



# **State Plan for Chronic Kidney Disease Treatment**

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**As Required by**

**Texas Health and Safety Code,**

**Section 83.006**

**Texas Chronic Kidney Disease Task  
Force**

**January 2021**

# Table of Contents

<b>Executive Summary</b> .....	3
<b>1. Introduction</b> .....	5
<b>2. Background</b> .....	7
<b>HEALTH CARE DISPARITIES</b> .....	8
<b>THE COST BURDEN OF END STAGE RENAL DISEASE</b> .....	10
<b>3. CKD Task Force Recommendations</b> .....	11
<b>THE RITA LITTLEFIELD CKD CENTRALIZED RESOURCE CENTER</b> .....	12
<b>CLINICAL TRIAL AND CONTINUOUS QUALITY IMPROVEMENT NETWORK</b> .....	14
<b>CKD EARLY DETECTION AND EDUCATION</b> .....	17
<b>TRANSPLANT INITIATIVES AND RECOMMENDATIONS</b> .....	23
<b>Education</b> .....	24
<b>Process Improvement</b> .....	25
<b>Deceased Organ Donation</b> .....	26
<b>Living Kidney Donation</b> .....	27
<b>Post-Transplant Issues</b> .....	29
<b>4. Conclusion</b> .....	31
<b>List of Acronyms</b> .....	33
<b>References</b> .....	35
<b>Appendix A. Chronic Kidney Disease Task Force Membership</b> .....	37
<b>Appendix B. CKD Task Force Report Data</b> .....	40

## Executive Summary

[Texas Health and Safety Code, Chapter 83](#), established the Chronic Kidney Disease Task Force (Task Force) whose purpose is to advise the Governor on matters as described below:

- A. Coordinate implementation of the state's cost effective plan for prevention, early screening, diagnosis, and management of chronic kidney disease for the state's population through national, state, and local partners; and
- B. Educate health care professionals on the use of clinical practice guidelines for screening, detecting, diagnosing, treating, and managing chronic kidney disease, its comorbidities, and its complications based on the Kidney Disease Outcomes Quality Initiative Clinical Practice Guidelines for Chronic Kidney Disease.

Two events coincided with the launch of the Texas Chronic Kidney Disease (CKD) Task Force.

The first event being that the initial components of the Executive Order the president signed in July 2019 were being implemented for "Advancing American Kidney Health." This order outlined policy priorities centered on advancing three main goals: (1) preventing kidney failure whenever possible through better diagnosis, treatment, and incentives for preventive care; (2) increasing patient choice through affordable alternative treatments for End Stage Renal Disease (ESRD) by encouraging higher value care, educating patients on treatment alternatives, and encouraging the development of artificial kidneys; and (3) increasing access to kidney transplantation.

The second event being the pandemic of coronavirus disease 2019 (COVID-19) sweeping the globe. In the short run, COVID-19 has disrupted access to preventative health screenings, transplantation, living donation, and resulted in a rise of Acute Kidney Injury (AKI) and subsequent chronic kidney disease. COVID-

19 afflicts multiple organ systems, with AKI a major complication in seriously ill patients. Development of AKI appears to be a consequence of severity of illness, and its occurrence portends a worse prognosis.<sup>1</sup> Current studies demonstrate up to half of patients with AKI did not recover to baseline creatinine levels and may have persistent CKD.<sup>2,3</sup> Patients with underlying chronic kidney disease have a higher incidence of COVID-19, which can cause acute kidney injury and worsening kidney disease. The long-term impact on our populations' health, including practitioners and health care providers, in the chronic kidney disease community is unknown. Experts in the nephrology community suggested that chronic kidney disease will be the next epidemic in the U.S. for recovered COVID-19 patients. Beyond chronic kidney disease, data from the pandemic has revealed the need for a long-term plan that addresses the fissures in the healthcare system.

# 1. Introduction

House Bill 1225 (also known as the Glenda Dawson Act), 86th Legislature, Regular Session, 2019, created Chapter 83, Health and Safety Code, reestablishing the Chronic Kidney Disease Task Force. The Task Force is composed of 24 members, 20 appointed by the Governor, two members of the senate appointed by the lieutenant governor, and two members of the house of representatives appointed by the speaker of the house of representatives.

