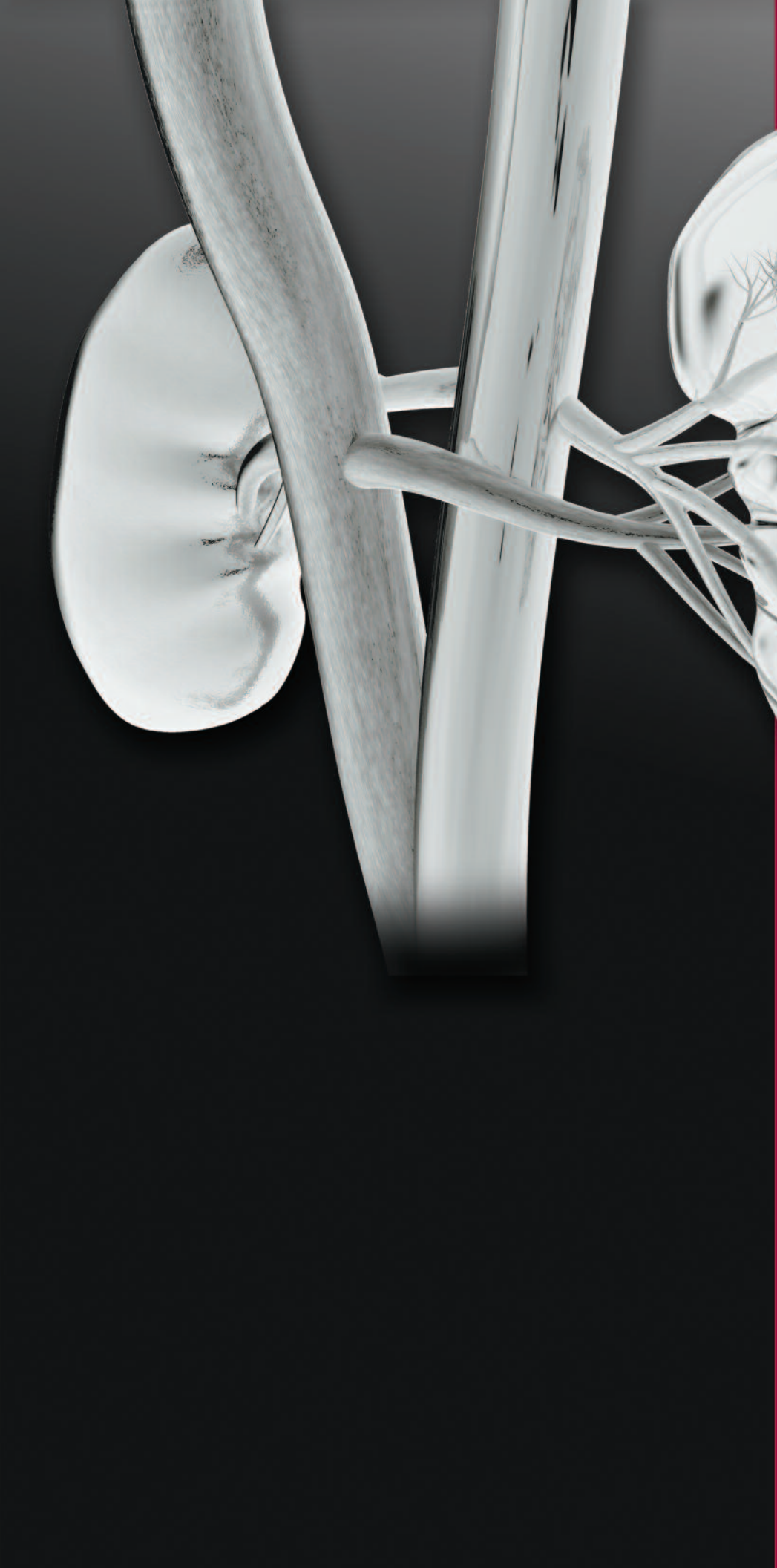

Task Force on Chronic Kidney Disease

Addressing Chronic Kidney Disease in North Carolina

2012 Update

North Carolina Institute of Medicine

This Task Force was convened at the request of North Carolina General Assembly.

2008 TASK FORCE ON CHRONIC KIDNEY DISEASE
UPDATES TO RECOMMENDATIONS: 2012

Chronic kidney disease (CKD) is a public health threat with enormous health care consequences and economic costs. The kidney is an important organ in removing waste products and drugs from the body, balancing the body's fluids, regulating blood pressure, promoting strong bones, and controlling the production of red blood cells. CKD encompasses 5 stages of kidney damage from decline in function (stage 1 CKD) to kidney failure (stage 5 CKD). Kidney damage can cause problems like high blood pressure and cardiovascular disease, blood or protein in the urine, waste products in the blood, frequent urination difficulty or pain with urination, and swelling or puffiness around the eyes, hands and feet. Of those with kidney disease, more people die from cardiovascular disease than from kidney failure, however many do progress to kidney failure.

Patients who receive treatment for their kidney failure in forms of dialysis or transplantation are considered to have end-stage kidney disease (ESKD). In 2010, North Carolina ranked 10th highest for number of people per population living with ESKD and 12th highest for new cases of ESKD.[1] Together, CKD and ESKD account for 19% of general Medicare expenditures in 2005.[2] The health care consequences and economic costs of CKD can be reduced by preventing kidney disease from occurring, raising awareness about CKD, and delaying the progression of CKD into ESKD.

In the US, only 25% of those diagnosed with CKD are aware of their weak or failing kidneys, and 25% of patients admitted to the hospital for dialysis are admitted through the emergency department. Many individuals are unaware of the risk factors associated with CKD.[3,4] Clinical risk factors like diabetes, high blood pressure, cardiovascular disease, autoimmune disease, systemic infections, urinary tract infections, urinary stones, lower urinary tract obstruction, cancer, family history of CKD, history of acute kidney failure, decreased kidney size, exposure to drugs toxic to the kidneys, or low birth weight increase the risk of developing CKD. Individuals who are older adults, have low incomes or low educational achievement, or have had exposure to certain chemicals and environmental conditions are also at increased risk of developing CKD.

