

Renal Nutrition Forum

A Peer Reviewed Publication of the Renal Dietitians Dietetic Practice Group

Volume 28 • Number 1

In This Issue

1
Feature Article

2
Letter from the Editor

7
**Advances in Practice:
Applying Theories of
Behavioral Change to Manage
Interdialytic Fluid Gains
in Patients Undergoing
Maintenance Hemodialysis
Therapy**

12
**Motivational Interviewing:
Guiding Clients through
Behavior Change**

17
**Conditions for Coverage:
Highlights for Registered
Dietitians at In-Center
Hemodialysis Clinics**

20
**Nephrology Nutrition and the
Nutrition Care Process**

24
Membership Survey Results

26
**Renal Dietitians Chair
Message**

26
CRN Chairperson Message

27
RPG Executive Committee

Feature Article

Medical Nutrition Therapy in Liver and Renal Failure: Conflicts and Commonalities

Sara Di Cecco, MS, RD, LD

Mayo Clinic Rochester
Clinical Dietitian and Instructor in Nutrition,
College of Medicine
Rochester, MN
Email: dicecco.sara@mayo.edu

**This article has been approved for 2 CPE units.
The CPEU insert and certificate of completion can
be accessed in the Members Only Section of the
web site from the CPEU Inserts link.**

Liver and renal failure occur together from a variety of circumstances. These may include primary renal disease with a liver disease co-morbidity (Hepatitis B or C glomerulonephritis), concurrent renal and liver disease (Polycystic disease), liver failure with renal dysfunction (Hepatic-Renal Syndrome (HRS) types 1 and 2), post-liver transplant renal failure due to calcineurin inhibitor toxicity, or other scenarios such as Hyperoxaluria (1). These can be categorized as occurring in an acute setting, such as HRS type 1 or Acute Tubular Necrosis. Or they may develop over a prolonged period of time, as in the case of chronic kidney disease or HRS Type 2 (1). The medical treatment and nutrition therapy are often similar for any of these situations, but the priorities between liver

and renal disease may be different. This article will review the pathophysiology and medical nutrition therapy (MNT) to help decrease the burden on liver and renal systems, as well as slow the progression of the disease process, thereby reducing morbidity and mortality (2).

The metabolic changes in liver disease are numerous and often similar to changes that also occur in renal dysfunction:

- Changes in carbohydrate metabolism are notable. There is increased glucose intolerance and insulin resistance, decreased glycogen stores, and concurrent increases in gluconeogenesis. Ultimately, this puts the individual at risk for diabetes. In patients with diabetes or impaired fasting glucose metabolism, poor glycemic control also contributes to altered metabolism. This elicits depletion of fat and muscle stores due to gluconeogenesis (3). With the variability of liver function and potential hepatotoxicity of some glycemic agents, many diabetics with liver disease will ultimately require insulin therapy for best glycemic control. The same is true for those with renal failure.
- Fat metabolism is most commonly seen as an impaired synthesis of polyunsaturated fatty acids. There may also be malabsorption due to inadequate bile within the bowel. This is most commonly seen in those with a cholestatic liver disease profile.
- Protein metabolism alterations include increased protein catabolism, amino acid imbalances, and increased protein losses (3).
- Micronutrient abnormalities also occur and will be discussed further.

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.

The views expressed in this publication are those of the author and are not necessarily those of The American Dietetic Association. Publication of an advertisement in the Forum should not be construed as endorsement by the RPG of the product or the advertiser.

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:
June 1, 2009
September 1, 2009
December 1, 2009
March 1, 2010

Please forward information to:
Rachael R. Majorowicz, RD, LD
majorowicz.rachael@mayo.edu

Subscription cost is \$35.00 for individuals who are ineligible for ADA membership and \$50.00 for institutions. A check or money order should be made payable to ADA/DPG #21 and sent to:
Caroline Chinn, MS, RD
RPG Treasurer
P.O. Box 9256
Rancho Santa Fe, CA 92067
caroline.chinn@davita.com

Remember to update your profile electronically in the 'members only' section of ADA's website. You will need your registration number and web password. Keeping ADA informed of your name and contact information will help avoid delayed issues of your Renal Nutrition Forum.

From the Editor's Desk

Rachael R. Majorowicz, RD, LD

Editor

The goals of the Renal Nutrition Forum editorial board are numerous, but only the few most pertinent to this issue of the Forum will be explored here. These include: continuing to provide clinically relevant information, literature reviews, and current research; clarifying practice change requirements that affect the Renal Practice Group (RPG) membership; and furthering opportunities for renal dietitians to become published.

Patients seem to be sicker, with more complex disease processes, and can be challenging nutritional nightmares. It seems uncommon anymore that a renal dietitian sees a "simple" chronic kidney disease patient. More often than not, patients present with multiple, serious co-morbidities, which often require the dietitian to prioritize the nutritional message/education. This issue's Feature Article, "Medical Nutrition Therapy in Liver and Renal Failure: Conflicts and Commonalities," strives to address the nutrition needs for a growing number of one of the sickest patient populations dietitians may encounter. The disease process overview and medical nutrition therapy summary provide valuable insights and necessary knowledge for providing the best possible care for these patients.

Member surveys have shown an interest in additional professional and patient resources (see the complete, most recent membership survey results at http://www.renalnutrition.org/Survey08/survey_final.html). The Summer 2008 issue of the Forum provided excellent provider and patient information on one of greatest challenges facing renal dietitians – phosphorus control. The Winter 2009 Advances in Practice article addresses what may possibly be an equal patient education and compliance issue – fluid control. "Applying Theories of Behavioral Change to Manage Interdialytic Fluid Gains in Patients Undergoing Maintenance Hemodialysis Therapy," serves to help improve these outcomes.

For those who wish to brush up on behavioral change and motivational interviewing skills,

or have little knowledge of these techniques, "Motivational Interviewing: Guiding Clients through Behavior Change," delves deeper into the behavior change philosophies. It provides insights how to identify barriers to behavior change and in-depth details on how to guide a patient around these barriers.

This issue of the Forum also provides tools and information on the topics of implementing the Nutrition Care Process (NCP) and the Center for Medicare and Medicaid Services' Conditions for Coverage. The "CMS Conditions for Coverage Highlights for Registered Dietitians at In-Center Hemodialysis Clinics" offers clarification of the new guidelines and practical applications for the renal dialysis dietitian. Immediately following, the current article in the series of the NCP, "A Renal Nutrition Forum Series with Practice-Based Examples of the Nutrition Care Process (NCP): Documenting Nutrition Care under the Conditions for Coverage," provides advice for implementing the NCP, but this column also incorporates the Conditions for Coverage and how to implement both requirements into daily practice.

In just the past two issues of the Forum, seven first-time authors experienced the satisfaction of being published; four previously published, first-time Forum authors contributed articles; and five experienced authors lent their expertise. Whichever category you fall into, the RNF editorial board remains committed to ensuring publication opportunities and welcomes your contributions. Please feel comfortable contacting any member of the Renal Nutrition Forum editorial board to learn more! ◆

Go Paperless with Online CPEU Recording!

Save a postage stamp and answer the CPEU questions online. All online CPEUs will be stored and are retrievable for 7 years! You can also print your certificate from the site at any time.

The editorial team would like to thank the Web Editor, Cathy M. Goeddeke-Merickel, for her dedication to this project.

Feature Article....

Nutritional assessment in liver and/or renal failure is complicated by the lack of reliable laboratory markers of nutritional status and by the inaccuracy of weight assessment due to fluid retention. Subjective global assessment includes a physical exam, laboratory values, nutritional intake history, and other parameters, and is the preferred method of assessment for this patient population (4,5). Pikul et al (5) has determined a 4-point scale for use in liver patients that is appropriate for the initial assessment. Care should be used with the interpretation of serum albumin and other proteins as they are affected by the liver synthetic function as well as nutritional intake (6). In addition, glomerular filtration rate (GFR) tends to overestimate renal function in patients with liver disease (7). Handgrip strength, skinfold thickness and arm muscle circumference can also be used in long-term patients to monitor nutritional stores (8).

Physiology

In situations of acute onset renal dysfunction or failure, medical treatment includes managing the initiating insult, such as acute liver failure, sepsis or gastrointestinal bleeding, as well as the renal failure. Type 1 HRS is characterized by a rapid decrease in GFR, an increase in blood urea nitrogen (BUN) and creatinine (Cr), oliguria, hyponatremia, and hyperkalemia. By definition, it is when the initial serum Cr doubles to $> 2.5 \text{ mg/dL}$ or when there is a 50% decrease in creatinine clearance ($< 20 \text{ mL/min}$) within 2 weeks (9). The development of HRS type 1 carries a poor prognosis with a median survival time of only 2 weeks after onset (10). While it is unclear if renal replacement therapy (RRT), either as hemodialysis (HD) or as continuous RRT, improves survival, it is often provided as the standard of care. This is often the case for patients who have potentially reversible disease or those awaiting liver transplantation (11). Dialysis allows for the removal of fluid, electrolytes, and toxins, including ammonia and urea which may help control or treat portosystemic encephalopathy (PSE). These patients will be critically ill with multisystem organ failure and may require nutrition support due to their inability to consume adequate oral intake. Nutrition therapy includes maintaining calorie and protein needs appropriate for the RRT chosen. Protein should be given in divided doses throughout the day. Limit sodium, potassium, and phosphorus intake as necessary. Oral supplementation with calorie-dense and lower electrolyte beverages can be a mainstay of intake. Use of branched chain amino acid supplements continues to be controversial in these circumstances, but may be used from the perspective of “doing every thing possible” or “might help and probably won’t hurt.” This is an area prime for research and development of best practices as evidence-based medicine.

In the chronic development of renal failure in liver disease, the changes in portal hypertension create arterial vasodilatation that eventually progresses to arterial hypotension and decreased perfusion of organs (9). The first change in renal function that occurs in cirrhosis is the decreased ability to excrete sodium and water (1). This is a subclinical finding until the excretion rate decreases below dietary intake, thereby causing the development of ascites. The decreased ability to excrete sodium contributes to dilutional hyponatremia, so Aldactone is prescribed to increase the rate of sodium excretion. Eventually, renal vasoconstriction decreases GFR (9). Monitoring renal function using serum Cr can be deceiving as levels can be falsely low or normal due to the impaired hepatic synthesis of Cr, increased tubular secretion of Cr, and/or the effect of hyperbilirubinemia ($> 10 \text{ mg/dL}$) on Cr measurement, as well as being low in patients with decreased muscle stores (9). Use of the most accurate GFR measurement technique is the best means to assess true renal function and dictates the treatment plan (11).

Alternately, type 2 HRS, which develops chronically over weeks and months, is characterized by a more gradual decrease in GFR with a more moderate increase in BUN and Cr. The chronicity leads to progressive renal impairment which may become permanent. Other aspects to consider in the diagnosis of HRS are ruling out preexisting renal disease or compromises in renal size and blood flow, sepsis effect, and fluid losses (1,9). The development of HRS in liver disease has a huge effect on the outcome and survival, both with and without transplantation. At any Model for End-Stage Liver Disease score, the equation used to stratify a patient’s need for transplantation, those with HRS have significantly decreased 3 month survival (12). The score does include the serum Cr as one of the factors within the equation, which weighs the prognostic score and allocation of livers to those with worsening renal function. Primary nutrition therapy for type 2 HRS includes strict compliance to dietary sodium restriction ($< 2000 \text{ mg per day}$), adequate calorie and protein intake, and fluid restriction if necessary.

In instances of true chronic renal failure with liver disease, the treatment plan and nutritional care can follow standard renal failure MNT guidelines. As with renal failure, a high priority would be to ensure adequate calorie intake and maintenance of nutritional status.

When to start RRT, and which mode, continues to be a complex medical and ethical dilemma. Determining when it provides benefit or is an element of futile care requires further study to clarify outcome data and set practice guidelines, as well as to determine the effect on morbidity and mortality (9-11).

Feature Article....

Table 1

General Nutritional Recommendations for Liver and Renal Failure (2,11,13-17)

CALORIES	25 to 40 kcal/kg dry weight Encourage weight loss if BMI > 35
PROTEIN	Pre-HD with liver disease/failure: 0.75-1.0 g/kg HD with liver disease/failure: 1.0-1.2+ g/kg CRRT with liver failure: 1.2+ g/kg
SODIUM	< 2000 mg/day
POTASSIUM	< 2300 mg/day if necessary
PHOSPHORUS	< 1000 mg/day if necessary
FLUID	Limit as needed for renal failure, hydration and if hyponatremia < 128 mg/dL
CALCIUM	1500 mg/day
IRON	Careful supplementation
VITAMINS/MINERALS	General vs. renal-specific Fat-soluble replacement
ALCOHOL	Avoid intake
EXERCISE	Encourage regular activity to maintain strength, endurance and combat fatigue
MEAL PLAN	Encourage intake as 4 to 6 feedings per day Supplement products as needed

Medical Nutrition Therapy

The general nutrition concepts in patients with liver and/or renal dysfunction have some similarities. In both groups, restricting the diet only as much as necessary is the goal, with sodium and potassium restrictions being the most common. In addition, herbal, complementary or alternative medicine products should be used with extreme caution due to the untested and unknown side effects. In liver disease, fluid restrictions are usually only indicated for hyponatremia (serum sodium levels <128 mg/dL) or when ascites or edema becomes difficult to control despite maximal diuretic therapy.

The meal schedule/timing in liver disease is more important than in renal failure to prevent the onset of gluconeogenesis. This can occur after only 4 to 6 hours of fasting. Patients should be encouraged to eat or drink nutrient dense foods or beverages 4 to 6 times per day to enhance their ability to meet their needs, overcome fatigue, address anorexia, treat early satiety, as well as maintain their nutritional wellness.

Many, but not all, patients with liver and/or renal dysfunction

have increased metabolic demands from their illness. Those who are hypermetabolic have calorie needs of 30-40 kcal/kg, while others will be able to maintain adequate nutritional stores at 25-30 kcal/kg. In liver disease, calories can be provided from a greater variety of protein sources as they do not need the same emphasis on high biological value or the limits on potassium and phosphorus. However, due to issues with obesity and liver disease, obese liver disease patients may need calorie restriction to promote weight loss in anticipation of transplant. Table 1 summarizes nutritional requirements and recommendations.

