

Georgia State University

ScholarWorks @ Georgia State University

Public Health Capstone Projects

School of Public Health

Spring 5-13-2016

Diet Technicians in Dialysis: A Rare Opportunity to Decrease Costs and Improve Quality of Care

Lauren Clark
Georgia State University

Follow this and additional works at: https://scholarworks.gsu.edu/iph_capstone

Recommended Citation

Clark, Lauren, "Diet Technicians in Dialysis: A Rare Opportunity to Decrease Costs and Improve Quality of Care." , Georgia State University, 2016.
doi: <https://doi.org/10.57709/8425629>

This Capstone Project is brought to you for free and open access by the School of Public Health at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Public Health Capstone Projects by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

ABSTRACT

DIET TECHNICIANS IN DIALYSIS: A RARE OPPORTUNITY TO DECREASE COSTS AND IMPROVE QUALITY OF CARE

By

LAUREN E. CLARK

APRIL 4, 2015

ABSTRACT: As healthcare costs continue to rise beyond sustainable levels, both payors and providers are seeking ways to reduce their costs without sacrificing quality. End-stage renal disease (ESRD) accounts for a significant portion of Medicare expenditures, despite efforts over the years to alter the reimbursement scheme to control costs. Providers must now find a way to deliver care that both meets CMS quality standards and doesn't exceed reimbursement amounts. Time and resource constraints have lead to registered dietitians reporting difficulty with providing important medical nutrition therapy to patients. Hiring dietetic technicians may be a cost-effective way to help improve nutrition therapy within the scope of the Medicare Conditions for Coverage for ESRD.

DIET TECHNICIANS IN DIALYSIS: A RARE OPPORTUNITY
TO DECREASE COSTS AND IMPROVE QUALITY OF CARE

by

LAUREN E. CLARK

M.S., GEORGIA STATE UNIVERSITY

B.B.A., UNIVERSITY OF GEORGIA

A Capstone Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA
30303

APPROVAL PAGE

DIET TECHNICIANS IN DIALYSIS: A RARE OPPORTUNITY
TO DECREASE COSTS AND IMPROVE QUALITY OF CARE

by

LAUREN E. CLARK

Approved:

Lee R. Mobley
Committee Chair

Jessica Todd
Committee Member

Barbara Hopkins
Committee Member

April 4, 2016
Date

Author's Statement Page

In presenting this capstone as a partial fulfillment of the requirements for an advanced degree from Georgia State University, I agree that the Library of the University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote from, to copy from, or to publish this capstone may be granted by the author or, in his/her absence, by the professor under whose direction it was written, or in his/her absence, by the Associate Dean, School of Public Health. Such quoting, copying, or publishing must be solely for scholarly purposes and will not involve potential financial gain. It is understood that any copying from or publication of this capstone which involves potential financial gain will not be allowed without written permission of the author.

LAUREN E. CLARK

Signature of Author

Diet Technicians in Dialysis: A Rare Opportunity to Decrease Costs and Improve
Quality of Care

Lauren Clark, MS, RD, CPA

Georgia State University

April 4, 2016

TABLE OF CONTENTS

| | |
|---|----|
| INTRODUCTION | 1 |
| END-STAGE RENAL DISEASE BACKGROUND | 1 |
| MEDICARE COSTS:..... | 2 |
| MEDICARE QUALITY INCENTIVE PROGRAM | 6 |
| CONDITIONS FOR COVERAGE – DIETITION | 8 |
| IMPORTANCE OF MNT FOR PATIENTS ON DIALYSIS..... | 9 |
| CURRENT STATE OF RENAL DIETITIAN STAFFING | 12 |
| SOLUTION | 16 |
| REFERENCES | 23 |

LIST OF TABLES

Table 1: Percentage of Renal Dietitians Who Have Implemented Each Guideline in their Clinical Practice

Table 2: Bureau of Labor Statistics: Percentile Wage Estimates for Dietetic Technicians, 2014

Table 3: Industries with the highest levels of employment for Dietetic Technicians

INTRODUCTION

As healthcare costs continue to rise, both payors and providers are seeking ways to reduce their costs without sacrificing quality. End-stage renal disease (ESRD) accounts for a significant portion of Medicare expenditures¹, despite efforts over the years to alter the reimbursement scheme to control costs². As providers struggle to provide care with fewer resources, dietitians have had difficulty with providing important medical nutrition therapy to patients. Hiring dietetic technicians may be a cost-effective way to help improve nutrition therapy within the scope of the Medicare Conditions for Coverage for ESRD.

END-STAGE RENAL DISEASE BACKGROUND

End-stage renal disease (ESRD) is the final stage of chronic kidney disease (CKD) in which the kidneys permanently fail to work. In order to survive, patients must either receive a kidney transplant or undergo dialysis to replace kidney function by mechanically filtering the blood³. For most, dialysis treatments are performed three times per week for approximately 4 hours per treatment. A number of diseases cause end stage renal disease; however, diabetes and hypertension are considered the leading causes of ESRD⁴. Approximately 14% of the adult U.S. population is estimated to have some form of CKD that could progress to ESRD. As

¹ USRDS, "Chapter 11: Medicare Expenditures for Persons with ESRD."

² Swaminathan et al., "Medicare's Payment Strategy For End-Stage Renal Disease Now Embraces Bundled Payment And Pay-For-Performance To Cut Costs."

³ American Kidney Fund, "Treatment of Kidney Failure."

⁴ USRDS, "Chapter 1: Incidence, Prevalence, Patient Characteristics, and Treatment Modalities."

of 2013, there were an estimated 661, 648 patients receiving dialysis treatment in the United States⁵. Although the annual incidence of ESRD cases remains steady, the overall prevalence continues to rise by about 21,000 cases each year due to a decline in mortality rate.