In May 2008, the North Carolina Institute of Medicine (NCIOM) released a report entitled "Task Force on Chronic Kidney Disease: Addressing Chronic Kidney Disease in North Carolina." The report was a culmination of 18 months of work by NCIOM Task Force on Chronic Kidney Disease. The NCIOM was given the legislative charge from the North Carolina General Assembly to convene a Task Force to study Chronic Kidney Disease (Section 48 of Session Law 2006-248). The Task Force consisted of 35 state policy makers, legislators, primary care physicians, nephrologists, clinical laboratory operators, nurses, dietitians, social workers, and persons with CKD who met to study the problem of chronic kidney disease in our state.

The Task force made 15 recommendations to develop a plan to reduce incidence of CKD; educate the public and health care professionals about CKD and clinical practice guidelines; educate health care professionals about early education for patients; implement a cost effective plan for prevention, early screening, diagnosis and treatment, identify current barriers to adoption of best practices, and potential policy options to address these barriers. This 2012

update includes information about the progress, or lack thereof, in implementing the 2008 Task Force Recommendations. In total, progress has been made in implementing 11 (73%) of all the Task Force recommendations. No action has been taken to implement 4 (27%) of the 15 recommendations.

TOTAL RECOMMENDATIONS: 15

- ***FULLY IMPLEMENTED*: 4 (27%)**
- ***PARTIALLY IMPLEMENTED*: 7 (47%)**
- ***NOT IMPLEMENTED*: 4 (27%)**

PRIMARY PREVENTION

Recommendation 4.1: Partially Implemented

The Task Force supports ongoing efforts by the North Carolina Division of Public Health, the North Carolina Department of Public Instruction, and other state and local organizations to enhance community education about and reduce the risk factors for chronic kidney disease.

Some of the efforts supported by this recommendation have continued, while others were terminated due to budgetary constraints. In July 2009, North Carolina eliminated the State Kidney Program. The goals of the State Kidney Program were to provide secondary and tertiary preventive services to persons at risk for end-stage kidney disease, and to reduce further risk and consequences of persons with end-stage kidney disease by paying for some of their expenses for dialysis, medications, incidental supplies and transportation. The State Kidney Program reimbursed persons for up to $300 in transportation, medication and emergency-related expenses if they meet eligibility requirements.

The North Carolina Diabetes Prevention and Control Program (DPCP) within the Division of Public Health supports programs to increase awareness and community-based programs on diabetes, a risk factor for CKD.[5] Additionally the North Carolina Diabetes Prevention and Control Program (DPCP) has partnered with the National Association of Chronic Disease Directors (NACDD) to hire an individual to focus on implementing policies to improve testing rates. DPCP began collecting data from two community health centers in February 2012, and two free clinics in North Carolina in June 2012. Data is collected on the number of individuals with chronic diabetic kidney disease, referred to nephrologists, with eGFR calculated, and screened initially for CKD. However, no formal study has established the number of primary care physicians across North Carolina who are routinely screening for, identifying CKD stage, and providing treatment for CKD in North Carolina.[a]

Since 2006, the UNC Kidney Center's Kidney Education Outreach Program (KEOP) has implemented 11 targeted CKD awareness media campaigns that use local residents as spokespersons on billboards and/or in television public service announcements in counties with high prevalence rates of end-stage kidney disease. These campaigns also include feature articles

[a] Reese, A., Branch Head, N.C. Diabetes Prevention and Control. Oral Communication. May 29, 2012.
[b] Jacobson Vann, J., The University of North Carolina at Chapel Hill, School of Nursing. Written (email)

in community newspapers and radio talk shows that promote awareness about CKD risk factors and the need for early intervention.

Recommendation 4.2: Not Implemented

The North Carolina General Assembly should increase funding to the Division of Public Health to build statewide capacity for chronic disease prevention programs that reduce the risk factors that may lead to chronic kidney disease by funding implementation of the Eat Smart, Move More NC objectives and by increasing funding to local communities through the Statewide Health Promotion, Healthy Carolinians, and Health Disparities programs.

The North Carolina General Assembly has not passed any legislation increasing funding to the Division of Public Health to build statewide capacity for prevention programs that reduce CKD risk factors. Eat Smart Move More has not received more funding from the state for these efforts. Additionally, Healthy Carolinians was eliminated.

OUTREACH AND EDUCATION

Recommendation 4.3 (PRIORITY RECOMMENDATION): Partially Implemented

(a) The North Carolina General Assembly should appropriate $500,000 in recurring funding to the Division of Public Health and the Office of Minority Health and Health Disparities to expand diabetes prevention and control funding. Funding should be limited to programs that are built on evidence-based or promising practices that educate at-risk populations about chronic kidney disease and the importance of early screening. Funding priority should be given to programs that:

(1) Increase outreach in existing counties and expand outreach to counties that are not being adequately served by existing programs.

(2) Include a plan for ongoing evaluation of effectiveness.

(3) Target populations at increased risk for developing chronic kidney disease and incorporate local partners such as faith-based health ministries, beauty salons/barber shops, civic and senior citizen groups, public health departments, and primary care practitioners.

(b) Programs must be evaluated in a timely fashion to demonstrate effectiveness in order to receive continued funding.

(c) In order to ensure that the most effective elements of programs are emulated appropriately, the Division of Public Health and the Office of Minority Health and Health Disparities should work with existing grantees and others to foster inter-program collaboration. Collaborative activities should include, but not be limited to, sharing of appropriately privacy-protected evaluative data to allow improvement in a program's current (or potential) design.

Over the past three years, no funding was appropriated to expand diabetes prevention and control funding.

Inter-program collaborations have occurred through the North Carolina Heart Disease & Stroke Prevention Program (HDSP). The HDSP, within the North Carolina Department of Health and

Human Services (DHHS), collaborates with other programs in DHHS involved with CKD risk factors such as hypertension, cholesterol, sodium intake, emergency response, and health disparities. The HDSP also fosters inter-program collaboration through other common focus areas such as data, healthcare systems, and policy to maximize efficiency and reduce redundancy. The programs collaborating with HDSP include programs such as Tobacco Prevention and Control; Physical Activity, Nutrition and Obesity; Diabetes Prevention and Control; and WISEWOMAN (a cardiovascular disease screening, intervention, counseling, and referral program).[6]

The Community Health Ambassadors Program (CHAP) funded by the North Carolina Office of Minority Health and Health Disparities also fosters inter-program collaboration to reduce the number of individuals with chronic diseases including diabetes and cardiovascular disease. CHAP has partnered with faith-based organizations, American Indian tribal organization, North Carolina Community College System (NCCCS), Old North State Medical Society (ONSMS), and local health departments and community health centers. CHAP works with the partner organizations to provide education and implement health promotion activities within the communities.[7]

The North Carolina Diabetes Education and Recognition Program started in 2006, provides diabetes self-management education through the local health departments (LHDs). The certified LHDs can bill Medicaid, Medicare and private insurers for self-management training. Forty-two LHDs in North Carolina are currently participating in this program. The North Carolina Division of Public Health manages this program.[8]

Recommendation 4.4: Fully Implemented

Public and private insurers should examine patient-level eligibility and claims data to identify people who are at risk of or diagnosed with chronic kidney disease. Insurers should explore mechanisms to increase awareness of chronic kidney disease among consumers at risk, such as targeted messaging that encourages consumers to be screened for kidney function.

