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In This Issue

Effect of Short Daily Hemodialysis and Nightly Home Hemodialysis on Phosphorus Status

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This article has been approved for 1.5 CPE units. The online CPEU quiz and certificate of completion can be accessed in the Members Only section of the RPG web site via the My CPEU link. In addition, this CPE offering is available to current RPG members only and the expiration date is July 31, 2011.

Introduction

Short daily hemodialysis (SDHD) and nightly home hemodialysis (NHHD) provide options to dialysis patients and the renal dietitians that work with them with respect to phosphorus (P). Conventional three times weekly hemodialysis is not efficient enough with regards to removal of middle molecules such as phosphate to maintain P balance in the majority of patients (1). This leaves the patient on conventional therapy captive to severe P diet restrictions and high phosphate binder pill burdens that can significantly affect the patient's quality of life. While peritoneal dialysis (PD) is more effective than conventional hemodialysis (CHD) at removing P, it still does not alleviate the need for diet restrictions and binders completely (2).

Home dialysis was the norm in the 1970's as in-center dialysis was not readily available. With the number of dialysis patients in the United States rising to an expected 520,000 by the year 2010, strategies to improve quality of life with regards to P control need to be analyzed (3). Studies have demonstrated a higher quality of life in home hemodialysis patients with longer, increased frequency of treatment times as well as significantly improved P control (4). Controlling P is an asset for improved quality of life. Hyperphosphatemia is a major contributor to loss of life in dialysis patients. This paper provides evidence that home therapies are still optimal for improving P control.

The Effect of SDHD on P Control

Clinical studies have investigated the use of SDHD of fewer than 3 hours for improvements in P control. A review of three such studies involving SDHD of 2 hours revealed no significant change in serum P levels when compared with CHD. Also, binder use was not decreased, but was increased in some cases. This is possibly because patients may feel better when on SDHD and show improvements in appetite, thus increasing intake of P. This is an improvement in quality of life with regards to improved appetite and nutritional status. Phosphorus control, however, is still an issue in SDHD of 2 hours or less. SDHD must be increased to significantly reduce serum P levels (5-7).

R P G

Renal Nutrition Forum is published quarterly (summer, fall, winter, spring) as a peer-reviewed publication of the Renal Dietitians Dietetic Practice Group of the American Dietetic Association.

Articles about successful programs, research interventions, evaluations and treatment strategies, educational materials, meeting announcements and information about educational programs are welcome and should be emailed to the editor by the next deadline.

Future Deadlines:
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From the Editor's Desk

Megan Sliwa, RD, LDN
Editor

As I write this, I'm transitioning into the RNF Editor role from the Assistant Editor. I'm thrilled at the opportunity to have this position within the Renal Dietitians Practice Group. I look forward to a year's worth of giving my all to bring you the latest news, cutting edge research and continuing education. I would also like to take the time to thank the outgoing executive officers and welcome the new executive committee members (names and email addresses can be found on page 23). Also, an extra thank-you to Rachael Majorowicz, RD, LD outgoing Managing Editor, and Stacey C. Phillips, RD, incoming Managing Editor for all of their work over the past year and for all of their help getting this issue to print.

As you read this, I hope that the value you sought in joining or re-joining RPG is reinforced. In this issue, you'll have the opportunity for 3 CPEUs. The feature article from Jennifer Sullivan, RD, CSR, LDN, NSCA-CPT, explores short daily hemodialysis and nightly home hemodialysis and their effects on patients' phosphorus levels. From there you can go on to enjoy the Advances in Practice Article about chronic kidney disease patients and their increased risk of cardiovascular disease. In the later pages of this issue of the RNF, you can read a couple of articles on lectures at the National Kidney Foundation Spring Clinical Meetings in Orlando. The Summer 2010 issue also includes reprints from the *On the Cutting Edge*, the newsletter from the Diabetes Care and Education Dietetic Practice Group; articles that outline community resources and creative ways to counsel and use these resources with low-income patients.

I hope you will enjoy this issue of the Forum. In 2010-2011 I encourage you to provide feedback on the articles and content. The editorial team welcomes your comments and suggestions for future issues. And if you've ever read an article and thought writing was something you'd like to try or encountered a great case study or research you'd like to share with the members, I highly encourage you to submit your articles and reviews to the editorial team.

In addition, I hope to see you at the American Dietetic Association's Food & Nutrition Conference & Expo in Boston (November 6-9, 2010). Please keep the RNF in mind as you attend this and other professional meetings- consider sharing what you've learned with your peers as a write-up in an upcoming issue. The Renal Dietitians are hosting a networking breakfast on Sunday morning-it offers a great way to start the day and gives you an opportunity to meet or re-connect with fellow members. ◆

The Effect of Daily Dialysis of Increased Duration on P Control

Research reveals that SDHD of 3 hours duration is more effective at removing P than CHD and SDHD of lesser duration. In a prospective, nonrandomized, controlled study of 77 HD patients where 51 were on CHD and 26 were treated with SDHD of 3 hours, results regarding P were significant. Mean serum P levels were greatly improved from baseline to end-of-study. Binder usage among 3 hour SDHD patients was significantly lower and phosphate removal was much higher compared to CHD. If only the first 2 hours of dialysis are taken into consideration in the SDHD group, weekly P removal would not have been significantly different from CHD removal. This suggests that at least 3 hours daily is needed for significant improvements in P parameters (8).

time and solute removal was evaluated in a study of nine stable chronic hemodialysis patients. The patients were dialyzed for 4, 6, or 8 hours but the total volume of processed blood and dialysate remained the same. The patients receiving longer treatments had a larger amount of total solutes removed and less solute content in the patient in the intradialytic period. This was true regarding P, suggesting that treatment duration plays an important role in P control (9). Figure 1 explains how duration of dialysis improves P removal.

The London, Ontario Daily/Nocturnal Dialysis study assigned patients to either SDHD or NHHD and followed them for 5-36 months. The data derived from these patients was compared with CHD patient data. The study was observational and nonrandomized, allowing patients to choose their treatment

Table 1
The Effect of SDHD on Serum P and the Use of Binders

	Mean treatment time in min		Average days dialyzed per week		Serum P mg/dL		Binders	
SDHD <3 Hours	**CHD**	**SDHD < 3hrs**	**CHD**	**SDHD < 3hrs**	**CHD**	**SDHD < 3hrs**	**CHD**	**SDHD < 3hrs**
Kumar and Colleagues (5)	NA	147	3	5.3	5.1 +/- 1.6	5.4 +/- 1.4	2.6 +/- 1.4	4.2 +/- 2.6
Williams and Colleagues (6)	232	116	3	6	5.5 +/- 1.7	5.5 +/- 1.7	NA	NA
Lugon and Colleagues (7)	NA	120	3	6	7.2 +/- 2.7	5.8-6.3	NA	NA
SDHD ≥ 3 Hours	**CHD**	**SDHD > 3hrs**	**CHD**	**SDHD >3hrs**	**CHD**	**SDHD >3hrs**	**CHD**	**SDHD >3hrs**
Ayus and Colleagues (8)	240	180	NA	NA	5.02	4.2	No change	77%-40%

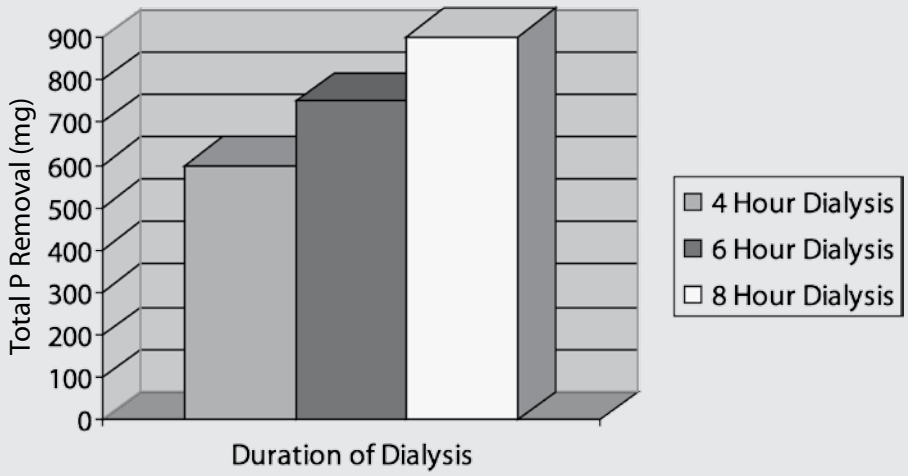
NA= not available

Data derived from SDHD studies of 2 and 3 hours are summarized in Table 1.