Obesity may be both a cause and effect of liver and renal disease. The incidence of obesity is increasing in both populations and can prevent or compromise candidacy for transplantation. Non-alcoholic fatty liver disease, the steatotic liver disease associated with obesity and metabolic syndrome, is becoming the most common liver disease. It may

progress to hepatocellular cancer, cirrhosis, and/or liver failure (18). Weight criteria for liver and renal transplantation candidacy are often different, with stricter criteria often employed for liver transplant candidates. For liver transplantation, having a BMI >35 seems to be an important morbidity and mortality break point, implying decreased survival at 3 years, even when corrected for co-morbidities (19). A study of 58 obese patients listed for liver transplant showed that patients may safely lose weight through a structured diet and exercise program. Conversely, the “reverse epidemiology” concept of excess weight protecting HD patients’ survival makes many providers hesitant to encourage significant planned weight loss for those with renal failure (20). However, BMI > 30 correlates with delayed graft function, increased renal graft loss, decreased patient and graft survival, as well as increased post-transplant complications. Despite this, transplant continued to provide an increased survival rate as compared to continuing on HD (21).

Protein intake is a key nutritional component in both liver and renal disease. Consuming protein in divided portions is very

Feature Article....

important in both situations, but for slightly different reasons. In liver disease, goals for intake are usually at least 1 gram per kg of “dry” weight, with less of a focus on the need for high biological value choices. Dairy protein sources are often well tolerated and encouraged since potassium and phosphorus don’t usually need to be limited. Patients with end-stage liver disease can become protein intolerant, as demonstrated by alterations in mental status (PSE). This is best controlled by medical management and keeping protein portions to no more than 2-3 ounces per meal, while still maintaining an adequate protein intake over the course of the day. Conversely, while early renal failure patients need to limit their protein intake to ease renal solute workload, they are rarely physically protein intolerant. Although, both may have similar alterations in protein taste perceptions.

Uremic encephalopathy and PSE both can present with alterations in mental status and asterixis. HD can provide a transient benefit of filtering hepatotoxins and ammonia to help control the altered mental status. The altered mental status may affect the individual’s ability to consume adequate intake by decreasing their ability to eat safely and to comply with diet restrictions. PSE is treated first by eliminating the underlying causes, which are most commonly GI bleeding, fluid and electrolyte abnormalities, dehydration, and infection. Lactulose, given in doses to promote 3 to 5 soft bowel movements per day, limits bacterial production of urea within the colon and may help decrease symptoms. However, there may also be nutritional losses from diarrhea if the dosage is not titrated correctly. Then, if needed, protein restriction may be used in the late, chronic stages. Additionally, patients who require placement of a transjugular intrahepatic portosystemic shunt (a stent placed between the portal vein and the hepatic vein to relieve portal hypertension thereby decompressing adjacent veins and varices) are also at increased risk for developing PSE due to the bypassed blood flow through the liver.

Vitamins and Minerals

Supplementation of vitamins and minerals is important in both liver and renal failure; however, the amounts and needs are different. In chronic liver disease, a product that provides 100% of the RDA for vitamins and minerals is the base of supplementation. For many, a product that is low in iron would be necessary due to alterations in iron metabolism and potential for deposition in the liver, as well as in other organs and tissues, such as the heart. A low iron product is also necessary for those with the liver disease hemochromatosis. Therefore, use of medications to stimulate erythropoiesis must be used with care in patients with liver disease (17,22).

Both folate and vitamin B12 levels are often low and require supplementation, especially with losses due to HD. When liver and renal failure occurs together in the short-term, patients may not need to be changed to a renal failure product. But if it continues for more than 4 weeks and/or they require chronic RRT, patients should be switched to a renal vitamin product (2).

Fat-soluble vitamin metabolism and storage is skewed in liver disease with patients often requiring supplementation of A, D and E. Serum vitamin A levels are usually the first to become abnormal with vitamin D levels next, and then vitamin E last. Patients with decreased serum levels of vitamin A may exhibit actual symptoms of night blindness. Vitamin A is especially bile dependant for absorption, as well as needing conversion within the liver. Because of this, traditional over-the-counter (OTC) or standard supplements (or the vitamin A precursor, beta-carotene) are usually not effective in improving serum level markers. Most patients will require supplementation with the prescription, water-miscible form (usual dose 25,000 IU three times per week). However, long-term use of vitamin A supplementation may be contraindicated due to potential for poor renal clearance and tissue accumulation. Vitamin D supplementation is often necessary in both liver and renal failure. In end stage renal failure patients, ergocalciferol cannot be hydroxylated at the 1st position due to the proximal tubular dysfunctions. Therefore, these patients require 1,25 (OH) vitamin D instead of the non activated vitamin D such as ergocalciferol. In severe cholestatic and hepatotoxic liver disease patients, they have compromised flow and synthesis of the bile acids, respectively. Therefore, they have compromised vitamin D absorption, but they may also have compromised ability to hydroxylate vitamin D at the 25th position. Thus, if there are mainly absorptive issues, high dose of ergocalciferol supplementation of 50,000 IU, three times per week, may be prescribed as an initial dosage regimen. Careful dosage monitoring is required. For those patients who are not able to hydroxylate the 25th position sufficiently, 25 or 1,25 pre-hydroxylated vitamin D preparations are required. Traditional vitamin E supplementation of 400 mg/day is usually adequate but not excessive (2,22,23).

Patients with liver disease also often have alterations in serum mineral levels including zinc, magnesium, selenium and copper. Zinc tends to be low, partially due to its albumin-bound nature, making serum zinc an invalid marker as liver failure progresses. An association has been found between patients with low serum zinc levels and increased PSE symptoms. Therefore, patients with PSE and low zinc levels can be started on 220 mg zinc sulfate (50 mg elemental zinc), 1-3 doses daily for 10-14 days, as tolerated. If PSE symptoms improve with supplementation, 15 mg zinc/day can be maintained indefinitely. However, zinc supplementation can be

Feature Article....

hard to tolerate due to altered taste perceptions (worsening metallic tastes) and some GI symptoms. Magnesium levels tend to be low in liver disease but elevated in renal failure, so levels need to be followed closely, especially if supplementation is begun. Selenium levels tend to be low in renal failure but are not well studied in liver disease, so any supplementation needs to be carefully monitored. Copper levels are elevated in several liver diseases, most notably Wilson's disease, as well as renal failure, so most patients should not take more than the standard amount within a multivitamin product. (2,22,23).

Nutrition Support

In the setting of liver and renal failure, the ability to consume adequate nutrition becomes very difficult due to multiple factors. These include anorexia, early satiety, nausea and vomiting, diarrhea, taste aversions, fatigue, and diet restrictions. Many patients will eventually become unable to eat enough on their own and need nutrition support. Enteral nutrition is the preferred mode of feedings and soft bore nasoenteric access may be an option, even in patients with esophageal varices. Because of a myriad of GI symptoms, small bowel feedings are generally better tolerated. Formula choices depend most on protein and fluid limitations. Parenteral nutrition is used only in situations with a non-functioning GI tract, or if safe passage of a feeding tube is not possible and nutrition support is indicated. As in enteral nutrition, protein and fluid requirements determine the exact formula, with lipid emulsions included with usual precautions (24).

Summary

MNT in combined liver and renal failure is complex. There are many commonalities but also some conflicts regarding nutritional goals and needs. The primary goal is to help the patient maintain their best possible nutritional status as they use food for both nutrition and treatment of their disease process. As always, this group of patients appreciates emphasis on what they can eat and minimizing dietary restrictions to only what is necessary. Goals and restrictions often change as symptoms and organ function evolve, so careful monitoring, reassessment and continuous patient education are key. ♦

References

1. Davis CL, Gonwa TA, Wilkinson AH. Pathophysiology of renal disease associated with liver disorders: implications for liver transplantation. *Liver Transpl.* 2002;8(2 part 1):91-109.
2. Savica V, Santoro D, Ciolino F, et al. Nutritional therapy in chronic kidney disease. *Nutr Clin Care.* 2005;8:70-76.
3. Cano N, Leverve XM. Influence of chronic liver disease and chronic renal failure on nutrient metabolism and undernutrition. *Nutrition.* 1997;13:381-383.
4. McCann L. Subjective global assessment as it pertains to the nutritional status of dialysis patients. *Dial Transplant.* 1996;25:190-202, 225.
5. Pikul J, Sharpe MD, Lowndes R, Ghent CN. Degree of preoperative malnutrition is predictive of postoperative morbidity and mortality in liver transplant recipients. *Transplantation.* 1994;57:469-472.
6. Mueller C. True or false: serum hepatic proteins concentrations measure nutritional status. *Support Line.* 2005;25:8-16.
7. Skluzacek PA, Szewc RG, Nolan CR 3rd, et al. Prediction of GFR in liver transplant candidates. *Am J Kidney Dis.* 2005;42: 1169-1176.
8. Figueiredo FA, Dickson ER, Pasha TM, et al. Utility of standard nutritional parameters in detecting body cell mass depletion in patients with end-stage liver disease. *Liver Transpl.* 2000;6: 575-581.
9. Arroyo V, Fernandez J, Ginès P. Pathogenesis and treatment of hepatorenal syndrome. *Semin Liver Dis.* 2008;28:81-95.
10. Ginès A, Escorsell A, Ginès P, et al. Incidence, predictive factors, and prognosis of the hepatorenal syndrome in cirrhosis with ascites. *Gastroenterology.* 1993;105:229-236.
11. Howard CS, Teitelbaum I. Renal replacement therapy in patients with chronic liver disease. *Semin Dial.* 2005;18: 212-216.
12. Kamath PS, Wiesner RH, Malinchoc M, et al. A model to predict survival in patients with end-stage liver disease. *Hepatology.* 2001;33:464-70.
13. Wooley JA, Btaiche IF, Good KL. Metabolic and nutritional aspects of acute renal failure in critically ill patients requiring continuous renal replacement therapy. *Nutr Clin Pract.* 2005;20:176-191.
14. Cotton AB, Brommage D. Medical nutrition therapy when kidney disease meets liver failure. *Nephrol Nurs J.* 2007;34:661-662.
15. Fedje L, Karalis M. Nutrition management in early stages of chronic kidney disease. In: *A Clinical Guide to Nutrition Care in Kidney Disease.* Chicago, IL: American Dietetic Association; 2005.
16. Sanchez AJ, Aranda-Michel J. Nutrition for the liver transplant patient. *Liver Transpl.* 2006;12(9):1310-1316.
17. Berns JS. Is intravenous iron safe in patients with liver disease? *Semin Dial.* 2002;15:212-213.
18. Cave M, Deaciuc I, Mendez, et al. Nonalcoholic fatty liver disease: predisposing factors and the role of nutrition. *J Nutr Biochem.* 2007;18:184-195.
19. Nair S, Verma S, Thuluvath PJ. Obesity and its effect on survival in patients undergoing orthotopic liver transplantation in the United States. *Hepatology.* 2002;35:105-109.
20. Schmidt D, Salahudeen A. The obesity-survival paradox in hemodialysis patients: why do overweight hemodialysis patients live longer? *Nutr Clin Pract.* 2007;22:11-15.
21. Armstrong KA, Campbell SB, Hawley CM, Johnson DW, Isbel NM. Impact of obesity on renal transplant outcomes. *Nephrology.* 2005;10(4):405-413.
22. DiCecco SR, Francisco-Ziller N. Nutrition in alcoholic liver disease. *Nutr Clin Pract.* 2006;21:245-254.
23. Leevy CM, Moroianu S. Nutritional aspects of alcoholic liver disease. *Clin Liv Dis.* 2005;9(1):67-81.
24. Plauth M, Cabre E, Riggio O, et al. ESPEN Guidelines on Enteral Nutrition: Liver disease. *Clin Nutr.* 2006;25(2): 285-294.

Advances in Practice

Applying Theories of Behavioral Change to Manage Interdialytic Fluid Gains in Patients Undergoing Maintenance Hemodialysis Therapy

Philippa Norton-Feiertag, MEd, RD, LD

Clinical Information Specialist

Cincinnati, OH

Email: Philippa.Feiertag@fuse.net

This article has been approved for 1 CPE unit. The CPEU insert and certificate of completion can be accessed in the Members Only Section of the web site from the CPEU Inserts link.

Managing fluid balance is an integral part of treatment for patients with chronic kidney disease (CKD) undergoing maintenance hemodialysis (HD) therapy (1). Most patients with CKD are required to restrict potassium, phosphorus, sodium and fluid intake in order to avoid excess electrolyte accumulation and to prevent fluid overload. However, many patients adhere poorly to one or more aspects of their prescribed diet (2).

Maintenance HD patients are counseled to limit fluid intake to urine output plus 1000 cc daily (3). While some studies have suggested that higher interdialytic weight gains are indicative of better nutritional status, more recent findings do not support their use as a nutritional marker (4-6). Poor adherence to prescribed fluid restrictions is associated with edema, shortness of breath, episodes of intradialytic hypotension, cardiovascular complications, and increased mortality (7-10). Additionally, numerous medications prescribed for patients undergoing maintenance HD therapy – including phosphate binders, analgesics, antidepressants, vitamin D analogs and erythropoiesis stimulating agents – may impact fluid status (11).

In a study of 71 HD patients, no association was found between knowledge of sodium/fluid restrictions and compliance, assessed by measuring interdialytic fluid gains (7). In another study, a questionnaire was used to investigate dialysis patients' understanding of dietary advice (12). Although the majority of patients were able to identify foods high in sodium and fluid content, 56% of HD patients reported difficulty in maintaining fluid restrictions. Furthermore, when prevalence of fast food consumption was investigated among HD patients in 44 chronic hemodialysis facilities in northeast Ohio, findings indicated that fast foods were eaten frequently by this population and their

consumption was associated with higher sodium intake and larger interdialytic fluid gains (13).

Collectively, this research suggests that patient compliance is often poor when the focus of nutrition education is to provide information. To be effective in improving adherence to prescribed dietary and fluid restrictions, educational interventions may need to motivate patients to change behaviors. This article will review theories of behavioral change and examine strategies for improving compliance with prescribed fluid restrictions in maintenance HD patients.

Behavior Change Theories

Renal dietetics professionals can promote behavior change by educating their patients on pertinent nutrition information, motivating them to make changes, and providing them with the necessary skills and strategies to accomplish change. Applying theories of behavior change may help the renal dietetics professional to develop effective interventions for promoting behavior change (14). Table 1 summarizes theories of behavior change.