Community Care of North Carolina (CCNC). CCNC initiated two projects to identify beneficiaries at risk of or diagnosed with CKD using claims data. The two pilot projects are AccessCare Chronic Kidney Disease Pilot Program, and Lower Cape Fear and Eastern Networks Chronic Kidney Disease Pilot Program. These pilot programs focus on identifying Medicaid beneficiaries at earlier stages of CKD and providing educational intervention at a point when the education could potentially have a significant impact on health status and/or treatment decisions.

CCNC AccessCare Chronic Kidney Disease Pilot Program. This program was a two-year pilot project implemented in the Kidney Disease Clinics in Chapel Hill, Burlington and Wilmington in partnership with the University of North Carolina (UNC) Kidney Center. The program screened NC Medicaid beneficiaries including those who were dually eligible for Medicaid and Medicare through claims data that indicated stage 3 or 4 CKD with laboratory data indicating eGFR between 15 and 45mL per minute. Those who were in stage 3b or stage 4, had not progressed to stage 5, were eligible for Medicaid or Medicaid and Medicare, were mentally competent, and lived at home or in a skilled nursing facility, were included in the program. The individuals

eligible for the pilot program were provided with up to six-health education clinic visits with a nurse practitioner every two to four weeks. The educational intervention was based on the patient education services mandated by the Medicare Improvements for Patients and Providers Act of 2008. The educational sessions were goal-oriented, patient-centered and individualized. The topics covered included: normal kidney function, chronic kidney disease, management of co-morbidities such as diabetes and hypertension, medication review, nutritional and fluid management, and treatment options. The primary focus was to help participants develop self-management skills for living with CKD with use of goal setting by the participant and support from the nurse practitioner.[b, c]

CCNC Lower Cape Fear and Eastern Networks Chronic Kidney Disease Pilot Program. CCNC started this program in the Fall of 2011 in Community Care of Lower Cape Fear and Community Care Plan of Eastern Carolina. CCNC contracted with Fresenius Health Partners in a shared savings agreement to have Fresenius renal nurses involved in telephonic work with the patients whom CCNC identifies with stage 3, 4, or 5 renal insufficiency. The program screens NC Medicaid beneficiaries, including those who are dually eligible for Medicaid and Medicare, using claims data indicating stage 3 or 4 CKD with laboratory data indicating eGFR less than 45mL per minute. The Fresenius renal nurses provide the individuals eligible for the program with patient education, symptom monitoring, guidance on working with both primary care physicians and nephrologists, and encouraging patients to make decisions to obtain dialysis, or to make preparations for renal transplantation. Lab confirmation is obtained with a threshold of an estimated GFR (glomerular filtration rate) of less than 45. These nurses also follow patients' weight, blood pressure, and periodic blood test results. On occasion Fresenius Health Partners nurses solicit assistance by the local network care managers. Patients with dual coverage by Medicare and Medicaid are included. This allows the pilot project to be within the 646 demonstration project requirements since CCNC has access to Medicare cost data only for the dually eligible population in CCNC. Currently CCNC has 30 patients enrolled in the program. CCNC is planning to expand this program into several other counties within the next few months.[d] Medicare has begun to reimburse providers for offering up to six educational sessions on CKD as of January 1, 2010. The reimbursement is expected to assist patients in delaying the need for dialysis and preventing kidney disease complication.[9]

The State Health Plan for Teachers and State Employees.[e] The State Health Plan contracts with care management vendors (Fresenius Medical Care and ActiveHealth Management) to provide disease and case management services for members based on their medical needs. These vendors utilize current evidence-based medical literature, and medical and pharmacy claims, lab results and other member-reported data to create a clinical decision support system that can be used by members, providers and nurse care managers. Members at risk of or diagnosed with chronic kidney disease are identified and targeted for outreach. Gaps in care are identified and

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[b] Jacobson Vann, J., The University of North Carolina at Chapel Hill, School of Nursing. Written (email) communication. April 19, 2012.
[c] Dubard, C.A., Director of Informatics, Quality, and Evaluation, NC Community Care Networks, Inc. Written (email) communication. August 13, 2011.
[d] Bilbro, B., Associate Medical Director, Community Care of Wake and Johnston Counties. Written (email) communication. May 13, 2012.
[e] Watkins, M., Disease/Case Management Coordinator, State Health Plan for Teachers and State Employees. Written (email) communication. Sept 21, 2012.

communicated to providers and members through telephone, mail and online messaging, and offer an opportunity to provide feedback to close the loop. Member communications reinforce the message sent to the provider and encourage the member to follow up with treatment gaps such as completing a recommended test or having a prescription filled. Nurses providing one-on-one care management services for members, telephonically or in person, have access to the same clinical decision support system, and serve as an additional resource for providers and members to close gaps in care. They develop member-specific care plans to coordinate care with the member's multidisciplinary health team and provide education, resources, treatment options, and self-management skills to impact the member's health status.

Blue Cross Blue Shield of North Carolina (BCBSNC). BCBSNC plans to begin screening their claims data for patients with CKD stage 3 ICD-9 codes starting in 2013. Individuals identified at CKD stage 3 will be monitored, and put on case management when they reach CKD stage 4, one year before they reach end-stage kidney disease. Patients will be kept on case management for a year after they begin dialysis. During this time period when patients reach CKD stage 4 and a year after patients begin dialysis, savings are the most appreciable. Patients will be followed up for clinical visits, medication and to ensure they sign up for Medicare. Either certified nephrology nurses or certified nurses with extensive renal experience will do case management. The program is anticipated to become active in a year. Additionally, diabetes and hypertension case managers will be cross-trained to identify patients who will be eligible for CKD case management. Specific CKD managers will carry those eligible for one year before and after initiation of dialysis.[f]

SCREENING HIGH-RISK INDIVIDUALS

Recommendation 4.5 (PRIORITY RECOMMENDATION): Not Implemented

(a) The North Carolina General Assembly should provide $550,000 in recurring funding to the Division of Public Health to help pay for the screenings of uninsured patients who are at high risk for developing kidney disease including people with diabetes, hypertension, cardiovascular disease, family history of chronic kidney disease, or other evidence-based risk factors which have been demonstrated to contribute to the development of chronic kidney disease.

