



National Institute of
Diabetes and Digestive
and Kidney Diseases

Kidney Interagency Coordinating Committee (KICC) Meeting

Population Health Approaches for Kidney Disease

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National Institutes of Health (NIH)
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Meeting Participants and Summary

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Welcome and Introductions

Andrew Narva, M.D., FACP

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH

Dr. Andrew Narva welcomed members and attendees to the NIDDK KICC meeting. The KICC, mandated by Congress in 1987 to meet yearly, is a multifaceted and interconnected federal response to chronic kidney disease (CKD). It encourages cooperation, communication, and collaboration among all federal agencies involved in kidney research. Dr. Narva commented that today's topic, population health approaches for kidney disease, was prompted by the Centers for Medicare & Medicaid Services' (CMS) interest in new paradigms in CKD and end-stage renal disease (ESRD) and by a recent report from the Centers for Disease Control and Prevention (CDC) on the decrease in ESRD rates among American Indians. The agenda will include a report on this reduction, which will be accompanied by an overview of the Indian Health Service (IHS) and a historical perspective on diabetes-related kidney disease in the American Indian population. In addition, discussions will be presented on the U.S. Department of Veterans Affairs' (VA) population health research, the U.S. Department of Defense's (DoD) approaches to population health, and CMS' perspective on the upstream prevention of CKD and ESRD.

Reducing Incidence of ESRD in American Indians

Nilka Ríos Burrows, M.P.H.

CDC

Ann Bullock, M.D.

IHS

Andrew Narva, M.D., FACP

NIDDK, NIH

Ms. Nilka Ríos Burrows reviewed the CDC report titled “Vital Signs: Decrease in Incidence of Diabetes-related ESRD Among American Indians and Alaska Natives in the United States—1996–2013” (Vital Signs), published in the January 10, 2017, edition of *Morbidity and Mortality Weekly Report*. She acknowledged the collaborative efforts of the NIDDK, KICC, and IHS to generate this report. Noting that diabetes mellitus (DM) is considered the leading cause of new cases of ESRD, Ms. Burrows pointed out that American Indian and Alaska Native (AI/AN) adults have the highest prevalence of diagnosed diabetes of all racial and ethnic groups in the United States. In addition, the United States Renal Data System (USRDS) 2013 Annual Data Report (ADR) shows that from 1980 to 2001, incidence of kidney failure from diabetes was greater in AI/AN than in any other racial group, with the peak in 1999. Since 2001, incidence of kidney failure from diabetes in the AI/AN population has declined consistently, the fastest decline in incidence of any racial group. This decline followed the implementation of programs and initiatives in the AI/AN population, including the 1986 release of the IHS Standards of Care; the 1992 revision of the IHS Standards of Care to include measures and treatment of CKD; and the 1997 establishment of the IHS Special Diabetes Program for Indians (SDPI), which was renewed by Congress in 2015.

Ms. Burrows described the process the team used in compiling the CDC's Vital Signs report; this process included obtaining statistics on the number of adults 18 years of age and older who started treatment for diabetes-related kidney failure, reviewing trends in kidney failure from diabetes in AI/AN adults, and comparing those trends with trends in other racial and ethnic groups. Rates were calculated using two population estimates: total population with and without diagnosed DM from 1996 to 2013 and the population with diagnosed DM between 2006 and 2013. The team also discussed the factors likely to have influenced the improvements in diabetes-related kidney failure in the AI/AN adult populations. The report concluded that AI/AN were more likely to be diagnosed with diabetes than any other group in the

United States. Yet, from 1996 to 2013, kidney failure from DM among AI/AN decreased 54 percent. By 2013, among people with diabetes, the rate of kidney failure was the same in AI/AN as it was in whites (i.e., the group with the lowest incidence), and prescriptions for kidney protective medicines (e.g., angiotensin-converting enzyme [ACE] inhibitors or angiotensin receptor blockers [ARBs]) in AI/AN with DM greatly increased from 1997 to 2002. These data suggest that a comprehensive diabetes prevention and treatment system similar to the one developed by IHS might be a useful model for other health care systems serving populations at high risk for ESRD.

Dr. Ann Bollock reported on DM care in the IHS, a federal agency within the U. S. Department of Health and Human Services (HHS) serving 2.2 million AI/AN members of 567 federally recognized tribes located in 36 states and comprising the IHS/Tribal/Urban (I/T/U) Health System. Through the Indian Self-Determination and Education Assistance Act of 1975, many tribes have assumed control and management of their health care programs. In response to the rise in the prevalence of type 2 diabetes in AI/AN populations, the IHS established the National Diabetes Program in 1979, and in 1986 it released its first Standards of Care and started data collection efforts through its Diabetes Care and Outcomes Audit. The SDPI was established by Congress in 1997 and today provides funding for 301 I/T/U grant programs for diabetes prevention and treatment. IHS' Division of Diabetes Treatment and Prevention coordinates these efforts. Since the initial investments in the SDPI, significant progress has been made in the number of programs reporting diabetes services.