According to these theories, a patient's overall well-being and level of functioning may be impacted by self-management skills as well as knowledge. However, when measures of self-management and knowledge were applied to 372 patients on hemodialysis, findings indicated that these patients were poor self-managers (21). In another study, perceived self-efficacy in patients with CKD was a better predictor of self-management behavior than were demographic or health characteristics (22).

Strategies for Improving Compliance with Prescribed Fluid Restrictions in Maintenance HD Patients

Behavioral interventions targeted to improve adherence to prescribed fluid restrictions have achieved varying degrees of success in decreasing interdialytic fluid gains in patients undergoing maintenance HD therapy.

In a small study of 40 HD patients, self-efficacy, health beliefs and knowledge surveys were administered pre- and post-intervention to treatment and control groups (23). Patients in the treatment group received training in self-monitoring directed to increase adherence to prescribed fluid restrictions. During the intervention, a monthly progress report was used to educate each patient on acceptable interdialytic fluid gains and to provide feedback on their fluid gains for that month. In addition, a monthly written contract was developed to help patients formulate goals for fluid control. Each month, the progress report and goals were reviewed with the patient, and reasons for improvement or poor

Advances in Practice....

Table 1

Theories of Behavior Change

Social Cognitive Theory	<ul style="list-style-type: none">• Behavior is affected by personal factors, environmental influences and attributes of the behavior. Social interactions provide models for new behavior patterns.• Self efficacy – a person's belief in his/her ability to attain required levels of performance – is essential for making appropriate choices and achieving behavior change (14-17).
Stages of Change (Transtheoretical Model)	<ul style="list-style-type: none">• Behavior change is a continuum related to readiness to change and consists of pre-contemplation, contemplation, preparation, action and maintenance.• Interventions should be customized to match a person's stage of change (14,16-19).
Health Behavioral Model	<ul style="list-style-type: none">• Health-related behaviors are determined by a person's perception of the severity of a potential disease, their susceptibility to that disease, benefits of taking preventive action and barriers to taking action.• Cues to action are important in achieving and/or maintaining desired behavior patterns (16).
Relapse Prevention Model	<ul style="list-style-type: none">• Inadequate coping skills, social pressure, interpersonal conflict, limited social support, low motivation and stress contribute to relapse.• High-risk situations for relapse must be identified so that appropriate solutions can be developed (16,20).

adherence were identified before developing another contract with new goals. Some patients in the treatment group showed small improvements in fluid control over time. However, no significant differences were found between treatment and control groups for adherence to fluid restrictions and scores on self-efficacy and health belief surveys.

A game developed to help HD patients maintain acceptable interdialytic fluid gains recognized the need to motivate patients to comply with their prescribed fluid regimen (24). Prior to launching the game, written materials and visual displays were used to educate 130 patients and their families about the need for fluid control and on techniques for limiting sodium and fluid intake. During the 3-month game, patients gaining no more than 2 kg between weekday treatments and 3 kg between weekend treatments received a star on their dialysis log sheet. Patients accumulating 25 stars were awarded a prize and certificate. After the game, 68% of patients were achieving interdialytic fluid gains within acceptable limits.

More successful approaches to increasing compliance with prescribed fluid restrictions have involved providing structured behavioral interventions. In one 4-week group program, educational, behavioral and cognitive strategies were used to facilitate self-management of fluid intake in 56 HD patients (25). Although no significant difference in mean interdialytic weight gains were found between treatment and control groups upon completion of the program, adherence to prescribed fluid

restrictions did improve significantly in the long term in those patients who participated in the program. Another intervention based on Bandura's theory included an educational component, performance mastery, experience sharing, and stress management for 62 HD patients (26). When compared with a control group, patients in the group receiving self-efficacy training showed gradual but significant decrease in interdialytic weight gains.

In a more recent study, questionnaires based on the Health Behavioral and Transtheoretical Models were used to assess 172 HD patients' perceptions of barriers, benefits, seriousness, susceptibility, and self-efficacy in readiness to change their behavior and to place patients into stages based on their interdialytic weight gains (27). Patients in the pre-contemplation stage scored significantly lower on perception of benefits than those in the action and maintenance stages, and their perception of self-efficacy was significantly less compared with patients in the contemplation, preparation, action, and maintenance stages. Findings from this study suggest that educational programs should focus on increasing patients' perceptions of the benefits and barriers to behavior change in order to facilitate their progress through the stages of change.

Summary

Studies investigating behavioral interventions directed to increase adherence to prescribed fluid restrictions in the maintenance HD population show some success in managing

Advances in Practice....

interdialytic weight gains. Findings from the studies reviewed indicate a number of approaches that may be useful to clinicians when counseling patients on fluid control. These include goal setting, development of written contracts and regular review of progress (23); rewarding patients achieving fluid control goals with recognition and prizes (24); encouraging self-management through education, behavior modification and experience sharing (25,26); and increasing patients' awareness of obstacles to, and benefits of, behavior change (27).

Future research should include controlled studies with larger numbers of participants (28). Results from existing studies also support further efforts to promote self-management in patients with CKD. The chronic care model emphasizes the need to support patients in managing their own care by assisting them with goal-setting and problem-solving, and by providing tips for undertaking specific tasks to improve their health outcomes (29). ◆

References

1. Raza H, Courts A, Quadri K, et al. The effect of active nutrition counseling in improving biochemical nutritional parameters and fluid overload problems in maintenance hemodialysis patients. *Saudi J Kidney Dis Transpl.* 2004;15:140-143.
2. Blackburn SL. Dietary compliance of chronic hemodialysis patients. *J Am Diet Assoc.* 1977;70:31-37.
3. Daily nutrient recommendations for CKD. In: *Pocket Guide to Nutrition Assessment of the Patient with CKD*. 3rd ed. New York, NY: National Kidney Foundation; 2002: 3-3 – 3-4.
4. Lopez-Gomez JM, Villaverde M, Jofre R, Rodriguez-Benitez P, Perez-Garcia R. Interdialytic weight gain as a marker of blood pressure, nutrition, and survival in hemodialysis patients. *Kidney Int Suppl.* 2005;3:S63-S68.
5. Testa A, Beaud JM. The other side of the coin: Interdialytic weight gain as an index of good nutrition. *Am J Kidney Dis.* 1998;31:830-834.
6. Yang SC, Chiang CK, Hsu SP, Hung KY. Relationship between interdialytic fluid gain and nutritional markers in younger and older hemodialysis patients. *J Ren Nutr.* 2008;18:210-222.
7. Durose CL, Holdsworth M, Watson V, Przygrodzka F. Knowledge of dietary restrictions and the medical consequences of noncompliance by patients on hemodialysis are not predictive of dietary compliance. *J Am Diet Assoc.* 2004;104:35-41.
8. Szczech LA, Reddan DN, Klassen PS, et al. Interactions between dialysis-related volume exposures, nutritional surrogates and mortality among ESRD patients. *Nephrol Dial Transplant.* 2003;18:1585-1591.
9. Foley RN, Herzog CA, Collins AJ. United States Renal Data System. Blood pressure and long-term mortality in United States hemodialysis patients: USRDS Waves 3 and 4 Study. *Kidney Int.* 2002;62:1784-1790.
10. Rahman M, Fu P, Sehgal AR, Smith MC. Interdialytic weight gain, compliance with dialysis regimen, and age are independent predictors of blood pressure in hemodialysis patients. *Am J Kidney Dis.* 2000;35:257-265.
11. Iacono SA. Medication side effects: Barriers to the management of fluid intake. *Dial Transplant.* 2008;37:196-201.
12. McCloskey C, Clarke J, Rayner H. Dialysis patients' understanding of nutritional advice. *J Ren Nutr.* 1997;7: 90-101.
13. Butt S, Leon JB, David CL, Chang H, Sidhu S, Sehgal AR. The prevalence and nutritional implications of fast food consumption among patients receiving hemodialysis. *J Ren Nutr.* 2007;17: 264-268.
14. Baldwin TT, Falciglia GA. Application of cognitive behavioral theories to dietary change in clients. *J Am Diet Assoc.* 1995;95:1315-1317.
15. Bandura A. Social cognitive theory: An agent perspective. *Annu Rev Psychol.* 2001;52:1-26.
16. Grizzell J. Behavior change theories and models. Available at: http://www.csupomona.edu/~jvggrizzell/best_practices/bctheory.html. Accessed February 18, 2008.
17. Bandura A. Self-efficacy. In: *Encyclopedia of Human Behavior*. New York, NY: Academic Press; 1994:71-81.
18. Schüz B, Sniehotta FF, Mallach N, Wiedemann AU, Schwarzer R. Predicting transitions from preintentional, intentional and actional stages of change. *Health Educ Res.* Advance Access published January 31, 2008, doi:10.1093/her/cym092.
19. Greene GW, Rossi SR, Reed GR, Willey C, Prochaska JO. Stages of change for reducing dietary fat to 30% of energy or less. *J Am Diet Assoc.* 1994;94:1105-1110.
20. Holli BB. Using behavior modification in nutrition counseling. *J Am Diet Assoc.* 1988;88:1530-1536.
21. Curtin RB, Sitter DC, Schatell D, Chewning BA. Self-management, knowledge, and functioning and well-being of patients on hemodialysis. *Nephrol Nurs J.* 2004;31: 378-386,396.
22. Curtin RB, Walters BA, Schatell D, Pennell P, Wise M, Klicko K. Self-efficacy and self-management behaviors in patients with chronic kidney disease. *Adv Chronic Kidney Dis.* 2008;15: 191-205.
23. Tanner JL, Craig CB, Bartolucci AA, et al. The effect of a self-monitoring tool on self-efficacy, health beliefs, and adherence in patients receiving hemodialysis. *J Ren Nutr.* 1998;8: 203-211.
24. Bushman MC. Treating fluid noncompliance in the hemodialysis population using unit wide contests. *J Ren Nutr.* 1999;9:35-37.
25. Sharp J, Wild MR, Gumley AI, Deighan CJ. A cognitive behavioral group approach to enhance adherence to hemodialysis fluid restrictions: A randomized controlled trial. *Am J Kidney Dis.* 2005;45:1046-1057.
26. Tsay SL. Self-efficacy training for patients with end-stage renal disease. *J Adv Nurs.* 2003;43:370-375.
27. Ghaddar S, Shamseddine W, Elzein H. Behavioral modeling to guide patients' adherence to fluid control. *J Ren Nutr.* 2008;18:249.
28. Sharp J, Wild MR, Gumley AI. A systematic review of psychological interventions for the treatment of nonadherence to fluid-intake restrictions in people receiving hemodialysis. *Am J Kidney Dis.* 2005;45:15-27.
29. Alt PS, Schatell D. Shifting to the chronic care model may save lives. *Nephrol News Issues.* 2008;22:28-32.



Adding Sensipar® now?
Good thinking.

81%
of dialysis patients achieved PTH treatment goal when starting Sensipar® at
iPTH 300–500 pg/mL¹

Waiting until now?
Think again.

22%
of dialysis patients achieved PTH treatment goal when starting Sensipar® at
iPTH > 800 pg/mL¹

Sensipar® simultaneously lowers²

Sensipar®
(cinacalcet) Tablets
30mg-60mg-90mg

Sensipar® is indicated for the treatment of secondary hyperparathyroidism (HPT) in patients with chronic kidney disease (CKD) on dialysis.

Important Safety Information

Significant reductions in calcium may lower the threshold for seizures. Secondary hyperparathyroidism (HPT) patients, particularly those with a history of seizure disorder, should be carefully monitored for the occurrence of low serum calcium or symptoms of hypocalcemia.

In Sensipar® postmarketing use, isolated, idiosyncratic cases of hypotension, worsening heart failure, and/or arrhythmia were reported in patients with impaired cardiac function. The causal relationship to Sensipar® therapy could not be completely excluded and may be mediated by reductions in serum calcium levels.

Sensipar® lowers serum calcium; therefore, it is important that patients have a serum calcium \geq 8.4 mg/dL when initiating therapy.

Adynamic bone disease may develop if intact parathyroid hormone (iPTH) levels are suppressed below 100 pg/mL.

Patients with moderate to severe hepatic impairment should be monitored throughout treatment with Sensipar®, as cinacalcet exposure assessed by area under the curve (AUC) was higher than in patients with normal hepatic function.

Serum calcium and serum phosphorus should be measured within 1 week and PTH should be measured 1 to 4 weeks after initiation or dose adjustment of Sensipar®. Once the maintenance dose has been established, serum calcium and serum phosphorus should be measured approximately monthly, and PTH every 1 to 3 months.

The most commonly reported side effects were nausea, vomiting, and diarrhea.

References: 1. Moe SM, Chertow GM, Coburn JW, et al. Achieving NKF-K/DOQI™ bone metabolism and disease treatment goals with cinacalcet HCl. *Kidney Int.* 2005;67:760-771. 2. Sensipar® (cinacalcet) prescribing information, Amgen.

Please see brief summary of prescribing information on next page.

Brief Summary**See package insert for full prescribing information****SENSIPAR® (cinacalcet) Tablets****INDICATIONS AND USAGE**

Sensipar® is indicated for the treatment of secondary hyperparathyroidism in patients with Chronic Kidney Disease on dialysis.

CONTRAINDICATIONS

Sensipar® is contraindicated in patients with hypersensitivity to any component(s) of this product.

WARNINGS

Seizures: In three clinical studies of CKD patients on dialysis, 5% of the patients in both the Sensipar® and placebo groups reported a history of seizure disorder at baseline. During the trials, seizures (primarily generalized or tonic-clonic) were observed in 1.4% (9/656) of Sensipar®-treated patients and 0.4% (2/470) of placebo-treated patients. Five of the nine Sensipar®-treated patients had a history of a seizure disorder and two were receiving anti-seizure medication at the time of their seizure. Both placebo-treated patients had a history of seizure disorder and were receiving anti-seizure medication at the time of their seizure. While the basis for the reported difference in seizure rate is not clear, the threshold for seizures is lowered by significant reductions in serum calcium levels. Therefore, serum calcium levels should be closely monitored in patients receiving Sensipar®, particularly in patients with a history of a seizure disorder (see PRECAUTIONS, Hypocalcemia).