(b) The North Carolina General Assembly should appropriate an additional $2,400,000 to the Community Health Center grants program to expand care to uninsured individuals with chronic kidney disease. Priorities should be given to:

- **(1) Areas of the state that do not have sufficient safety net capacity.**
- **(2) Programs that provide primary care, disease management, and care management to patients with chronic kidney disease.**
- **(3) Organizations that provide comprehensive services, including pharmaceuticals, to the uninsured with incomes <200%FPG.**

(c) The North Carolina General Assembly should appropriate an additional $15 million to the Community Health Center grants program to expand care to the uninsured with other chronic illnesses that can lead to chronic kidney disease. Priorities should be given to:

[f] Garrett, L., Medical Director, Blue Cross Blue Shield of North Carolina. Oral communication. September 28, 2012.

(1) Areas of the state that do not have sufficient safety net capacity.
(2) Programs that provide primary care, disease management, and care management to patients with high-cost chronic illnesses including, but not limited to, diabetes, hypertension, cardiovascular disease, and other evidence-based risk factors which have been demonstrated to contribute to the development of chronic kidney.
(3) Organizations that provide comprehensive services, including pharmaceuticals, to the uninsured with incomes <200%FPG.

(d) The North Carolina General Assembly should provide $5million to the Division of Public Health Purchase of Medical Care (POMC) program to help pay for nephrologist consults for uninsured patients with incomes <200%FPG. Funding should be used to:

(1) Pay for nephrology consultations that follow the Renal Physicians Association consultation standards for patients with chronic kidney disease with <30 eGFR or other patients with higher eGFR if a clinical action plan cannot be prepared or the appropriate evaluation performed.
(2) Support a coordinated system of care between the primary care provider and nephrologist.

In the past three years, no laws were passed or bills introduced to provide funding for screening, treatment or specialist care of uninsured individuals at high risk for developing CKD.

PRIMARY CARE AND COLLABORATIVE CARE TEAMS

Recommendation 4.6: Fully Implemented

The North Carolina Area Health Education Centers program, the National Kidney Foundation (NC Chapter), the UNC Kidney Center, North Carolina Renal Care, the North Carolina Medical Society, the North Carolina Academy of Family Physicians, the North Carolina Chapter of the American College of Physicians, the Old North State Medical Society, the North Carolina Academy of Physician Assistants, the North Carolina Nurses Association Council of Nurse Practitioners, the North Carolina Association of Pharmacists, and Community Care of North Carolina should collaborate to provide targeted chronic kidney disease educational programs for primary care providers. The education should include information about the importance of early screening for at-risk populations, the use of the eGFR to identify people with chronic kidney disease, stages of the disease, diagnosing the etiology of the disease, and evidence-based treatment guidelines for people with the disease. Education should be provided in a variety of settings including, but not limited to, health professional training schools, residency programs, continuing medical or nursing education programs, practice consultants, and quality improvement initiatives.

Community Care of North Carolina (CCNC) and UNC Kidney Center have collaborated in educating providers. CCNC also provides education to primary care providers in risk factors to CKD, such as hypertension and diabetes.

The North Carolina Area Health Education Centers have educated residents on CKD staging system and risk factors to CKD. Additionally the CCNC Lower Cape Fear network educates providers regarding diabetes and hypertension management.

North Carolina Community Health Center Association (NCCHCA) offered CKD training sessions to participants at its conference in 2009 and 2011. The objectives of the training sessions were to 1) understand how to screen for and recognize CKD, 2) articulate the importance of identifying kidney disease and patient's quantity of life, and 3) identify the ways to treat kidney disease to slow its progress and decrease mortality risk.

Additionally, NCCHCA is currently in a partnership with the North Carolina Diabetes Prevention and Control Program (DPCP) on a pilot project addressing diabetic kidney disease. The DPCP within the Division of Public Health (DPH) received a grant for $125,000 over two years from the National Association of Chronic Disease Directors to hire an individual to focus on implementing policies to improve kidney disease testing rates. The DPCP has collected data from two community health centers and two free clinics in North Carolina on the number of individuals with diabetes, urine Albumine-to Creatinine ratio (UACR) and eGFR testing rates, care management, and achievement of care management goals.[g, h]

The North Carolina Academy of Family Physicians conducts continuing medical education (CME) at least once a year for practitioners in the state to identify and treat CKD. At least one, and many times more than one of their three educational meetings each year, has included CME on CKD and lipid issues for the past five years (2007-2011). The objectives of the CKD education included information on screening, evaluation, classification of at risk or diagnosed patients, incorporating National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI) evidence-based treatment guidelines, and knowing how to screen for CKD in the practice.[i]

Recommendation 4.7 (PRIORITYRECOMMENDATION): Partially Implemented

(a) Primary care providers should routinely screen their patients who are at high risk for chronic kidney disease including patients with diabetes mellitus, hypertension, cardiovascular disease, family history of chronic kidney disease, or other evidence based risk factors which have been demonstrated to contribute to the development of the disease. Screening should include albumin measurement from a spot urine sample and serum creatinine to obtain the estimated GFR.
(b) Patients who have been identified with chronic kidney disease should be staged using the National Kidney Foundation 5 stages of disease categories.
(c) Health care providers who have patients who have been diagnosed with chronic kidney disease should follow the KDOQI or other evidence-based guidelines to manage and slow the progression of the disease. These guidelines include, but are not limited to:

[g] Wolf, M., Clinical Programs Director, North Carolina Community Health Center Association. Written (email) communication. May 18, 2012.
[h] Reese, A., Branch Head, N.C. Diabetes Prevention and Control. Oral Communication. May 29, 2012.
[i] Griggs, G., Executive Vice President, North Carolina Academy of Family Physicians. Written (email) communication. May 21, 2012.

