparities, and has been used a framework for national activities, such as the National Kidney Education Program (NKDEP) (National Institutes of Health [NIH], National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK], n.d.). The NKDEP integrates CCM's goals to engage and inform patients and communities, and establish prepared and proactive healthcare providers, as well as efficient and effective healthcare systems to disseminate science-based education.

Patients on chronic hemodialysis have numerous clinical problems, including anemia, mineral and bone disorder (MBD), malnutrition, inflammation, vascular access-related infection, and volume management that require assessment and continuous monitoring. Continuous adjustments to the patient's plan of care to slow the progression of the disease require ongoing interaction between the patient and members of the healthcare team. Effective chronic care management requires a collaborative, organized healthcare network linked with available resources for patients who require continuous care from multiple providers (Wagner et al., 2001). For this project, disease and case management (controlling symptoms, preventing complications, and promoting a lifestyle that will delay disease progression) are key components to the management of patients with chronic conditions (Mattke, Mengistu, Klautzer, Sloss, & Brook, 2015; Rothman & Wagner, 2003).

Methods

Setting

The hospital was a 600-bed academic medical center (AMC), with a Level 1 trauma center and primary and specialty clinics. Renal patient care is provided across the spectrum from ambulatory to intensive care to

rehabilitation. Renal unit staff perform hemodialysis, peritoneal dialysis, continuous renal replacement therapy, and therapeutic apheresis in the dialysis unit, in addition to portable hemodialysis treatments at the inpatient's bedside. Off-campus services were provided to patients requiring dialysis at a rehabilitation hospital and a transitional care hospital.

Description of the Sample

A convenience sample of all patients admitted to the AMC who received one or more hemodialysis treatments on the acute inpatient renal unit during their hospital stay were included.

Inclusion criteria. The pre-intervention population consisted of all adult patients with Stage 5 CKD and ESRD with readmissions with renal complications, who were admitted to the AMC, and who received one or more hemodialysis treatments through the acute renal unit during their hospital stay. The 2016 post-intervention population included all adult patients with Stage 5 CKD and ESRD admitted to the AMC who had one or more hemodialysis treatments through the acute inpatient renal unit during the subsequent year; and who had a follow-up phone call as part of the quality improvement initiative beginning July 1, 2016, and ending September 31, 2016. A subset of patients who experienced the three-month follow-up phone call initiative were also included.

Exclusion criteria. Patients were excluded if they met the following criteria: under age 17 years, Stage 1-4 CKD, and patients with Stage 5 CKD not receiving dialysis, as well as patients with acute kidney injury (AKI), and patients on peritoneal dialysis. Patients receiving chemotherapy, radiation therapy, and rehabilitation, and cases of death on first admission and/or admission for 24-hour observation were excluded from the comparison.

Measures

30-day readmissions. The primary outcome measure (30-day readmissions) was obtained from an insti-

tutional database. The 30-day readmissions were measured as aggregate data using the designated patient population and timeframe.

The 30-day readmissions were counted from the documented day of discharge from the hospital. Any subsequent visit to the hospital resulting in an admission and the patient receiving one or more hemodialysis treatments through the acute renal unit after the initial discharge was included. Emergency department (ED) events, clinic visits, and renal dialysis appointments were not included. Only admissions to the designated AMC were captured; any admissions to outside facilities were not available for inclusion. The 30-day readmission measure was reported as aggregate data because patient-level data were not obtainable.

Post-discharge complications.

The Post-Discharge Questionnaire was a nine-question document used during the telephone follow-up call to identify post-discharge complications. The questionnaire also addressed elements of provider communication and patient satisfaction, but post-discharge status was a key measure within the follow-up questionnaire. Potential post-discharge complications were identified through telephone discussions with a nephrology nurse experienced in hemodialysis. The questionnaire targeted post-discharge complications, such as falls with or without injury, any unexpected change in health status, the inability to obtain or adhere to the medication plan/medical supply use, as well as adherence to the follow up appointments with medical teams and follow-up discharge dialysis appointments. Elements were recorded as yes, no, or n/a through the acute care renal unit discharge questionnaire.

Additionally, the follow-up questionnaire addressed communication with providers and the patient, as well as patient satisfaction with the overall hospital experience. Elements were recorded yes, no, or n/a through the renal unit discharge questionnaire.