MEDICARE COSTS

Medicare is a national insurance program available to individuals over the age of 65 years who have paid Medicare taxes as well as individuals under the age of 65 years with certain disabilities. In 1972, the U.S. Congress added dialysis treatment to the Medicare program making ESRD the first, and only, disease specific condition to qualify an individual for Medicare coverage⁶. At the time, only 16,000 patients required dialysis⁷, and annual costs for 4 years were projected to be only \$250 million⁸. By 2013, spending for ESRD beneficiaries had risen to \$30.9 billion, or 7.1% of the overall Medicare fee-for-service paid claims cost⁹.

Medicare reimbursement has evolved considerably since coverage began in 1972 in an effort to contain costs. Swaminathan et al ¹⁰ extensively reviewed the

⁵ USRDS, "ESRD in the United States: An Overview of USRDS Annual Data Report Volume 2."

⁶ Chambers et al., "What Can We Learn from the U.S. Expanded End-Stage Renal Disease Bundle?"

⁷ Swaminathan et al., "Medicare's Payment Strategy For End-Stage Renal Disease Now Embraces Bundled Payment And Pay-For-Performance To Cut Costs."

⁸ Chambers et al., "What Can We Learn from the U.S. Expanded End-Stage Renal Disease Bundle?"

⁹ USRDS, "Chapter 11: Medicare Expenditures for Persons with ESRD."

¹⁰ "Medicare's Payment Strategy For End-Stage Renal Disease Now Embraces Bundled Payment And Pay-For-Performance To Cut Costs."

history of Medicare's payment strategy in their 2012 paper, summarized in the following timeline:

- **1973-1982**: A fee-for-service model was used in which Medicare reimbursed for all reasonable costs incurred for dialysis treatment including the dialysis treatment, tubings, filters, laboratory collection and analysis, medications, etc. Treatments were limited to three times per week, but there was no overall cap on the reimbursement rate that allowed expenditures to grow to \$1.8 billion in 1982, accounting for approximately 4% of overall Medicare expenditures.
- **1983-1989**: Medicare introduced a composite rate for treatments. One fixed amount covered all routine services with additional reimbursement was allowed for some drugs, lab tests, and supplies¹¹.
- **1989**: Erythropoiesis stimulating agents (ESAs) were approved for use in patients on dialysis. Erythropoiesis is the process of producing red blood cells in the body and often compromised when the kidneys fail. The original capitated rate system used to reimburse for ESAs provided an incentive to providers to administer less than optimal doses to patients.
- **1991**: A fee-for-service reimbursement system for ESA was implemented in 1991 giving facilities the incentive to use more of the drug. For some facilities, reimbursement far exceeded the cost of

¹¹ Chambers et al., "What Can We Learn from the U.S. Expanded End-Stage Renal Disease Bundle?"

acquiring these drugs providing further incentive for their use. By 2005, ESAs were the single largest drug expenditure for the entire Medicare program accounting for nearly \$2 billion.

- **2006**: Following the rapid cost growth of ESAs as well as evidence of their potential misuse and harm, Medicare introduced the average sales price (ASP) method of reimbursement for ESAs designed to limit the amount of profit facilities could make on ESAs. Despite this, Medicare costs for ESAs rose to \$3.9 billion in 2007 – more than three times the amount spent on the next largest Medicare drug.
- **2011**: Medicare introduced a bundled payment plan for ESRD where a fixed payment included all costs related to dialysis, including the treatments, injectable medications (and oral equivalents), and any of 53 related laboratory tests.
- **2012**: Medicare introduced a pay-for-performance component to the ESRD payments called the Quality Incentive Program (QIP). Facilities face a 2% reduction in reimbursement if specified annual QIP performance standards are not met.

As evident in the timeline of the history of ESRD Medicare coverage, the program has evolved over time to control the cost of ESRD treatment while maintaining or improving the quality of care. The 2016 Medicare reimbursement amount for dialysis is \$230.20 per treatment before adjustments¹². This represents a decrease of \$9.23

¹² Medicare, Baltimore, and Usa, “CMS Proposed Updates to Policies and Payment Rates for End-Stage Renal Disease Facilities for CY 2016 and Proposed Changes to the ESRD Quality Incentive Program.”

from the 2015 base rate. The QIP program's 2% reduction, which would equate to less than \$5 per treatment, may not sound like a strong incentive for facilities to focus on the quality of their care, however most dialysis companies maintain that the reimbursement amount for Medicare does not adequately cover the costs to treat patients¹³. Davita, one of the two largest dialysis providers in the United States, stated in its 2014 annual report that 'we lose money on each Medicare treatment that we provide'¹⁴. Approximately 90% of Davita patients are eligible for Medicare or Medicaid, but they account for only 67% of their revenues. To make up the difference, many providers charge a higher rate to the non-Medicare, commercial payors. Commercial payors are commercial health plans that pay either a contracted rate or the usual care rate for their customers that require dialysis, which is almost always higher than the Medicare reimbursement. In some cases, the commercial rate is thousands of dollars per treatment. Medicare requires that patients receive coverage from their commercial healthcare plans for 33 months before they can be eligible for Medicare coverage. For Davita, commercial payors account for nearly all of their net earnings, or profit, from dialysis and related laboratory services. With a profit margin of less than 5.5%, the 2% QIP reductions could make a meaningful difference in the bottom line. Although data are not readily available, low profit margins are likely the situation at many clinics, so it is imperative to meet the quality expectations and maximize revenue.

¹³ "KCC Statement on ESRD PPS Proposed Rule--July 1, 2013"; "Davita Healthcare Partners Annual Report."