(1) Treating patients to achieve a target blood pressure of <130/80.
(2) Prescribing an ACE inhibitor or ARB as specific therapy to slow the progression of kidney disease as well as control blood pressure.
(3) Using combination hypertensive therapy which should include a diuretic.
(4) Evaluating patients with eGFR<60mL/min/1.73m2 for anemia.
(5) Treating to ensure strict glucose control in diabetes.
(6) Detecting and managing other cardiovascular risk factors, particularly cholesterol and tobacco use.
(7) Monitoring the rate of eGFR decline in patients with chronic kidney disease at least yearly and more often for patients with rapid decline or specific risk factors.
(8) Referring patients to registered dietitians for nutrition therapy when appropriate.

(d) Primary care providers should refer patients with eGFR <30 to nephrologists for ongoing care. Other patients, with higher eGFR, should also be referred to a nephrologist for consultation or co management if a clinical action plan cannot be prepared or the appropriate evaluation performed or if a patient is experiencing rapid decline in kidney function. There should be sustained coordination between the primary care provider, disease management or care management staff, the nephrologist, and other specialists.

The North Carolina Community Health Center Association (NCCHCA) and the North Carolina Academy of Family Physicians have provided North Carolina's primary care physicians with training on screening patients who are at high risk for chronic kidney disease, identifying the stage of chronic kidney disease, and following the National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI) evidence-based treatment guidelines. These continuing medical education trainings were provided to physicians during the NCCHCA's annual conferences since 2009 and the NCAFP's annual meetings (see recommendation 4.6).[j, k]

The North Carolina Diabetes Prevention and Control Program (DPCP) within the Division of Public Health (DPH) received a grant in 2011 for $125,000 over 2 years from the National Association of Chronic Disease Directors (NACDD) to hire an individual to focus on implementing policies to improve testing rates. The DPCP began collecting data from two community health centers in February 2012, and two free clinics in North Carolina in June 2012. The data is collected on the number of individuals with chronic diabetic kidney disease, referred to nephrologists, with eGFR calculated, and screened initially for CKD. However, no formal study has established the number of primary care physicians across North Carolina who are routinely screening for, identifying CKD stage, and providing treatment for CKD in North Carolina.[l]

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[j] Wolf, M., Clinical Programs Director, North Carolina Community Health Center Association. Written (email) communication. May 18, 2012.
[k] Griggs, G., Executive Vice President, North Carolina Academy of Family Physicians. Written (email) communication. May 21, 2012.
[l] Reese, A., Branch Head, N.C. Diabetes Prevention and Control. Oral Communication. May 29, 2012.

Community Care of North Carolina, and the State Health Plan for Teachers and State Employees utilize lab results (eGFR levels) and other patient characteristics to identify those who are at high risk for chronic kidney disease and end-stage kidney disease. CCNC and the State Health Plan use evidence-based guidelines to manage and slow the progression of the disease. BCBSNC is planning on initiating a program to identify individuals with stage 3 CKD, and providing evidence-based case management to reduce costs of care as patients transition from CKD stage 4 to end-stage kidney disease. (See Recommendation 4.4.)

Recommendation 4.8 (PRIORITY RECOMMENDATION): Fully Implemented
The estimated glomerular filtration rate (eGFR) values should be computed and reported on all creatinine determinations by clinical laboratories in North Carolina.

> **(a) Hospital and commercial clinical laboratories should incorporate a calculated eGFR on all patient laboratory data that includes measurement of the serum creatinine. Carolina Renal Care, the College of American Pathologists, and the National Kidney Foundation North Carolina Chapter should work collaboratively to educate clinical laboratories of the importance of reporting the eGFR when a provider orders a serum creatinine or when the creatinine is part of a metabolic panel.**
> **(b) Payers and insurers should require that all serum creatinine determinations for their members and dependents automatically include the eGFR.**
> **(c) The Division of Public Health along with Carolina Renal Care should monitor the clinical laboratories to determine if reporting of GFR has become standard practice throughout the state when a serum creatinine is ordered. If the preceding recommendations are insufficient to make eGFR reporting standard practice throughout the state within one year for all laboratories, the General Assembly should amend the General Statutes to require all creatinine laboratory reports to include eGFR values.**

All major academic hospitals in North Carolina agreed to calculate eGFR values including Duke University, Wake Forest University and University of North Carolina Hospitals. Additionally, University of North Carolina Hospitals Clinical Laboratories automatically calculate and add patient eGFR levels in their Web-based Clinical Information System, an electronic medical records system. Smaller community hospitals are also providing eGFR values with regular lab tests.

The estimated glomerular filtration rate (eGFR) is automatically calculated when a measurement of serum creatinine is requested at LabCorp and all satellite facilities since April 21, 2008. [10] Quest Laboratories is also reporting eGFR. The providers associated with LabCorp and Quest provide eGFR levels to their patients.

Initiatives have not been made by payers or insurers to require inclusion of eGFR when serum creatinine levels are requested. CCNC is starting to develop a system for data repository that will include eGFR levels. With the elimination of the State Kidney Program (July 2009) there has not been any direct monitoring of clinical laboratories. However, the NC Diabetes Advisory Council is interested in working on requiring all laboratories to report eGFR.

Recommendation 4.9: Partially Implemented

Businesses and organizations that develop electronic health records should provide the capacity for chronic disease registries and clinical decision support prompts that incorporate chronic kidney disease screening and treatment measures for at-risk groups.

The American Recovery and Reinvestment Act of 2009's Meaningful Use requirements for electronic health records include four optional measures related to CKD that would require this type of use for EHRs for nephrologists. These quality measures include laboratory testing, blood pressure management, plan of care, and referrals for CKD-specific conditions. The Meaningful Use requirements also include two optional measures for end-stage kidney disease plan of care for dialysis. There are no CKD-specific requirements for primary care providers.[m] Although CKD measures are optional, the diabetes and hypertension measures are core measures in the Meaningful Use requirements.[11] Reporting the measures is required starting 2012. Diabetes, hypertension and heart disease (high-risk groups for CKD) have improved disease registries and clinical decision support.

PATIENT EDUCATION, DISEASE MANAGEMENT AND CASE MANAGEMENT SERVICES

Recommendation 4.10: Partially Implemented

(a) Public and private insurers, payers, and other organizations that offer disease management or quality improvement initiatives targeted at people with diabetes, hypertension, or cardiovascular disease should give greater emphasis to chronic kidney disease prevention, screening, and management.