Dr. Narva reported on the incidence and management of diabetes-related kidney disease in the AI population. He explained that the diabetes-related incidence rates of ESRD increased significantly in AI populations from 1980 to 1999, and the outlook was not very promising. The burden of disease was heterogeneous in the tribal populations, and the incidence rates were as high as 20 times those of whites. The IHS Kidney Initiative established a nephrology position in 1989 to enhance existing diabetes care and improve CKD care. Dr. Narva pointed out that CKD remains underdiagnosed, such that implementation of recommended care is poor and many clinicians feel inadequately educated to properly diagnose CKD. In addition, patient awareness of CKD is low in the general U.S. population, and the proportion of CKD-treated patients who have not received nephrology care or counseling on nutrition remains low—the IHS and VA populations are the exception. The primary goal for a population management approach (e.g., process and performance management) of CKD is to delay the need for renal replacement therapy (e.g., dialysis or transplant). Achieving this goal will require thorough and routine diabetes care, including identifying patients with CKD and monitoring them for disease progression; implementing appropriate therapy to slow the progression of disease; screening for complications; treating the risks of cardiovascular disease; providing patient referrals for nutritional counseling; avoiding acute kidney injury (AKI) events; and providing patient education.

The IHS Kidney Initiative integrated kidney disease screening into primary care beginning in 2003 and broadened the ADA's Standards of Care for diabetes. In addition, the Initiative provided a platform for implementation, which was promoted through continuing education of health care professionals. From these efforts, the kidney care community learned the following: (1) diabetic kidney disease is best addressed through a population management approach; (2) the chronic care model, interrelated elements for effective care for chronic diseases, is the most effective approach; and (3) a diabetes care delivery system is the best method for implementation of care versus a specialty-based clinic. Dr. Narva emphasized the importance of knowing that surveillance and prevention are a part of the multisystem of chronic disease control and the necessity of ensuring that the patient receives care from competent and caring health care professionals. If AI may be considered a sentinel population with regard to diabetes, the onset of the diabetes epidemic occurred in the 1960s, and the epidemic of diabetic kidney disease and

kidney failure had its onset in the 1980s. He echoed Ms. Burrows' comments that the IHS' response to the AI/AN epidemic of diabetic kidney disease and kidney failure may provide a model for other health care systems serving high-risk populations. The IHS Kidney Initiative has informed the National Kidney Disease Education Program (NKDEP) for more than 10 years—the NKDEP aims to reduce the morbidity and mortality caused by kidney disease and its complications—thus bringing the chronic care model to CKD.

Dr. Bullock shared details on IHS strategies that have been effective in improving diabetes and noted the IHS' overarching goal to provide comprehensive, compassionate diabetes care that addresses the needs of both individuals and communities. She called attention to that fact that many I/T/U sites already have been working to achieve this goal, as have other health care organizations, including the VA. Recently, the ADA has taken steps to promote health and reduce health disparities in populations as stated in the “Standards of Medical Care in Diabetes” report published in the January 2017 edition of *Diabetes Care*. She described the three major focus areas: public health, population-level management, and team-based care. Many life factors—such as poverty, lack of transportation, or chronic stress—can make it a challenge for patients to control their diabetes and can affect their ability to access health care. Diabetes care is a continuous and ongoing commitment, and preventing or delaying complications requires controlling risk factors over many years. Health care systems need to take a long-term view on costs and outcomes, work with all patients, actively engage communities as partners, and look beyond basic medical care to reduce kidney failure rates. The IHS uses care management and community outreach as its population management approach to diabetes care. Care management involves following all patients with diabetes to determine which patients need additional support (e.g., home visits, community health assistance). Community outreach engages schools, employers, and senior centers and involves attending community events and meetings to convey the message about diabetes care. Team-based care is a multidisciplinary approach that focuses, as a team, on the standards of care, the care process, and data.

On the national level, the IHS Division of Diabetes promotes diabetes science to I/T/U programs nationwide, provides culturally appropriate patient education materials, conducts diabetes care and outcomes audits at I/T/U sites, and provides templates and population management tools to assist providers in using electronic health records (EHRs). Dr. Bullock highlighted two key points: preventing or delaying diabetes-related kidney failure requires control of blood pressure (BP) and blood sugar and use of kidney-protective medications; and comprehensive and systematic approaches—including public health assessments, population health strategies, and multidisciplinary teams—are critical. Success is achieved when people with diabetes who overcome many challenges (e.g., chronic stress) to take care of themselves are also able to care for their families and communities. The IHS strives to connect with communities by being respectful, nonjudgmental, and compassionate.

Discussion

- Dr. Robert Nee asked whether the increasing diabetes incidences were correlated to the decreasing rates of ESRD in AI adult populations and whether the decreasing rates of ESRD were due to deaths from other causes, such as cardiovascular disease. Dr. Bullock responded that the prevalence of diabetes among AI/AN was increasing until 2011 and then began to plateau. Reports show that people with diabetes are living longer, which could be an indication of a delay in the onset of the disease. Dr. Narva pointed out that these were observational data and that in type 1 diabetes, patients show similar drops in ESRD rates. Ms. Burrows pointed out that similar data published in the *American Journal of Public Health* on mortality and morbidity among AN also show a decline in diabetes rates.