¹⁴ "Davita Healthcare Partners Annual Report."

MEDICARE QUALITY INCENTIVE PROGRAM

According to the Centers for Medicare & Medicaid Services (CMS), the purpose of the ESRD Quality Incentive Program (QIP) is to “promote high-quality services in outpatient dialysis facilities ...by linking a portion of payment directly to facilities’ performance on quality of care measures.”¹⁵ Facilities that do not meet standards face up to a 2% reduction in payment. The specific quality measures and associated standards, weights, and formulas change from year to year and are based on changes in clinical understanding of quality of care. What was measured in 2012 is not the same as what is measured in 2016 and beyond. Additionally, measures may fall into the Clinical or Reporting categories. For clinical measures, facilities will be judged on the values reported and how they compared to the standard. For reporting measures, a facility only needs to report a value; measurement is on the completeness of their reporting and not on whether the measured values are good or bad. For the current year 2016, measures include:

Clinical

- National Healthcare Safety Network (NHSN) Bloodstream Infection in Hemodialysis Outpatients: facilities are judged on the number of patients with positive blood cultures per 100 patient-months.
- In-Center Hemodialysis Consumer Assessment of Healthcare Providers and Systems (ICH CAHPS): facilities are scored on both the percentage patients responding to the tool as well as the composite score received. Domain topics

¹⁵ Medicare, “ESRD Quality Incentive Program Overview.”

include nephrologists communication and caring, quality of dialysis center care and operations, and providing information to patients.

- Standardized Readmission Ratio (SRR): this measure assess the ratio of hospital readmissions compared to a standard number of readmissions
- Kt/V Dialysis Adequacy Measure Topic: the Kt/V is a calculation used to show that patients are receiving an appropriate amount of dialysis treatment
- Standardized Transfusion Ratio: kidney failure affects the ability to create red blood cells; this measure compares the number of red blood cell transfusions that occur in a facility compared to an expected number.
- Vascular Access Type (VAT) Measure Topic (fistula, catheter): this measures how facilities are accessing the bloodstream of patients. A fistula is a surgically made port between an artery and a vein that provides lower long-term risk of infection and clots and also provides greater blood flow compared to a catheter. Facilities may face payment reductions for excessive catheter use.
- Hypercalcemia: this measures the number of patients with elevated blood serum calcium.

Reporting

- Mineral metabolism: facilities are required to report the serum or plasma phosphorus levels for each patient
- Anemia Management: facilities are required to report the hemoglobin or hematocrit levels of each patient as well as their ESA dosage (if applicable)

- Pain assessment and Follow-Up: facilities are required to report whether they have used a standardized pain assessment tool, whether the results are positive or negative, and (if positive) whether or not a follow-up plan is in place (and if no plan is in place, a reason why).
- Clinical Depression Screening and Follow-Up: facilities are required to report whether they have screened for depression, whether the results are positive or negative, and (if positive) whether or not a follow-up plan is in place (and if no plan is in place, a reason why).
- NHSN Healthcare Personnel Influenza Vaccination: facilities must report how many qualifying healthcare personnel received a flu shot for the flu season from October 2015 to April 2016.

CONDITIONS FOR COVERAGE – DIETITIAN

In order for a facility to receive reimbursement for dialysis services, it must meet the Medicare Conditions for Coverage¹⁶. The Conditions mandate certain standards of care to promote patient safety and well-being. Among the many conditions is the requirement to complete comprehensive assessments of each patient and provide a plan of care that will outline goals for the patient including what will need to be provided to meet those goals. The patient assessment and plan of care must be completed by the interdisciplinary team, which is required to include a physician, registered nurse (RN), social worker, and registered dietitian (RD). In addition to the patient assessments and plans of care, the interdisciplinary team is

¹⁶ Centers for Medicare & Medicaid Services (CMS), HHS, “Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule.”

also required to participate in a Quality Assurance & Performance Improvement (QAPI) program.

The conditions further mandate the qualifications for those required members of the interdisciplinary team. Dialysis dietitians are required to be Registered Dietitians credentialed by the Commission on Dietetic Registration and to also have one year of experience working in clinical nutrition. CMS does not, however, mandate a maximum patient load for each dietitian. Patient loads are generally left to the discretion of the state or the facilities themselves.

IMPORTANCE OF MNT FOR PATIENTS ON DIALYSIS

The kidneys play many roles in the metabolism of nutrients. Kidney failure disrupts normal processes resulting in deranged metabolism of many nutrients including water, protein, calcium, phosphorus, potassium, sodium, and vitamin D. The purpose of medical nutrition therapy (MNT) for patients on dialysis is to help meet nutritional requirements while preventing protein energy malnutrition, minimizing the buildup of waste products in the blood and associated complications, and maintaining blood pressure and fluid status¹⁷.

The current nutrition recommendations for patients undergoing hemodialysis include the following¹⁸:

¹⁷ Nelms and Sucher, "Nutrition Therapy and Pathophysiology, 3rd Edition."

¹⁸ Beto, Ramirez, and Bansal, "Medical Nutrition Therapy in Adults with Chronic Kidney Disease."