(1) Payers, insurers, and other organizations should remind patients and providers to obtain regular screenings for chronic kidney disease including urine micro albumin and estimated GFR from serum creatinine.

(2) Payers, insurers, and other organizations should adopt evidence-based clinical practice recommendations for screening and management of chronic kidney disease (including those referenced in Recommendation 4.7) and should develop and include performance measures relevant to chronic kidney disease detection and treatment in quality improvement and quality assurance programs.

(b) Public and private payers and insurers should provide targeted disease management or case management services and medical nutrition therapy to all patients with chronic kidney disease once patients have progressed to stage 4. Patients should be provided information about different types of renal replacement therapy.

The Kidney Center's Kidney Education Outreach Program (KEOP) promotes awareness about the primary risk factors for CKD, emphasizes the importance of early diagnosis and intervention, and provides portable patient education materials to help engage at-risk citizens in the management of their associated chronic illnesses. Initiated in 2005, the KEOP has distributed targeted education and preventive services to 38 of North Carolina's 100 counties, including 147 targeted, community-based screenings and 92 community seminars. The KEOP has identified 17

[m] United States Department of Health and Human Services. Proposed Rule. *Fed Regist.* 75(8): 1844-2011 at p. 1895.

counties with high prevalence rates of end-stage kidney disease as its target communities and has initiated the comprehensive KEOP in 11 of these target counties. The comprehensive KEOP follows a systematic protocol that includes meeting with county commissioners, county health department directors and health educators, the social services departments, community college allied health faculty and other local entities to raise awareness about CKD and its primary risk factors. Community seminars, hosted by local partners (e.g., churches, senior citizen groups, civic groups, employers, health departments), precede the initiation of targeted screening events. A community-based media campaign using local citizens as spokespersons is a major tool in promoting awareness about CKD's major risk factors and the importance of remembering to ask…HEY DOC, HOW ARE MY KIDNEYS? The KEOP's mobile outreach unit, purchased with assistance from the Kate B. Reynolds Charitable Trust and the UNC Health Care System, is a familiar presence on NC roads and highways and ensures the capability to conduct KEOP outreach in any location. Community connections are sustained through KEOP community spokespersons and trained leaders. Screenings are conducted whenever a high-risk population is identified.

The KEOP also accommodates requests for CKD screenings and/or seminars in non-target communities. The KEOP screening protocol includes urinalysis to detect microalbuminuria and proteinuria, hematuria and abnormal glucose levels. Blood analysis to generate a serum creatinine score is conducted for persons with microalbuminuria (>20 mg/l). Each participant's screening includes a personal consult to interpret findings and discuss recommendations to be shared with a primary care provider. When screening participants do not have a relationship with a primary care provider, the KEOP provides a current list of local providers with scaled or free services in the respective area and, when circumstances warrant, facilitates contact with local providers.

The KEOP continues to contribute to NC's CKD research agenda and North Carolina's first CKD surveillance report was published in 2009. A second surveillance report is anticipated in late 2012 when data for 5,000 are available. In collaboration with Dr. Abi Kshirsagar of the UNC Kidney Center, the KEOP collaborated on an R03 study, funded by the Agency for Healthcare Research and Quality, to assess the effectiveness of the SCreening for Occult REnal Disease (SCORED) algorithm in predicting CKD risks among rural, high-risk, underserved populations in Northampton and Washington Counties. Results will be reported at the 2012 American Society of Nephrology annual meeting in November. The KEOP has also partnered with the NC Diabetes Prevention and Control section to produce an educational video highlighting the UNC Kidney Center's motto: "HEY DOC, HOW ARE MY KIDNEYS", and to disseminate the SCORED prediction model to primary care providers. In 2012, the Diabetes Leadership Initiative has used the KEOP's SCORED self-assessment in its CKD management project with New Hanover County's free clinic.

UNC CKD Clinic has focused on recruiting Stage 4 CKD Medicare patients to provide up to six educational sessions. The curriculum of the sessions was created by UNC and covers everything from self-management of CKD to pre-transplant counseling. Additionally, the UNC Kidney Center has submitted a grant to NIH to test a CKD training program for providers. Providers will be trained to identify high-risk CKD patients such as those with diabetes, hypertension, and/or heart disease. Of the public payers, Medicare has begun to reimburse providers for offering up to

six educational sessions on CKD as of January 1, 2010. The reimbursement is expected to assist patients in delaying the need for dialysis and preventing kidney disease complication.[9]

As discussed in Recommendation 4.4, CCNC has started a pilot project providing education and screening to individuals with CKD. CCNC contracted with Fresenius Health Partners in a shared savings agreement to have their renal nurses involved in telephonic work with the patients whom CCNC identifies as CKD stage 3, 4, or 5 renal insufficiency stage. The program screens NC Medicaid beneficiaries, including those who are dually eligible for Medicaid and Medicare, from claims data indicating stage 3 or 4 CKD with laboratory data indicating eGFR less than 45mL per minute. The Fresenius Health Partners renal nurses provide the individuals eligible for the program with patient education, symptom monitoring, guidance on working with both primary care physicians and nephrologists, and encouraging patients to make decisions to obtain dialysis, or to make preparations for renal transplantation. Currently CCNC has 30 patients enrolled in the program. CCNC is working to expand the program to other counties in the next months.[n]

The State Health Plan contracts with a care management vendor to provide disease management services for members with multiple chronic conditions, including diabetes, hypertension and cardiovascular disease. The vendor utilizes medical and pharmacy claims, lab claims and results and other member reported data and the most current evidence based medical literature and medical specialty organization clinical recommendations to create a system that can be used by members, providers and nurse care managers. This system becomes the clinical decision support and workflow for ensuring that all relevant standards of care pertaining to the member's clinical needs are met. Interventions address lifestyle behaviors and incorporate health literacy, cultural diversity, educational and socioeconomic levels, member preferences, and values.