Hypotension and/or Worsening Heart Failure: In postmarketing safety surveillance, isolated, idiosyncratic cases of hypotension and/or worsening heart failure have been reported in patients with impaired cardiac function, in which a causal relationship to Sensipar® could not be completely excluded and may be mediated by reductions in serum calcium levels. Clinical trial data showed hypotension occurred in 7% of Sensipar®-treated patients, 12% of placebo-treated patients, and heart failure occurred in 2% of patients receiving Sensipar® or placebo.

PRECAUTIONS**General**

Hypocalcemia: Sensipar® lowers serum calcium, and therefore patients should be carefully monitored for the occurrence of hypocalcemia. Potential manifestations of hypocalcemia include paresthesias, myalgias, cramping, tetany, and convulsions. Sensipar® treatment should not be initiated if serum calcium is less than the lower limit of the normal range (8.4 mg/dL). Serum calcium should be measured within 1 week after initiation or dose adjustment of Sensipar®. Once the maintenance dose has been established, serum calcium should be measured approximately monthly (see DOSAGE AND ADMINISTRATION). If serum calcium falls below 8.4 mg/dL but remains above 7.5 mg/dL, or if symptoms of hypocalcemia occur, calcium-containing phosphate binders and/or vitamin D sterols can be used to raise serum calcium. If serum calcium falls below 7.5 mg/dL, or if symptoms of hypocalcemia persist and the dose of vitamin D cannot be increased, withhold administration of Sensipar® until serum calcium levels reach 8.0 mg/dL, and/or symptoms of hypocalcemia have resolved. Treatment should be re-initiated using the next lowest dose of Sensipar® (see DOSAGE AND ADMINISTRATION). In the 26-week studies of patients with CKD on dialysis, 66% of patients receiving Sensipar® compared with 25% of patients receiving placebo developed at least one serum calcium value < 8.4 mg/dL. Less than 1% of patients in each group permanently discontinued study drug due to hypocalcemia. Sensipar® is not indicated for CKD patients not on dialysis. In CKD patients with secondary HPT not on dialysis, the long-term safety and efficacy of Sensipar® have not been established. Clinical studies indicate that Sensipar®-treated CKD patients not on dialysis have an increased risk for hypocalcemia compared to Sensipar®-treated CKD patients on dialysis, which may be due to lower baseline calcium levels. In a phase 3 study of 32 weeks duration and including 404 subjects (302 cinacalcet, 102 placebo), in which the median dose for cinacalcet was 60 mg at the completion of the study, 80% of Sensipar®-treated patients experienced at least one serum calcium value < 8.4 mg/dL compared to 5% of patients receiving placebo. **Adynamic Bone Disease:** Adynamic bone disease may develop if iPTH levels are suppressed below 100 pg/mL. One clinical study evaluated bone histomorphometry in patients treated with Sensipar® for one year. Three patients with mild hyperparathyroid bone disease at the beginning of the study developed adynamic bone disease during treatment with Sensipar®. Two of these patients had iPTH levels below 100 pg/mL at multiple time points during the study. In the three 6-month, phase 3 studies conducted in CKD patients on dialysis, 11% of patients treated with Sensipar® had mean iPTH values below 100 pg/mL during the efficacy-assessment phase. If iPTH levels decrease below the NKF-K/DOQI recommended target range (150-300 pg/mL)¹ in patients treated with Sensipar®, the dose of Sensipar® and/or vitamin D sterols should be reduced or therapy discontinued. **Hepatic Insufficiency:** Cinacalcet exposure as assessed by AUC_(0-∞) in patients with moderate and severe hepatic impairment (as indicated by the Child-Pugh method) were 2.4 and 4.2 times higher, respectively, than that in normals. Patients with moderate and severe hepatic impairment should be monitored throughout treatment with Sensipar® (see CLINICAL PHARMACOLOGY, Pharmacokinetics and DOSAGE AND ADMINISTRATION). **Information for Patients:** It is recommended that Sensipar® be taken with food or shortly after a meal. Tablets should be taken whole and should not be divided. **Laboratory Tests: Patients with CKD on Dialysis with Secondary Hyperparathyroidism:** Serum calcium and serum phosphorus should be measured within 1 week and iPTH should be measured 1 to 4 weeks after initiation or dose adjustment of Sensipar®. Once the maintenance dose has been established, serum calcium and serum phosphorus should be measured approximately monthly, and PTH every 1 to 3 months (see DOSAGE AND ADMINISTRATION). All iPTH measurements during the Sensipar® trials were obtained using the Nichols IRMA. In patients with end-stage renal disease, testosterone levels are often below the normal range. In a placebo-controlled trial in patients with CKD on dialysis, there were reductions in total and free testosterone in male patients following six months of treatment with Sensipar®. Levels of total testosterone decreased by a median of 15.8% in the Sensipar®-treated patients and by 0.6% in the placebo-treated patients. Levels of free testosterone decreased by a median of 31.3% in the Sensipar®-treated patients and by 16.3% in the placebo-treated patients. The clinical significance of these reductions in serum testosterone is unknown. **Drug Interactions and/or Drug/Laboratory Test Interactions:** See CLINICAL PHARMACOLOGY, Pharmacokinetics and Drug Interactions. Effect of Sensipar® on other drugs: Drugs metabolized by cytochrome P450 2D6 (CYP2D6): Sensipar® is a strong in vitro, as well as in vivo, inhibitor of CYP2D6. Therefore, dose adjustments of concomitant medications that are predominantly metabolized by CYP2D6 and have a narrow therapeutic index (e.g., flecainide, vinblastine, thioridazine and most tricyclic antidepressants) may be required. Desipramine: Concurrent administration of cinacalcet (90 mg) with desipramine (50 mg) increased the exposure of desipramine by 3.6 fold in CYP2D6 extensive metabolizers. Amitriptyline: Concurrent administration of 25 mg or 100 mg cinacalcet with 50 mg amitriptyline increased amitriptyline exposure and nortriptyline (active metabolite) exposure by approximately 20% in CYP2D6 extensive metabolizers. Midazolam: There were no significant differences in the pharmacokinetics of midazolam, a CYP3A4 and CYP3A5 substrate, in subjects receiving 90 mg cinacalcet once daily for 5 days and a single dose of 2 mg midazolam on day 5 as compared to those of subjects receiving 2 mg midazolam alone. This suggests that cinacalcet would not affect the pharmacokinetics of drugs predominantly metabolized by CYP3A4 and CYP3A5. Effect of other drugs on Sensipar®: Sensipar® is metabolized by multiple cytochrome P450 enzymes, primarily CYP3A4, CYP2D6, and CYP1A2. Ketoconazole: Sensipar® is metabolized in part by CYP3A4. Co-administration of ketoconazole, a strong inhibitor of CYP3A4, increased cinacalcet exposure following a single 90 mg dose of Sensipar® by 2.3 fold. Dose adjustment of Sensipar® may be required and PTH and serum calcium concentrations should be closely monitored if a patient initiates or discontinues therapy with a strong CYP3A4 inhibitor (e.g., ketoconazole, erythromycin, itraconazole; see DOSAGE AND ADMINISTRATION). **Carcinogenesis, Mutagenesis, and Impairment of Fertility: Carcinogenesis:** Standard lifetime dietary carcinogenicity bioassays were conducted in mice and rats. Mice were given dietary doses of 5, 15, 50, 125 mg/kg/day in males and 30, 70, 200 mg/kg/day in females (exposures up to 2 times those resulting with a human oral dose of 180 mg/day based on AUC comparison). Rats were given dietary doses of 5, 15, 35 mg/kg/day in males and 5, 20, 35 mg/kg/day in females (exposures up to 2 times those resulting with a human oral dose of 180 mg/day based on AUC comparison). No increased incidence of tumors was observed following treatment with cinacalcet. **Mutagenicity:** Cinacalcet was not genotoxic in the Ames bacterial mutagenicity assay or in the Chinese Hamster Ovary (CHO) cell HGPRT forward mutation assay and CHO cell chromosomal aberration assay, with and without metabolic activation or in the *in vivo* mouse micronucleus assay. **Impairment of Fertility:** Female rats were given oral gavage doses of 5, 25, 75 mg/kg/day beginning 2 weeks before mating and continuing through gestation day 7. Male rats were given oral doses 4 weeks prior to mating, during mating (3 weeks) and 2 weeks post-mating. No effects were observed in male or female fertility at 5 and 25 mg/kg/day (exposures up to 3 times those resulting with a human oral dose of 180 mg/day based on AUC

comparison). At 75 mg/kg/day, there were slight adverse effects (slight decreases in body weight and food consumption) in males and females. **Pregnancy Category C:** In pregnant female rats given oral gavage doses of 2, 25, 50 mg/kg/day during gestation no teratogenicity was observed at doses up to 50 mg/kg/day (exposure 4 times those resulting with a human oral dose of 180 mg/day based on AUC comparison). Decreased fetal body weights were observed at all doses (less than 1 to 4 times a human oral dose of 180 mg/day based on AUC comparison) in conjunction with maternal toxicity (decreased food consumption and body weight gain). In pregnant female rabbits given oral gavage doses of 2, 12, 25 mg/kg/day during gestation through lactation no adverse fetal effects were observed (exposures less than with a human oral dose of 180 mg/day based on AUC comparisons). Higher doses of 15 and 25 mg/kg/day (exposures 2-3 times a human oral dose of 180 mg/day based on AUC comparisons) were accompanied by maternal signs of hypocalcemia (periparturient mortality and early postnatal pup loss), and reductions in postnatal maternal and pup body-weight gain. Sensipar® has been shown to cross the placental barrier in rabbits. There are no adequate and well-controlled studies in pregnant women. Sensipar® should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. **Lactating Women:** Studies in rats have shown that Sensipar® is excreted in the milk with a high milk-to-plasma ratio. It is not known whether this drug is excreted in human milk. Considering these data in rats and because many drugs are excreted in human milk and because of the potential for clinically significant adverse reactions in infants from Sensipar®, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the lactating woman. **Pediatric Use:** The safety and efficacy of Sensipar® in pediatric patients have not been established. **Geriatric Use:** Of the 1136 patients enrolled in the Sensipar® phase 3 clinical program, 26% were ≥ 65 years old, and 9% were ≥ 75 years old. No differences in the safety and efficacy of Sensipar® were observed in patients greater or less than 65 years of age (see DOSAGE AND ADMINISTRATION, Geriatric Patients).

ADVERSE EVENTS

Secondary Hyperparathyroidism in Patients with Chronic Kidney Disease on Dialysis: In 3 double-blind placebo-controlled clinical trials, 1126 CKD patients on dialysis received study drug (656 Sensipar®, 470 placebo) for up to 6 months. The most frequently reported adverse events (incidence of at least 5% in the Sensipar® group and greater than placebo) are provided in Table 1. The most frequently reported events in the Sensipar® group were nausea, vomiting, and diarrhea.

Table 1. Adverse Event Incidence (≥ 5%) in Patients On Dialysis

Event*:	Placebo n=470 (%)	Sensipar® n=656 (%)	Event*:	Placebo n=470 (%)	Sensipar® n=656 (%)
Nausea	19	31	Hypertension	5	7
Vomiting	15	27	Asthenia	4	7
Diarrhea	20	21	Anorexia	4	6
Myalgia	14	15	Pain Chest, Non-Cardiac	4	6
Dizziness	8	10	Access Infection	4	5

*Included are events that were reported at a greater incidence in the Sensipar® group than in the placebo group.

The incidence of serious adverse events (29% vs. 31%) was similar in the Sensipar® and placebo groups, respectively. **12-Month Experience with Sensipar®:** Two hundred and sixty-six patients from 2 phase 3 studies continued to receive Sensipar® or placebo treatment in a 6-month double-blind extension study (12-month total treatment duration). The incidence and nature of adverse events in this study were similar in the two treatment groups, and comparable to those observed in the phase 3 studies. **Postmarketing Experience with Sensipar®:** Rash, hypersensitivity, diarrhea and myalgia have been identified as adverse reactions during post-approval use of Sensipar®. Isolated, idiosyncratic cases of hypotension and/or worsening heart failure have been reported in Sensipar®-treated patients with impaired cardiac function in postmarketing safety surveillance. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. **Laboratory values:** Serum calcium levels should be closely monitored in patients receiving Sensipar® (see PRECAUTIONS and DOSAGE AND ADMINISTRATION).

OVERDOSAGE

Doses titrated up to 300 mg once daily have been safely administered to patients on dialysis. Overdosage of Sensipar® may lead to hypocalcemia. In the event of overdosage, patients should be monitored for signs and symptoms of hypocalcemia and appropriate measures taken to correct serum calcium levels (see PRECAUTIONS). Since Sensipar® is highly protein bound, hemodialysis is not an effective treatment for overdosage of Sensipar®.

DOSAGE AND ADMINISTRATION

Sensipar® tablets should be taken whole and should not be divided. Sensipar® should be taken with food or shortly after a meal. Dosage must be individualized. **Secondary Hyperparathyroidism in Patients with Chronic Kidney Disease on Dialysis:** The recommended starting oral dose of Sensipar® is 30 mg once daily. Serum calcium and serum phosphorus should be measured within 1 week and PTH should be measured 1 to 4 weeks after initiation or dose adjustment of Sensipar®. Sensipar® should be titrated no more frequently than every 2 to 4 weeks through sequential doses of 60, 90, 120, and 180 mg once daily to target iPTH consistent with the NKF-K/DOQI recommendation for CKD patients on dialysis of 150-300 pg/mL. PTH levels should be assessed no earlier than 12 hours after dosing with Sensipar®. Sensipar® can be used alone or in combination with vitamin D sterols and/or phosphate binders. During dose titration, serum calcium levels should be monitored frequently and if levels decrease below the normal range, appropriate steps should be taken to increase serum calcium levels, such as by providing supplemental calcium, initiating or increasing the dose of calcium-based phosphate binder, initiating or increasing the dose of vitamin D sterols, or temporarily withholding treatment with Sensipar® (see PRECAUTIONS).