Texas Health and Safety Code, Section 83.003, requires the Task Force to advise the Governor on developing and implementing a state plan for a cost-effective plan for prevention, early screening, diagnosis, and management of chronic kidney disease for the state's population through national, state, and local partners; and educating health care professionals on the use of clinical practice guidelines for screening, detecting, diagnosing, treating, and managing chronic kidney disease, its comorbidities, and its complications. Per Texas Health and Safety Code, Section 83.006, the Task Force must submit the state plan and its findings and recommendations to the governor, lieutenant governor, and speaker of the house of representatives, the presiding officers of the appropriate standing committees of the legislature with jurisdiction over health issues no later than January 1 of each odd-numbered year beginning January 1, 2021.

Task Force members' professional experiences span decades and includes expertise in the treatment of CKD, education and training, nutrition education, and public health policy. The CKD Task Force recommendations are based on reviews and discussions of CKD prevention and self-management, cost-savings studies, and evidence-based research studies.

To ensure efficiency, the Task Force organized into workgroups to review the minimum practice standards, data from state agency programs, health systems, and special studies to assess the effectiveness of CKD management in Texas. Task Force meetings serve as opportunities to review and discuss topics, which assist in

the identification of these priorities as outlined in the CKD Task Force Recommendations.

While being conscious of the federal executive order and ongoing pandemic, the Task Force workgroups, priorities and recommendations are centered on the following themes:

- Education to the public regarding kidney disease and with an emphasis on preventing the onset of kidney disease.
- Early screening and diagnosis of kidney disease aimed at mitigating progression of disease including the management of co-morbidities such as diabetes, hypertension and obesity as well as other risk factors.
- Optimizing treatments of Stages 1-4 of kidney disease including peritoneal and hemodialysis.
- Increasing donation through education of the public on both Living Donor and Deceased Donation.
- Legislation in support of the CKD community including those patients at risk of developing renal disease in the future or those living with renal disease now.

## 2. Background

An estimated thirty-seven million US adults have CKD, many of whom, are unaware that they have kidney illness.<sup>4</sup> In fact, data shows that more than 90% of individuals are unaware that they have any type of kidney dysfunction.<sup>5</sup> Moreover, research shows that 48% of individuals with severely reduced kidney function are not aware they have significant kidney disease and are progressing to End Stage Renal Disease (ESRD).<sup>4</sup>

The data in Texas demonstrates a pressing opportunity for improvement. In 2019, there were 71,996 total ESRD patients in Texas either on dialysis or having received a transplant (Figure B1).<sup>6</sup> Texas's ESRD incidence rate exceeds the national rate and represents 10.3% of the nation's total ESRD patient population. The annual incidence is 379.1 per million population as compared to an average of 346.9 per million population.<sup>7</sup>

The data tells a poignant story of a future of worsening growth in the Texas dialysis population. The impact of dialysis on patients, their families and their communities is devastating. In 2016, 124,675 patients initiated treatment for ESRD, 121,209 of whom started on dialysis (3,466 started with a kidney transplant).<sup>6</sup> According to the End Stage Renal Disease Network of Texas (ESRD Network 14), in 2019, an additional 13,001 patients began dialysis (Figure B2).

Particularly distressing is the fact that diabetes and hypertension are significant risk factors for renal disease and these are diseases that can, in large part, be prevented or medically managed to mitigate the onset of kidney disease. Yet, on average, 29% of patients who are 65 years of age or older with Type II Diabetes Mellitus and 16% of patients of similar age with hypertension will develop CKD.<sup>8</sup> Data shows the prevalence of hypertension in adults in the United States has increased significantly between 1999 and 2014. In 2014, 41% of adults in the US reported having hypertension or a having a measured blood pressure of greater

than or equal to 140/90 mmHg (Figure B3).

The number of new cases of CKD and patients on dialysis continues to increase, but many Texans are not aware that they are at risk. Early detection and treatment of CKD and associated comorbidities (i.e., diabetes and hypertension) can reduce disease progression and improve overall health and wellness. The reported awareness of disease, among individuals with CKD stages 3 and 4, was 12.4% in 2013-2014 (Figure B4). Over the past 16 years, no distinct increasing or decreasing trends have been noted. In 2015-2016, 14%-15% of adult National Health and Nutrition Examination Survey (NHANES) participants, representing 31-34 million noninstitutionalized U.S. civilian residents aged 20 years or older, had evidence of CKD stages 1-4; of these, 15-18 million had evidence of CKD stage 3 or 4 (Figure B5).