- Protein: 1.1-1.5g per kg of standard body weight with at least half of protein being of high biological value (high biological value mostly consist of animal protein)
- Calories: 30-35 kcal per kg of standard body weight per day
- Sodium: 2000 mg/day if less than 1 liter of urine output; up to 4000mg/day if urine output is greater than 1 liter per day.
- Phosphorus: 800-1000 mg/day
- Calcium: less than 2000 mg per day, or the amount needed to maintain serum calcium levels within normal limits
- Potassium: 2.0-4.0g/day to achieve normal serum levels
- Fluid: 1,000 ml/day (+ urine output, if present)

Protein-energy malnutrition (PEM) is a form of malnutrition that results in decreased body protein and fat masses. In the context of renal failure, PEM is one of the most significant predictors of mortality and also results in increased rates of hospitalization¹⁹. For a number of reasons, PEM is extremely common in this patient population, and estimates of prevalence range from 18% to 75% of adult dialysis patients.²⁰ Common symptoms of kidney failure are loss of appetite or anorexia, altered sense of taste, and depression, which may contribute to the decreased nutritional intake²¹. Some patients have difficulty in procuring, preparing, or eating

¹⁹ Kalantar-Zadeh et al., "Appetite and Inflammation, Nutrition, Anemia, and Clinical Outcome in Hemodialysis Patients."

²⁰ Burrowes, Russell, and Rocco, "Multiple Factors Affect Renal Dietitians' Use of the NKF-K/DOQI Adult Nutrition Guidelines."

²¹ Carrero et al., "Etiology of the Protein-Energy Wasting Syndrome in Chronic Kidney Disease."

the prescribed foods, or find the diet unappetizing. Dialysis treatments further exacerbate the problem as they filter out many nutrients including water soluble vitamins, glucose, and amino acids. Finally, the disease state and chronic inflammation contribute to the catabolism of muscle protein in the body. All of these factors contribute to the recommendations for increased protein and energy intake in patients on dialysis.

Sodium and fluid restrictions are necessary to prevent fluid overload, which can lead to or worsen hypertension and congestive heart failure. Fluid overload can also compromise dialysis treatments. Removing large volumes of fluid can lead to wide fluctuations in serum electrolytes making patients hemodynamically unstable and at greater risk of cardiac events²². Controlling fluid and sodium intake can be very complex due to difficulty in estimating amounts consumed. Sodium is pervasive in processed and restaurant foods, making it difficult to avoid. Patients must also be aware of fluid sources other than water such as gelatin, coffee, ice, juice, soups, and even fruits.

The phosphorous and calcium restrictions are necessary to help prevent or manage mineral bone disease (MBD). Calcium is well known for its role in building and strengthening bones. Calcium also plays a role in muscle contractions such as the beating of the heart. Calcitriol, the active form of Vitamin D produced in part by the kidney, helps manage calcium levels in the body as does phosphorous. When the kidneys fail, they are unable to properly manage levels of calcium, vitamin D and phosphorous in the body leading to a cascade of disruptions that make up MBD.

²² *Nutrition in Kidney Disease.*

MBD can manifest in a variety of ways including osteomalacia (softening of the bones) and calcification of soft tissues such as the eyes and arteries, which is one of the reasons that hypercalcemia is a focus of QIP. Recommended treatment approaches include the aforementioned dietary restrictions on intake of calcium and phosphorus and medications such as phosphate binders and the active form of vitamin D. Dietary phosphorous restrictions are some of the most difficult restrictions to adhere to for a number of reasons²³. Phosphorus occurs naturally in many high protein foods such as dairy products and organ meats, thereby limiting choices for a patient to meet protein intake goals without consuming too much phosphorus. Phosphorous is also a common additive to processed foods due to its ability to increase shelf life, improve texture, and emulsify foods. Although federal regulations require that foods have a list of ingredients, the food label does not indicate the amount of phosphorous in a food, making it impossible to determine actual intake for most patients.

CURRENT STATE OF RENAL DIETITIAN STAFFING

The importance of proper monitoring, guidance, counseling, and education in diet and nutrition cannot be understated considering the complicated nutritional requirements for patents on dialysis. As previously noted, dietitians are required by CMS to complete patient assessments on all Medicare patients as well as help create a plan of care for each patient. To help guide dietitians in practice, a number of guidelines exist such as those from the National Kidney Foundation's Kidney

²³ Karavetian et al., "Dietary Educational Interventions for Management of Hyperphosphatemia in Hemodialysis Patients."

Disease Outcomes Quality Initiative (KDOQI). The KDOQI Clinical Practice Guidelines for Nutrition in Chronic Renal Failure were developed to ‘improve patient survival, reduce patient morbidity, [and] improve the quality of life of patients on dialysis²⁴. These guidelines were based on the best available evidence and have been shown effective at improving nutrition status²⁵, yet several studies indicate that the majority of dietitians do not follow them²⁶.

In 2005, Burrowes et al. surveyed 848 dietitians in the US to determine the extent that they implement the KDOQI guidelines into practice and found that only 5% of dietitians reported implementing all of the guidelines²⁷. More than 40% of dietitians admitted that they had not even read the Guidelines in their entirety. Table 1 shows the percentage of dietitians implementing each guideline. Only seven of the 21 guidelines were being implemented by 50% or more of dietitians surveyed.

| Table 1: Percentage of Renal Dietitians Who Have Implemented Each Guideline in their Clinical Practice | |
|---|----------------|
| Guideline | Percent |
| 1. Use of a combination of valid, complementary measures | 51.1 |
| 2. Panels of nutrition measures | 45.9 |
| 3. Serum albumin | 65.0 |
| 4. Serum prealbumin | 11.3 |
| 5. Serum creatinine and creatinine height index | 24.2 |
| 6. Serum cholesterol | 52.5 |
| 7. Dietary interviews and diaries | 61.8 |
| 8. Protein equivalent of total nitrogen appearance | 31.0 |
| 9. Subjective global assessment | 31.5 |

²⁴ “NKF KDOQI Guidelines.”

²⁵ Campbell et al., “Implementation of Standardized Nutrition Guidelines by Renal Dietitians Is Associated with Improved Nutrition Status.”