Special Populations: Geriatric patients: Age does not alter the pharmacokinetics of Sensipar®, no dosage adjustment is required for geriatric patients. **Patients with renal impairment:** Renal impairment does not alter the pharmacokinetics of Sensipar®, no dosage adjustment is necessary for renal impairment. **Patients with hepatic impairment:** Cinacalcet exposures, as assessed by AUC_(0-∞), in patients with moderate and severe hepatic impairment (as indicated by the Child-Pugh method) were 2.4 and 4.2 times higher, respectively, than in normals. In patients with moderate and severe hepatic impairment, PTH and serum calcium concentrations should be closely monitored throughout treatment with Sensipar® (see CLINICAL PHARMACOLOGY, Pharmacokinetics and PRECAUTIONS). **Drug Interactions:** Sensipar® is metabolized in part by the enzyme CYP3A4. Co-administration of ketoconazole, a strong inhibitor of CYP3A4, caused an approximate 2-fold increase in cinacalcet exposure. Dose adjustment of Sensipar® may be required and PTH and serum calcium concentrations should be closely monitored if a patient initiates or discontinues therapy with a strong CYP3A4 inhibitor (e.g., ketoconazole, erythromycin, itraconazole; see CLINICAL PHARMACOLOGY, Pharmacokinetics and PRECAUTIONS).

Storage: Store at 25°C (77°F); excursions permitted to 15-30°C (59-86°F). [See USP controlled room temperature]. Rx Only: This product, or its use, may be covered by one or more US Patents including US Patent Nos. 6313146, 6211244, 6031003 and 6011068, in addition to others, including patents pending.

References: 1. National Kidney Foundation: K/DOQI clinical practice guidelines: bone metabolism and disease in chronic kidney disease. American Journal of Kidney Disease 42:S1-S201, 2003



Manufactured for: Amgen

Amgen Inc.

One Amgen Center Drive

Thousand Oaks, CA 91320-1799

©2004-2008 Amgen Inc. All rights reserved.

v3-Issue Date 05/2008

Amgen

One Amgen Center Drive

Thousand Oaks, CA 91320-1799

©2008 Amgen Inc. All rights reserved.

MC43218-B-1

Motivational Interviewing

Guiding Clients through Behavior Change

Eileen Myers, MPH, RD, LDN, FADA

Director of Nutrition at Scales Nutrition and Wellness Center
Nashville, TN

Email: eileenmyers@gmail.com

*Reprinted from Weight Management Matters, Summer 2008,
Volume 6, No. 1, with permission from the Weight Management
Dietetic Practice Group of the American Dietetic Association.*

Nutrition counseling is an art and a science. As nutrition professionals working in the field of weight management, we are experts in the science and use an evidence-based, individualized approach to help a client contemplate and approach change. Unfortunately, we recognize that providing “all of the evidence” on why and how to make a dietary modification does not necessarily lead to dietary change. The intention of this article is to provide a practical application of an “art” useful in nutrition counseling called motivational interviewing.

What is Motivational Interviewing?

Motivational interviewing (MI) is a directive, client-centered counseling style for eliciting behavior change (1). It is a style of communication and method of interacting with clients to assess their readiness to change and facilitate movement by addressing their ambivalence about change, examining pros and cons for change and facilitating exploration of their personal barriers to change. MI relies on identifying and mobilizing the client’s intrinsic values and goals to stimulate behavior change. MI originated in the addiction field and has been used effectively in smoking cessation, weight loss, increased exercise, and reduced alcohol and drug use (2,3). MI has recently been adapted for brief medical consultations (4,5). For more information and resources on MI, go to: www.motivationalinterviewing.org.

Theoretical Approaches

There are several recognized behavior change theories. The **Health Belief Model** holds that behavior change is a function of the individual’s perceptions regarding his/her vulnerability to illness and his/her perception of the effectiveness of change (6). Behavior change occurs when the client perceives an imminent health problem as a result of the current behavior, recognizes the problem as serious, believes the recommended change will be effective, and has confidence in his/her ability to change the

behavior. While change is occurring, the client is given positive feedback that health is improving by noting blood pressure changes, cholesterol reductions, etc.

The **Theory of Planned Behavior** (TpB) proposes that to predict whether a person intends to do something, you must know whether the person is in favor of doing something (attitude), what the social pressure is to do something (subjective norm) and whether the person feels in control of the action (perceived behavioral control) (7). By changing the three predictors, one can increase the chance that a person will intend to do a desired action and increase the chances of actually doing it. A key principle of TpB is that behavioral change (an observed action) is immediately preceded by intention. Behavioral change occurs if the client has a significant degree of perceived and actual control over the behavior.

The **Self Determination Model** believes that people change either because they value the outcome of the change or because of an external coercion or to avoid guilt, and achieve pride (8). The goal is to help the client become internally motivated so that the changes become more automatic. Similarly, MI plays a role in this model by moving a person from extrinsic to intrinsic motivation.

The **Transtheoretical or Stages of Change Model** (SOC) proposes that clients change problem behaviors by moving through a series of stages representing levels of readiness to change. There are five distinct stages of change: pre-contemplation, contemplation, preparation, action and maintenance. Clients move from one stage to the next in the process of change and may move back and forth between stages in the process of change. SOC has played an important role in the development of MI and is most often the behavior change model associated with MI. Within the SOC model, the task is to assess the client’s stage of change for each particular behavior and use targeted behavioral counseling strategies to help motivate or advance the client from one stage to the next (9,10,11). The stages of change, as developed by Prochaska and DiClemente, include the following:

- 1. Pre-contemplation:** Clients in pre-contemplation are not even thinking about changing their behavior. They may not believe they have a problem. Usually we refer to this group as being in denial. A client may think he/she can’t (no ability) rather than he/she won’t.
- 2. Contemplation:** In this stage, the client has ambivalence but is willing to consider the problem, and the possibility of change offers hope for change.
- 3. Preparation:** Clients in this stage have decided to change and are taking active steps to get ready to change.
- 4. Action:** Clients in this stage are taking steps to change but are not yet stable in meeting their goals.

Motivational Interviewing...

5. **Maintenance/ Relapse:** Clients in this stage are making successful changes. They are working toward maintaining this change.

Table 1 provides a summary of the use of MI with SOC.

The "Spirit," Guiding Principles and Core Skills of MI

The term “spirit” is used to explain the clinical style mindset used in MI. The counseling relationship is collaborative where both you (the registered dietitian (RD) and the client are on equal ground and joint decision-making occurs. You may be the expert in directing clients in what to do, but your clients have the expertise about what is important to them and what they want to do. Ambivalence is normal and when faced with change, there is always a reason not to change. Your role is to help activate your client’s own motivation and resources around change by connecting health behavior change with what is important to the client (values clarification). This involves evoking the client’s own reasons for and against change (ambivalence) while resisting coercion. With this style of counseling, the RD must accept that clients can and will make their own choices. Listening with empathy and understanding to your client’s mixed feelings about change can initiate more dialogue about making changes. The more the client talks about his/her reasons for change, the more likely change will occur.

Miller and Rollnick describe four guiding principles underlying MI, as follows (1):

Express empathy. Empathy is an essential component of effective counseling for behavior change. This involves warmth and reflective listening. It is your job to understand the client’s feelings and perspectives without judging, criticizing or blaming. You show respect by remaining unbiased and offering a desire to understand your client’s perspective. Empathy helps you build an alliance and support your client’s self-esteem. For example, “I see you are hesitant about making changes in your diet and I recognize if you could easily make the changes, you wouldn’t be here now.”

Develop discrepancy. This principle involves creating a discrepancy between the client’s present behaviors and where he/she would like to see himself/herself. When a behavior conflicts with important personal goals, change is more likely to occur. The goal is to make use of the discrepancy and actually try to increase it until it overrides attachment to the present behavior. The strategy is to do this *within* the client instead of relying on external motivators, such as the threat of increasing medication. Help

the client clarify important goals, and explore the consequences or potential consequences of the present behavior that conflict with these goals. Without creating a feeling of being pressured or coerced, the client acknowledges a new perception of the discrepancy. For example, “My father died of a heart attack, and I know that I am headed down that same path if I don’t change my diet. I just love to eat.” Using this principle, the client presents the reasons for change, rather than the RD doing so.

Roll with resistance. When counseling, it serves well to return a question or problem back to the client instead of always giving answers. For example, if the client says, “I don’t think my blood sugar is that bad” you can answer by asking, “What would be considered a bad level and what would cause someone to have that level?” The client is actively involved in the process of problem solving and may see some of his/her own behaviors in the example of the person with the “bad” blood sugar.

Support self-efficacy. Self-efficacy refers to a client’s belief in his/her ability to carry out and succeed with a specific task. It is a key element in motivation for change. If the client perceives no hope in her ability to change, then no effort will be made, and your efforts will be in vain. With MI your message is, “If you wish, I can *help* you make the changes, but it is you who will make the changes, not me.” Even if a client has failed many times before, sharing hopefulness in the current attempt will enhance his or her belief in himself/herself.

Asking, Listening, Informing

Asking and listening are two essential skills used in MI to begin to understand the client’s ideas and attitudes about change. The acronym OARS is used to describe how to best ask and listen to achieve the desired results (4). Open ended questions (O) are asked; you affirm (A) that you hear what the client said; you reflect (R) or paraphrase what the client has said (content reflection) or you reflect back what you interpret as the meaning of what was said (meaning reflection); and you summarize (S) your understanding of what has been said. Table 2 provides additional points and examples using OARS.

Appropriate questioning and listening, as described above, help you to hear the language that tells you where a client is in the process of changing behavior. This language is referred to as “change talk.” The client is telling you something about his/her motivation to change. This is your opportunity to capture the motivational statements that will assist in the change process. In working with a client in the contemplation and preparation stage of change, it is important that you pick up on the client’s desire

Motivational Interviewing...

Table 1

Use of Motivational Interviewing with Stages of Change

Stage	Goal	Example	Strategy	Examples
Precontemplation	Identify and understand if it is an "I can't" or an "I won't" and the perceived barriers. Encourage the client to discuss potentially problematic behaviors.	"I don't want to change. I'll be fine. My grandfather lived to be 85 years- old. I'm only here because my doctor told me I had to see you."	<ul style="list-style-type: none"> Establish rapport and trust Express empathy, develop discrepancy and roll with resistance Raise doubt or concern in the client about the behavior patterns Explore pros and cons of continuing the behavior Using third person, offer factual information on the behavior and benefits of change 	"What do you like about your current eating habits? What don't you like?" "I'm wondering if you would be interested in knowing more about...?"
Contemplation	Guide the client to make a decision to take action. Explore and resolve ambivalence.	"I know I need to change, but life is too hectic right now."	<ul style="list-style-type: none"> Discuss barriers to change Prioritize pros and cons of change Encourage statements of intent and commitment to change Elicit the client's expectations regarding nutrition counseling 	"If you decided to change, what would it be like?" "What do you like about your eating habits? What don't you like?" "On a scale from 1 to 10, how willing and motivated are you to change?"
Preparation	Help client prepare a plan for change. Negotiate a plan that is realistic. Set goals.	"I want to eat healthier, but I never seem to be successful for very long with the changes I make."	<ul style="list-style-type: none"> Clarify the client's goal for change Explore options for change Elicit strategies that have been successful in the past Explore the barriers of change With permission, offer information and advice 	"Here are some ideas that have been helpful for other people. What do you think might work best for you?" "What barriers will you encounter making these changes?" "Who can support you with these changes?" "On a scale from 1 to 10, how able or confident are you to make these changes?"
Action	Affirm successful behavior. Continue to address barriers and high-risk situations.	"I'm now eating three meals a day and don't graze before dinner."	<ul style="list-style-type: none"> Encourage, support and reinforce changes Assist the client in identifying high-risk situations and developing a plan for high-risk situations Ask the client if he/she is ready and (with permission) offer information and advice 	"Of all the strategies you have tried, which ones do you think have worked best for you?" "How are you feeling having made these changes?" "How will your vacation affect the changes you have made?"
Maintenance/Relapse	Continue affirming behavior change. Assist with anticipating obstacles.	"I have lost 30 pounds over the last 6 months through the changes I've made. I have so much more confidence that I just got a new job."	<ul style="list-style-type: none"> Acknowledge positive changes Affirm ability to change Identify red flags and action plans for lapse Rehearse lapse strategies Schedule follow-up to maintain contact and reinforce changes 	"Let's list all of the changes you have made." "A new job might involve different hours and break times. Let's discuss how your eating can be maintained under different scenarios."

Motivational Interviewing...

(D) to change when you hear specific verbs such as, “wish, want to, and like.” The client is providing you an indication of his/her ability (A) to change when you hear “can” or “might be able to” in a sentence. Reasons (R) for change can be heard through statements about why the client thinks he/she will benefit from change. Need (N) for change is often expressed as a “must.” When you hear your client using this language, often referred to by the acronym DARN, you are hearing the client’s hopes and values. Touching on and addressing deeply held values increase the likelihood of commitment and, ultimately, change.

As your client moves from preparation into the action stage of change, signs of commitment and taking steps will be heard. Commitment is heard through phrases such as “I will” or “I am going to” and taking steps is heard through phrases such as “I started” or “I tried.” Table 3 provides examples of the guiding questions and cues to change talk.

Although much of MI involves asking and listening skills, informing the client plays a major role in facilitating change. RDs and other health professionals are most comfortable with informing because they know the science and evidence. However, since MI is based on a guiding style, informing within MI involves more than giving the answers when the client seems ready. Informing is a

skill that occurs in an intentional manner. Asking permission prior to giving information is fundamental in keeping with a guiding style that respects client autonomy and limits resistance. Asking permission can occur in several different ways. For example, the following question asks for permission directly: “Would you like to hear what other people have found helpful? I have an idea that might help with your dilemma. Can I share that idea with you?” Another way of asking permission is to offer choices such as, “What do you think about one of these two ideas as a way to get started?” Or, you might ask permission by stating what has worked for others such as, “Some of my clients have found this to be helpful. What do you think?” Providing factual information only fits as it applies to the concern of the client. For example, if the client complains that he/she is always “starving at supper time,” informing the client about physiological changes that cause someone to be overly hungry can impart more meaning to the client.

Asking, listening and informing are used throughout each counseling session. These skills are used to find out what the client wants to hear, provide the specific information, and listen to the cues and responses to determine the direction of further exploration.