Early detection and intervention are critically needed. Patients who progress to stage 3 kidney disease are ten times more likely to die from any cause than to progress to dialysis. The ten year mortality of a patient with diabetes, albuminuria and impaired glomerular filtration rate is 47%.<sup>9</sup>

Kidney transplantation prior to the onset of dialysis not only diminishes the ten year mortality from ESRD but substantially decreases total health expenditures. Thus, expanding the education of patients about kidney transplantation and the benefits of living donor kidney transplantation is also an important strategy to improve the well-being of patients with ESRD. As such, early detection of chronic kidney disease and management of comorbidities such as hypertension and diabetes are key to reducing progression of CKD into ESRD. Additional factors such as the impact of social determinants of health, behavioral health issues, and obesity must be addressed concurrently.

## HEALTH CARE DISPARITIES

Healthcare disparities have long been a problem within the medical community. According to the data from the United States Renal Data System (USRDS), 2017

incidence rates of ESRD were 9.0 times higher in Native Hawaiians/Pacific Islanders, 2.8 times higher in African Americans compared with White Americans and 1.3 times higher in Hispanic compared with non-Hispanic Americans.<sup>15</sup> African Americans and Hispanics have high incidences of diabetes and hypertension, so it is not surprising that they are also disproportionately affected by CKD and ESRD.<sup>10</sup> While genetic differences contribute to some racial and ethnic disparities, including those with CKD, these disparities are also fueled by the clustering of negative social determinants of health, or social risks, in minority and socially disadvantaged populations. These social risks have clear and strong associations with both CKD and ESRD and contribute to the substantial disparities that exist in CKD and ESRD across racial, ethnic, and socioeconomic lines.<sup>11</sup>

African Americans make up the largest group of minorities in need of an organ transplant, yet the number of organ transplants performed on African Americans in 2019 accounted for only 25.8% of the number of African Americans currently waiting for a transplant.<sup>12</sup> The number of transplants performed on white Americans was 47.6% of the number currently waiting. While 28.7% of the total candidates currently waiting for transplants are African Americans, they comprised only 12.5 % of organ donors in 2019 (Table B1).

In 2018, Hispanics made up 18.3% of the national population. The number of transplants performed on Hispanics in 2019 accounted for approximately 29% of the number of Hispanics presently awaiting a transplantation. The Hispanic population received 16.9% of all transplants in 2019. While 21.3% of the total candidates currently waiting for transplant are Hispanic, they comprised only 14.6% of organ donors in 2019.

The cumulative incidence of Live Donor Kidney Transplant at 2 years after appearing on the waiting list increased from 7.0% in 1995 to 11.4% in 2014 among white patients, decreased from 3.4% to 2.9% among African American patients, decreased from 6.8% to 5.9% among Hispanic patients, and increased from 5.1% to 5.6% among Asian patients, which represent a significant increase in

racial/ethnic disparities over time.<sup>15</sup>

## THE COST BURDEN OF END STAGE RENAL DISEASE

In 2016, Texas ranked in the top 20 states with a higher prevalence of ESRD and unfortunately, the incidence of kidney disease in Texas is rising as compared to a downward trend nationally. Although the total cost of kidney disease in Texas is unknown, as CMS does not publish cost analysis by state, in 2017, treating Medicare beneficiaries with CKD cost the United States over \$84 billion, and treating patients with ESRD cost an additional \$36 billion resulting in total health care expenditures of \$120 billion towards kidney disease.<sup>16</sup>

The Task Force studied these statistics, best practices and focused on recommending a set of high impact priorities whose implementation will stand the test of time to deliver on the goals of the legislature in mitigating the adverse impacts of chronic kidney disease. These priorities encompass education of our citizens about kidney disease including transplantation, expanding health care literacy, implementing public health initiatives to diminish the sequelae of diabetes/hypertension including early detection of renal disease, enhancing access to culturally competent health care providers to decrease health care disparities, and the importance of expanding organ donation are critical to addressing kidney disease in our nation and in Texas as these efforts will save countless lives.