NHHD and P Removal

Serum P control in patients on CHD has been compared with those on NHHD and has been remarkably in favor of NHHD. Additionally, as 3 hour SDHD dialysis is more effective than 2 hour SDHD, one could conclude increased duration of NHHD is definitely superior with regards to P removal. The factor of as forcing patients to receive a specific treatment may influence quality of life negatively. CHD in the control group was performed 3 days per week for 3.5 to 4.5 hours. SDHD was performed 5-6 days per week for 1.5 to 2.5 hours per treatment. NHHD was performed 5-6 days per week for 6 to 8 hours while the patients were sleeping. With regards to diet and P, the study revealed that P control was best achieved in the NHHD patients. These patients became virtually free from the need of phosphate binders, which was not the case for SDHD or CHD patients (10).

Figure 1
Phosphorus Removal as Duration of Dialysis Increases



Lynchburg Nephrology Dialysis, Inc in Lynchburg, Virginia began a NHHD program and studied their patients after reviewing the results of the London, Ontario study. Assessment of nutritional parameters, serum chemistries, and quality of life was taken before the program was initiated and again at 3, 6, 12, and 18 months. A marked decrease in P was seen with an average P of 6.8 mg/dL 6 months prior to NHHD and declining to an average of 3.2 mg/dL post NHHD. Phosphate binders were stopped and not restarted on all patients. Three patients had to have a P additive added to their bicarbonate bath due to low serum P levels. Dietary restrictions regarding P were lifted on all patients even though their protein intake had increased (11).

Discussion

The evidence suggests that patients on home therapies fare significantly better than CHD with regards to P control. This is particularly true in NHHD. Each study reviewed concluded that CHD is inefficient in P removal, resulting in the need for dietary restrictions and binder usage. The duration of dialysis therapy is an important factor for P control. Three hour SDHD is more effective than shorter dialysis durations and gives patients freedom from large binder dosages and diet restrictions. However, one would have to consider the number of people who would devote 3 hours daily to dialysis less likely. Most patients consider CHD for 3-5 hours 3 times weekly burdensome. Evidence lies strongly in favor of NHHD as the most effective treatment option for P control. As treatment time increased from 4 to 6 to 8 hours, more P was removed and less was present in the blood in the intradialytic period. Additionally, the 8 hours spent having one's blood dialyzed would be accomplished while the patient sleeps. This would free a patient's days for other activities.

Drawbacks to home therapies were not discussed in the studies. Patient eligibility and acceptance must be considered when reviewing treatment options. Patients and family members have to have the capacity to learn asceptic techniques for self-cannulation. Trouble shooting when a machine alarms or dysfunctions would also be a skill to be acquired by perspective NHHD patients. While most patients on NHHD speak highly of the treatment, it is still not widely accepted among patients on CHD (12). Safety issues such as unintentional disconnection with the machine or possible air embolism cause patients to fear NHHD. Time and energy required by the patient for machine assembly requires motivation some patients may not possess (13). Additional research needs to be done regarding patient ability and acceptance of NHHD so that these issues can be addressed to make it a conceivable option for more patients. Research in this area could lead to improvements in ease of use and safety features of the machines. Additionally, educational materials for patients could be tailored more specifically to address issues that cause patients to reject NHHD. Renal dietitians should join with other renal health care professionals to inform patients of their treatment options. Many patients are not aware that anything but CHD is available. Promotion of home therapies could provide relief to the renal nursing shortage, and a solution to growth of the end stage renal disease (ESRD) and chronic kidney disease populations and the potential shortage of nephrologists in the next decade (14).

Conclusion

NHHD as a treatment option should be strongly encouraged to capable patients as a life and health improving option particularly regarding P control. Patients report that dietary restrictions are one of the most difficult parts of the treatment for ESRD, with P restrictions being the most commonly abused (15). The International Dialysis and Practice Patterns data reveals that fewer than 50% of patients meet target levels for serum P. Despite valiant efforts by renal dietitians this number has not improved since 1999 (16). These statistics are not acceptable as a low P diet and binder recommendations do not only affect a patient's lifestyle. Hyperphosphatemia is a strong predictor of morbidity and mortality among ESRD patients due to cardiovascular disease and soft tissue calcification (17).

PD is definitely a viable option that will improve P control and increase freedom of patients to a degree, but will not fully eliminate the need for binders and diet restrictions. Phosphorus control has been described as exquisite in NHHD patients. Control is typically achieved within the first week of treatment, eliminating the use of binders and leading to an unrestricted diet. In fact, many patients have to have sodium phosphate added to the dialysate to avoid hypophosphatemia due to the extreme improvements in weekly P removal (18). Additionally, the 8 hours spent having one's blood cleaned would be accomplished while the patient sleeps freeing the patient's days. With the removal of preoccupation with P, renal dietitians could focus on working with the patients to eat a well balanced, nutritious diet that includes a variety of foods rather than worrying the patient is contributing to their own death through the intake of minerals they cannot eliminate. ◆

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Thank You...

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Management of Cardiovascular Disease in Patients With Impaired Renal Function

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This article has been approved for 1.5 CPE units. The online CPEU quiz and certificate of completion can be accessed in the Members Only section of the RPG web site via the My CPEU link. In addition, this CPE offering is available to current RPG members only and the expiration date is July 31, 2011.

Cardiovascular disease (CVD) is a common development of patients with chronic kidney disease (CKD), particularly with end-stage renal disease (ESRD). Complications that develop from CKD, as well as the underlying conditions such as hypertension and diabetes, can increase the risk for developing CVD. CVD is one of the most serious complications of advanced kidney disease, and is the leading cause of death for ESRD patients (1). There is growing concern that CKD patients receive inadequate preventative care for CVD, even though most health care professionals are well-aware of the heightened risk for development of this disease. Patients who present with mild renal insufficiency or early stages of CKD should also be targeted for CVD prevention before any cardiac symptoms develop. This can help to prevent unnecessary premature cardiac complications.

Table 1 highlights the pathogenesis of CVD in CKD as adapted from Charles R. Nolan, who is from the University of Texas Health Sciences Center (2). This table demonstrates the multiple risk factors that can be involved in the development of CVD. The prevalence of cardiac risk factors increase with the stage of kidney dysfunction (3). In 2007, one-year mortality rates after a patient had an acute myocardial infarction (MI) was 27% in those without CKD, and 46% in those with Stage 3–5 CKD (4). Herzog et al discovered a sobering prognosis for patients with ESRD on long-term dialysis after MI; only 41% survived for one year after, and 27% for two years (5).

The cost for treatment of cardiac and/or renal disease alone can be devastating to many patients. Among Medicare patients, per person per month costs in 2007 after cardiac arrest were $6,200 for non-CKD patients, and rose to $11,500 for those with Stage 3–5 CKD (4). If none of the typical signs or symptoms of CVD are present during the initial routine cares of CKD, cardiac care measures may not be emphasized with the patient. The primary cause of death in kidney failure is CVD, and dietitians should take advantage of their important role in teaching cardiac nutrition guidelines at an early stage of the disease process (6,7).

Hyperlipidemia and CKD

The most common lipid abnormality in patients with kidney disease is an elevation of serum triglycerides, with

Table 1
Pathogenesis of CVD in CKD

Traditional Cardiac Risk Factors	Leads to....	Kidney-disease Related Risk Factors
Dyslipidemia →		← Increased PTH
Age →		← Dialysis Duration
Hypertension →	Atherosclerosis ↕ CV Calcification	← Oxidative Stress
Diabetes (hyperinsulinemia) →		← Impaired Renal Function
Genetic Predisposition →		← Endothelial Dysfunction
Smoking →		←Chronic Inflammation
Increased homocysteine→		← Hyperphosphatemia
		← Exogenous vitamin D

This table is adapted from a figure drawn by Charles R. Nolan (2) of the pathogenesis of cardiovascular disease (CVD) in chronic kidney disease. A plethora of factors may be involved in the pathogenesis of CVD in patients with ESRD, including traditional cardiac risk factors (white column) and kidney disease–related risk factors (gray column).

coexistent elevations of very low-density lipoprotein (VLDL) and intermediate-density lipoprotein levels. Total cholesterol may be normal, decreased, or slightly elevated; whereas high-density lipoprotein (HDL) levels are often low. Low density lipoprotein (LDL) levels can be unchanged, mildly elevated, or even low (8). Men with chronic renal failure on hemodialysis have shown significantly higher levels of serum triglycerides, VLDL, and lower levels of LDL and HDL than controls (9). Following a renal transplantation, triglyceride levels may decrease and cholesterol often increases (7).

A wide array of mechanisms contribute to the lipid abnormalities in patients with kidney disease. The predominant metabolic abnormality is impaired catabolism and clearance of lipoproteins of hepatic and intestinal origin. This is related to decreased activities of lipoprotein lipase, lecithin-cholesterol acyltransferase, and hepatic triglyceride lipase (9,11). A lipoprotein lipase deficiency can lead to hypertriglyceridemia, which is the most prominent lipid abnormality in kidney failure. Due to this fact, education on prevention of or treatment for hypertriglyceridemia, along with the general cardiac and renal diet guidelines appears to be a logical intervention for renal dietitians.