Table 2
Use of OARS in Motivational Interviewing

O	Ask Open-ended Questions	<ul style="list-style-type: none">• Cannot be answered with a “yes” or “no”• Casts a broad net• Elicits person’s thoughts and feelings• Encourages person to do all of the talking	“What caused your weight to be a concern for you or for those around you?”
A	Affirm Patient	<ul style="list-style-type: none">• Supports and promotes the person’s sense of self-efficacy• Acknowledges difficulties of change• Validates thoughts and feelings	“I appreciate your honesty in telling me your concerns about losing weight.”
R	Listen Reflectively	<ul style="list-style-type: none">• Rephrase the person’s statement to reflect what you think you heard• States back what you think the person meant	“I hear your concern that you know it is not good to carry excess weight.” (content) “I hear your worry that if you are unable to control your weight, your kids will think less of you.” (meaning)
S	Summarize	<ul style="list-style-type: none">• Rephrases the gist of the dialogue’s content and meaning, noting points of ambiguity	“So what I am hearing you say is that you really do want to lose weight, but your life centers around entertaining clients in restaurants and you believe that you’d have to give that up to be successful.”

Motivational Interviewing...

Table 3

Change Talk Cues

Type of Change		Guiding Question	Cues of Change Talk
D	Desire	"What makes you want to reduce your fat intake?"	"I want to..." "I wish..."
A	Ability	"How might you go about reducing your fat intake?"	"I can..." "I might..."
R	Reasons	"How might you benefit from reducing your fat intake?"	"I would feel better if..." "My blood pressure would go down if..."
N	Need	"How important is it for you to reduce your fat intake?"	"I have to..." "It is really important to me that I..."
	Commitment	"What do you see as your first step?"	"I will..."
	Taking Steps	"What are you already doing to reduce your fat intake?"	"I started..."

Using MI takes concerted effort, and it is sometimes easy to slip into old patterns of counseling behavior. MI is not a set of techniques that are “applied” to clients. You are not providing MI when you: argue with the client that there is a problem; offer direct advice or prescribe solutions to the problem without the person’s permission or without encouraging the client to make his/her own choices; take an expert, authoritative stance; do most of the talking; impose a diagnostic label; and/or counsel in a punitive or coercive manner. When you hear yourself moving toward this authoritative role, step back, apologize to client for this inappropriate interruption, and ask him/her to please continue.

Tools Used in MI

When used in the context of MI and with appropriate timing, the following tools can be useful in sessions to help assess readiness to change and assist with movement toward change (1,4).

1. The Importance and Confidence Ruler. Useful in all stages of change, this tool is a ruler with a one to ten scale. Ask your client, “On a scale of one to ten, where one is ‘not at all important at all for me to change’ and ten is ‘I will do whatever it takes to change,’ how would you rate the importance for you to change?” Once you are given a number, ask for the reason that this number was given. This answer will give you the priority level of importance the client assigns to the change. Then, ask why the client did not choose a lower number (assuming the number was not one) and why not a higher number. Finally, you can gently guide change by asking, “What would it take to move one or two

numbers up on the ruler?” Once complete, summarize what you believe you heard. Repeat these same questions asking the client about his/her confidence in changing behavior. The confidence questioning provides greater clarity about perceived barriers to change and the client’s self-efficacy.

2. Decisional Balance. This tool is often helpful in the precontemplation and contemplation stage of change. You will gain insight into what the client perceives as the advantages and disadvantages of change by giving the client a sheet of paper and asking him/her to list the pros on one side and cons on the other side. Ask what the client feels are the pros and cons of the current behavior and the pros and cons of changing that behavior. Having these reasons helps you with your next set of questions and reflections. In summarizing, a useful question that will elicit more information is to ask, “Where does this leave you now?” Other “what’s next” questions include, “What do you make of all this?” and “What would you like to do from here?”

3. Hypothetical Change. When someone is not quite ready to change (precontemplation and contemplation stages), it is sometimes less threatening to provide hypotheticals in order to engage them in discussion. An example is to ask, “Suppose you decided to eat fewer fried foods. How would your life change?” You can also do a role reversal such as, “If this were the status of your spouse, what advice would you give him/her that you think would help?”

4. Goal Setting. Goal setting is best used in the preparation and action stage of change. Goals are more achievable when they

Motivational Interviewing...

are behavioral and under the client's control. For example, when the client states that she will eat more fruit, you first ask how important it is for the client to eat more fruit (using the importance ruler). Then you would assess the barriers to eating more fruit and determine which barriers can be overcome. Then you would proceed to guide the client in setting specific, measurable, action-oriented and forgiving goals.

5. Review Past Successes and Personal Strengths. Often the client has tried changing an eating behavior in the past. Asking the client what worked in the past can help remind the client that he/she once succeeded. Asking the client to state strengths in life may reinforce self-efficacy and elicit tools used in the past or in other areas of his/her life that might be useful for this specific behavior.

Summary

Motivational Interviewing is the “art” of nutrition counseling key to behavior change. By using an empathetic and nonbiased communication technique, it provides the framework for building a trusting relationship and engages the client in his/her treatment plan. It guides the client to explore ambivalence and helps him/her come to terms with what is important and valued. Once MI is learned and practiced, counseling is a more relaxed encounter where asking, listening, and informing serves the client’s needs and makes the experience much more rewarding. ◆

References

1. Miller WR, Rollnick S. *Motivational Interviewing: Preparing People to Change*. 2nd ed. New York, NY: Guilford Press; 2002.
2. Burke BL, Arkowitz H, Menchola M. The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. *J Consult Clin Psychol*. 2003;71:841-861.
3. Hettema J, Steele J, Miller WR. A meta-analysis of research on motivational interviewing treatment effectiveness (MARMITE). *Annu Rev Clin Psychol*. 2005;1:91-111.
4. Rollnick S, Miller WR, Butler CC. *Motivational Interviewing in health-care: Helping Clients Change Behavior*. New York, NY: The Guilford Press; 2008.
5. Christian JG, Bessesen DH, Byers TE, et al. Clinic-based support to help overweight patients with type 2 diabetes increase physical activity and lose weight. *Arch Intern Med*. 2008;168(2):141-146.
6. Janz NK, Champion VL, Strecher VJ. The health belief model. In: *Health Behavior and Health Education: Theory, Research and Practice*. 3rd ed. San Francisco, CA: Jossey-Bass Publishers; 2002:49-66.
7. Godin G, Kok G. The theory of planned behavior: a review of its applications in health-related behaviors. *American Journal of Health Promotion*. 1996;11:87-98.
8. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *Am Psychol*. 2000;55:68-78.
9. Prochaska JO, Norcross JC, DiClemente CC. *Changing for Good*. New York, NY: William Morrow and Company; 1994.
10. Rollnick S. Behavior change in practice: targeting individuals. *Int J Obes*. 1996;20SI:S22-S26.
11. Sandoval W, Heller K, Wiese W, Childs D. Stages of change: a model for nutrition counseling. *Topics in Clinical Nutrition*. 1994;9:64-69.

Conditions for Coverage

Highlights for Registered Dietitians at In-Center Hemodialysis Clinics

Sarah Kruger, MS, RD

Abbott Renal Care

Royal Oak, MI

E-mail: kruger_sarah@yahoo.com

As many of you know, the Centers for Medicare and Medicaid Services (CMS) published the final rule of the Conditions for Coverage (CfCs) on April 15, 2008. The accompanying interpretive guidelines (IGs) and Measurement Assessment Tool (MAT), publications to assist state surveyors in understanding the CMS final rules, were published on October 3, 2008. This article is a brief overview of the guidelines for Registered Dietitians working at in-center hemodialysis (HD) clinics. The guidelines address home HD, peritoneal dialysis (PD), pediatric dialysis, and transplant, but they are not covered in this review.

Registered Dietitians and Evaluation of Nutritional Status

According to the new CfCs, each dialysis facility must have a dietitian who is registered with the Commission on Dietetic Registration and has a minimum of 1 year professional work experience in clinical nutrition as a Registered Dietitian. Experiences working in clinical nutrition as an intern (prior to registration), or foodservice experience (after registration), do not count. The conditions do not address a specific staff-to-patient ratio, but the IGs state under tag number V758: “if the facility ‘shares’ the social worker or dietitian with multiple clinics or requires professional staff to perform non-clinical tasks, it must not negatively impact the time available to provide the clinical interventions required to achieve the goals identified in the patient’s plan of care.”

The evaluation of nutritional status by a dietitian within the Comprehensive Multidisciplinary Patient Assessment (CMPA) must include, but is not limited to (IG V509):

Conditions for Coverage...

- nutritional status;
- hydration status;
- metabolic parameters, such as glycemic control if diabetic, and cardiovascular health;
- anthropometric data such as height, weight, weight history, weight change, volume status, amputations;
- appetite and intake;
- ability to chew and swallow;
- gastrointestinal issues;
- use of prescribed and over-the-counter nutritional, dietary, or herbal supplements;
- previous diets and/or nutrition education;
- route of nutrition;
- self-management skills;
- attitude toward nutrition, health, and well-being; and
- motivation to make changes to meet nutrition and other health goals.

Additionally, “the assessment may include information from the person that cooks and provides meals for the patient, whether this is the patient, family, caregiver or nursing home. Before interviewing family members or caregivers, the dietitian should seek the patient’s permission to interview the relevant individual(s). If the patient is a resident of a long-term care facility, the dietitian should contact the staff of the facility as part of the assessment and to provide continuity of care.” Additionally, it was noted under IG V506: “‘medication history’ should include a review of the patient’s allergies and of all medications including over-the-counter medications and supplements that the patient is taking. The assessment should demonstrate that all current medications were reviewed for possible adverse effects/interactions and continued need.” Lastly, the dietitian must assure the patient is able to describe their dietary precautions given an emergency

situation (IG V412).

CMPA

The CMPA replaces the requirement for individual assessments by each discipline (§494.80); however, it can be done by individual documents or as a single document. The interviews can be conducted one-on-one or as a team meeting; and electronic or paper formats may be used (IG V501). The interdisciplinary team (IDT) is responsible for the completion of the assessment and includes the following members: the patient or the patient’s designee (if the patient chooses), a registered nurse, a physician treating the patient for end stage renal disease, a social worker, and a registered dietitian. The patient, or any member of the team, may participate via telecommunication (IG V542). The patient has the right to refuse participation, but documentation of the reason must be provided (IG V556). The CfCs designate the evaluation of the nutritional status to the dietitian; however the dietitian may not be limited to just that section and it is up to the facility and treatment team to decide who is responsible for completing the remaining criteria. The CMPA (IG V500-V539) and the Plan of Care (described in the next section) needs to be completed according to Table 1.

Unstable patients criteria includes patients with the following, but it is not limited to these conditions:

- Extended hospitalizations (>15 days), frequent hospitalizations (>3 times), or certain types of hospitalizations (i.e. amputation);
- Marked deterioration in health status;
- Significant change in psychosocial needs; or
- Concurrent poor nutritional status; i.e. albumin* <3.0 x 3 months, unmanaged anemia, i.e. Hemoglobin* <10.0 x 3 months, AND inadequate dialysis ie KT/V* <1.0 x 3 months

Table 1
CMPA and Plan of Care Time Line

Patient's Status	Time Line	Plan of Care
Initial	Latter of 30 calendar days or 13 outpatient HD sessions, beginning with the first outpatient dialysis session for all new patients	Completed by the same date as the CMPA
Follow-up	3 months, 90 days, after the completion of the initial CMPA	Completed within 15 days after the Follow-up CMPA
Stable Patients	Annually, 12 months from the Follow-Up CMPA, or 15 months from the patient’s admission to the facility	Completed within 15 days from the Annual CMPA
Unstable Patients*	At least monthly, until the problem has been resolved or considered “chronic”	Completed within 15 days after each monthly CMPA

Conditions for Coverage...

(*these are just examples of numbers, please refer to the MAT for guidelines on references for criteria).

"Some 'changes' leading to the patient classification of 'unstable' are clearly within the purview of a specific member of the IDT...The participation of some team members around some changes that do not impact their specialty may be limited" (IG V539).

Plan of Care to CMPA

A Plan of Care (IG V540-V559) must accompany each CMPA. See Table 1 for the different time lines for the Plan of Care. The CfC (§494.40) states that the Plan of Care must:

- Be individualized
- Specify the services necessary to address the patient's needs identified in the assessment
- Include measurable and expected outcomes
- Include estimated timetables to achieve outcomes
- Contain outcomes consistent with current evidence-based professionally-accepted clinical practice standards (see MAT)
- Under nutritional status: IG V545 each facility must have established target goals for patients' albumins and monitor each patient's body weight trends

If the expected outcome has not been achieved, then the IDT must adjust the patient's plan of care to achieve the specified goals (IG V559). When a patient is unable to achieve the desired outcomes, the team must: 1. adjust the plan of care to the patient's current condition, 2. document and record why the patient was unable to achieve the goals, and 3. implement new plan of care changes to address the issues unresolved. If only one issue has been unresolved, i.e. adequacy, then a patient does not need an entire re-assessment and plan of care. The patient would be otherwise considered "stable," and only the plan of care for adequacy would have to be readjusted. It is important to remember this condition does not require all patients to meet all goals, but the IDT needs to show efforts at intervention. Blanket documentation of "non-adherence" or "non-compliance," without efforts focusing on identifying the potential causes of the non-adherence and addressing those causes, will not satisfy this condition (IG V559).

Quality Assessment and Performance Improvement

According to regulation §494.110, all dialysis facilities are required to develop, implement, maintain, and evaluate an effective, data-driven, quality assessment and performance improvement (QAPI) program with participation from all professional members of the interdisciplinary team. The QAPI must be a written plan describing the program scope; objectives;

organization; responsibilities of all participants; and procedures for overseeing the effectiveness of monitoring, assessing, and problem-solving activities.

QAPI must be facility-wide aggregate patient data with all services (in-center HD, PD, etc.) provided at each dialysis clinic. The dialysis facility must set priorities for performance improvement, considering prevalence and severity of identified problems, and give priority to improvement activities that affect clinical outcomes or patient safety. All problems that threaten the health and safety of the patient must be immediately resolved as priorities. The scope of the program must include (IG V625-V640):

- Measurable improvement in health outcomes
- Reduction of medical errors by using indicators or performance measures associated with improved health outcomes concurrently with identification and reduction of medical errors
- The program must include, but is not limited to, adequacy of dialysis, nutritional status, mineral metabolism and renal bone disease, anemia, vascular access, medical injuries and medical errors identification, dialyzer reuse programs (if applicable), patient satisfaction and grievances, and infection control.