Telephone follow-up compliance. The compliance measure

focused on nephrology nurses adhering to a scripted telephone follow-up plan using the acute care renal unit discharge questionnaire. A telephone encounter was recorded as a two-way telephone exchange between the patient and his or her caregiver and nephrology nurses in which clinical information was exchanged involving closed looped communication. Once patient contact (telephone encounter) was made, elements (such as the number of calls or [telephone] encounters made), the total number of patient contacts, and the number of completed questionnaires were measured. These measures were self-reported by the nurse making follow-up telephone calls and recorded in the EMR by the nurse assigned to telephone follow-up on the specific day.

Demographics

In addition to dates of discharge and readmission, post-discharge complications, and overall questionnaire information, demographic data including sex, age, race, ethnicity, and region of residence were collected in aggregate form for each patient population.

Procedures

The telephone follow-up project was designed to ensure the early detection of post-discharge complications, address patient concerns, and reinforce adherence behaviors in the adult patient on hemodialysis. During the telephone follow up, the designated nurses utilized the “Post-Discharge Questionnaire” tool in the EMR, using open-ended, semi-structured questions to focus on key areas, such as adherence to follow-up instructions, schedule outpatient dialysis appointment, and medication reconciliation, while allowing for flexibility. The nephrology nurse’s specialty knowledge and experience was pivotal in making initial assessments, identifying medical problems, and setting mutually beneficial goals based on the nephrologist’s discharge instructions. The follow-up protocol, which included “Offering Discharge Support Handout,” “Renal Unit Discharge Follow-up Questionnaire,”

and “Renal Unit Patient Triage Algorithm,” was developed specifically for the project. Current literature and the advice of content experts in the field of nephrology nursing were consulted to develop the quality improvement project that best optimized human and institutional resources.

To build on standard work and improve the discharge process, the “Post-Discharge Questionnaire” was developed for the population of interest. Face validity for the content of the “Post-Discharge Questionnaire” was obtained from patients on hemodialysis, nephrologist, hospital management, renal nurse manager, and renal clinical nurse specialist. Using clinical expertise and experience, questions were analyzed for grade level appropriateness and association with targeted goals of the follow up telephone call. The contents of the “Post-Discharge Questionnaire” were also validated by a panel of experts in the fields of medicine and nursing, in addition to multiple nursing scholars and clinicians from various backgrounds within patient safety and quality improvement.

Twenty-five (25) renal unit staff members (RNs and nursing assistants) were individually instructed and provided with written materials on the purpose and content of project during the Renal Unit Skills Fair in April 2016. To ensure project reliability, retraining and participation in the project’s main intervention (telephone follow up) was limited to no more than five discharge nurses, each of whom had experience in nephrology nursing and specifically in caring for patients with ESRD who are on hemodialysis. In the inpatient setting, the nephrology nurse spent an average of 12 individualized hours a week at the bedside providing hemodialysis treatments. During this period, the nurse annotated the patient’s and/or care partner’s needs in the EMR to be reviewed by the discharge nurse.

The discharge nurse conducted an additional assessment of the patient’s and/or care partner’s educational needs when the patient was stable

Table 1
Population Demographics

Variable	Pre-Intervention Group	Post-Intervention Group	Comparison from Pre- to Post-Group
Patients	(n=149)	(n=171)	Increase of: 14.7%
Sex			
Male	85 (55%)	99 (57.9%)	Increase of: 16.5%
Female	64 (45%)	72 (42.1%)	Increase of: 7.5%
Age			
18 to 44 years	28 (18.8%)	33 (19.3%)	Increase of: 17.8%
45 to 64 years	72 (48.3%)	94 (55%)	Increase of: 30.5%
65 years and over	49 (32.9%)	44 (25.7%)	Decrease of: 10.2%
Race or Ethnicity			
White	87 (58.4%)	92 (53.8%)	Increase of: 5.7%
African American	59 (39.6%)	71 (41.5%)	Increase of: 20.3%
Hispanic, Native American, or Other	3 (2%)	8 (4.7%)	Increase of: 100.0%
Payer			
Medicare	125 (83.9%)	134 (78.4%)	Increase of: 7.2%
Medicaid	9 (6.1%)	6 (3.5%)	Decrease of: 33.4%
Others	15 (10%)	31 (18.1%)	Increase of: 206.6%
Pay Scale			
Not indigent	63 (42.3%)	75 (43.8%)	Increase of: 19.0%
100% indigent	86 (57.7%)	96 (56.2%)	Increase of: 57.3%