According to the National Kidney Foundation, Nutrition and Early Kidney Disease Diet Guidelines, the nutrients that should be monitored in the diet for CKD stages 1-4 include protein, sodium, phosphorus, calcium, potassium, and fluid (12). Diabetes is also discussed in this booklet, but nothing is mentioned on heart disease. This education piece states, "If you are not getting enough calories from your diet, you may need to eat extra sweets like sugar, jam, jelly, hard candy, honey and syrup." However, the American Heart Association (AHA) recommends to "cut back on beverages and foods with added sugars to help fight cardiovascular disease," (13). Traditional renal diet guidelines do not include recommendations for cardiac health, and usually focus on the nutrients necessary for appropriate kidney function. It is essential to combine these recommendations and emphasize them from the initial consultation for signs of kidney disease. Therefore, when planning diets of renal impaired patients, it is important to consider nutrition-related CVD risk factors for the sake of quality of life and survival.

Strategies for Improving CVD Risk in Patients with Renal Impairment.

In May of 2001, the National Heart, Lung, and Blood Association's National Cholesterol Education Program (NCEP) released new guidelines for cholesterol management. The AHA issued a statement in 2003 that recommended patients with CKD be considered a "highest risk group" for subsequent CVD events (8). The AHA has now been incorporating the new NCEP guidelines into its materials on dietary and lifestyle changes for people with elevated cholesterol. The Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) recommends that therapy for elevated cholesterol begin with more intensive life-habit intervention to lower cholesterol and reduce the risk for developing heart disease and having a heart attack.

This approach is referred to as the "Therapeutic Lifestyle Changes (TLC)" diet, and the AHA has adopted this for people at high risk for, or who already have known CVD (13). Refer to Table 2 for the essential components of the TLC diet.

Table 2
TLC Diet in ATP III

Nutrient	Recommended intake as percent total calories
Total Fat	25-35%
Saturated Fat	Less than 7%
Polyunsaturated Fat	Up to 10%
Monounsaturated Fat	Up to 20%
Carbohydrate	50-60% of total calories
Protein	Approximately 15%
Cholesterol	Less than 200 mg per day
Total Calories	Balance energy intake and expenditure to maintain desirable body weight and prevent weight gain

The 25–35% fat recommendation allows for increased intake of unsaturated fat in place of carbohydrates in people with the metabolic syndrome or diabetes. Carbohydrate should come mainly from foods rich in complex carbohydrates, including whole grains, fruits and vegetables. Daily energy expenditure should include at least moderate physical activity (contributing to about 200 calories per day). Other options include adding 10–25 grams of soluble fiber; as well as two grams per day of plant-derived sterols or stanols. Soy protein may be used as a replacement for some animal products. These guidelines should be incorporated into renal diet handouts and education pieces for patients, and emphasized by dietitians during consultations. This can help to target both kidney and heart disease together, and maximize nutritional benefits.

Summary

The prognosis of patients with ESRD is poor, due to many pathophysiological factors. Under-diagnosis and/or inadequate treatment of underlying CVD in these medically complex patients

are two areas that merit further study in this patient population. An increasing amount of literature suggests that timely diagnosis and treatment of CKD can delay disease progression and may decrease adverse cardiovascular outcomes. The Kidney Disease Outcomes Quality Initiative Guidelines suggest that the work-up should include at least a baseline EKG and an echocardiogram (14). Detection of risk factors for CVD (both traditional and kidney disease related) in the early stages of renal impairment may be necessary to have a significant impact on outcome.

There have been few controlled trials to demonstrate the efficacy of cardiac diet emphasis in CKD; therefore, the made recommendations are based on extrapolation from evidence on the efficacy of cardiac therapy in the general population. Further research into the effectiveness of early cardiac prevention measures in CKD is warranted. Dietitians should attempt to incorporate the TLC diet guidelines into their renal educational materials and emphasize their importance in the beginning stages of renal impairment to help prolong the lives of their patients. ◆

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Indication: Renvela® (sevelamer carbonate) is indicated for the control of serum phosphorus in patients with chronic kidney disease (CKD) on dialysis.

Important Treatment Considerations

Renvela is contraindicated in patients with bowel obstruction • Caution should be exercised in patients with dysphagia, swallowing disorders, severe gastrointestinal (GI) motility disorders including severe constipation, or major GI tract surgery • Uncommon cases of bowel obstruction and perforation have been reported • Serum bicarbonate and chloride levels should be monitored • Vitamins D, E, K (coagulation parameters), and folic acid levels should be monitored • The most frequently occurring adverse reactions in a short-term study with sevelamer carbonate tablets were nausea and vomiting • In a short-term study of sevelamer carbonate powder dosed three times daily, adverse events were similar to those reported for sevelamer carbonate tablets • In long-term studies with sevelamer hydrochloride, which contains the same active moiety as sevelamer carbonate, the most common adverse events included: vomiting, nausea, diarrhea, dyspepsia, abdominal pain, flatulence, and constipation • Cases of fecal impaction and, less commonly, ileus, bowel obstruction, and bowel perforation have been reported • Drug-drug interactions may occur with some medications and should be taken into consideration when instructing patients how to take Renvela • Patients should be informed to take Renvela with meals and to adhere to their prescribed diets

Please see Brief Summary of Prescribing Information on adjacent page.

Reference: 1. Renvela [package insert]. Cambridge, MA: Genzyme Corp; 2009.

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DOSAGE AND ADMINISTRATION
Because of the rapid reaction with the hydrochloric acid in the stomach, the dosing of Renvela powder or tablet is anticipated to be similar to that of the sevelamer hydrochloride salt or tablet.

General Dosing Information
Patients Not Taking a Phosphate Binder. The recommended starting dose of Renvela is 0.8 to 1.6 g, with meals based on serum phosphorus level. Table 1 provides recommended starting doses of Renvela for patients not taking a phosphate binder.

Table 1. Starting Dose for Dialysis Patients Not Taking a Phosphate Binder

SERUM PHOSPHORUS	RENVELA® 800 MG	RENVELA POWDER
> 5.5 and < 7.5 mg/dL	1 tablet three times daily with meals	0.8 g three times daily with meals
> 7.5 mg/dL	2 tablets three times daily with meals	1.6 g three times daily with meals

Switching from Sevelamer Hydrochloride Tablets. For patients switching from sevelamer hydrochloride tablets to sevelamer carbonate tablets or powder, use the same dose in grams. Further titration may be necessary to achieve desired phosphorus levels. The highest daily dose of sevelamer carbonate studied was 14 grams in CKD patients on dialysis.
Switching between Sevelamer Carbonate Tablets and Powder. Use the same dose in grams. Further titration may be necessary to achieve desired phosphorus levels.
Switching from Calcium Acetate. In a study in 84 CKD patients on hemodialysis, a similar reduction in serum phosphorus was seen with equivalent doses (approximately mg for mg) of sevelamer hydrochloride and calcium acetate. Table 2 gives recommended starting doses of Renvela based on a patient's current calcium acetate dose.

Table 2. Starting Dose for Dialysis Patients Switching From Calcium Acetate to Renvela

CALCIUM ACETATE 667 MG (TABLETS PER MEAL)	RENVELA® 800 MG (TABLETS PER MEAL)	RENVELA POWDER
1 tablet	1 tablet	0.8 g
2 tablets	2 tablets	1.6 g
3 tablets	3 tablets	2.4 g

Dose Titration for All Patients Taking Renvela. Titrate the Renvela dose by 0.8 g TID with meals at two-week intervals as necessary with the goal of controlling serum phosphorus within the target range.

Sevelamer Carbonate Powder Preparation Instructions
The entire contents of each 0.8 or 2.4 g packet should be placed in a cup and mixed thoroughly with the amount of water described in Table 3.

Table 3. Sevelamer Carbonate Powder Preparation Instructions

RENVELA POWDER PACKET STRENGTH	MINIMUM AMOUNT OF WATER FOR DOSE PREPARATION (EITHER OUNCES, ML, OR TEASPOON/TABLESPOON)		
	ounces	mL	tsp/tbsp
0.8 g	1	30	6 teaspoons/2 tablespoons
2.4 g	2	60	4 tablespoons

Multiple packets may be mixed together with the appropriate amount of water. Patients should be instructed to stir the mixture vigorously (it does not dissolve) and drink the entire preparation within 30 minutes or resuspend the preparation right before drinking.

Based on clinical studies, the average prescribed daily dose of sevelamer carbonate is approximately 7.2 g per day.

DOSAGE FORMS AND STRENGTHS
Tablets: 800 mg white oval, film-coated, compressed tablets imprinted with "RENVELA 800".

Powder: 0.8 g and 2.4 g pale yellow powder packaged in an opaque, foil lined, heat sealed packet.

CONTRAINDICATIONS
Renvela is contraindicated in patients with bowel obstruction.