As mentioned in Recommendation 4.4, the State Health Plan also contracts with a vendor that specializes in care management for members with Stage 4 and 5 CKD and ESRD. Nurse care managers who have focused experience in kidney disease provide member-specific interventions including health education, education regarding renal replacement treatment options, resources and disease self-management empowerment in direct coordination with the member's dialysis facility and primary care provider or nephrologist. The vendor utilizes in-home monitoring technology devices for members with ESRD that offer daily assessments of weight, blood glucose, and blood pressure along with a series of questions to determine patient status. The technology uses algorithms from evidence-based medicine to alert nurse care managers to evaluate and monitor transmitted information and provide timely follow up to address potential complications and prevent avoidable service utilization. The nurse care managers prepare the Pre-ESRD Member for kidney replacement by identifying the need for a referral to a Nephrologist; ensure timely referral for appropriate access placement prior to the initial dialysis session and provide education regarding types of dialysis and transplantation options. They also assist in addressing end-of-life issues with those members not eligible for or not interested in pursuing dialysis and/or transplantation. The vendor also provides nutritional supplements directly to members with ESRD as needed based on albumin levels. The State Health Plan's care management contracts require specific kidney disease screening and treatment performance

[n] Bilbro, B., Associate Medical Director, Community Care of Wake and Johnston Counties. Written (email) communication. May 13, 2012.

measures for quarterly reporting and annual performance guarantees. The Plan collaborates with the contracted vendors to redefine goals and measures for improved outcomes.

As discussed in Recommendation 4.4. Blue Cross Blue Shield of North Carolina (BCBSNC) plans to begin screening their claims data for patients with CKD stage 3 ICD-9 codes. Individuals identified at CKD stage 3 will be monitored, and put on case management when they reach CKD stage 4. The program is anticipated to become active in a year. Additionally, diabetes and hypertension case managers are to be cross-trained to identify patients who will be eligible for CKD case management. Specific CKD managers will carry those eligible for approximately one year before and after initiation of dialysis.[o]

Recommendation 4.11: Partially Implemented

The National Kidney Foundation, the American Society of Nephrology, the American Society of Pediatric Nephrology, and the American Dietetic Association should work with national quality and standard setting organizations to devise quality performance measures that assess the degree to which practitioners screen and manage patients with or at risk of developing chronic kidney disease in accordance with nationally recognized guidelines.

On July 26, 2010 Center for Medicare and Medicaid Services (CMS) issued a new rule changing how Medicare pays for dialysis services for beneficiaries with ESRD. The rule establishes a new prospective payment system (PPS) that pays a single case-mix adjusted bundled payment to dialysis facilities for dialysis treatment and supplies, certain ESRD-related drugs, and ESRD-related clinical laboratory tests. Additionally, the CMS rule established three quality measures for the Quality Incentive Program (QIP) to improve the quality of services for dialysis. Two of the three quality measures include indicators to ensure right amount of iron in the blood for Medicare beneficiaries receiving dialysis, and the third measure is the patients' urea reduction ratio, indicating how well the dialysis removes waste. The QIP law requires CMS to reduce payments to the facilities by up to 2.0 percent if the quality of care does not meet or exceed the established performance scores.[12]

As discussed in Recommendation 4.9, the American Recovery and Reinvestment Act of 2009's Meaningful Use requirements for electronic health records include optional measures related to CKD, and core measures related to diabetes and hypertension.

Recommendation 4.12: Fully Implemented

Community Care of North Carolina (CCNC) should create a disease management initiative for chronic kidney disease as part of its §646Medicare waiver, if approved, which will focus on older adults age 65 or older or people with disabilities who are also receiving Medicare. CCNC should incorporate evidence-based treatment of people with chronic kidney disease into the initiative and identify clinical performance measures to assess the quality of care provided to patients with the disease.

[o] Garrett, L., Medical Director, Blue Cross Blue Shield of North Carolina. Oral communication. September 28, 2012.

CCNC has initiated a pilot project as part of its 646 Medicare Waiver program to identify beneficiaries at risk of or diagnosed with CKD using claims. The pilot project initially begun in the Lower Cape Fear and Eastern Networks, has observed that 80% of patients on dialysis or kidney transplants are dually eligible. This project specifically focuses on identifying beneficiaries at earlier stages of CKD and providing educational intervention at a point when the education could potentially have a significant impact on health status and/or treatment decisions. (See Recommendation 4.4 for more detail.)

Recommendation 4.13: Not Implemented

(a) North Carolina foundations and/or national foundations should provide funding to the University of North Carolina at Chapel Hill to pilot test and evaluate the effectiveness of the Kidney Care Prevention Program (KCPP), a chronic kidney disease certification program being developed in conjunction with the North Carolina Community College System. People who are trained for disease management of chronic kidney disease should also be cross-trained for diabetes, hypertension, and cardiovascular disease.

(b) Public and private payers and insurers should provide funding for chronic kidney disease trained educators if determined to be effective and cost efficient in slowing the progression of the disease or improving health.

The Kidney Center's proposed Kidney Care Coordinator Educators (KCCE) curriculum—a certification program, delivered via distance learning, designed to train community-based, licensed allied health professionals in the management, monitoring and education of patients with mild to moderate CKD and its associated chronic illnesses, continues to seek funding. In 2010, the KCPP was budgeted for $500,000 in federal earmark funding in fiscal year 2011. Unfortunately, Congress discontinued federal earmark funding that same year. The Kidney Center submitted an NIH-NIDDK R-34 proposal to fund and assess the effectiveness of the KCCE as an innovative clinical intervention in March 2011, but no funds were awarded for this round of R-34 proposals. The UNC Kidney Center continues to seek funding for the KCCE, in conjunction with the NC Community College System and the Rural Health Group, Inc.[p]

Additionally, the UNC Kidney Center has submitted a grant to NIH to test a CKD training program for providers. Providers will be trained to identify high-risk CKD patients such as those with diabetes, hypertension, and/or heart disease. Of the public payers, Medicare has begun to reimburse providers for offering up to six educational sessions on CKD as of January 1, 2010. The reimbursement is expected to assist patients in delaying the need for dialysis and preventing kidney disease complication.[9]

Recommendation 4.14 (PRIORITYRECOMMENDATION): Partially Implemented

(a) Disease managers or case managers who manage patients with diabetes, hypertension, or cardiovascular disease should be cross-trained in the management of people with chronic kidney disease.

(b) Existing programs that provide disease management education and/or certification for diabetes, hypertension, or cardiovascular disease management should ensure that the curriculum includes information about prevention,

[p] Harward, D., Director of Education, UNC Kidney Center. Oral communication. August 20, 2012.

screening, treatment, and self-management skills for people with chronic kidney disease.
(c) The North Carolina General Assembly should provide funding to the Department of Health and Human Services to support the infrastructure needed to expand the Division of Public Health Diabetes Education Recognition Program with a special focus on chronic kidney disease screening and management. The General Assembly should appropriate $150,000 in FY 2008-2009, $300,000 in FY 2009-2010, and $450,000 in FY 2010-2011 and thereafter to support this program.