enough to transfer to the renal unit for hemodialysis treatment. The patient's telephone number was verified against the admission documentation obtained in the patient's EMR and documented by the discharge nurse. Information/worksheets pertaining to patients being discharged were collectively kept in a discharge binder, which provided access for all health-care staff involved with the discharge of each patient, allowing for updates and a streamlined communication process. Patients received additional discharge instructions from the discharge nurse while in the renal unit prior to discharge, as well as a copy of the telephone follow-up handout indicating the availability of the discharge nurse and the contact number, if needed. If no objections were verbalized by the patient or care partner, the discharge support handout was provided to remind the patient to expect a follow-up telephone call

from the discharge nurse to discuss the patient's current condition and to address additional questions or concerns. The discharge nurse annotated that the telephone follow-up handout was provided to the patient/family member in the discharge coordinator binder.

The discharge nurse assigned to telephone follow-up duties called the patients at home within the 48-hour timeframe, making two attempts to contact the patient. The definition of post-discharge period varies; therefore, the team decided the 48-hour timeframe would best meet the needs of patients and the workflow. A voice message was left if the patient was unavailable, asking the patient to call the discharge nurse on duty the next day between 8:00 a.m. and 5:00 p.m. The patient was considered lost to follow up if no contact was made (if the patient did not call back or if telephone follow up was refused).

Once patient contact was made, the nurse conducted a brief interview using open-ended, semi-structured questions to focus on key areas, documenting the interview on the electronic version of the discharge questionnaire in the EMR. The "Post-Discharge Questionnaire" was designed to support the decision-making process of the discharge nurse while on the phone with the patient. If the patient was advised to immediately contact the primary care provider or go to the nearest ED, the discharge nurse documented the interaction in the EMR and text paged the nephrology fellow on duty, following the institution's text page protocol, informing the fellow of the patient's status.

Data Analysis

A retrospective group analysis was conducted comparing pre-intervention demographic information to post-intervention data. Descriptive statistics

were computed on pre-and post-intervention groups. Patient responses from follow-up phone calls were also analyzed. The percentage of “yes” and “no” responses to the discharge follow-up questionnaire was calculated. Data related to calls attempted, calls completed, and no contact were also analyzed. Additionally, discharge follow-up questions were evaluated to explore patient and provider collaboration, medications compliance, and access to hemodialysis care.

Results

Demographics of the pre-intervention and post-intervention groups are shown in Table 1.

30-Day Readmissions

Pre-intervention group. The pre-intervention group was composed of 149 patients and included 197 admissions. Based upon pre-established definitions of readmission with renal complications, 56 of the 197 admissions (28.4%) occurred within 30 days after discharge. Of the 197 admissions registered during the three-month designated time of interest, 118 (59.9%) of those were admitted from the ED. Of the 149 patients identified, 55.0% were male, 58.4% were White, 39.6% were African American, with the remaining 2% identifying as Hispanic or Native American. Patients of ages 45 years and over accounted for a combined 81.2% of admissions (see Table 2). Medicare beneficiaries accounted for 83.9% of the total inpatient visits. More than half of all patients were 100% indigent, accounting for 58% of the analyzed population. Patients residing within the surrounding metropolitan statistical area (MSA) accounted for 18.9%.

Post-intervention group. The post-intervention group was composed of 171 patients, accounting for 231 admissions. Based upon pre-established definitions of readmission with renal complications, 57 of the 231 admissions (24.6%) occurred within 30 days after discharge. Of the 231 admissions registered between

Table 2
30-Day Readmission Rates

Variable	Pre-Intervention Group	Post-Intervention Group
Patients	(n=149)	(n=171)
Cases (admissions)	197	231
Inpatient cases (admissions) from ED	118 (59.9%)	128 (55.4%)
Readmissions 0 to 30 days	56 (28.4%)	57 (24.6%)
Readmissions 31 days or more	38 (11.7%)	46 (20.0%)

July 1, 2015, and September 30, 2015, 128 (55.4%) were admitted from the ED. Of the 171 patients identified, 57.9% were male, 53.8% were White, 41.5% were African American, with the remaining 4.7% identifying as Hispanic, Native American, or other. Patients' ages of 45 years and over accounted for a combined 80.7% of admissions (see Table 2). Medicare beneficiaries accounted for 78.4%. More than half of all patients were 100% indigent, accounting for 56% of the analyzed population. Patients residing within the surrounding MSA accounted for 24%.