²⁶ Burrowes, Russell, and Rocco, “Multiple Factors Affect Renal Dietitians’ Use of the NKF-K/DOQI Adult Nutrition Guidelines”; Hand, Steiber, and Burrowes, “Renal Dietitians Lack Time and Resources to Follow the NKF KDOQI Guidelines for Frequency and Method of Diet Assessment.”

²⁷ Burrowes, Russell, and Rocco, “Multiple Factors Affect Renal Dietitians’ Use of the NKF-K/DOQI Adult Nutrition Guidelines.”

| | |
|--|------|
| 10. Anthropometry | 21.3 |
| 11. Dual-energy x-ray absorptiometry | 0.5 |
| 12. Adjusted edema free body weight | 37.9 |
| 13. Measurement of serum bicarbonate | 49.2 |
| 14. Treatment of low serum bicarbonate | 42.5 |
| 15. Dietary protein intake in maintenance hemodialysis (1.2 g/kg/day) | 66.3 |
| 16. Dietary protein intake in chronic peritoneal dialysis (1.2-1.3 g/kg/day) | 46.8 |
| 17. Energy intake for maintenance dialysis (30-35 kcal/kg/day) | 61.1 |
| 18. Intensive nutritional counseling | 57.9 |
| 19. Indications for nutrition support | 46.2 |
| 20. Protein intake during acute illness (1.2-1.3 g/kg/day) | 45.4 |
| 21. Energy intake during acute illness (30-35 kcal/kg/day) | 44.0 |

A 2013 study by Hand et al. found that only 6.5% of dietitians report following the KDOQI recommendation for two dietary nutrient intake assessments²⁸. Lack of time is the most often cited barrier to implementing KDOQI's evidenced-based guidelines, followed by a lack of tools such as nutrient analysis software or anthropometric measuring devices²⁹. Burrowes et al. noted in 2005 that almost 20% of the dietitians surveyed were responsible for more than 150 patients, while Hand et al. noted more than 25% in 2013³⁰, despite the guidelines' recommendation of a staffing ratio of 1:100 patients³¹. Perhaps not surprisingly, dietitians working in for-profit clinics were significantly more likely to have patient loads exceeding 150³². CMS does not currently mandate a maximum patient load for dietitians and defers to states in

²⁸ Hand, Steiber, and Burrowes, "Renal Dietitians Lack Time and Resources to Follow the NKF KDOQI Guidelines for Frequency and Method of Diet Assessment."

²⁹ Ibid.; Burrowes, Russell, and Rocco, "Multiple Factors Affect Renal Dietitians' Use of the NKF-K/DOQI Adult Nutrition Guidelines."

³⁰ Hand, Steiber, and Burrowes, "Renal Dietitians Lack Time and Resources to Follow the NKF KDOQI Guidelines for Frequency and Method of Diet Assessment."

³¹ Centers for Medicare & Medicaid Services (CMS), HHS, "Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule."

³² Burrowes, Russell, and Rocco, "Multiple Factors Affect Renal Dietitians' Use of the NKF-K/DOQI Adult Nutrition Guidelines."

determining whether to regulate patient loads. Many dietitians would argue that without adequate staffing levels, guidelines and goals are useless³³.

The increasingly large dietitian to patient ratio is not the only reason that dietitians may lack the time to provide adequate nutrition services to patients; roles and responsibilities have expanded as well. When Burrowes et al. surveyed dietitians in 2005, the dietitians reported spending an average of 85.6 hours per month, or just over half of their time, providing nutrition services to their patients on maintenance dialysis. These nutrition services encompassed comprehensive nutrition assessments, developing and implementing treatment plans, nutrition counseling, and distributing patient report cards³⁴. Based on the average patient load reported by these dietitians, this equated to about 15 minutes per week per patient, presumably including the time to document these activities. In the same survey, less than 10.6 hours were devoted to developing and managing protocols for MBD. In 2014 several prominent nephrologists noted that dietitians spend a significant amount of their time on MBD-related activities³⁵. Indeed, a more recent 2015 study by Hand and Burrowes showed that dietitians also perceived that a significant amount of their time was spent managing MBD³⁶. In their study of dietitians' perceived roles in outpatient facilities, nearly 70% of those surveyed indicated that managing MBD was one of the most time-consuming activities in their

³³ Gutekunst, "Championing the Renal Dietitian."

³⁴ Burrowes, Russell, and Rocco, "Multiple Factors Affect Renal Dietitians' Use of the NKF-K/DOQI Adult Nutrition Guidelines."

³⁵ Ikizler et al., "Time to Revisit the Role of Renal Dietitian in the Dialysis Unit."

³⁶ Hand and Burrowes, "Renal Dietitians' Perceptions of Roles and Responsibilities in Outpatient Dialysis Facilities."

job. Given the prominence that MBD now plays in the reimbursement program, it is not surprising that more time is being devoted to managing MBD. As part of their MBD protocols, many dietitians must track patient medications, particularly those that aid in the control of phosphorus and calcium. Perhaps as a result of their increased focus on BMD medications, dietitians are now being assigned the duty of enrolling patients into company pharmacy care programs, which is yet another responsibility that takes time away from patient nutrition care³⁷. It should be noted that while many of these MBD activities are required by Medicare³⁸, they are not necessarily the mandated duty of the dietitian.

Finally, dietitians seem to be devoting more time to administrative details such as documentation. In the study by Hand and Burrowes, many dietitians expressed their dissatisfaction at the amount of time spent on administrative activities compared to working directly with the patients³⁹. Earlier research on renal dietitian job satisfaction also noted that increased paperwork and less time with patients were considered the more negative aspects of their jobs⁴⁰.