Conclusion

In summary, the Conditions for Coverage is a summary of rules and regulations for dialysis clinics to help put the patient first, with an emphasis on outcomes and data. They were updated due to changes in technology and differences in delivery of care, and also to help provide a guide for consistency of services. As with any type of change, the new regulations may be a challenge, but they present an exciting opportunity to improve our patients' lives and quality of patient care. ◆

References

Conditions for Coverage. Available at <http://www.cms.hhs.gov/center/esrd.asp>. Accessed November 24, 2008.

Interpretive Guidelines. Available at <http://www.cms.hhs.gov/EOG/downloads/EO%200526.pdf>. Accessed November 24, 2008.

Measurement Assessment Tool (MAT) is appended to the Interpretive Guidelines. Available at <http://www.cms.hhs.gov/EOG/downloads/EO%200526.pdf>. Accessed November 24, 2008.

JOIN US AT
FNCE 2009
IN DENVER, CO
OCTOBER 17-20, 2009

Nephrology Nutrition and the Nutrition Care Process

A Renal Nutrition Forum Series with Practice-Based Examples of the Nutrition Care Process (NCP): Documenting Nutrition Care under the Conditions for Coverage

Maureen McCarthy, MPH, RD, CSR, LD and Leslie Dilley, RD, CSR, LD

Maureen McCarthy, MPH,RD,CSR,LD

Transplant Dietitian

Beaverton, OR

Email: mccarthm@ohsu.edu

Leslie Dilley, RD, CSR, LD

Dialysis Dietitian

Portland, OR

Email: Leslie.Dilley@fmc-na.com

Introduction

By the time this article is published, renal dietitians across the country will be busy adjusting practice patterns to comply with the new Conditions for Coverage (CfCs). These long-awaited CfCs were published in the Federal Register on April 15, 2008, and became effective on October 14, 2008 (1). The Interpretive Guidelines, which are prepared by the Centers for Medicare and Medicaid Services (CMS) and represent the interpretation of the new CfCs to be used by surveyors, are still in draft form as this column is being written. Major changes in the CfCs include the new requirements for:

- A comprehensive multidisciplinary patient assessment (CMPA) to be completed on each dialysis patient at specified intervals defined in the CfCs. For one possible model of the CMPA, consult the document on the National Kidney Foundation (NKF) web site which was drafted by a multidisciplinary committee of volunteers from the American Nephrology Nurses' Association and the NKF for educational purposes (2);
- A plan of care which follows the findings of the CMPA, describes goals, services (or interventions) and outcomes for individual patients;
- Qualifications for Registered Dietitians and Dietetic Technicians, Registered;
- Quality assessment and performance improvement applied to aggregate facility-based data; and
- Many other important aspects of care such as water quality and infection control.

This column will focus on the second bullet above:

documentation of nutrition problems in a plan of care. According to §494.90 of the CfCs, the plan of care follows the CMPA and is individualized for each patient. It must specify services needed based on CMPA findings. In addition, it must specify achievable and measurable outcomes based on accepted evidence-based clinical practice standards and should include estimated timetables (1). The new CfCs require these nutrition topics to be addressed in the assessment and in the plan of care: 1) anthropometrics, including recent changes; 2) diabetes management; 3) mineral and bone disorder management; 4) diet-related cultural factors; 5) subjective data related to appetite, dietary intake, and nutritional status; and 6) objective data related to nutritional status.

The American Dietetic Association's NCP provides a very strong model for developing plans of care that meet CfC requirements (1). Consider the steps of the NCP and their counterparts in the CfC mandates:

1. Assessment - is represented in the CMPA, prior to the plan of care;
2. Diagnosis - provides the bridge between the CMPA and the plan of care, defining a specific problem(s) or diagnosis(es) to treat;
3. Intervention - describes the services needed; and
4. The Monitoring and Evaluation terms standardize descriptions of outcomes in nutrition care.

In addition, the CfCs indicate that the inter-disciplinary team (IDT) must establish goals for the interventions or services that are provided in the plan of care. The NCP model includes goal-setting within the intervention step. For more information about the NCP and its major tool for implementation—standardized language (SL)—go to the NCP menu item on the American Dietetic Association's web page (www.eatright.org -- you must be logged in as a member) and consult the International Dietetics and Nutrition Terminology (IDNT) Reference Manual (5). You can also consult previous articles in this series.

Case Study

Table 1 summarizes assessment information for a 65 year old female, who has just returned to out-patient hemodialysis (HD) after being hospitalized for a myocardial infarction and undergoing coronary artery bypass surgery. Prior to the surgery she had been on home HD. She is presently dialyzing in-center, hoping to return to home dialysis when she and her husband are ready to manage that once again.

Next Step: Comprehensive Multidisciplinary Patient Assessment

For the purposes of this article, let's look at some of the items

Nutrition Care Process....

Table 1

Assessment

65 yr old female with End-Stage Renal Disease (ESRD) due to Diabetes Mellitus Type 2.

CLINICAL DATA: Co-morbidities—hypertension, hyperlipidemia, hypertriglyceridemia, esophageal reflux, and migraine headaches. Recent myocardial infarction and subsequent coronary artery bypass surgery. Checks capillary blood glucose 4x/day—before meals and at bedtime. Last quarterly hemoglobin A1c = 7.4 (2 months ago, prior to hospitalization) HD prescription: 3x/wk on F160NR dialyzer, 240 minutes, 3K* and 2.5 Ca* baths. Tried home HD, but returned to in-center HD after hospitalization.

Meds with nutrition significance: EPO (7500 units/HD session), furosemide daily, Lantus (10 units at bedtime), Novolog 5 units per meal, gemfibrozil daily, 500 mg Ca* (2 per major meal as phosphorus binder).

FOOD AND NUTRITION HISTORY: "Just not hungry" since surgery—eating popsicles. Tolerated Nepro as beverage in hospital, but not using a supplement at home. Poor appetite. Husband prepares meals at home.

Previous Diet Prescription: 90 g protein, 2200 kcal/day, 2-3 g Na*, 2-3 g K*, 800-1000 mg phosphorus, consistent carbohydrate (5-6 carbs/meal), 1250 mL fluid/day. Encourage 1 oral supplement per day (240-360 kcal). Pt previously showed good comprehension of her diet and fair adherence.

ANTHROPOMETRICS: Height 167.7 cm, medium frame, target weight 74.1 kg, post wt after last HD = 72.7 kg (target weight being challenged), SBW* 66 kg (112% of SBW), BMI = 25.

Weight change in last 3 months = -3.7% and in last 6 months = -4.3%.

Interdialytic weight gains: 1.5 – 2.5 kg.

PHYSICAL EXAM: Complains of anorexia, nausea. SGA score = 3 or mild to moderate malnutrition (3,4).

BIOCHEMS	Results	Lab Norm	BIOCHEMS	Results	Lab Norm
Potassium	4.7 mEq/L	3.5-6.0	Phosphorus	5.5 mEq/L	3.5-5.5
CO2	22.0 mmol/L	22-29	Corrected Calcium x Phosphorus	48	< 55
BUN	63 mg/dL	60-100	Hemoglobin	9.2 g/dL	11-12
Creatinine	8.3 mg/dL	0.7-1.5	Kt/V*	2.4	NA
Glucose,	191 mg/dL	70-110	nPCR*	1.42	NA
Albumin	3.4 g/dL	goal 4.0	Cholesterol, fasting	102 mg/dL	<200
Calcium	8.3 mg/dL	8.4-9.5	Corrected Calcium	8.8 mg/dL	NA

NA = not available.

*K=potassium; Ca=calcium; Na=sodium; SBW=standard body weight; Kt/V= measure of dialysis adequacy (includes clearance, time, and volume); nPCR=normalized protein catabolic ratio (see reference 4 for further information about some anthropometric and biochemical terms in the case study)

that might be checked on the CMPA Example Questions document on the NKF web site, especially those that are pertinent to the plan of care related to nutrition (1,2). The letter and number codes below are taken from the CMPA document, and therefore it may be helpful to view the CMPA Example while you read this section of this article (2). They are used here only for ease in locating items in that document. Italicized comments below describe possible responses for this case study.

- R1—State reason for assessment: *Monthly (unstable patient—recent hospitalization, change from home to in-center HD).*
- N16—Has the patient experienced any events...since last

assessed, such as ...surgery....?—Yes.

- A1—Anemia evaluation: Is hemoglobin 10-12? *No (it is less than 10).*
- NS 1—Height, estimated dry weight, % usual body weight, weight loss, frame size, reference weight and nutrition-related medications are entered in this section. *Pertinent data from Table 1 would be listed.*
- NS 2—Diabetes self-management data are entered. *A1c 7.4 (2 months prior to hospitalization); checks capillary blood glucose 4x/day.*
- NS 3—Mineral bone disorder management: pertinent data

Nutrition Care Process....

- entered, including trends in related biochemistries. *Pertinent data from Table 1 would be listed.*
- NS 5—Subjective data, including self-reported appetite, weight trends, food preferences. *Poor appetite. Used nutrition supplement in hospital, but not at home. Likes popsicles.*
 - NS 6—Objective data, including serum albumin, adequacy data, general evaluation of adequacy of calorie and protein intake. *Compare actual intake from 24-hour recall with diet prescription from Food and Nutrition History in Table 1. Note low serum albumin. Kt/V and nPCR acceptable, but high and possibly reflecting catabolism.*
 - PA1—Activity assessment: inactive, inactive light, or active (each is defined in the CMPA). *Inactive.*
 - PA2—Type of activity. *None at present. Home physical therapy will start this week.*
 - PA 4—Physical limitations. *Related to recent hospitalization – surgery.*
 - F6—Assistive devices. *Manual wheelchair since surgery.*
 - A2—Level of assistance with activities of daily living. *Needs husband's assistance in all activities (previously independent).*
 - A2a—Is there adequate support...in place...? *Yes.*
 - L1—With whom does patient live? *With spouse.*
 - L2—Where does the patient reside? *Owns home.*
 - L3—Is patient's current living situation a barrier to positive... outcomes? *No*
 - SM 3—Dietary restrictions, including fluid. *Over the last month it has been difficult for patient to follow a nutrition plan. In this case, there is the need for more calories and protein, not truly a restriction. It has been neither easy nor difficult to follow fluid restrictions.*

It is very important to realize that the items above have been randomly chosen from a model for the CMPA document for the purposes of this case study. Many other items would be documented on a recently hospitalized HD patient. It is equally important to recognize that the CMPA is completed by the IDT, of which the dietitian is one member. Another member of that team may input data about item A2, activities of daily living and about other items which may have bearing on the nutrition assessment.

Next Step: Plan of Care

Like the CMPA, the plan of care is prepared by the IDT which includes the patient and family members. This is an attempt to create a learning exercise and demonstrate what the nutrition content in a plan of care might look like and what terminology might be used. Table 2 presents a template for a plan of care. The template for this plan was adapted from the IDNT Reference Manual (5).

The CfCs do not ask for a nutrition diagnosis (or any other diagnosis). However, it is impossible to determine a service or an

Table 2
Plan of Care - Nutrition Components

DIAGNOSES (Problem—Etiology—Signs and Symptoms or PES) Problem (or Diagnosis): Inadequate intake of energy and protein related to Etiology: poor appetite, as evidenced by Signs and symptoms: eating only popsicles since hospital discharge.
INTERVENTION Nutrition Prescription: 2200 kcal/day (30 kcal/kg), 90 g protein (1.2-1.3 g/kg), 2-3 g Na, 2-3 g K, 800-1000 mg phosphorus, consistent CHO (5-6 carbs/meal with 15 g CHO per carb serving) (4) Goal: Improved energy and protein to meet above prescription. Intervention 1: Comprehensive nutrition education: Patient will understand basic guidelines to meet energy and protein needs and will identify a supplement(s) she is willing to use. Intervention 2: Nutrition-related medication management: Dietitian will discuss medication possibilities for nausea and appetite enhancement with IDT, patient and spouse.
MONITORING AND EVALUATION Outcome Indicator Energy and protein intake Criteria Patient tries suggested nutrition supplement(s) within 2-3 weeks, utilizing 2-3 servings each day. Within 1 month, patient is meeting energy and protein goals. Trial of appetite stimulant, with physician supervision.

Nutrition Care Process....

intervention without a diagnosis that is being treated. Therefore the template in Table 2 begins with a nutrition diagnosis.

On the other hand, the CfCs do require the IDT to identify goals and services provided (or interventions). See Table 2 for a goal that may be used in this case. Of course, a different IDT may have a different goal based on their complete CMPA and team discussion. The bolded interventions in Table 2 use standardized terms for Intervention from the IDNT Reference Manual (5).

Lastly the CfCs stipulate that the plan of care will specify how progress will be monitored—what criteria will be reviewed and over what time frame. The monitoring and evaluation terms in NCP's SL have direct application here.

Summary

New CMS mandates for routine assessments and plans of care for ESRD patients represent an opportunity for applying the NCP and its major tool, SL, in medical nutrition therapy for this population. ESRD service providers on the local, regional and national levels will be challenged to develop tools that will fulfill the CfC requirements. Providers may choose to adopt or modify the sample CMPA drafted by the American Nephrology Nurses' Association and NKF volunteers (2), or they may decide to develop their own multidisciplinary assessment form.

The SL of the NCP model (5) can be a very powerful tool, particularly in describing nutrition diagnoses, services provided (interventions) and outcomes (monitoring and evaluation terms). The sheer number of terms may seem overwhelming. But disciplined monitoring of terms that are utilized for interventions and outcomes may yield “ten most frequently used terms” in each area. Then nephrology dietitians will have the ability to measure and report interventions and outcomes in standardized terms, across different practice settings. This can provide a more powerful measure of the nephrology dietitian’s effectiveness in patient care than we have seen to date. ◆

References

1. Medicare and Medicaid Programs: Conditions for Coverage for End-Stage Renal Disease Facilities. Federal Register. April 15, 2008. 73(73):20370-20484. Available at <http://www.cms.hhs.gov/center/esrd.asp>. Accessed Sept. 14, 2008.
2. American Nephrology Nurses' Association—National Kidney Foundation. Comprehensive multidisciplinary patient assessment (CMPA) example questions. Available at <http://www.kidney.org/professionals/>. Accessed Sept. 15, 2008.
3. Net Nutrition. Available at www.kidneytools.com. Satellite Health, Inc. 2004. Accessed Sept. 15, 2008.
4. NKF-K/DOQI. Clinical Practice Guidelines for Nutrition in Chronic Renal Failure. *Am J Kidney Dis.* 2000;35(suppl). Available at www.kidney.org/professionals/kdoqi/guidelines_updates/nut_a09.html. Accessed Sept. 15, 2008.