A larger percentage of patients were not admitted to the hospital post-discharge after the intervention as compared to the same time pre-intervention (69% and 52%, respectively). Additionally, fewer 30-day readmissions were noted post-intervention. The percentage of patients admitted within 30 days was 28.4% in pre-intervention timeframe and reduced to 24.6% in the post-intervention timeframe. Statistical significance could not be analyzed on the aggregate data set.

Post-discharge complications. Patients' responses to the follow-up question was categorized by topic. The percentage of yes and no responses was calculated. Of the 62 patients identified, six patients were readmitted for post-discharge complications. Of the six patients readmitted, one patient was readmitted for complications related to hypoglycemia, two patients were actively seeking medical attention during the process of follow up, and two patients

died. Of the 62 patient encounters analyzed, 87% noted no unexpected changes, 84% had contact with a dialysis healthcare provider prior to discharge, and 86% had no further questions regarding follow-up care. Further, 74% filled their discharge medications, and 68% took their discharge medications to their dialysis center for medication reconciliation. There were no reported incidents of falls, despite the population being at a higher risk. Overall satisfaction with their dialysis care was high; 80% rated their care as “good” to “very good” (see Table 3).

Telephone follow-up compliance assessment. An audit of 100 patient (telephone) encounters was conducted from July 1, 2016, to September 31, 2016. A compliance rate of 71% was achieved by nurses in the early stages of the telephone follow-up project; 29 patient encounters were excluded, and 71 patient encounters were included. Of those 71 patient encounters, 57 (80%) had a call attempt by a nurse, and 14 (20%) encounters had no documentation recorded. Of those 57 calls, 22 patients (38%) were contacted by the nurse to complete the post-discharge intervention. Otherwise, a message was left 18 times (32%), and no answer was noted 17 times (30%). The remaining 29 (29%) encounters had no call attempt made. Three (10%) patients refused the opportunity, and 26 (90%) were excluded because they did not meet the requirement for follow up (patients discharged to long-term acute care hospitals, nursing homes, and rehabilitation facilities; all

Table 3
Renal Unit Discharge Follow-Up Questionnaire (n=62)

	Yes n (%)	No n (%)	N/A n (%)	
Have there been any unexpected changes in your condition since discharge?	5 (8%)	54 (87%)	3 (5%)	
Did the dialysis nurse or nephrologist talk to you about your dialysis care and reason you were in the hospital?	52 (84%)	4 (6%)	6 (10%)	
Do you have any questions about your dialysis care or your discharge instructions?	5 (8%)	53 (85%)	4 (7%)	
Were you able to make it to your scheduled outpatient dialysis treatment?	53 (85%)	4 (7%)	5 (8%)	
Were you able to fill your discharge medications?	46 (74%)	10 (16%)	6 (10%)	
Will/did you take your medications to your dialysis center?	42 (68%)	16 (26%)	4 (6%)	
Have you fallen since your discharge from the hospital?	0 (0%)	58 (94%)	4 (6%)	
Are you expecting any medical supplies to be delivered to your home?	3 (5%)	54 (87%)	5 (8%)	
	Poor n (%)	Fair n (%)	Good n (%)	Very Good n (%)
How would you rate your experience with your hospital care?	0 (0%)	8 (13%)	25 (40%)	29 (47%)

adult patients with ESRD admitted to the AMC who received one or more hemodialysis treatments through the acute renal unit during one year).

Discussion

The project was designed to improve the discharge teaching process, improve patient outcomes in the hemodialysis population, and examine the effectiveness of a systematic quality improvement process.

The implementation of the project standardized unit workflow and allowed for updated documentation of patient progress, as well as streamlined communication between all healthcare staff involved with the discharge process. No previous evidence-based process for monitoring patients on hemodialysis after discharge existed at the facility; therefore, a new telephone follow-up process was developed for the acute renal unit. Sustainability for the project was ensured by embedding the process in the EMR and instituting telephone follow-up calls as a daily practice.

The team limited participation in the telephone follow up to no more than five dialysis nurses to ensure reli-

ability in the project. Another strength identified was favorable patient feedback regarding follow-up phone calls and enhancing positive aspects of compassion because caring for chronically ill patients can be associated with considerable moral distress.

Limitations

A major part of the project focused on improving systematic disconnects in the renal unit discharge process resulting from fragmentation of the patient's discharge information and planning. The use of aggregate data and the inability to access patient-level data limited the ability to directly report clinical outcomes on patients receiving the follow-up phone call. The use of aggregate data also limited the ability to gather clinical outcomes on patients who did not receive telephone follow up that may have been at a higher risk for readmission. Further, there was a lack of control for possible deviation from and adherence to the script.