- Dr. Robert Star asked about the estimated cost savings for population management approaches similar to the one used by the IHS. Ms. Burrows pointed out that data published in the *American Journal of Public Health* show a decline in diabetes mortality rates among AI/AN. She mentioned that this drop in the number of cases, together with the USRDS cost estimates of \$80,000 per person per year for diabetes-related kidney failure, might be useful for estimating cost savings for the population. Identifying next steps and who will pay for the interventions must be prioritized. The Veterans Health Administration (VHA) and the IHS may be model health systems that could provide insight on how to answer these questions, but the “what and how” for the general population are unclear. Dr. Susan Crowley suggested redirecting efforts currently aimed at CKD-specific treatments to primary care.
- Dr. Joel Andress pointed out that since the implementation of the Medicare Access and Children’s Health Insurance Program (CHIP) Reauthorization Act (MACRA) in 2016, CMS has been working with several health care providers interested in developing physician quality measures for CKD, ESRD, and primary care that include measures for treatment of renal failure by a nephrologist, treatment of CKD stages 1–4, and screening for patients at risk for CKD. This will help providers identify their priorities and redirect their resources. The business case model for CKD might be useful in these efforts.
- A participant commented on the population payment model, in which the outcomes are based on the population and cost as opposed to individual costs. Calculations are performed that identify ways to achieve those outcomes. This also could be a system to emulate.

U. S. Department of Veterans Affairs Population Health Research

Susan Crowley, M.D., FASN

Veteran Affairs Medical Center

Dr. Crowley provided an overview of the VHA’s health care system and its population health strategy to address CKD. She also discussed results from the CDC’s CKD Surveillance System and conclusions and future directions of the VHA paradigm for CKD care. The VHA is the largest integrated health care system in the United States, with more than 86 million annual outpatient visits, 700,000 annual inpatient admissions, and a medical service budget of \$56 billion per year. The VHA serves 5.3 million primary care patients, primarily older adults who live in rural areas, and 25 to 75 percent of these patients have comorbidities (e.g., DM, hypertension [HTN], and obesity). The VHA is structured as a health system network with a patient-aligned primary care team delivery system and uses a chronic care model. Principles included in the VHA’s vision, Blueprint for Excellence, include patient-centeredness; team-based, data-driven, and evidence-based care; preventive health care; providing value; and continuous monitoring.

Dr. Crowley explained the VA’s need for a population health strategy for CKD. Reports from the VHA’s Office of Rural Health show that the largest numbers of VHA patients with CKD are located primarily in the southeast and southwest regions of the United States. Analysis conducted in collaboration with the University of Michigan shows that one in six enrolled veterans has CKD, which equates to more than 1 million veterans with CKD. Of these, 78 percent are older than age 65, 68 percent are service-connected (43%) or of low socioeconomic status (25%), and 36 percent live in rural or highly rural areas. In addition, the annual budget for aggregated care expenditures for CKD care, including dialysis, is \$18 billion, which is a disproportionate share of the total VHA budget.

Given the large burden of CKD in the veteran population, the VA also thinks that a population health strategy is a unique opportunity to curb CKD along its continuum of care. Health care providers can affect

outcomes at multiple steps along this care continuum, as can patients. Dr. Crowley detailed CKD results in the veteran population and their effect on the VA care paradigm; these results are based on data from CDC reports. She presented results demonstrating the identification and prevalence of modifiable risk factors. The rates of modifiable CKD predisposition show that the risk factors for CKD are more common in the VA population than in the general U.S. adult population. The rates of DM and HTN are higher in veterans than in the U.S. adult population, and rates in both populations increase with age. Efforts to identify CKD within the VA health system show that from 2005 to 2012, 70 percent of VA users had serum creatinine levels assessed annually, and test rates in veterans increased with age. There was a stepwise increase in urine albumin (Ualb) testing for all age groups from 2005 to 2012, and the Ualb test rate was higher in veterans with DM and HTN than in those without these conditions. To assess the effect of policy changes on population health management, Dr. Crowley pointed out that the VA/DoD Clinical Practice Guidelines (CPG) recommendation for initial screening for HTN and DM included urinalysis (UA) but not Ualb testing until 2014; Ualb laboratory tests were required only if the UA was negative for proteinuria in patients with diabetes. The current CKD CPG guidelines, issued in December of 2014, recommend Ualb testing as part of initial screening.