SOLUTION

The current state of renal dietitian staffing may naturally lead some individuals to recommend hiring additional dietitians. This would seem to solve the problem of dietitians having high patient loads and inadequate time to perform comprehensive

³⁷ Ibid.

³⁸ Centers for Medicare & Medicaid Services (CMS), HHS, “Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule.”

³⁹ Hand and Burrowes, “Renal Dietitians’ Perceptions of Roles and Responsibilities in Outpatient Dialysis Facilities.”

⁴⁰ Sullivan, Leon, and Sehgal, “Job Satisfaction among Renal Dietitians.”

assessments along with the necessary education and care needed to meet nutritional goals. Unfortunately, Medicare reimbursement will not increase to allow for the increased staffing needs. Hiring additional dietitians will only serve to increase the cost to provide care for facilities without a corresponding increase in revenue. This can also be impractical in those locations that experience difficulty in finding dietitians interested in the job.

An ideal solution would be to find a way to *reduce* costs while helping improve care. One possibility that could achieve both of these goals would be to hire an assistant for dietitians who would be knowledgeable in nutrition and skilled to perform certain duties already being done by the dietitians, but not so specialized as to command a high salary. Hiring healthcare assistants is not a new idea. Pharmacists often have pharmacy technicians that work under their supervision performing less skilled job functions within the pharmacy. Similarly, doctors may have a physician's assistant, and nurses may have nursing assistants.

For RDs, there exists the dietetic technician registered (DTR). A DTR is "educated and trained at the technical level of nutrition and dietetics practice for the delivery of safe, culturally competent, quality food and nutrition services"⁴¹. When working in direct patient nutrition care areas such as hospitals and clinics, they work under the supervision of an RD. At a minimum, DTRs have completed a two year program at an accredited college or university with 450 hours of supervised practice. Many times they may also have a bachelor's degree in nutrition. Many graduates of dietetics programs, who intended to become RDs, are unable to obtain the required

⁴¹ "What Is a Dietetic Technician, Registered?"

internship to become an RD and will work as a DTR until they are able to fulfill the requirements of becoming an RD. DTRs must pass a national credentialing examination administered by the same organization that credentials RDs. They are also required to complete continuing education in order to maintain their credential.

DTRs are commonly employed in healthcare organizations. On a given day, a job search on Monster.com for “diet technician” may reveal over a hundred job openings for diet technicians for various healthcare institutions⁴². Duties listed often include assisting in patient nutrition assessments, development of routine diets, completing or updating patient electronic profiles, calculating calorie or nutrient intake, providing diet instruction, and charting.

A primary driver for employing dietetic technicians is likely cost. According to the Bureau of Labor Statistics, the mean hourly wage of a DTR in 2014 was \$13.75⁴³ compared to mean hourly wage of \$27.62 for dietitians⁴⁴. According to these estimates, a DTR makes approximately half of what a dietitian earns. More importantly, the estimated earnings for a dietitian are for all types of dietitian including those with more or less specialized training. Renal dietitians are often paid more than other dietitians of similar education and experience. Medicare, not currently known for excessive payments in the renal industry, estimates the hourly wage of a renal dietitian to be \$36.74⁴⁵. This is almost three times the amount paid to the average DTR.

⁴² “‘Diet Technician’ Jobs | Monster.com.”

⁴³ “Dietetic Technicians.”

⁴⁴ “Dietitians and Nutritionists.”

⁴⁵ Centers for Medicare & Medicaid Services (CMS), HHS, “Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule.”

Table 2 depicts the percentile wage estimates for diet technicians and Table 3 shows the industries with the highest levels of employment of dietetic technicians:

| Table 2: Bureau of Labor Statistics: Percentile Wage Estimates for Dietetic Technicians, 2014 | | | | | |
|--|------------|------------|-------------------------|------------|------------|
| Percentile | 10% | 25% | 50% (Median) | 75% | 90% |
| Hourly Wage | \$8.63 | \$9.88 | \$12.39 | \$16.49 | \$21.25 |
| Annual Wage | \$17,940 | \$20,560 | \$25,780 | \$34,290 | \$44,200 |
| Source: ⁴⁶ | | | | | |

| Table 3: Industries with the highest levels of employment for Dietetic Technicians | | | | |
|---|-------------------|---------------------------------------|-------------------------|-------------------------|
| Industry | Employment | Percent of industry employment | Hourly mean wage | Annual mean wage |
| General Medical and Surgical Hospitals | 12,010 | 0.23 | \$14.60 | \$30,370 |
| Nursing Care Facilities (Skilled Nursing Facilities) | 7,650 | 0.46 | \$12.14 | \$25,250 |
| Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly | 2,450 | 0.29 | \$11.07 | \$23,030 |
| Local Government (OES Designation) | 1,960 | 0.04 | \$15.15 | \$31,510 |
| Specialty (except Psychiatric and Substance Abuse) Hospitals | 650 | 0.26 | \$16.24 | \$33,790 |
| Source: ⁴⁷ | | | | |

⁴⁶ "Dietetic Technicians."

⁴⁷ Ibid.

Even in the 90th percentile, DTRs earn less than the average dietitian. The disparity in pay between DTRs and dietitians may become even greater in the future. The growth rate for dietetic technicians is considered faster than average with an anticipated growth rate of 13% from 2014-2024⁴⁸. The growth of dietitians is expected to grow even faster at a rate of 16%⁴⁹. Although demand for dietitians is expected to grow rapidly, there is some evidence to suggest that supply may not be able to keep up with such demand. In 2010, the Academy of Nutrition and Dietetics, formerly known as the American Dietetic Association, recognized a critical shortage in dietetic internships available for students in dietetics programs⁵⁰. A dietetic internship is required to become an RD. In 2014 the Accreditation Council for Education in Nutrition and Dietetics (ACEND) reported that 5,444 nutrition students had applied for the 2963 internship spots available⁵¹. At best, only 54% of students could get the internship required to become an RD. This means that there is a significant limitation on the number of registered dietitians that can enter the job market at any given time. The 2000+ unmatched graduates are eligible to sit for the DTR examination.