WARNINGS AND PRECAUTIONS
Use Caution in Patients with Gastrointestinal Disorders. The safety of Renvela has not been established in patients with dysphagia, swallowing disorders, severe gastrointestinal (GI) motility disorders including severe constipation, or major GI tract surgery. Uncommon cases of bowel obstruction and perforation have been reported.
Monitor Serum Chemistries. Bicarbonate and chloride levels should be monitored.
Monitor for Reduced Vitamins D, E, K (clotting factors) and Folic Acid Levels. In preclinical studies in rats and dogs, sevelamer hydrochloride, which contains the same active moiety as sevelamer carbonate, reduced vitamins D, E, and K (coagulation parameters) and folic acid levels at doses of 6-10 times the recommended human dose. In short-term clinical trials, there was no evidence of reduction in serum levels of vitamins. However, in a one-year clinical trial, 25-hydroxyvitamin D (normal range 10 to 55 ng/mL) fell from 39 ± 22 ng/mL to 34 ± 22 ng/mL ($p<0.01$) with sevelamer hydrochloride treatment. Most (approximately 75%) patients in sevelamer hydrochloride clinical trials received vitamin supplements, which is typical of patients on dialysis.

ADVERSE REACTIONS
Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.
There are limited data on the safety of Renvela. However, based on the fact that it contains the same active ingredient as the hydrochloride salt, the adverse event profiles of the two salts should be similar. In a cross-over study in hemodialysis patients with treatment durations of eight weeks each and no washout the adverse reactions on sevelamer carbonate tablets were similar to those reported for sevelamer hydrochloride. In another cross-over study in hemodialysis patients, with treatment durations of four weeks each and no washout between treatment periods, the adverse reactions on sevelamer carbonate powder were similar to those reported for sevelamer hydrochloride.
In a parallel design study of sevelamer hydrochloride with treatment duration of 52 weeks, adverse reactions reported for sevelamer hydrochloride (n=99) were similar to those reported for the active-comparator group (n=101). Overall adverse reactions among those treated with sevelamer hydrochloride occurring in > 5% of patients included: vomiting (22%), nausea (20%), diarrhea (19%), dyspepsia (16%), abdominal pain (9%), flatulence (8%), and constipation (8%). A total of 27 patients treated with sevelamer and 10 patients treated with comparator withdrew from the study due to adverse reactions.
Based on studies of 8-52 weeks, the most common reason for withdrawal from sevelamer hydrochloride was gastrointestinal adverse reactions (3-16%).
In one hundred and forty-three peritoneal dialysis patients studied for 12 weeks using sevelamer hydrochloride, most adverse reactions were similar to adverse reactions observed in hemodialysis patients. The most frequently occurring treatment emergent serious adverse reaction was peritonitis (8 reactions in 8 patients [8%] in the sevelamer group and 2 reactions in 2 patients [4%] on active-control). Thirteen patients (14%) in the sevelamer group and 9 patients (20%) in the active-control group discontinued, mostly for gastrointestinal adverse reactions. Patients on peritoneal dialysis should be closely monitored to ensure the reliable use of appropriate aseptic technique with the prompt recognition and management of any signs and symptoms associated with peritonitis.
Postmarketing Experience: Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or to establish a causal relationship to drug exposure.
The following adverse reactions have been identified during post-approval use of sevelamer hydrochloride, which has the same active moiety as sevelamer carbonate: pruritus, rash, abdominal pain, fecal impaction, and uncommon cases of ileus, intestinal obstruction, and intestinal perforation. Appropriate medical management should be given to patients who develop constipation or have worsening of existing constipation to avoid severe complications.

DRUG INTERACTIONS
Sevelamer carbonate has been studied in human drug-drug interaction studies with wafarin and digoxin. Sevelamer hydrochloride, which contains the same active moiety as sevelamer carbonate, has been studied in human drug-drug interaction studies with ciprofloxacin, digoxin, warfarin, enalapril, metoprolol, and iron.

Ciprofloxacin: In a study of 15 healthy subjects, a co-administered single dose of 2.8 grams of sevelamer hydrochloride decreased the bioavailability of ciprofloxacin by approximately 50%.

Digoxin: In 19 healthy subjects receiving 2.4 grams of sevelamer hydrochloride three times a day with meals for 2 days, sevelamer did not alter the pharmacokinetics of a single dose of digoxin. In 18 healthy subjects receiving 9.6 grams of sevelamer carbonate once daily, sevelamer did not alter the pharmacokinetics of a single dose of digoxin.

Warfarin: In 14 healthy subjects receiving 2.4 grams of sevelamer hydrochloride three times a day with meals, sevelamer did not alter the pharmacokinetics of a single dose of warfarin. In 14 healthy subjects receiving 9.6 grams of sevelamer carbonate once daily with meal, sevelamer did not alter the pharmacokinetics of a single dose of warfarin.

Enalapril: In 28 healthy subjects a single 2.4 gram dose of sevelamer hydrochloride did not alter the pharmacokinetics of a single dose of enalapril.

Metoprolol: In 31 healthy subjects a single 2.4 gram dose of sevelamer hydrochloride did not alter the pharmacokinetics of a single dose of metoprolol.

Iron: In 23 healthy subjects, a single 2.8 gram dose of sevelamer hydrochloride did not alter the absorption of a single oral dose of iron as 200 mg exsiccated ferrous sulfate tablet.

Other Concomitant Drug Therapy: There are no empirical data on avoiding drug interactions between Renvela and most concomitant drugs. During postmarketing experience, very rare cases of increased thyroid stimulating hormone (TSH) levels have been reported in patients co-administered sevelamer hydrochloride and levothyroxine. Monitor TSH levels and signs of hypothyroidism in patients receiving both medications.

When administering an oral medication where a reduction in the bioavailability of that medication would have a clinically significant effect on its safety or efficacy, there is no information suggesting a dosing regimen that would be universally appropriate for all drugs. One may, however, administer the drug one hour before or three hours after Renvela, and when important, monitor blood levels of the drug. Patients taking anti-arrhythmic medications for the control of arrhythmias and anti-seizure medications for the control of seizure disorders were excluded from the clinical trials.

USE IN SPECIFIC POPULATIONS
Pregnancy: Pregnancy Category C: There are no adequate and well-controlled studies in pregnant women. Sevelamer products should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.
The effect of sevelamer hydrochloride on the absorption of vitamins and other nutrients has not been studied in pregnant women. Requirements for vitamins and other nutrients are increased in pregnancy. In pregnant rats given doses of sevelamer hydrochloride during organogenesis, reduced or irregular ossification of fetal bones, probably due to a reduced absorption of fat-soluble vitamin D, occurred at a dose approximately equal to the maximum clinical trial dose of 13 g on a body surface area basis. In pregnant rabbits given oral doses of sevelamer hydrochloride by gavage during organogenesis, an increase of early resorptions occurred at a dose approximately twice the maximum clinical trial dose on a body surface area basis *[See NONCLINICAL TOXICOLOGY (13.2)]*.
Labor and Delivery: No sevelamer hydrochloride treatment-related effects on labor and delivery were seen in animal studies *[See NONCLINICAL TOXICOLOGY (13)]*. The effects of sevelamer carbonate on labor and delivery in humans is unknown.
Pediatric use: The safety and efficacy of Renvela has not been established in pediatric patients.
Geriatric use: Clinical studies of Renvela did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range.

OVERDOSAGE
Sevelamer hydrochloride, which contains the same active moiety as sevelamer carbonate, has been given to normal healthy volunteers in doses of up to 14 grams per day for eight days with no adverse effects. In CKD patients on dialysis, the maximum dose studied was 14 grams of sevelamer carbonate and 13 grams of sevelamer hydrochloride. There are no reports of overdosage with sevelamer carbonate or sevelamer hydrochloride in patients. Since sevelamer is not absorbed, the risk of systemic toxicity is low.

NONCLINICAL TOXICOLOGY
Carcinogenesis, Mutagenesis, Impairment of Fertility: Standard lifetime carcinogenicity bioassays were conducted in mice and rats. Rats were given sevelamer hydrochloride by diet at 0.3, 1, or 3 g/kg/day. There was an increased incidence of urinary bladder transitional cell papilloma in male rats of the high dose group (human equivalent dose twice the maximum clinical trial dose of 13 g). Mice received dietary administration of sevelamer hydrochloride at doses of up to 9 g/kg/day (human equivalent dose 3 times the maximum clinical trial dose). There was no increased incidence of tumors observed in mice.
In an *in vitro* mammalian cytogenetic test with metabolic activation, sevelamer hydrochloride caused a statistically significant increase in the number of structural chromosome aberrations. Sevelamer hydrochloride was not mutagenic in the Ames bacterial mutation assay.
Sevelamer hydrochloride did not impair the fertility of male or female rats in a dietary administration study in which the females were treated from 14 days prior to mating through gestation and the males were treated for 28 days prior to mating. The highest dose in this study was 4.5 g/kg/day (human equivalent dose 3 times the maximum clinical trial dose of 13 g).
Developmental Toxicity: In pregnant rats given dietary doses of 0.5, 1.5, or 4.5 g/kg/day of sevelamer hydrochloride during organogenesis, reduced or irregular ossification of fetal bones, probably due to a reduced absorption of fat-soluble vitamin D, occurred in mid- and high-dose groups (human equivalent doses approximately equal to and 3.4 times the maximum clinical trial dose of 13 g). In pregnant rabbits given oral doses of 100, 500, or 1000 mg/kg/day of sevelamer hydrochloride by gavage during organogenesis, an increase of early resorptions occurred in the high-dose group (human equivalent dose twice the maximum clinical trial dose).