Regarding treatment and control of modifiable risk factors, reports from the Healthcare Effectiveness Data and Information Set (HEDIS) show that HTN control (i.e., maintaining a BP less than 140/90 millimeters of mercury [mmHg]) in adults with or without DM in the VA was better than in patients with commercial insurance coverage, Medicaid, or Medicare. The percentage of enrolled veterans diagnosed with HTN who did not have an annual BP check was less than 0.1 percent, and the percentage of enrolled veterans with DM whose BP was measured annually was nearly 100 percent. An NIDDK/VA-funded study titled “Blood Pressure and Mortality in U.S. Veterans with Chronic Kidney Disease: A Cohort Study,” published in the August 2013 edition of the *Annals of Internal Medicine*, reported that from 2005 to 2012, 66 percent of veterans with CKD not receiving renal replacement therapy in the VA health system had a BP of 130/90 mmHg or less and that 54 percent of enrolled veterans with CKD had received ACE inhibitors or ARBs. Similar reports from the CDC showed that the VA pharmacy filled prescriptions for ACE inhibitors and ARBs for 52 percent of veterans with CKD and for 63 percent of veterans with both CKD and DM. Data from HEDIS on the glycemic control of DM in the VA showed that in 2016, 19 percent of veterans with DM had hemoglobin A1c levels greater than 9 percent. Dr. Crowley noted that the VA’s weight management program, MOVE, has had a positive effect in helping the veterans enrolled in the VA health system to control their weight and obesity. Overall, the control of CKD risk factors is superior in the VA compared to other health care systems, but there was no significant improvement in the control of HTN, DM, or obesity.

Regarding medical follow-up, CDC reports show that provider awareness of stage 4 and stage 5 CKD has increased since 2008, as reflected by International Classification of Disease (ICD) coding; however, stage 3 CKD remains under-coded. Dr. Crowley noted that nephrology referrals were below the VA/DoD CPG target, but pointed out that these data only reflected direct VA care and not care given to veterans treated by community centers. Results for AKI and its follow-up show that within 6 months of being discharged from the hospital, 90 percent of patients had their serum creatinine level measured, 14.6 percent had their Ualb level checked, and 19.7 percent had visited a nephrologist.

CDC reports show that from 2005 to 2012, the prevalence of stage 3 CKD was higher in veterans than in the U.S. adult population, but the prevalence of CKD in the VA in general declined for all age groups and races, diabetic or nondiabetic. Dr. Crowley emphasized that the higher rates of prevalence from 2005 to 2008 may reflect ascertainment bias at the start of VA’s electronic glomerular filtration rate co-reporting and that the CKD stage 3 prevalence decline attenuated with time to a new level set from 2009 forward. Mortality from all causes increased with advancing CKD stage prior to 2009, but declined temporally. Stable incidence and improved survival of CKD patients are consistent with the new level of CKD prevalence set in 2009. Reports from the VA’s Office of Policy and Planning show that there was a 4 percent decrease in ESRD prevalence (age-adjusted and race-adjusted) among veterans from 2008 to

2014, but the prevalence of ESRD was higher in veterans than in the U.S. adult population. Notably, the incidence of ESRD among veterans decreased by 17 percent from 2009 to 2014. Per the USRDS Transitions of Care Special Study, although veterans had a higher crude ESRD incidence than the general population, the age-adjusted rate of new ESRD cases for veterans is 25 percent to 45 percent lower than that of the U.S. adult population. This lower age-adjusted incidence of ESRD could be due to better health of veterans than the general population when veterans first enlisted, the winnowing (e.g., dying prematurely) of veterans with CKD, or better preventative care by the VA health system. The declining CKD mortality rates, especially in later-stage CKD, indicate that winnowing likely is not the cause of the reduced incidence.

Overall, mortality is high for all veterans with incident ESRD, but lower for those treated in VA units than for those receiving care in commercial centers. This difference in ESRD-related mortality in VA units and commercial centers could be due to differences in veteran demographics between VA and commercial centers or due to benefits of care delivered by the VA health care system—a comparative analysis is needed. Similar to veterans with CKD, survival rates among veterans with ESRD are improving. The declining veteran incidence of ESRD, combined with the increasing survival rates, is consistent with the stability of VA ESRD prevalence rates; the adjusted rates would yield further insights.

Dr. Crowley concluded that evaluating CKD population health in the VA is challenging—predisposing drivers of CKD remain prevalent in the VA—and the prevalence of CKD and ESRD is higher in the VA than in the general population, which likely is due to population differences. In addition, improved CKD survival combined with stable CKD incidence has established a new set level of VA CKD prevalence, and improved ESRD survival and reduced ESRD incidence have offset each other and led to a stable VA ESRD prevalence. The decline in veteran ESRD incidence and the decrease in mortality from ESRD are positive results for the VA health care system and deserve further analysis. Opportunities to improve veteran population health include improved CKD screening, treatment of risk factors, access to nephrology care, and awareness and treatment of CKD.

Future directions for the VA CKD population health strategy include closer examination of access to care and health equity; capture of non-VA care in the community to gauge relative VA resource utilization; continued advocacy for development of agency tools to assess performance and progress toward improved health of veterans that are at risk for or have CKD; and developing a “balanced score card” for CKD beyond quality measures to metrics that guide organizational strategy. Dr. Crowley expressed appreciation to CDC and the USRDS for reporting on the health of veterans.