Surprisingly, the use of DTRs in dialysis clinics is almost unheard of, for reasons not entirely clear. There is undoubtedly concern over the legality and potential effect on reimbursement. Although CMS *requires* a dietitian to be on staff, they do not disallow DTRs. In fact, the Medicare Conditions for Coverage actually

⁴⁸ "Data for Occupations Not Covered in Detail."

⁴⁹ "Dietitians and Nutritionists."

⁵⁰ "ADA Times 2010 Internship Shortage."

⁵¹ {Citation}

state: 'The RD may use a DTR to provide assistance under RD supervision, but it is the RD who must meet these conditions for coverage' ⁵². In a recent article by two prominent registered dietitians, the authors suggested that hiring DTRs to work at dialysis facilities could help alleviate some of the workload on dietitians and allow them to spend more time on some of the more meaningful aspects of their job⁵³.

Some of the tasks that DTRs could assist with include:

- Reviewing monthly labs and identifying high-risk patients for full consultation with the dietitian
- Printing, organizing, and reviewing the monthly lab reports (report cards) with stable and low-risk patients
- Create educational bulletin boards
- Perform "lobby day" patient education in the patient waiting room/lobby.
- Create educational handouts for the dietitian to review
- Assist in assessments by gathering information such as weight and diet history
- Data entry, nutrition intake calculations

Freeing up time for dietitians could allow for managing greater patient loads while still performing the required functions for CMS; thus help reduce costs. With the additional time, RDs can also help facilities meet QIP goals to maximize

⁵² Centers for Medicare & Medicaid Services (CMS), HHS, "Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule."

⁵³ Hand and Burrowes, "Renal Dietitians' Perceptions of Roles and Responsibilities in Outpatient Dialysis Facilities."

revenue. Using DTRs may result in better patient outcomes, while reducing the overall cost to provide care.

Conclusion

As healthcare costs continue to rise, dialysis facilities will continue to be under pressure to provide quality care with less money. Facilities will need to embrace innovative solutions to their patient care and staffing problems. DTRs are not included in CMS regulations as required staff, but they are also not forbidden. Facilities – especially those facing staff shortages and difficulty hiring – should consider incorporating DTRs into their staffing model. Additional research on the effect of hiring DTRs is needed including patient outcomes and cost effectiveness.

REFERENCES

- “ADA Times 2010 Internship Shortage,” 2010.
http://www.eatrightpro.org/~media/eatrightpro%20files/leadership/hod/mega%20issues/dietetic%20internship%20shortage%20ada_times.ashx.
- American Kidney Fund. “Treatment of Kidney Failure.” Accessed February 28, 2016.
<http://www.kidneyfund.org/kidney-disease/kidney-failure/>.
- Beto, Judith A., Wendy E. Ramirez, and Vinod K. Bansal. “Medical Nutrition Therapy in Adults with Chronic Kidney Disease: Integrating Evidence and Consensus into Practice for the Generalist Registered Dietitian Nutritionist.” *Journal of the Academy of Nutrition and Dietetics* 114, no. 7 (July 2014): 1077–87.
doi:10.1016/j.jand.2013.12.009.
- Burrowes, Jerrilynn D., Gregory B. Russell, and Michael V. Rocco. “Multiple Factors Affect Renal Dietitians’ Use of the NKF-K/DOQI Adult Nutrition Guidelines.” *Journal of Renal Nutrition: The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation* 15, no. 4 (October 2005): 407–26.
doi:10.1053/j.jrn.2005.05.002.
- Campbell, Katrina L., Susan Ash, Rachel Zabel, Catherine McFarlane, Philip Juffs, and Judith D. Bauer. “Implementation of Standardized Nutrition Guidelines by Renal Dietitians Is Associated with Improved Nutrition Status.” *Journal of Renal Nutrition: The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation* 19, no. 2 (March 2009): 136–44.
doi:10.1053/j.jrn.2008.11.002.
- Carrero, Juan Jesús, Peter Stenvinkel, Lilian Cuppari, T. Alp Ikizler, Kamyar Kalantar-Zadeh, George Kaysen, William E. Mitch, et al. “Etiology of the Protein-Energy Wasting Syndrome in Chronic Kidney Disease: A Consensus Statement from the International Society of Renal Nutrition and Metabolism (ISRNM).” *Journal of Renal Nutrition: The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation* 23, no. 2 (March 2013): 77–90. doi:10.1053/j.jrn.2013.01.001.
- Centers for Medicare & Medicaid Services (CMS), HHS. “Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities. Final Rule.” *Federal Register* 73, no. 73 (April 15, 2008): 20369–484.
- Chambers, James D., Daniel E. Weiner, Sarah K. Bliss, and Peter J. Neumann. “What Can We Learn from the U.S. Expanded End-Stage Renal Disease Bundle?” *Health Policy (Amsterdam, Netherlands)* 110, no. 2–3 (May 2013): 164–71. doi:10.1016/j.healthpol.2013.01.011.
- “Data for Occupations Not Covered in Detail : Occupational Outlook Handbook : U.S. Bureau of Labor Statistics.” Accessed January 17, 2016.
<http://www.bls.gov/ooh/about/data-for-occupations-not-covered-in-detail.htm>.
- “Davita Healthcare Partners Annual Report,” 2014.
<http://www.annualreports.com/HostedData/AnnualReports/PDF/2014%20DVA%20Annual%20Report.pdf>.
- “Dietetic Technicians.” Accessed November 13, 2015.
<http://www.bls.gov/oes/current/oes292051.htm>.
- “Dietitians and Nutritionists.” Accessed January 17, 2016.
<http://www.bls.gov/oes/current/oes291031.htm>.