HOW SUPPLIED/STORAGE AND HANDLING
Tablets: Renvela® 800 mg Tablets are supplied as white oval, film-coated, compressed tablets, imprinted with "RENVELA 800", containing 800 mg of sevelamer carbonate on an anhydrous basis, microcrystalline cellulose, hypromellose, diacetylated monoglycerides, sodium chloride, and zinc stearate.
1 Bottle of 30 ct 800 mg Tablets (NDC 58468-0130-2)
1 Bottle of 270 ct 800 mg Tablets (NDC 58468-0130-1)

Powder: Renvela® for Oral Suspension is supplied as opaque, foil lined, heat sealed, packets containing 0.8 g or 2.4 g of sevelamer carbonate on an anhydrous basis, natural and artificial citrus cream flavor, propylene glycol alginate, sodium chloride, sucralose, and ferric oxide (yellow).
1 Box (NDC 58468-0131-2) of 90 ct 2.4 g packets (NDC 58468-0131-1)
1 Box (NDC 58468-0132-2) of 90 ct 0.8 g packets (NDC 58468-0132-1)
1 Sample Box (NDC 58468-0131-4) of 90 ct 2.4 g packets (NDC 58468-0131-3)

STORAGE
Store at 25°C (77°F): excursions permitted to 15-30°C (59-86°F).
[See USP controlled room temperature]
Protect from moisture.

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Report from the National Kidney Foundation Spring Clinical Meetings

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I wish to thank the Renal Dietitians Dietetics Practice Group for providing me with a stipend to defray my costs in attending the NKF Spring Clinical Meetings in Orlando, Florida. One topic that several lectures addressed was vitamin D use in kidney failure and renal dialysis patients. Lillian Cuppari, PhD, RD presented a detailed overview of vitamin D including the forms of vitamin D and how the body utilizes each molecular structure. The nutritional form of vitamin D is D_2 or ergocalciferol and vitamin D_3 or cholecalciferol. The prehormone form is 25(OH)D or calcidiol and the hormone form is $1,25(OH)_2D$ or calcitriol. Good food sources of vitamin D_3 are salmon, canned sardines, mackerel, tuna, cod liver oil, and egg yolk. Vitamin D_2 is found in irradiated plants ergosterol. Sunlight can provide over 90% of the vitamin D requirement. However, there are factors that limit the amount of vitamin D that is synthesized in the skin such as low or elevated altitude regions, the winter season, clouds or pollution that block sunlight, melanin in skin, aging, and the use of sunscreen. Dietary recommendations of vitamin D range from 200 IU/day to 600 IU/day, based upon age. People with low exposure to sunlight may need 800 to 1000 IU/day.

Vitamin D status is determined from 25(OH)D levels. A severe deficiency is less than 5 ng/mL. Sufficiency is greater than 30 ng/mL. A deficiency of $1,25(OH)_2D$ in chronic kidney disease (CKD) is caused by a decrease in renal 1 alpha-hydroxilase from the kidney. Other contributing factors are protein loss in the urine and dialysate, diabetes and obesity, age, reduced exposure to sunlight, low food intake, and reduced skin production. Vitamin D deficiency is associated with an increased mortality among patients on hemodialysis. The Kidney Disease Outcome Quality Initiative Clinical Practice Guidelines make the following recommendations for CKD patients, stages 3 and 4. If plasma intact PTH is above the target range for the stage, serum 25-hydroxyvitamin D should be measured at first encounter, and if normal, repeated annually. If the serum level of 25-hydroxyvitamin D is less than 30 ng/mL, supplementation with vitamin D_3 should be initiated. In CKD patients with stage 5 kidney failure, it is suggested by some that active vitamin D sterol should be provided if the PTH is greater than 300 pg/mL. More research needs to be done to clarify the optimal dose and duration of vitamin D administration and what is the ideal serum concentration of 25(OH)D that should be achieved. A few short term studies have indicated that restoring vitamin D levels with cholecalciferol or ergocalciferol may decrease PTH and increase $1,25(OH)_2D$ with apparently no adverse effects on calcium and phosphorus metabolism.

Debra Blair, MPH, RD, CSR and associates also presented a lecture which focused on the role of vitamin D in immune function, gene transcription, insulin sensitivity and secretion, regulation of blood pressure via the effects on renin/angiotensin and smooth muscle, and an anti-inflammatory role that may slow atherosclerosis. The research they presented concluded that improving serum 25(OH)D may aid in lowering pulse pressures and systolic blood pressure in maintenance hemodialysis patients with both pre- and post-supplementation with ergocalciferol.

Nancy Spaulding-Albright, MMS, RD, LD/N, CNSD presented case studies depicting risk factors for vitamin D deficiency in renal patients. In addition to factors previously discussed, she cited race differences in skin melanin content, minimal fortified milk intake due to imposed phosphorus limits, avoidance of sun due to it causing a person to be thirsty, obesity, and the effect of some phosphorus binders on vitamin D absorption. Her discussion of vitamin D in food cautioned against using cod liver oil as a source of vitamin D due to its extremely high content of vitamin A which competes with vitamin D for absorption. Frying fish in vegetable oil reduces the vitamin D content by 50% which she suggested is another reason to suggest not frying foods. Ms. Spaulding-Albright's recommendations for vitamin D repletion were to give symptomatic patients an initial 50,000 IU D_2 weekly for eight weeks and then 2000 IU's for maintenance. She also recommends that clients not use calcium based binders, calcium antacids, fortified juices, or excess dairy products.

In summary, further research is still needed to establish the most appropriate levels and types of vitamin D treatment to optimize the health of people during kidney failure and dialysis. These dietitians and lectures made me much more aware of the need to increase my knowledge of vitamin D and its impact on those with kidney disease. ◆

Member Spotlight

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Many renal dietitians are under the impression that our patients should not follow a vegetarian diet due to the high phosphorus levels in these foods. My thinking on this area has changed since hearing a talk by Joan Brookhyser Hogan, RD, CSR, CLT, CD and Chef Duane Sunwold at the National Kidney Foundation Spring Clinical Meetings in April, 2010.

The speaker Joan Brookhyser Hogan, RD, CSR, CLT, CD pointed out that some renal dietitians have outdated beliefs in regards to chronic kidney disease (CKD) patients following a vegetarian diet. Within her lecture, she discussed some of the benefits of following a vegetarian diet. She reminded us that our food eating habits have changed over the last 20 to 30 years. Consumers are purchasing 40% more commercially prepared foods and there are 15% more phosphorus additives in our foods. According to Hogan, the phosphorus in plant proteins is only 50% absorbed by the body as compared with animal proteins in which 70% of the phosphorus is absorbed. The average American now consumes 15 to 20 pounds worth of additives per year which is four times greater than one decade ago.

Essential amino acid needs can be provided by both vegetarian and animal protein sources. In addition, plant proteins provide phytochemicals, antioxidants and phytoestrogens. The amino acid profile in plant proteins has a protective effect which can slow the progression of kidney disease and protect us from other conditions such as proteinuria, high blood pressure, and cardiovascular disease. Also, she pointed out if vegetarian proteins are compared to animal proteins, these foods are cholesterol free, and contain lignans and isoflavones. Plant proteins are also a source of oxygen radical absorbance capacity (ORAC). Increased levels of ORAC neutralize free radicals in food. The recommendation for consumption is 3000 to 5000 micromoles of ORAC foods per day. Examples of ORAC containing foods are cinnamon, oregano, nuts, dried beans, tumeric, and rosemary.

Next the speaker focused on dietary sources that may limit CKD progression. Phytoestrogens, such as those found in legumes, play a beneficial role in CKD. Recent findings from dietary intervention studies performed in animals and humans suggest that consumption of isoflavones and lignans retards the development and progression of CKD. Both soy and flaxseed have been shown to limit or reduce proteinuria and renal pathological lesions.

Hogan also reminded us that 70% of our immunity and 95% of our serotonin receptors are found in our gut. Patients have a lot of negative factors that can affect the gastrointestinal system such as many medications, processed foods, high animal protein diets, low fiber intake and stress. She pointed out that a plant based diet increases butyrate production which helps the gut by encouraging colonic epithelial cell growth. A healthy diet therefore, promotes a healthy gut and healthy patients.