Discussion

- In response to a query by Dr. Star, Dr. Crowley clarified that approximately 50 percent of the veterans enrolled in the USRDS Special Study received pre-ESRD care within the VA system, per personal communication with the authors.
- Dr. Address asked about mortality rates and the percentage of patients on dialysis among veterans outside of the VA health system. Dr. Tracey Koehlmoos pointed out that mortality data can be accessed from the CDC National Death Index and can be matched to the Social Security death records. Dr. Crowley noted that the VA has these data, but has yet to do those assessments. She described a project that the VA had conducted to assess veterans who had been treated in the community setting and resumed their treatment in the VA health system. Treatment at four free-standing dialysis centers that are within the VA health system was compared with treatment at a community-based center. The standardized mortality rates were 50 percent lower in the VA health system.
- Dr. Nee remarked on the similarities of the survival rates of DoD beneficiaries starting dialysis to patients enrolled in the VA health system. The peak in mortality rates observed 4 to 8 weeks

after starting dialysis mirror what is seen in the VA population and is attenuated compared to non DoD patients. Military Health System (MHS) modeling tools show this attenuation correlated to pre-ESRD nephrology care and use of atrioventricular or fistula vascular access for dialysis.

Department of Defense Approaches for Population Health

Gregory Gorman, M.D., M.H.S.

Walter Reed National Military Medical Center (WRNMMC)

Tracey Koehlmoos, Ph.D.

Uniformed Services University of the Health Sciences (USUHS)

Dr. Koehlmoos presented an overview of the military health system (MHS) and described the population it serves and its priorities. The primary aim of the MHS is health readiness—ensuring that the total military force is medically ready to deploy and achieve the national security objectives of the United States. The MHS extends to include military spouses, members of the reserve forces, and the National Guard. Components of the MHS include 373 ambulatory care clinics, 250 dental clinics, 253 veterinary clinics, and 55 inpatient hospitals and medical centers worldwide. As a direct care system and a TRICARE health plan, the MHS serves 9.4 million beneficiaries who are retired from full active duty service and their dependents—the MHS has the largest set of data on children within a single health care system. The MHS is a complex system that serves competing priorities within its organizational structure and delivery system. Military Treatment Facilities are located across the United States and are organized into Enhanced Multi-Service Markets (eMSMs) to improve service delivery and better meet the needs of the population served. The six eMSMs provide more than 40 percent of all MHS health care delivery.

Although the MHS is led by the Office of the Assistant Secretary of Defense for Health Affairs, in the field, the military physician has been the leader for medical services. Establishment of the Defense Health Agency (DHA) in 2013 has helped to integrate the Army, Navy, and Air Force medical services into the MHS to implement shared services with common measurement of outcomes. The DHA and MHS worked together to establish an executive dashboard from the core set of MHS measures, with the intention of enabling senior leadership to focus on a smaller number of measures that are key to the overall performance improvement efforts of the enterprise.

Dr. Koehlmoos described the DoD Kidney Disease Surveillance Program, a 5-year project that began in 2016 and is led by Dr. Eric Marks—Dr. Koehlmoos, Dr. Nee, and Dr. James Douglas Oliver are co-investigators. The project is funded under an interagency agreement with the CDC and is being conducted in partnership with the WRNMMC and the USUHS. Dr. Koehlmoos noted that the goal of the project is to assess the scope and impact of kidney disease in the MHS and summarized the four specific aims: (1) develop a comprehensive longitudinal data set of de-identified data for kidney disease in the MHS; (2) describe the epidemiological factors important in the genesis and progression of kidney disease in the MHS as a whole and in important subgroups; (3) analyze key kidney disease health care issues important to the military and the general population; and (4) establish an enduring effort of kidney disease health services research in the DoD. The data set will consist of inputs from the MHS Data Repository (MDR), a centralized repository that captures, archives, validates, integrates, and distributes DHA corporate health care data worldwide. The necessary data-sharing agreements and security controls will be implemented.

Dr. Gregory Gorman discussed pediatric population health and DoD opportunities for tracking renal well-being. He reiterated that the MHS has the largest pediatric database of any single health care system, with data from 3.9 million children and adolescents. As a universal health care system, the MHS minimizes access to care barriers and socioeconomic biases. The pediatric database is contained within the MDR, which is linkable to other DoD databases. Using the MDR, the USUHS' Department of Pediatrics conducted a retrospective cohort study, which was published in the July 2015 edition of the *Journal of Pediatrics*, to investigate the prevalence of pediatric hypertension and quantify echocardiography

evaluations in children of U.S. military members from 2006 to 2011. In addition, the prevalence of metabolic syndromes in children with autism and AKI events in young children was evaluated.