### 3. CKD Task Force Recommendations

The Chronic Kidney Disease Task Force recommendations are centered on the following themes:

- Education to the public regarding kidney disease and with an emphasis to help prevent the onset of kidney disease.
- Early screening and diagnosis of kidney disease aimed at mitigating progression of disease including the management of co-morbidities such as diabetes, hypertension and obesity as well as other risk factors.
- Optimizing treatments of Stages 1-4 of kidney disease including peritoneal and hemodialysis.
- Increasing donation through education of the public on both Living Donor and Deceased Donation.
- Legislation in support of the CKD community including those patients at risk of developing renal disease in the future or those living with renal disease now.

The Task Force has proposed several recommendations and initiatives that addresses areas of need, including:

- Chronic Kidney Disease Centralized Resource Center
- Clinical Trial and Continuous Quality Improvement Network
- Create an Awareness Campaign based on Dr. Glen Stanbaugh's Increase the Decrease research. Modeled after the Love Kidneys campaign.
- Support the creation of additional registration opportunities for donation
- Remove disincentives to living donation such as support for the passage of House Bill 317 *Texas Living Donor Support Act*

Success of the proposed areas of focus detailed in the remainder of this document is dependent on funding and support of the proposed solutions.

A key strategy of advancing these themes is for the Legislature to establish a CKD Centralized Resource Center (CRC) and a Clinical Trial and Continuous Quality Improvement Network. This Task Force recommends that the CRC and Clinical Trial and Quality Improvement Network be sponsored by the State, brought forth by legislation and should receive and maintain funds for its creation and long-term maintenance. The CRC will also serve as a platform for several other initiatives

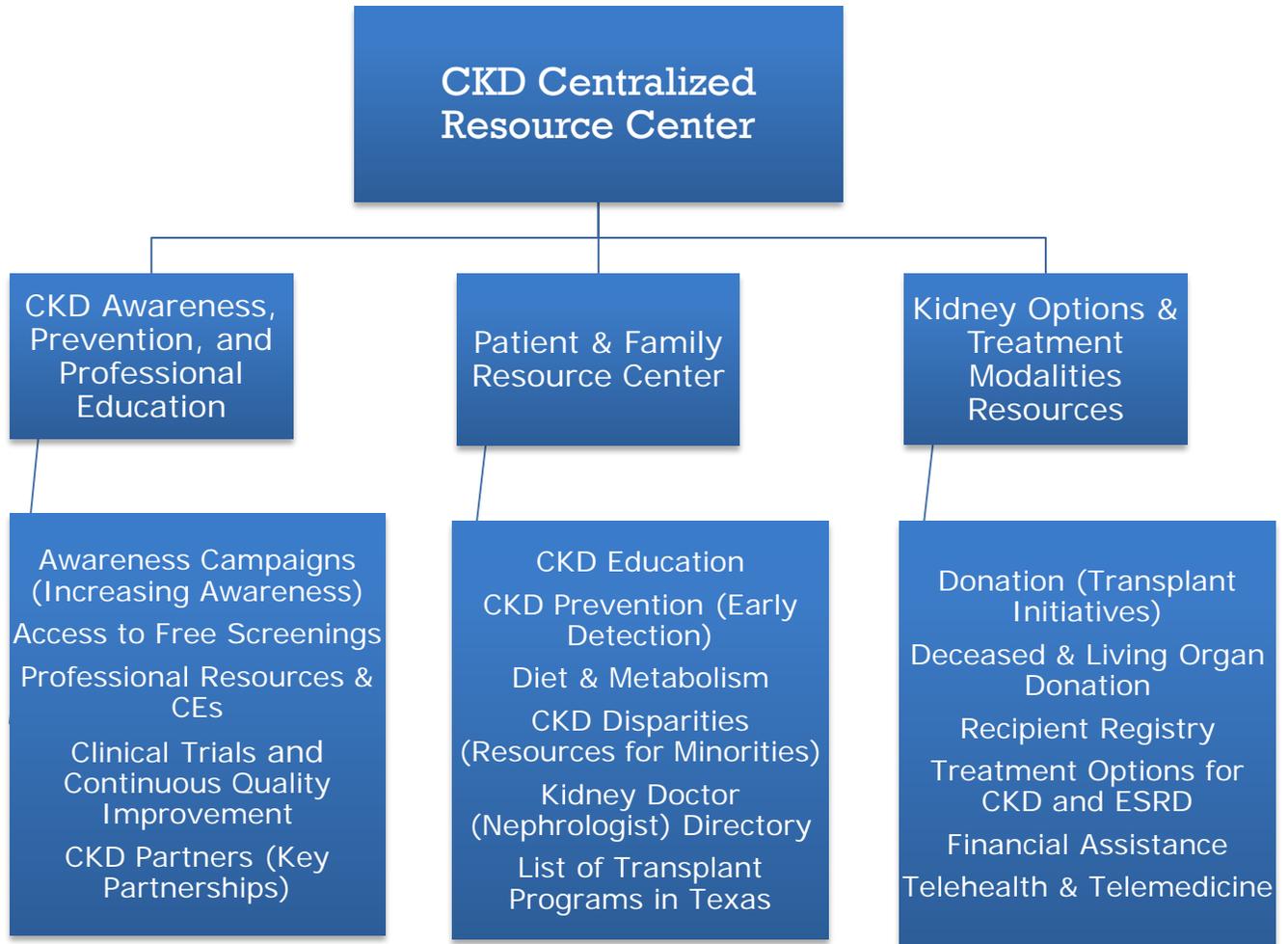
recommended by the Task Force. The Task Force recommends that a methodology be established to track progress in the implementation of any of the recommendations accepted by the Texas Legislature.