Joan Brookhyser Hogan, RD, CSR, CLT, CD ended her talk with a quote by Albert Einstein which reads "Nothing will benefit human health and increase chances of survival for life on earth as much as the evolution to a vegetarian diet." The audience was then referenced to two good dietitian resources from the Vegetarian Practice Group on CKD and vegetarian diets.

Complementing the earlier lecture, Chef Duane Sunwold prepared five vegetarian recipes for the audience to taste. Different foods including seitan, wheat gluten and tofu were incorporated into the recipes. Interestingly, Duane's motivation for preparing vegetarian meals at home stems from his own experience with CKD and a goal of improving serum creatinine levels.

In conclusion, with many people suffering from the early stages of CKD, it is possible a plant based diet could slow the progression of their disease. Renal dietitians should promote a vegetarian diet with their CKD stage 3 and 4 patients and also be willing to provide careful diet planning with their end stage renal disease patients who want to follow a vegetarian diet. ◆

Congratulations
to the New 50-Year Members that are Members of the RPG:
Della H. Creach • Barbara H. Ketay
M. Arline Smith • Dalma D. Winter-West

Congratulations
to the 50+ Year Members that are Members of the RPG:
Annie Jelks • Despina Zerdes • Emma Weigley
Mamie Shaw • Joyce Mooty • Ann Metzinger
Maureen Kachinski • Julia Kula
Marilyn Goska • Janice Byrd • Rebecca Aiello
Marilyn Lawson

Getting Enough to Eat

Public and Private Food Assistance Programs

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Introduction

In the current economic climate, a growing number of people are forced to make difficult decisions about how to spend their money. For most, spending categories include rent, electricity, transportation, food and recreation. People with diabetes must consider additional costs; medical visits, medications, blood glucose meters, test strips and healthful foods are no less expensive and no less important when money is scarce. This article addresses eligibility requirements and nutritional quality of various food assistance programs that can assist patients who are financially struggling. Registered dietitians (RDs) can direct their patients

Table 1
Public Nutrition Assistance Programs (1)

Supplemental Nutrition Assistance Program (SNAP) (2)	Formerly known as the Food Stamp Program, SNAP helps families purchase food at the grocery store for home preparation. Eligibility guidelines require that gross income must not exceed 130% of poverty and net income must not exceed 100% of poverty. Those eligible for SNAP benefits are also qualified to receive SNAP-Ed nutrition education to encourage healthy food and lifestyle choices.
School Meal Programs (3)	The National School Lunch Program (NSLP), the School Breakfast Program and the Special Milk Program offer low-cost or no-cost meals and food items to children in public and profit nonprofit schools as well as residential childcare centers. Children living in households earning 130% of poverty or lower qualify for free meals, while those living in households earning between 130% and 185% of poverty are eligible for reduced-price meals. All children are eligible to purchase meals regardless of income.
Summer Food Service Program (SFSP) (4)	SFSP is designed to replace school meals during the summer. The program is typically offered at day camps, parks, churches and community centers in areas where 50% of the children attending the local schools qualify for free or reduced-price meals. The program is available to all children ages 18 or less regardless of income and is most often determined by geographic locations.
Special Supplemental Nutrition Program for Women, Infants and Children (WIC) (5)	WIC offers nutritious food packages for pregnant, breastfeeding and postpartum women as well as children up to age 5 who are at risk for malnutrition. Additionally, WIC Clients receive nutrition education to make health food and lifestyle choices. Income eligibility accommodates incomes up to 185% of poverty.
Commodity Supplemental Food Program Food Program (CSFP) (6)	CSFP provides nutritious commodities on a monthly basis to low-income seniors, and women and children not participating in WIC.
Food Distribution Program on Indian Reservations (FDPIR) (7)	Commodities are also available to low-income households living on Indian reservations and Native American families living near reservations and in Oklahoma through FDPIR. Income eligibility is set at just above 100% of poverty.
The Emergency Food Assistance Program (TEFAP) (8)	TEFAP makes commodities available to individuals through local organizations like food banks and soup kitchens. States are allowed to adjust income criteria to make certain that only households in the most need are served. In Texas, eligibility is defined at 185% of poverty and below. Check with your state for specific guidelines.
WIC and Senior Farmers Market Nutrition Programs (9)	WIC participants and seniors with incomes at or below 185% of poverty are eligible to receive cash vouchers for fresh, unprepared, locally grown produce and herbs. Participants receive $10-$30 per year to obtain food from farmers' markets, individual farmers or roadside stands approved by the State agency implementing the program.

to these food assistance programs to support a healthful diet and help relieve some of their economic strain.

Table 2
Gross Income Thresholds Commonly Used in Food Assistance Programs 2009-2010 (10)

Household Size	100% Poverty	130% Poverty	185% Poverty	200% Poverty
1	$903	$1,174	$1,670	$1,806
2	$1,215	$1,579	$2,247	$2,430
3	$1,526	$1,984	$2,823	$3,052
4	$1,838	$2,389	$3,400	$3,676
5	$2,150	$2,794	$3,976	$4,300
6	$2,461	$3,200	$4,553	$4,922
7	$2,773	$3,605	$5,130	$5,546
8	$3,085	$4,010	$5,706	$6,170
Each Additional Member	$312	$406	$577	$624

Food Assistance Programs and Eligibility Requirements

Many public and private food assistance programs are available to low-income families and individuals. Relevant public food assistance programs and their income eligibility requirements are summarized in Table 1 (1). Public assistance programs vary in the degree of assistance provided, populations served and types of food offered. The Supplemental Nutrition Assistance Program (SNAP), formerly known as Food Stamps, serves all ages. Programs targeting children include the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Special Milk Program (SMP) and the Summer Food Service Program (SFSP) (2-4). The Special Supplemental Program for Women, Infants and Children (WIC) provides assistance to mothers and young children, while commodity distribution programs like the Commodity Supplemental Food Program, the Food Distribution Program and The Emergency Food Assistance Program (TEFAP) reach out to populations of all ages (5-8). In addition, Farmers Market Nutrition Programs are available to WIC participants and seniors in over 45 states (9).

All public programs listed in Table 1 use income thresholds ranging from 100% to 185% of the federal poverty level guidelines to determine eligibility. Table 2 shows four monthly income thresholds commonly used to determine eligibility (10). Notice that a single-person household earning $1,670 per month (approximately $771 every two weeks) is at 185% of the poverty level. A small increase in earnings could jeopardize crucial assistance without providing enough income to cover the lost benefits. Diabetes providers may encounter patients who are financially struggling but do not qualify for public programs because their incomes exceed 185% of poverty.

Fortunately, many private organizations offer assistance to individuals who may not qualify for public assistance but are experiencing low food security because of financial constraints. Food banks and pantries that do not participate in TEFAP are not limited by government guidelines and may set income thresholds above 185% of poverty or eliminate income requirements altogether. Food banks and pantries that offer commodities through TEFAP must adhere to the government guidelines. However, such organizations may offer emergency assistance at least once before verifying eligibility.

Other programs such as Angel Food Ministries and SHARE Food Network pool member resources to leverage purchasing power, effectively acting as cooperatives (11,12). Such programs have no income eligibility requirements, but participation may be limited by the geographical constraints of the organizations. Angel Food Ministries has 5,200 host sites nationwide while SHARE Food Network serves only Maryland, Virginia and West Virginia. Membership costs average approximately $25 each month depending on the organization. Members receive one delivery of food at 38% to 71% of the retail cost of the items. Both organizations accept SNAP benefits so SNAP recipients can leverage their food dollars by participating in these programs.

Food Availability and Diet Quality

Among all public and private food assistance programs, SNAP provides the most freedom of choice by allowing participants to buy grocery items as well as seeds and plants to produce food for home consumption (2). Despite the freedom to purchase healthful foods, SNAP participants, like most Americans, under consume vegetables, whole grains and healthy oils, but over consume sodium (13). To encourage positive food behaviors among SNAP

participants, the government provides funding for SNAP Education (SNAP-Ed). Through SNAP-Ed, individuals eligible for SNAP benefits can receive nutrition, cooking, food safety and food resource management education (14). SNAP-Ed implementation varies by state but is commonly administered by local agencies such as Cooperative Extension, food banks and county governments. Messages must focus on public health and disease prevention and cannot include medical nutrition therapy (MNT). Therefore, participants with diabetes often receive generalized nutrition information in place of the individualized diet planning that is classified as MNT.

School-year and summer-meal programs for children must follow strict meal patterns outlined by the Guidelines for Meals and Snacks of the U.S. Department of Agriculture (3,4,15). Lunch and supper meals must include 8 oz of fluid milk, ¾ cup (total) of fruits and/or vegetables, one serving of grain and 2 oz of meat or meat alternative. This has the potential not only to deliver high nutritional quality but also to be "carbohydrate-rich" depending on fruit, vegetable and meat alternate choices. For example, one meal could include bread served with a sweet spread, fruit canned in heavy syrup, starchy vegetables, milk and finally beans as a meat alternative.