Dr. Gorman described two new systems in the MHS that are bringing population health to the clinician at the point of care: the population health portal (PHP) and GENESIS, a state-of-the-market EHR system. The MHS PHP can identify all hypertensive patients, formulate a hypertension registry, and perform data normalizations for age, gender, and height. Medical home health care professionals use nephrology-related registries to incorporate treatment interventions. MHS GENESIS will be implemented in phases; the first phase already is in effect at sites in the Pacific Northwest. Algorithms for pediatric patients and criteria to flag hypertension and AKI have been improved. Untapped resources include vital signs registries, the DoD serum repository, and assessments of recent renal biopsy text data files.

Discussion

- Dr. Kevin Abbott pointed out that the Armed Forces Institute of Pathology has a large repository of kidney biopsy samples and might be a useful resource.
- Dr. Nee lauded the efforts of the DoD to minimize health disparities and commented that the chronic disease burden in the DoD population is similar to the burden in the general population. He suggested that policy changes implemented at the DoD are likely to be successful in the general population as well.
- Dr. Andress commented that Medicare is a model system of universal coverage, yet the issues of health disparities remain—a long-term view of disparities across the patient’s lifetime of care might be a better approach. Dr. Narva noted that health care in the DoD, IHS, and VA are provided without incentives to providers, thus the commitment of the health care providers to the patients as well as the mission plays a significant role, and this may not be characteristic of providers in the private sector. In the DoD, IHS, and VA, the system is what delivers the care. Dr. Gorman explained that the active duty military population must maintain optimal health, which could explain some of the differences within veteran population studies.
- Dr. Kenneth Wilkins asked whether National Death Index (NDI) data would be captured in the DoD CKD Surveillance Program. Dr. Koehlmoos responded that the MDR captures the date of death for all patients, regardless of the cause of death, and Dr. Nee pointed out that the costs associated with linking to the NDI may not be affordable to all members of the kidney research community.

Upstream Prevention of Chronic Kidney Disease and ESRD: Barriers to Implementation

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CMS

Ms. Celeste Bostic discussed the CMS Medicare expenditures for CKD and ESRD and the role of ESRD Networks in population health. Per the USRDS 2015 ADR, total Medicare fee-for-service (FFS) spending for CKD stages 2–4 is approximately \$49 billion annually. More than 660,000 ESRD patients are on dialysis, and this number increases by 21,000 each year. The CKD stage 5/ESRD population remains at less than 1 percent of the total Medicare population, but has accounted for 7 percent of the Medicare FFS spending in recent years. Medicare funds dialysis at an annual cost of \$30.9 billion, and total Medicare FFS spending for CKD stages 2–5 is \$80 billion annually.

In addressing population health in CKD and ESRD, CMS currently is developing topic areas for the Quality Improvement Organization's (QIO) twelfth scope of work. CMS QIO leadership has expressed a commitment to collaboration between ESRD networks and QIOs to affect prevention, early intervention, vascular access, and other areas relevant to persons living with CKD, especially the CKD stage 2–4 population. ESRD Networks, which are mandated through the Social Security Act §1881 (c), have the responsibility to encourage activities and engagement and continually improve the quality of care and access to care for persons with ESRD. Through the ESRD Network Statement of Work, CMS aims to affect the health measures, outcomes, and accountability for the ESRD population.

Dr. Janet Wright described the next 5-year phase of Million Hearts, a public-private initiative co-led by the CDC and CMS. Million Hearts[®] 2022 (Million Hearts) and its more than 120 partners will build on the progress of the first 5 years. Dr. Wright spoke on the ways in which Million Hearts 2022 will help to improve kidney health for the nation. The aim of Million Hearts is to prevent 1 million cardiovascular events (e.g., heart attacks, stroke) by 2022 through a small set of focused actions in both public health and health care. Million Hearts' public health or community-based priority, keeping people healthy, aligns effective public health strategies with goals and targets (e.g., 20% reductions in sodium intake, tobacco use, and physical inactivity). The health care-based priority, optimizing care, has three goals. First is achieving at least 80 percent performance on the quality measures known as the ABCS (i.e., appropriate aspirin use for those at risk, blood pressure control, cholesterol management, and smoking cessation). The second goal is to increase participation in cardiac rehabilitation to at least 70 percent by 2022. The third goal is to engage patients in heart-healthy behaviors that reduce their risk of cardiovascular events. Major contributors to improving kidney health in these priorities are hypertension control, sodium intake, cholesterol management, and increased physical activity, for their impact on the development and control of diabetes.

The third priority, improving outcomes for priority populations, is the area that is most relevant for kidney health. Million Hearts has made efforts within subpopulations to improve HTN control, identify disparate outcomes and underutilized effective intervention, and establish strong partnerships. Awareness and treatment of hypertension in African Americans have improved, but the control rate continues to lag. Cardiac events and cardiovascular disease mortality are increasing in people ages 35 to 64, who therefore are a priority population. Million Hearts is working to address interventions to improve HTN control and medications and increase physical activity. Additional priority populations include people who have had a heart attack, which increases the risk of another cardiovascular event, and people with mental illness or substance use disorders because of their high prevalence of smoking and of cardiometabolic syndrome. Strategies to increase cardiac rehabilitation referrals and reduce tobacco use are ongoing. Federal agencies, including the Substance Abuse and Mental Health Services Administration, are helping with intervention regarding tobacco cessation. Dr. Wright noted where the 2017 Million Hearts Clinical Quality Measures (CQM) are aligned with public and private sector reporting programs including the CMS Quality Payment Program and the Merit-based Incentive Payment System. The information presented can be accessed from the Million Hearts website at millionhearts.hhs.gov.