Further Projects

Although results of the project showed a downward trend in the

number of 30-day readmissions, a longitudinal study of greater duration and analysis at the patient level would more definitively demonstrate the relationship between post-discharge telephone follow up and 30-day readmission in the adult hemodialysis population.

Conclusion

Implementation of this project has the potential to reduce readmissions and complications in the patient on hemodialysis population through improved post-discharge care coordination. The telephone follow-up call has the potential to address recent changes to the CMS quality incentive efforts to reduce 30-day readmissions and provide improved discharge care for patients with CKD. Further, results of the project point to an intervention that may address the Medicare Payment Advisory Commission's concerns about preventable readmissions and a strategy to enhance communication and coordination for this vulnerable patient population.

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Learning Outcome

After completing this learning activity, the learner will be able to discuss the benefits of a post-discharge telephone follow-up call to adult patients on hemodialysis by experienced nephrology nurses through standardized unit workflow and leveraging of the electronic medical record.

Learning Engagement Activity

For more information about clinical research, refer to the ANNA Online Library for the session entitled, "Understanding Clinical Trials," presented by Mary Haras, PhD, MBA, APN, NP-C, CNN, and Kristin Larson, MSN, RN, ANP, GNP, CNN, at the ANNA 2017 National Symposium: <https://library.annanurse.org/anna/sessions/4676/view>

Evaluation Form (All questions must be answered to complete the learning activity. Longer answers to open-ended questions may be typed on a separate page.)

1. I verify I have completed this education activity. Yes No

SIGNATURE _____

- | | Strongly Disagree | (Circle one) | Strongly Agree |
|--|-------------------|--------------|--|
| 2. The learning outcome could be achieved using the content provided. | 1 | 2 3 | 4 5 |
| 3. The authors stimulated my desire to learn, and demonstrated knowledge and expertise in the content areas. | 1 | 2 3 | 4 5 |
| 4. I am more confident in my abilities since completing this education activity. | 1 | 2 3 | 4 5 |
| 5. The content was relevant to my practice. | 1 | 2 3 | 4 5 |
| 6. Did the learner engagement activity add value to this education activity? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7. Commitment to change practice (select one): | | | |
| a. I will make a change to my current practice as the result of this education activity. | | | |
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| d. I am not yet convinced that any change in practice is warranted. | | | |
| e. I perceive there may be barriers to changing my current practice. | | | |
| 8. What do you plan to do differently in your practice as a result of completing this educational activity? (Required) | | | _____ |
| 9. What information from this education activity do you plan to share with a professional colleague? (Required) | | | _____ |
| 10. This education activity was free of bias, product promotion, and commercial interest influence. (Required) | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 11. If no, please explain: | | | _____ |

* Commercial interest – any entity either producing, marketing, reselling, or distributing healthcare goods or services consumed by or used on patients or an entity that is owned or controlled by an entity that produces, markets, resells, or distributes healthcare goods or services consumed by or used on patients. Exceptions are non-profits, government and non-healthcare related companies.

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In accordance with ANCC governing rules *Nephrology Nursing Journal* Editorial Board statements of disclosure are published with each CNE offering. The statements of disclosure for this offering are published below.

Paula Dutka, MSN, RN, CNN, disclosed that she is a coordinator of Clinical Trials for the following sponsors: Amgen, Rockwell Medical, Keryx Biopharmaceuticals, Akebia Therapeutics, and Dynavax Technologies.

Norma J. Gomez, MBA, MSN, CNNe, disclosed that she is a member of the ZS Pharma Advisory Council.

Tamara M. Kear, PhD, RN, CNS, CNN, disclosed that she is a member of the ANNA Board of Directors, serves on the Scientific Advisory Board for Kibow Biotech, Inc., and is employed by Fresenius Kidney Care as an acute hemodialysis RN.

All other members of the Editorial Board had no actual or potential conflict of interest in relation to this continuing nursing education activity.

This article was reviewed and formatted for contact hour credit by Beth Ulrich, EdD, RN, FACHE, FAAN, *Nephrology Nursing Journal* Editor, and Sally Russell, MN, CMSRN, CPP, ANNA Education Director.

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This CNE article meets the Nephrology Nursing Certification Commission's (NNCC's) continuing nursing education requirements for certification and recertification.

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