CCNC has moved away from disease specific care managers for heart failure, chronic obstructive pulmonary disease and hypertension, and moved towards cross-trained care managers. CCNC has taken a holistic, "chronic care" approach as opposed to a single disease focus. Many of CCNC's care management recipients have kidney disease or are at risk for CKD.[q] CCNC has provided a variety of chronic disease trainings for their care managers and the care managers seek out training opportunities in their local areas as well. CCNC includes information regarding CKD in the curriculum for cardiovascular disease risk. CKD information is also included in the general provider education material regarding cardiovascular disease risk. CCNC has also provided links on their website for educational material and tools related to CKD.

The State Health Plan vendors, Fresenius Medical Care and ActiveHealth Management, also cross-train case managers in evidence-based practice for screening, treatment and care management for CKD.

Blue Cross Blue Shield of North Carolina (BCBSNC) plans to have their diabetes and hypertension case managers cross-trained to identify patients who will be eligible for CKD case management. Specific CKD managers will carry those eligible for 1 year before and after initiation of dialysis when eGFR is 30 or less.[r]

The NC General Assembly has not increased funding for DHHS to support CKD screening and management.

NEPHROLOGISTS

Recommendation 4.15 (PRIORITYRECOMMENDATION): Not Implemented

(a) Nephrologists should actively build collaborative relationships with primary care providers in their referral base and provide consultations when requested to help in developing care management plans. Nephrologists should also help educate primary care providers and other health care professionals on current recommendations regarding detection and management of people with chronic kidney disease and the accompanying vascular complications including cardiovascular disease.

[q] Cockerham, J. Director, Chronic Care Program & Quality Management, Community Care of North Carolina. Written (email) communication. September 27, 2012.
[r] Garrett, L., Medical Director, Blue Cross Blue Shield of North Carolina. Oral communication. September 28, 2012.

(b) Academic health centers, Area Health Education Centers, and Carolina Renal Care should widely disseminate the Renal Physicians Association toolkit to all nephrologists across the state to promote better understanding of chronic disease management and to incorporate this knowledge into management of patients with chronic kidney disease. Specifically, nephrologists should be referred to the model consultation template and other tools for communicating effectively with primary care providers.
(c) The American Society of Nephrology should provide educational programs to Nephrologists pertaining to chronic kidney disease management, the need for early collaborative relations with primary care providers, and information that should be included in any nephrology consultation letter for a primary care provider.
(d) Nephrologists and/or primary care providers who are managing the care of patients with later stages of chronic kidney disease should refer patients for medical nutrition therapy, when appropriate.
(e) Nephrologists, in conjunction with disease management or patient educators, primary care providers, and private dialysis centers should provide patients with early education prior to the onset of kidney failure including:
(1) All options of kidney therapy including transplantation, home dialysis (including hemodialysis and peritoneal dialysis), in-center hemodialysis and supportive therapy only.
(2) The need to protect veins prior to the need for dialysis.
(f) Nephrologists should work with patients in stage 4 to ensure they are offered transplantation or timely placement of peritoneal or vascular access to prevent possible medical complications from emergency treatment for kidney failure and to reduce the utilization of temporary catheters for access to circulation for renal replacement unless there is no other option.

No progress has been made towards the implementation of this recommendation. Local nephrologists have been collaborating with primary care providers when possible. With the encouragement of new models of care through the Patient Protection and Affordable Care Act of 2010, there is tremendous hope for improvement in coordination and integration of health care across provider levels.

References

1. US Renal Data System. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. USRDS 2012 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States. Bethesda, MD. http://www.usrds.org/reference.aspx. Published 2012. Accessed September 21, 2012.

2. U.S. Renal Data System. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. USRDS 2007 Annual Data Report: Atlas of End-Stage Renal Disease in the United States. Bethesda, MD.

3. Agency for Healthcare Research and Quality. HCUPnet using data from 2005 Nationwide Inpatient Sample. http://hcupnet.ahrq.gov.

4. Coresh J, Byrd-Holt D, Astor BC, et al. Chronic kidney disease awareness, prevalence, and trends among U.S. adults, 1999 to 2000. *J. Am. Soc. Nephrol.* 2005;16(1):180-188.

5. North Carolina Diabetes Prevention and Control Branch, Division of Public Health. Programs. http://www.ncdiabetes.org/programs/index.aspx.

6. National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. CDC National Heart Disease and Stroke Prevention Program. Centers for Disease Control and Prevention website. http://www.cdc.gov/dhdsp/programs/nhdsp_program/nc.htm. Published September 21, 2011. Accessed June 19, 2012.

7. North Carolina Office of Minority Health and Health Disparities, Department of Health and Human Services. Community Health Ambassador Program (CHAP). http://www.ncminorityhealth.org/services/communityhealth.htm. Published March 7, 2012. Accessed October 3, 2012.

8. North Carolina Diabetes Prevention and Control Branch, Division of Public Health. North Carolina Diabetes Education Recognition Program. http://www.ncdiabetes.org/programs/ADA.aspx. Accessed October 8, 2012.

9. Centers for Medicare & Medicaid Services, Department of Health and Human Services. Medicare and Kidney Disease Education: For people with Stage IV chronic kidney disease. http://www.medicare.gov/Publications/Pubs/pdf/11454.pdf. Published March 2010.

10. Laboratory Corporation of America. LabCorp Insights: A newsletter for managed care health plans. https://www.labcorp.com/wps/wcm/connect/dd6e4d804bbd0f6995effd25f2b7a678/L6076-0408-1.pdf?MOD=AJPERES&CACHEID=dd6e4d804bbd0f6995effd25f2b7a678&CACHEID=20bcfe004bab4fba9579bde392765494. Published April 2008.

11. Centers for Medicare & Medicaid Services. Proposed Clinical Quality Measures for 2014. http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/ProposedClinicalQualityMeasuresfor2014.html. Published April 11, 2012. Accessed October 3, 2012.

12. Centers for Medicare & Medicaid Services, Department of Health and Human Services. CMS Announces New Prospective Payment System for End-Stage Renal Disease Facilities. http://www.kidney.org/email_templates/KDOQI/PDF/MedicareNews.pdf. Published July 26, 2010.