The newly revised WIC food package aims to include foods with specific nutrients important for mothers and children (5). WIC food packages are described in another article in this newsletter on page 17.

Commodity distribution programs offer various foods throughout the year, and the availability may depend on the ordering decisions of those operating the programs locally (6-8). A list of available commodities can be found online at each program's Web site. The senior and WIC Farmers Market Nutrition Programs offer fresh product and herbs that are locally grown and available at farmers' markets and individuals farmers' and roadside stands approved by the state agencies that implement the program (9).

While some food pantries provide prepackaged food boxes with various donated foods, others offer a client-choice model in which individuals get to select the foods they find useful. Some models are complex and are arranged like grocery stores with maximum client freedom. Other models offer a selection between two different foods at a time. For example, a client may have the option to choose between rice and pasta, and then choose between diced tomatoes or canned green beans and so on. Angel Food Ministries and SHARE Food Network also provide choices for members by posting the monthly menu on their Web sites so that members can preview items before signing up (11,12). Viewing the food list in advance offers recipients the opportunity to make advance meal plans to ensure the food does not go to waste.

Clinical Application

Understanding food assistance opportunities is valuable for dietetics practitioners. RDs should discern the degree food-choice freedom afforded to the individual by considering where and how a patient obtains food as well as the resources available for food purchase. Nutritional Intervention should be tailored to assist patients in maximizing healthful foods while minimizing costs. Someone who relies on prepackaged food assistance may receive unfamiliar foods and therefore benefit from recipes and instructions on incorporating specific foods into suitable meal plan. Someone who receives SNAP benefits may be helped by food resource management and meal planning education to maximize food purchasing power from month to month.

In addition to tailoring nutritional advice, knowledge of food assistance programs can assist diabetes care providers in referring patients to programs that fit their needs. Many patients who struggle to put food on the table may earn well over 185% of poverty and be ineligible for participation in public programs. Clinicians have the opportunity to educate patients about private programs that may be an option for them.

RDs also have the unique opportunity to offer to private programs their expertise with food package preparation, meal planning and nutrition education. The Washington Food Coalition (WFC) is an excellent example of an emergency food assistance program. A publication developed by the WFC includes a section of food and nutrition that highlights best practice emergency assistance programs that respond to community needs in the following ways:

- building relationship with farmers and food growers to increase the amounts of fruits and vegetables offered
- accommodating individuals with special diets or food preparation equipment limitations by providing limitations by providing customized food packages
- responding to requests for staple foods from ethnic groups
- limiting distribution of foods considered to be of low nutritional quality

Food banks, pantries and soup kitchens vary in size and may be unable to afford nutrition staff to implement the strategies mentioned in the report. Reaching out to local organizations to develop specialized food packages, meal plans or nutrition education for people with diabetes can strengthen the resources for patients and improve overall community health.

Summary

Diverse opportunities exist for patients in need of food

assistance. Public and private options offer varying degrees of support for people of all ages. Many patients may qualify for public programs, and private programs are available for those who do not. Diabetes care providers should become familiar with the programs to make referrals and provide diet instruction that supports food resource management principles that help clients stretch their food dollars. Finally, RDs can act as advocates for their patients and community. By collaborating with local programs, dietitians can help their clients optimize food choices and improve their health through food distribution and nutrition education. ◆

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Are you attending an upcoming renal conference?

Are you pursuing a post-baccalaureate degree in a field related to nutrition?

Are you looking to do research in an area benefitting people with renal disease?

Check out the awards, grants and scholarships area on the RPG website at **http://www.renalnutrition.org/members_only/awards.php**

Interviewing Low-Income Clients

Gail Brandt, EdD, MPH, RD
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Introduction

Low income patients often face additional challenges that may not be obvious to the registered dietitian counseling them. These patients may live in neighborhoods without supermarkets. They may have long commutes to work leaving them without enough time to prepare meals. They may lack budgeting, shopping and food preparation skills. In addition, they may deplete their food supply before it is time for more resources to be available. If these patients have insufficient knowledge of community resources and how to access them, then the end of the month can be challenging.

Interviewing Tips

Registered dietitians are often at a loss as to how to elicit client information without being offensive or seeming condescending. When interviewing low-income clients, consider adapting the following statements and questions to elicit important information.

- **Describe your kitchen.**
  You will learn if the patient has the standard appliances. If not, you will need to modify your recommendation for food preparation. Ask if your patient receives Women, Infants and Children (WIC) or Senior Farmers' Market Program vouchers to supplement the diet.
- **Does your refrigerator's freezer keep ice cream hard?**
  If the answer is "No" then you should not suggest purchasing or preparing food in bulk and freezing. The food will not last very long and maintain quality and safety.
- **Where do you usually shop for food?**
  You will learn if your patient has access to a supermarket or full service grocery store. If not, you patient may be relying on small local convenience stores, with a limited selection and high prices.
- **Some fast food restaurants are starting to provide nutrition facts. What information will help you select foods?**
  This question may reveal if your patient eats at fast food restaurants. Through probing, you can find out what foods are selected. Then you can offer healthier alternatives.
- **It is getting more common for people to run out of food before the end of the month. If this happened to you what would you do?**
  You will find out if your patient does run out of food and is aware of community resources to help.
- **How do you rate yourself as a cook?**
  Cooking as well as knowing how to prepare a budget, shop and properly store foods are skills acquired through mentoring and practice. Find out if your patient may not know how to prepare foods at home and must rely on convenience foods and fast food restaurants. ◆

Web Site Extras

Visit RPG's web site
www.renalnutrition.org
for helpful professional and patient resources

Exciting New Updates:
New Webinar Section: A series of 4 webinars with approved CPEUs per webinar are offered on topics covered on the CSR Exam for Renal.
Check the web site for additional webinar offerings later this year!

Have you used your New Member Benefit: Online CPEU recording?

Access the My CPEU link via
http://www.renalnutrition.org/members_only/my_cpeu.asp

Access the Calendar/Meetings section for a comprehensive list of CPEU opportunities and upcoming conferences
www.renalnutrition.org/calendar/index.php

Access the RNF Patient Education E-Supplement
www.renalnutrition.org/members_only/insert.php

Access to Award/Meeting stipend info
www.renalnutrition.org/members_only/awards.php

Renal Nutrition Forum Pt Education Handouts
www.renalnutrition.org/members_only/insert.php

Access to Articles of Interest
www.renalnutrition.org/members_only/interest.php

Access to current & archived Renal Nutrition Forum issues
www.renalnutrition.org/members_only/feature.php

Evidence Analysis Library (EAL) information and tips for using this valuable resource
www.renalnutrition.org/members_only/resources.php

For more information about the Certification Specialty Exam in Renal (CSR)
www.renalnutrition.org/faq/index.php

Member input & suggestions are a vital part of improving our member resources such as the web site. Please submit your ideas and suggestions to Cathy M. Goeddeke-Merickel, Web Editor via cmgmerickel@gmail.com

"Never underestimate the power of dreams and the influence of the human spirit. We are all the same in this notion. The potential for greatness lives within each of us." Wilma Rudolph

eat right. American Dietetic Association

Meet me in Boston for FNCE!

You're invited to attend the 2010 ADA Food & Nutrition Conference & Expo, November 6-9 in Boston, Massachusetts. Earn CPEs, make business connections and discover emerging trends and innovations all while sharing in the excitement of FNCE!

- Enhance your learning with cutting-edge educational sessions covering eight tracks allowing you to earn a MINIMUM of 20 CPE hours.
- Discover new and emerging trends and innovations while walking the Expo floor and meeting with over 400 exhibitors.
- Attend the Culture Symposium on Tuesday where you will be able to expand your cultural horizons. New for 2010!
- Participate in *The Great Fat Debate* by attending the Member Showcase on Monday which will reveal the truth about saturated fats and its effects on health.
- Be amazed and inspired by our line-up of keynote sessions on cultural diversity and research trends.
- Make plans to attend the Research Symposium on Monday where you will gain an insight into the research and strategic topics related to the dietetics profession.
- Above all, network with over 10,000 of your peers!

I look forward to seeing you in Boston!

Judith C. Rodriguez, PhD, RD, FADA, LDN
ADA President 2010-2011

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ADA Food & Nutrition Conference & Expo
November 6-9, 2010 Boston, MA

Save $20
on the FNCE member registration fee now! Visit www.eatright.org/fnce and click on the "FNCE 2010 Inquiry Site" by June 14, 2010 to receive the full week registration at the 2009 rate of $329!