## THE RITA LITTLEFIELD CKD CENTRALIZED RESOURCE CENTER

The Rita Littlefield CKD CRC will establish a center point for access and distribution of CKD information to citizens and health care providers. This CRC will be strategically designed to provide “real time” assistance and resources for patients and providers including CKD awareness, prevention, patient-family resources, and CKD treatment options and modalities. Ideally, the CRC will encompass a multilayered approach to provide awareness, education, and resources at every level of CKD for the general population as well as for healthcare professionals. The CRC will include information directly related to CKD, ESRD, and should be made available in English and Spanish. The center will have a robust online service and act as a centralized hub for content created based on recommendations from the CKD Task Force for use by CKD professionals, clients and stakeholders and inform the public about governmental agencies and local kidney disease chapters that can provide additional information and guidance. The center seeks to offer key points of engagement including CKD Awareness, Patient and Family Resources and Kidney Options and Modalities...

The Rita Littlefield CKD CRC will also help address the lack of a standardized referral process for early detection, treatment, and kidney transplantation. The centralized system will support and provide resources for patients, family members, providers, and professionals all in one place (i.e. access to immunosuppressant assistance, assistance with other CKD/ESRD medications, transplant and home modalities navigators, peer mentoring, referral orientation, living donor resources, transportation, lodging, self-referrals to transplant and home dialysis, living donor registry, other related expenses for CKD preventive care, patient advocacy, research, data, free screenings, clinical trials, and home/self-care training). See Rita Littlefield CKD CRC flow chart below.

The Rita Littlefield CKD Resource Center  
Supported by the Health Human Services Commission



This flow chart depicts a multilayered approach to address different areas of CKD. This structure will be utilized as the backbone of the centralized resource center with the intention to continue to build and expand on each of these categories.

The Rita Littlefield CKD CRC should best reside within the appropriate state agency with the appropriate annual funding to ensure oversight, accountability and long-term sustainability.

The CKD Task Force respectfully recommends that the CKD Centralized Resource Center be named in honor of Rita Littlefield who in every way is a caregiver, volunteer and advocate for all patients with kidney disease. In 1986, Rita's daughter, Jackie, developed end stage renal disease and sadly passed away in 1992. As a mother, she promised her daughter she would do everything in her power to make lives better for patients with kidney disease and to help prevent kidney disease in the first place. Rita states, "I had made Jackie a promise I would not walk away until I could make a difference for the kidney patients in Texas." This promise led her to establish the Texas Renal Coalition and Kidney Day at the Texas State Capitol and to her service on all three Texas CKD Task Forces. The Task Force members were unanimous in this recommendation as every day she has kept her promise and continues to make all of our lives better.