Dr. Jesse Roach discussed activities of the CMS Kidney Health Affinity Group, which started internally at the CMS and expanded into an interagency committee consisting of more than 100 members who meet to discuss aspects of kidney disease and determine how best to collaborate to improve outcomes and quality of life. The purpose of the Affinity Group is to leverage the clinical, policy, and public health expertise of its members to identify and pursue avenues for preventing or slowing the progression of CKD. In spring 2016, CMS leadership issued a challenge under the ESRD initiative to examine barriers and challenges in kidney health care. Federal stakeholders became members of the Affinity Group, worked with CMS to develop recommendations, and decided to expand the focus to the entire spectrum of kidney health. The Affinity Group developed a number of recommendations; most significant to today's discussion is the recommendation to develop a national strategy for reducing the upstream causes

of CKD and ESRD, including development of pilot models to align payment and quality incentives, and engagement in patient education efforts at all levels (e.g., AKI, DM, CKD, ESRD, and transplantation). Dr. Roach noted that these efforts are ongoing and that a report will be released soon. The Affinity Group is open to participation by any federal stakeholder wishing to engage in kidney health.

Dr. Roach detailed the limitations for CMS in CKD and ESRD coverage. He explained that the scope of the CMS coverage for ESRD is limited to Medicare beneficiaries, typically persons over age 65, who already have been diagnosed with ESRD. Recognizing that this is an important population, Dr. Roach noted that it also would be beneficial for CMS to have the authority to influence treatment for CKD in younger populations. The CMS ESRD Quality Incentive Program (QIP) promotes high-quality services in outpatient dialysis facilities treating patients with ESRD, but interventions of upstream prevention of CKD and ESRD are needed. In addition, CKD education is a one-time covered benefit for Medicare beneficiaries, but is underutilized due to a lack of awareness and incentives to providers. Potential levers for the CMS include the following: (1) the Quality Payment Plan, which encourages clinical improvement activities among health care providers; (2) development of clinical measures that encourage monitoring of kidney disease and prompt referral to nephrologists; (3) increased reimbursements for educational activities related to kidney disease; and (4) promotion, through policy changes and education, of improved outcomes in patients who have ESRD.

Dr. Roach invited the participants to provide input to the CMS on the following questions:

- Given the above limitations, what steps can CMS take to improve kidney health in the U.S. population?
- What role should CMS play in reducing kidney disease in the U.S population?
- How should CMS help identify those at risk for kidney disease?
- What steps can CMS take to improve awareness of kidney disease among patients and health care providers?
- What role does care for those already diagnosed with ESRD play in this effort?
- What metrics could CMS use to determine if its efforts are collectively making a difference, and what data sources could support that metric?

Discussion

- Dr. Narva asked how CMS supports implementation of the goals of the Million Hearts. Dr. Wright explained that the CMS Innovation Center established a payment model for prevention that provides incentives for providers and tracks the ability of clinicians to provide personalized care for cardiovascular risk factors, monitoring outcomes and rewarding high performance on those outcomes. CMS also has helped to embed the Million Hearts CQM into the national reporting system and has begun to evaluate BP control measures, and the statement of work of the QIOs is focused on driving the reporting and Million Hearts performance measures.
- Dr. Delia Houseal emphasized that QIP is a demonstrable lever for the CMS to improve population health; ESRD patients are a population for which the program constantly aims to improve outcomes.
- Dr. Crowley suggested engaging family practitioners, insurers, and other specialists who manage patients to improve direct consumer education on kidney disease and to target the populations they serve. Dr. Roach responded that the CMS already has discussed focusing on the primary care practice setting. Interventions that have been considered include BP management methods,

strategies to encourage nephrology referral, and measures in development that monitor Ualb and serum creatinine in subsets of patients. Many health care organizations are developing measures to align with those in use at CMS. Dr. Crowley added that establishing partnerships with patient advocacy groups and medical groups would be helpful.