Outcomes of the Spring 2010 HOD Meeting

HOD Fact Sheet

House of Delegates *June 2010*

The Spring 2010 HOD meeting took place May 1-2, 2010 with delegates convening in a Web based environment. Two mega issue topics were discussed: Health and Nutrition Literacy and Management and Leadership Across Practice. The Backgrounders on both topics are available on the ADA Website (www.eatright.org/hod). The House approved the motions that were a result of the meeting.

Health and Nutrition Literacy

In order for ADA and our members to improve health and nutrition literacy the House identified priority partners as professional associations and government agencies. Important skills and knowledge needed include:

- health literacy assessment skills;
- application of health literacy principles in developing education materials;
- engagement of clients utilizing teaching/coaching methods;
- tailoring information to meet client's needs; and
- understand the research in this area.

Management and Leadership Across Practice

Based on the Management and Leadership Across Practice dialogue, a series of guiding principles were identified regarding actions for individuals and ADA organizational units:

- showcase leadership and management opportunities;
- utilize mentoring; consider leadership and management skills for developing a roadmap to success;
- foster leadership leading to increased competence and confidence (ADA organizational units);
- build communication skills, embody leadership mindset early in career, and encourage mentoring throughout career (individuals); and
- develop a management or leadership credential or certification program (ADA).

What's Coming

Topics for the Fall 2010 HOD dialogue sessions are Health Reform – Next Steps and Multidisciplinary Membership Category. Watch for more information in August.

Renal Dietitians Chair Message

Kathleen M. Madigan, MS, RD, LDN, CSR, MBA
RPG Chair

As I end my term as Chair-Elect and begin my term as Chair of the American Dietetic Association Renal Dietitians Practice Group (RPG), I feel empowered, humbled, and privileged. I feel empowered by our Mission and Vision Statement as well as our Strategic Goals. I look forward to the challenge of living up to our Mission and Vision. Yet, I feel humbled and privileged to be part of a great team ready, willing and able to serve our over 2200 members.

Never, in the history of RPG have we, as renal dietitians, been faced with so much uncertainty politically. As we continue to struggle with the current health care crisis in America, we are faced with the ongoing battle of Health Care Reform that headlines the news on a daily basis. When finalized, what will it mean for health care in general, and for chronic kidney disease specifically?

On January 1, 2011, the renal community will be faced with the reality of bundling. Many of us have already been taking necessary steps to position ourselves to be ready to deal with this reality. How will we, as renal dietitians work within the constraints of bundling and still provide optimal quality care for our patients? I hope that the answer is that we will rely on the expertise we have as individuals and as a group.

Many dietitians are finding it more and more difficult to attend educational meetings and obtain necessary CPEUs, due to time restraints and budget cuts. The RPG is increasing the number of webinars and CPEUs to help meet this growing need. Preparation for the CSR exam is available via webinar now. Hopefully, this will encourage more renal dietitians to seek board certification.

I am looking forward to my term as Chair of RPG enthusiastically and am reminded of the words of Ralph Waldo Emerson: "Enthusiasm is one of the most powerful engines of success. When you do a thing, do it with all your might. Put your whole soul into it. Stamp it with your own personality. Be active, be energetic, and faithful, and you will accomplish your objective. Nothing great was ever achieved without enthusiasm." ◆

ARE YOU ATTENDING FNCE 2010 IN BOSTON?

RPG is hosting a

NETWORKING BREAKFAST

Sunday, November 7, 2010

Westin Boston Waterfront Hotel - Grand Ballroom C

MORE DETAILS COMING

CRN Chairperson Message

Karen Wiesen, MS, RD
NKF-CRN Chair

Recently, while spring cleaning some old files, I realized that this year marks the 35th anniversary of the Council on Renal Nutrition (CRN). CRN was founded in 1975 by an advisory group and became one of the three professional councils recognized by the National Kidney Foundation (NKF). What started as a small group of 25 renal dietitians has now grown to its present membership of about 1700. The original mission statement developed by CRN remains the core focus for our organization today: "The CRN functions as a professional education council within the framework of the NKF and networks with other organizations to support the NKF's goals of improving the lives of those with CKD through education, outreach and research in the field of nutrition as it pertains to prevention, eradication and treatment of kidney and urologic diseases."
CRN is a volunteer organization that depends on the dedication and commitment of its officers and members, so I would like to introduce the newest members of the CRN Executive Committee who took office this past April at the Spring Clinical Meeting in Orlando.

Chair-Elect: Lisa Gutekunst, MSEd, RD, CSR, CDN
Region I Representative: Krista Robertson, RD, LDN
Region I Alternate Representative: Melissa Altman-Traub, MS, RD, LDN
Region III Representative: Cynthia Clancy, MS, RD, CSR, LD
Region III Alternate Representative: Jennifer Kernc, RD, CSR, LD
Region V Representative: Laura Holden, MBA, RD, CSR
Region V Alternate Representative: Karen Dunker, RD
Renalink Editor: Janelle Gonyea, RD, LD
Renalink Co-Editor: Trisha Fuhrman, MS, RD, LD, FADA, CNSD

I would also like to thank the outgoing Executive Committee who did an outstanding job in serving the CRN these past two years:

Associate Chair: Ann Beemer-Cotton, MS, RD, CNSD
Region I Representative: Elizabeth Kirk, RD, CDN
Region I Alternate Representative: Jean Richards, RD
Region 3 Representative: Cathy Goeddeke-Merickel, MS, RD, LD
Region 5 Alternative Representative: Nikki Gepner, RD
Renalink Editor: Kara Abbas, MS, RD, CSR

CRN remains committed to improving the quality of life for the CKD patient population, supporting our members with educational and networking opportunities and promoting the expertise of the renal dietitian in all areas of CKD education. Thank you to all of you who volunteer at the national and local level. We could not do it without you. While the future may bring many more changes in the healthcare arena, CRN will continue to grow and adapt and remain a strong organization. Happy Anniversary! ◆

NKDEP
National Kidney Disease Education Program

The National Kidney Disease Education Program (NKDEP) has developed a suite of materials to help registered dietitians (RDs) provide effective medical nutrition therapy (MNT) to CKD patients who are not on dialysis.

The purpose of MNT for CKD is to maintain good nutritional status, slow progression, and treat complications.

Some of the therapeutic interventions for CKD are similar to those required for optimal care for diabetes and hypertension-the two leading risk factors for CKD. Many interventions can be initiated by RDs in the primary care setting, before a referral to a renal specialist.

These free, downloadable, and reproducible materials are designed to distill key information about CKD and diet for RDs and their patients. The patient materials are written below a seventh grade reading level.

Patient Materials Now available at http://www.nkdep.nih.gov/

- Chronic Kidney Disease and Diet: Assessment, Management and Treatment: An overview guide on treating CKD patients who are not on dialysis.
- Eating Right for Kidney Health: Tips for People with CKD: A handout on the basics of nutrition and CKD.
- Nutrition Tips for People with CKD: Individual nutrient handouts on Sodium, Protein, Phosphorus, Potassium, Food label reading
- Your Kidney Test Results: A tool for assessment and education of test results with patients.

2010-2011 RPG Executive Committee

Mission: Renal dietitians dietetic practice group is leading the future of dietetics by promoting and supporting its members working in nephrology nutrition.
Vision: RPG members are a valued source of expertise in nephrology nutrition.

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RNF Guidelines for Authors

Article length: Article length is determined by the Editor for each specific issue. The feature article (including abstract) is approximately 3000 words (not including tables/graphs). Other articles are usually 1000-1500 words; member highlights and reports are approximately 400-500 words.

Text format: Times New Roman font, 12 point, double space.

Tables/illustrations: Tables should be self-explanatory. All diagrams, charts and figures should be camera-ready. Each should be accompanied by a title and brief caption that clearly explains the table, chart, diagram, figure, illustration, etc.

References: References should be cited in the text in consecutive order parenthetically. At the end of the text, each reference should be listed in order of citation. The format should be the same as the *Journal of the American Dietetic Association.*

Reference citation examples:
Article in periodical:
Knower WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Eng J Med*. 2002;346:393–403.
Book:
Institute of Medicine. *Dietary Reference Intakes: Applications for Dietary Assessment*. Washington, D.C.: National Academy Press; 2001.
Chapter in a book:
Walsh J. Which insulin to use and how to start. In: *Using Insulin*. San Diego, Calif.: Torry Pines Press; 2003.
Web site:
Medscape drug info. Available at www.medscape.com/druginfo. Accessed Feb. 3, 2004.
Author information: List author with first name, middle initial (if any), last name, professional suffix and affiliation below the title of the article. Also include the primary author's complete contact information including affiliation, phone, fax and email address.

All submissions for publication should be submitted to the editor as an email attachment (MS Word file). The feature articles from the Renal Nutrition Forum will be posted on the Members Only Section of the RPG website (password protected). Thus, please include a brief abstract along with feature article submissions.

Megan Sliwa, RD, LDN
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Renal Dietitians

a dietetic practice group of the
American Dietetic Association

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