5. American Dietetic Association. *International Dietetics and Nutrition Terminology Reference Manual*. Chicago, IL: American Dietetic Association; 2008.

WE NEED YOU!

Consider joining the Renal Nutrition Forum editorial team. We are currently seeking to fill positions for the Assistant Editor, peer-reviewers, and authors!

For more information, please contact one of the current team members:

- Stacey C. Phillips, RNF Assistant Editor
staceycphillips@yahoo.com
- Rachael R. Majorowicz, Editor
majorowicz.rachael@mayo.edu
- Aimee Zajc, Managing Editor
aimee.zajc@fmc-na.com

In the spirit of “thinking green,”

the Renal Nutrition Forum will be offering a *supplemental issue via e-blast in 2009*.

This will be available only by e-mail and on the web site.

No trees, no waiting by the mailbox, and no paper cuts!

If you do not have computer access and would like to receive a printed copy of the e-Forum, please notify us by April 1, 2009.

Submit your request along with your CPE submission form or mail separately to:

Stacey C. Phillips, 4360 4 Mile Road NE,
Grand Rapids, MI, 49525

2008 Membership Survey Results

Danielle Frazer, RD

RPG Membership Chair
Email: rd813303@yahoo.com

Thank you to those who completed the 2008 Renal Dietitians Dietetic Practice Group (RPG) membership survey. Surveys are crucial for RPG to learn how to better serve our members, and continue to improve member benefits and services in the upcoming year. To access the complete survey, go to www.renalnutrition.org and look for the link under the RPG News Announcement section.

As an incentive to complete the survey, one lucky survey respondent's name was drawn for a free copy of "**A Clinical Guide to Nutrition Care in Kidney Disease**," by Laura Byram-Gray, PhD, RD, CNSD and Karen Wiesen, MS, RD. Congratulations to the winner, Zohreh Ahmadi, from Fresno, CA!

The survey results revealed that RPG is comprised mainly of registered dietitians working in dialysis clinics. A majority of members have graduate degrees or are working toward them, but only about 20% are certified as a specialist in renal nutrition (CSR). Although, there was a high level of interest in program offerings related to preparation for the CSR certification. Due to an overwhelming response, RPG is pleased to announce a CSR preparatory workshop which planned for the 2009 National Kidney Foundation Spring Clinical Meeting in Nashville, TN. Stay tuned for details!

Most respondents suggested that they knew where to find past issues of the Renal Nutrition Forum (RNF) on the RPG website: www.renalnutrition.org. Remember, you can also access the RNF continuing professional education (CPEU) inserts and find out about other CPEU opportunities on the website too! Last year 8.5 CPEUs were offered, and this year to date, more than 8 CPEUs have been offered. Check it out! Please direct your comments and suggestions about the website to Cathy M. Goeddeke-Merickel, the Website Editor.

The majority of respondents indicated that the RNF is the most beneficial part of RPG membership. Remember, the editorial staff is always seeking authors to continue to produce a quality and clinically relevant publication. Since 80% of you are interested in learning about best practices in chronic kidney disease and nephrology nutrition, consider sharing your ideas about what is successful in your practice. If you are seeing good outcomes, we would love to hear about it! Be published! You don't have to be an experienced writer. Our editorial team is happy to assist you with your submission.

One of my goals as Membership Chair is to increase dietitians' participation behind the scenes of RPG such as working on a

committee, running for office, writing an article for the Forum, or volunteering for FNCE. When I was a new dietitian, I waited for someone to reach out and ask me to participate. Guess what? I didn't get a personal invitation. Fast forward 15 years, and the first opportunity that someone asked me to become more involved, I jumped at it! Please don't wait 15 years like I did to get involved! The time is now and we always need new faces and fresh ideas to meet the needs of all our members.

If you can envision yourself being more actively involved, please send me an e-mail. I am happy to give you a brief overview of the different positions that are available within RPG. We all have talents to contribute! I hear from many dietitians, "I've only been in renal for two years. I don't have any experience to lend to RPG." Yes, you do! And I can honestly tell you that being a part of the RPG committee has been a lot of fun, and I am sorry I did not become involved sooner. I would like to extend a personal invitation to you—consider how your time and talents might enable you to make a difference in RPG. ◆

Awards and Stipends

Conference/Meeting Stipend Awards: RPG supports continuing education in the area of renal nutrition for its members. RPG will award up to \$500 for a member to attend a program of interest. The program must deal with issues concerning the patient with ESRD or treatment of ESRD. Applicants are awarded on a first come, first serve basis.

Research Grant by RPG: RPG offers a onetime payment of up to \$500 for a RPG member pursuing an original research project in an area related to or benefiting those with renal disease. All applications are due by April 1st.

Scholarships: RPG offers a onetime Scholarship, for tuition only, of up to \$2000 for anyone pursuing a post -baccalaureate degree in a field applicable to renal nutrition. All applications are due by April 1st.

Access all applications and view previous recipients at www.renalnutrition.org/members_only/awards.php.

Congratulations to

Kristin Baird with Mercy Health Partners,
North Muskegon, MI.

At the FNCE 2008 RPG booth, she won the drawing for Mary Ann Hodorowicz's "Increa\$ing Reimbursement Success in all Practice Setting\$." The Complete Guide, 3rd edition, which includes the latest MNT and DSMT Medicare Guidelines and EZ Forms for the busy RD.

Our Thanks to ...

All of our clinical peer reviewer members who made this issue possible:

Lynn Munson, RD, LD

Mary Sundell, RD, LDN, CCRP

Sarah Carter, RD, LDN, CDE, CNSD

Cathy M. Goeddeke-Merickel, MS, RD, LD

Aimee Zajc, RD, LD

Stacey C. Phillips, RD

Judy Beto, PhD, RD, FADA

Lois Hill, MS, RD, CSR, LD

Karen Lacey, MS, RD, CD

Maria Karalis, MBA, RD, LDN

Susan Salmi, RD, LD

Thank You also to:

Amy Hess-Fishl, MS, RD, LDN, BC-ADM, CDE
for providing our CPEU test questions.

Additional Thanks are extended to RNF Managing Editor **Aimee Zajc, RD, LD**; website editor **Cathy M. Goeddeke-Merickel, MS, RD, LD**; RPG chair **Pamela S. Kent, MS, RD, CSR, LD**; ADA Practice Team Manager and Director respectively, **Susan DuPraw, MPH, RD** and **Diane Juskelis, MA, RD, LDN** for proof copy review.

Web Site Extras

Visit RPG's web site
www.renalnutrition.org for:

Access to the 2008 RPG Membership Survey
(under RPG News)
www.renalnutrition.org/index.php

Access to 2008 RPG Annual Report
www.renalnutrition.org/members_only/index.php

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

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

Access to Kidney Friendly Facts Columns
www.renalnutrition.org/members_only/kff.php

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

Access to Award/Meeting stipend info for members
www.renalnutrition.org/members_only/awards.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 website. Please submit your ideas and suggestions to Cathy M. Goeddeke-Merickel, Web Editor via cmgmerickel@gmail.com

"To give anything less than your best is to sacrifice the gift." Steve Prefontaine

Renal Dietitians Chair Message

Pamela S. Kent, MS, RD, CSR, LD

RPG Chair

"The urge to quit is the signal that an opportunity to excel is at hand. Obstacles present choices and mark the end of the road or the beginning of a new period of growth. Growth can only take place while transcending obstacles." Greg Henry Quinn

The past few months have been challenging for all us with the implementation of the new Conditions for Coverage and the status of the economy. The RPG Executive Committee has taken a proactive role in reviewing the strategic plan and budget to ensure we are meeting the members' needs.

It was great to see all of those who attended the Food & Nutrition Conference & Expo (FNCE) in Chicago this past October. For those who were unable to attend, I'm sure you would agree that RPG had quite a presence at FNCE. The RPG was proud to offer a FNCE workshop on MNT and CKD titled, "Train for the Chronic Kidney Disease Medical Nutrition Therapy Triathlon." The workshop covered not only reimbursement of MNT services, but also focused on marketing strategies to get the registered dietitian recognized as the provider of this service. At the FNCE

RPG priority session, Marcia Kalista Richards, MPH, RD, CNSD, LDN, a renal nutrition support specialist, spoke on the "Nutrition Management of the Patient with Acute Kidney Injury and CKD." The room was at full capacity and it was great to see such an interest surrounding kidney disease.

The RPG also hosted a wine reception where Karen Basinger, MS, RD, LD, was recognized as the Outstanding Service Award recipient for all of her endless efforts with public policy and reimbursement impacting the nephrology community. Karen demonstrated that your voice can be heard, as many of the RPG recommendations were included in the final Conditions for Coverage. As we enter into the 111th United States Congressional session, ensure that your voice is also heard by taking advantage of the many opportunities to work with your legislators to impact public policy.

The nephrology community is rich in opportunities for personal and professional growth. I am confident that as we continue to work together, we can impact the nephrology community and advance the practice of the renal dietitian. Please feel free to contact me at pamkentRD@yahoo.com. ◆

CRN Chairperson Message

RDs Working Together to Advance Research

Maria Karalis, MBA, RD, LDN

CRN Chair

There are many unanswered questions in renal nutrition and evidenced-based outcomes are needed in order to defend our profession and our interventions. In a previous Chair Message, I discussed CRN's intentions to develop a research advisory board to identify research needed in answering critical questions to advance the science of nephrology nutrition. I'm pleased to report that such a group has been formed and recently met at the National Kidney Foundation 2008 Clinical Meetings in Dallas.

The first CRN "Research Steering Committee" took place on April 3, 2008 and its vision is "RDs working together to advance research". This committee comprises of visionary, research-driven RDs and includes: Judy Beto, Jerrilyn Burrowes, Laura Byham-Gray, Mary Burgess, Louise Clement, Ann Beemer Cotton, Jordi Goldstein-Fuchs, Nancy Ginsberg, Janeen Leon, and Alison Steiber. We have also reached out to three others and are awaiting their response.

We held a healthy discussion with the Executive Committee and addressed CRN's overarching research strategy, identified best demonstrated practices, as well as barriers to research and membership resources required to overcome the primary barriers. In brief, some of the top barriers identified were 1) an overall lack of knowledge pertaining to research, particularly the application process and working with Institutional Review Boards; methodology and statistics and 2) lack of time to participate.

Shortly you will learn more about a first of a series of webinars to educate and encourage dietitians to participate in research. Barriers will be openly addressed with practical solutions provided. Plans are also underway to survey Renal Dietitians on practice patterns, research interests and educational needs. Your survey feedback will also be used to create a database or research registry.

I'm confident that if we work together we can advance the science and improve healthcare delivery to CKD patients. In doing so, we promote the Dietitian as the nutrition expert, validate our interventions and move our profession forward. ◆

2008-2009 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.

OFFICERS:

Chair

Pamela S. Kent, MS, RD, CSR, LD
pamelak@genzyme.com

Immediate Past Chair

Lois Hill, MS, RD, CSR, LD
ljbhill@aol.com

Chair-Elect

Patricia Williams, RD, LDN
pwiliamsrd@gmail.com

Secretary

Cathi Martin, RD, CSR
cathird@gmail.com

Treasurer

Caroline Chinn, MS, RD
P.O. Box 9256
Rancho Santa Fe, CA 92067
caroline.chinn@davita.com

RNF EDITORIAL BOARD:

RNF Managing Editor

Aimee Zajc, RD, LD
aimee.zajc@fmc-na.com

Web Editor

Cathy M. Goeddeke-Merickel, MS, RD, LD
cmgmerickel@gmail.com

RNF Editor

Rachael R. Majorowicz, RD, LD
majorowicz.rachael@mayo.edu

RNF Assistant Editor

Stacey C. Phillips, RD
staceycphillips@yahoo.com

RNF Advertising Editor

Marianne Hutton, RD, CSR, CDE
finelyfit2005@yahoo.com

NOMINATING COMMITTEE:

Nominating Chair:

Joanne Cooke, MS, RD, CSR
bonjour_joanne@yahoo.com

Nominating Member:

Mary Kay Hensley, MS, RD, CSR
mhensley@davita.com

Nominating Member:

Kathy Ricketts, MS, RD, LDN
kermhr@aol.com

MEMBERSHIP:

Chair

Danielle Frazer, RD
rd813303@gmail.com

AREA COORDINATORS/COMMITTEE

CHAIRS:

Area I / CQI-Outcomes Chair

Chhaya Patel, MA, RD, CSR
chhaya.patel@davita.com

Area II/ Awards and Scholarships

Sarah Kruger, MS, RD
kruger_sarah@yahoo.com

Area III/ Education Chair

Victoria Biles, RD, CSR, LD
bilesrd@gmail.com

Area IV/ Lending Librarian (Western U.S.)

Nadiya Lakhani, RD, LD
nadiya.lakhani@gmail.com

Area V/Lending Librarian (Eastern U.S.)

Sandra Oliverio, MS, RD, CSR, CD
Covers Areas 3, 5, 6 & 7
oliverio.d@att.net

Area VI/ Legislative/Reimbursement Chair

Karen Basinger, MS, RD, LD
kbase1@comcast.net

Area VII/ Historian Chair

Deborah Brommage, MS, RD, CSR, CDN
dbrommage@yahoo.com

ADA CONTACTS:

ADA Manager, Practice Team

Susan DuPraw, MPH, RD
800/877-1600 ext. 4814
sdupraw@eatright.org

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.



Rachael R. Majorowicz, RD, LD
Editor, *Renal Nutrition Forum*
2253 Jade PI NE
Rochester, MN 55906

PRSR STD
U.S. POSTAGE
PAID
CINCINNATI, OH
PERMIT, NO. 4630

Renal Dietitians

a dietetic practice group of the
eat right.™ American Dietetic
Association

2009 Copyright by Renal Dietitians
Dietetic Practice Group of the American Dietetic
Association. All rights reserved.

Visit the Renal Dietitians "Members Only Section"
for valuable patient and professional resources @
www.renalnutrition.org