- Dr. Abbott commented that many studies indicate that not all incidences of CKD are correlative to DM, which suggests that there may be other causes for CKD. Primary care managers should screen for other renal diseases within the CKD population. There could be differences in universal coverage and universal delivery of care; Medicare patients might respond differently than those in other health care systems.
- Dr. Lauren Oviatt explained that CMS' interaction with primary care is relatively recent, and baseline data from other quality systems still are being captured. The full effect of the Affordable Care Act and the larger number of people with access to care may not be realized for years to come. Patients have been entering the health care system who have not had care for a decade or more.
- Dr. Nee commented that CMS should emphasize education and increase patient awareness of microalbuminuria and risk factors. He also suggested increasing reimbursements for community nephrologists.
- Dr. Narva highlighted the issues related to using patient identification and classification from the kidney and advocacy communities and over-identifying CKD patients for the purpose of changing health care. He recommended that CMS use existing tools to focus performance measures and interventions on patients at the highest risk for CKD to ESRD progression. Adjusting the regulations to include a broader range of health care professionals in the primary care setting is more likely to make a difference in kidney health.
- Dr. Oviatt encouraged participants to contact their local legislators with these comments to prompt changes to statutes that would allow CMS to provide more services. Dr. Koehlmoos pointed out the cost-saving benefits of task shifting.
- Dr. Star asked about including the CKD population in Million Hearts and whether a “million kidney initiative” was planned. Dr. Roach explained that CKD will be part of the focus of the next iteration of Million Hearts, and Dr. Oviatt shared that CMS is working to establish a kidney disease initiative similar to Million Hearts, although efforts are progressing slowly. Dr. Address noted that the CMS Kidney Health Affinity Group has discussed increasing awareness of and attention to kidney disease; it is unclear what would jumpstart the initiative. Dr. Star suggested modeling the savings from the exemplars of success discussed at today's meeting—leveraging these existing data could provide compelling arguments for a national kidney disease initiative. Dr. Oviatt explained that CMS does not have the funds necessary to sponsor a national kidney disease initiative, but it is making efforts to engage stakeholders in the private sector, including nonprofit kidney disease organizations, to partner with Million Hearts.
- Dr. Address pointed out some of the limitations for CMS. For example, there are obvious cost savings for patients surviving 5 years after having had a transplant compared to the cost for patients receiving dialysis for 5 years. Yet, according to the rules that govern a program's cost evaluations and scoring, Medicare-certified transplant centers are not able to take credit for these cost savings because of the initial high expense of performing a transplant.
- Because care is becoming more complex, people are living longer, the number people needing care continues to rise, and the number of primary care physicians is declining due to the stress they are experiencing, Dr. Bullock emphasized the importance of care management in the health

care community. She wondered whether CMS could help resolve any of these issues. Although it is not completely clear what can or will be done, Dr. Oviatt explained that CMS is pursuing efforts in this area. Dr. Abbott pointed out that care navigators can be useful in helping patients as care becomes more complex, and Dr. Andress remarked on the efforts of private health care providers to establish call coordination centers that have helped dialysis patients navigate their care and have reduced hospital readmissions.

- Task shifting is being done in the ESRD care setting, noted Dr. Andress, but how that translates to treatment for CKD is challenging because of the diffuse nature of CKD care. Shifting costs and allocating responsibility are issues that need to be addressed in integrated care settings; CMS is limited in what it can do to drive private providers to take specific actions regarding care. Dr. Koehlmoos pointed that MHS bundled the services for CKD and ESRD and wondered whether CMS could consider that as an option. Dr. Oviatt explained that CMS regulates health care providers (e.g., hospitals and ESRD facilities) and suppliers, but not the practice of medicine; bundling of services is a decision made by the health care facility. The soon-to-be-released update on the Comprehensive ESRD model developed by the CMS Innovation Center of ESRD Seamless Care Organizations will provide some insight on the effectiveness of care coordination. Dr. Narva pointed out that cost shifting is not a concern for the IHS and VA because the patients often remain in those health systems for life. Health systems should have the incentive to look ahead to address the challenges in cost shifting.
- Dr. Abbott asked whether there were interventions that CMS could implement to mitigate the large spike in mortality observed in patients starting on dialysis—there are spikes in cost and hospitalizations as well. Dr. Andress pointed out that dialysis providers often receive patients with catheter access ports installed; these patients have experienced the most failures and complications and have had little to no nephrology care. Holding the provider solely accountable for these probable factors in the onset of dialysis mortality rates would be complicated. CMS incorporates a stabilization period into the quality measures, which excludes patient data for the first 90 days of dialysis. This might reflect a vulnerability within the system as a whole, versus how kidney disease should be treated. CMS is hoping that the Quality Payment Plan will help with patient transitions into dialysis care by incentivizing providers to improve patient readiness for dialysis and identify high-risk patients to prevent them from crashing into dialysis. A fundamental weakness of the program is that a patient’s status must be either CKD or ESRD. It is challenging to determine who is responsible for care before or after renal failure. Dr. Oviatt commented that CMS is working to adjust to this real-world evidence on kidney disease and is investigating whether a model that would extend Medicare coverage to earlier stages of CKD can be developed.

Adjournment

Dr. Narva commented that the day’s meeting provided participants the opportunity to discuss models of success in population health approaches for kidney disease and existing challenges. The public needs the group’s collective efforts to improve CKD care. He thanked the attendees for their participation and noted that the next meeting of the KICC is scheduled for September 8, 2017.