- “Dietitians and Nutritionists : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics.” Accessed January 17, 2016.
<http://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm>.
- “Diet Technician’ Jobs | Monster.com.” *Monster*. Accessed January 17, 2016.
http://jobs.monster.com/search/?q=__22diet-technician__22.
- Gutekunst, Lisa. “Championing the Renal Dietitian.” *Journal of Renal Nutrition* 22, no. 5 (September 2012): 521–22. doi:10.1053/j.jrn.2012.06.003.
- Hand, Rosa K., and Jerrilynn D. Burrowes. “Renal Dietitians’ Perceptions of Roles and Responsibilities in Outpatient Dialysis Facilities.” *Journal of Renal Nutrition: The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation* 25, no. 5 (September 2015): 404–11.
doi:10.1053/j.jrn.2015.04.008.
- Hand, Rosa K., Alison Steiber, and Jerrilynn Burrowes. “Renal Dietitians Lack Time and Resources to Follow the NKF KDOQI Guidelines for Frequency and Method of Diet Assessment: Results of a Survey.” *Journal of Renal Nutrition* 23, no. 6 (November 2013): 445–49. doi:10.1053/j.jrn.2012.08.010.
- Ikizler, T. Alp, Harold A. Franch, Kamyar Kalantar-Zadeh, Piet M. ter Wee, and Christoph Wanner. “Time to Revisit the Role of Renal Dietitian in the Dialysis Unit.” *Journal of Renal Nutrition* 24, no. 1 (January 2014): 58–60.
doi:10.1053/j.jrn.2013.10.006.
- Kalantar-Zadeh, Kamyar, Gladys Block, Charles J. McAllister, Michael H. Humphreys, and Joel D. Kopple. “Appetite and Inflammation, Nutrition, Anemia, and Clinical Outcome in Hemodialysis Patients.” *The American Journal of Clinical Nutrition* 80, no. 2 (August 2004): 299–307.
- Karavetian, Mirey, Nanne de Vries, Rana Rizk, and Hafez Elzein. “Dietary Educational Interventions for Management of Hyperphosphatemia in Hemodialysis Patients: A Systematic Review and Meta-Analysis.” *Nutrition Reviews* 72, no. 7 (July 2014): 471–82. doi:10.1111/nure.12115.
- “KCC Statement on ESRD PPS Proposed Rule--July 1, 2013.” *Kidney Care Council Statement on the End Stage Renal Disease Prospective Payment System Proposed Rule*. Accessed January 10, 2016. <http://kidneycarecouncil.org/kcc-statement-on-the-esrd-prospective-payment-system-proposed-rule/>.
- Medicare, Centers for. “ESRD Quality Incentive Program Overview,” November 10, 2015. <https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/esrdqip/index.html>.
- Medicare, Centers for, Medicaid Services 7500 Security Boulevard Baltimore, and Md21244 Usa. “CMS Proposed Updates to Policies and Payment Rates for End-Stage Renal Disease Facilities for CY 2016 and Proposed Changes to the ESRD Quality Incentive Program,” June 26, 2015.
<https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2015-Fact-sheets-items/2015-06-26.html>.
- Nelms, Marcia, and Kathryn Sucher. “Nutrition Therapy and Pathophysiology, 3rd Edition,” 2016.
http://www.cengage.com/search/productOverview.do;jsessionid=CE62BB3F60E4C09FC039A0E34208AF2E?N=16&Ntk=P_Isbn13&Ntt=9781439049624&Ntx=mode%2Bmatchallpartial.

- “NKF KDOQI Guidelines.” Accessed November 28, 2015.
http://www2.kidney.org/professionals/KDOQI/guidelines_nutrition/doqi_nut.html.
- Nutrition in Kidney Disease*. 2nd ed. 2014 edition. New York: Humana Press, 2014.
- Sullivan, Catherine, Janeen B. Leon, and Ashwini R. Sehgal. “Job Satisfaction among Renal Dietitians.” *Journal of Renal Nutrition: The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation* 16, no. 4 (October 2006): 337–40. doi:10.1053/j.jrn.2006.07.005.
- Swaminathan, Shailender, Vincent Mor, Rajnish Mehrotra, and Amal Trivedi. “Medicare’s Payment Strategy For End-Stage Renal Disease Now Embraces Bundled Payment And Pay-For-Performance To Cut Costs.” *Health Affairs (Project Hope)* 31, no. 9 (September 2012): 2051–58. doi:10.1377/hlthaff.2012.0368.
- USRDS. “Chapter 1: Incidence, Prevalence, Patient Characteristics, and Treatment Modalities,” 2015. http://www.usrds.org/2015/view/v2_01.aspx.
- . “Chapter 11: Medicare Expenditures for Persons with ESRD,” 2015. http://www.usrds.org/2015/view/v2_11.aspx.
- . “ESRD in the United States: An Overview of USRDS Annual Data Report Volume 2,” 2015. http://www.usrds.org/2015/view/v2_00.aspx.
- “What Is a Dietetic Technician, Registered?” *Www.eatrightpro.org*. Accessed November 13, 2015. <http://www.eatrightpro.org/resources/about-us/what-is-an-rdn-and-dtr/what-is-a-dietetic-technician-registered>.