## CLINICAL TRIAL AND CONTINUOUS QUALITY IMPROVEMENT NETWORK

The Task Force recommends the formation of a of a Kidney Health Clinical Registry and Trial and Continuous Quality Improvement Network for the state of Texas. This statewide clinical network would register patients and extended family members with ESRD or CKD. The network would cover over 1 million Texan residents and support the infrastructure for new approaches to delay and, in the best of circumstances, arrest kidney disease and improve the quality of life of our citizens. This in turn will also decrease cardiovascular mortality. As noted previously the Task Force recommends the Clinical Trial and Quality Improvement Network be sponsored by the State and brought forth by legislation with necessary requests to receive and maintain funds for its creation and long-term maintenance. Embedding this network into the structure of the Rita Littlefield CKD CRC will ensure patients, family members, health care providers and other members of the community are aware of the registry, have access to enroll themselves and participate in available trials.

With new available and upcoming treatments for CKD, which include new medications as well as diet and lifestyle changes, an organized approach to confronting the problem of CKD in Texas will have benefits to each individual with CKD, a reduction in financial costs to Texas and an overall improvement in the health of the state.

The Clinical Trial and Quality Improvement Network's registry will include:

- Identification of all patients with CKD stages 1-5
- Identification of all patients who require any type of dialysis (CKD Stage 5-6)
- Identification of all patients with a successful or failed kidney transplant

This registry should be kept updated daily and be part of a secure website. Educational information will be provided to all patients in the registry that is modified based on their CKD stage, with patient empowerment as a theme for both the registry and the trials.

The Clinical Trial and Quality Improvement Network's will include, but is not limited to:

- COVID-19 impact on acute and chronic kidney failure
- CKD-Clinical trials on
  - diet, lifestyle, exercise,
  - telemedicine,
  - therapeutics
- Hemodialysis- Clinical trials to focus on
  - Training and coaching-home HD in center
  - Quality hemodialysis, Transplant awareness
  - Self-care in center dialysis
  - Innovative modalities for treatment such as implantable artificial kidneys or xenotransplantation
- Peritoneal Dialysis - clinical trials on
  - Dextrose effect in PD
  - Quality of life PD

- Transplant awareness
  - Improving Access and Outcomes
- Patient empowerment training for
  - Self-care in-center dialysis
  - CKD 1-5 for nephrology practice
  - CKD 1-5 for Primary Care Practice Team
  - Addressing social determinants of health
  - Addressing Systemic issues of social injustice
- Primary Care Practice - coaching and training for CKD management

Some examples of specific recommendations and clinical trial opportunities are described below.

- Telemedicine: the emergence of telehealth-related technologies and their integration into health care delivery systems present exciting opportunities to enhance value-based clinical care, health promotion and safe access to clinical care. The senate bill 1107 amended the Texas state law definition of a telemedicine service to allow for caring of patients at different locations from where the physician is situated. Expansion of telemedicine and its impact on quality metrics for CKD outcomes presents an exciting, low cost opportunity for a clinical trial. In fact, telemedicine has become an integral part of our healthcare system. State and Federal payors should accept telehealth as a standard of care now and into the future.
- Empowering patients and providers for kidney care. New opportunities developed in Texas have resulted in reduced mortality of patients with ESRD on dialysis. Implementing these models in different regions across Texas presents an amazing opportunity to reduce the hospital admission rate for patients on dialysis and reduce the rate of progression.
- New treatment interventions. New therapies such as the SGLT2 inhibitor medications reduce the need for dialysis, admissions for heart failure/cardiovascular events and overall mortality in patients with diabetic and non-diabetic kidney disease. New diets and exercise programs may also

have major benefits for our CKD patients. These interventions could be quickly applied across Texas to find the best fit for specific treatment options for patients.

All of these therapeutic strategies would quickly move Texas to the top of the best quality care for CKD patients in the United States. They are feasible and our Task Force has the requisite expertise to help lead this effort.

The recommendation will form a nimble system to quickly understand the scope of the CKD problem in Texas and test new solutions. The Clinical Registry and Trial Network will facilitate and organize the impact of new therapeutics, exercise regimens, dietary practices and behavioral interventions to make rapid Go/No Go decision on what works and what doesn't. Each year will see improvements in reduction of the number of patients who will need dialysis. This will have a direct impact to save enormous funds for the state and improve health of families and communities.

## CKD EARLY DETECTION AND EDUCATION

The Texas Quality Improvement Network's (TMF) "Improving Chronic Disease Self-Management – Chronic Kidney Disease Change Package" (1) stresses that *early detection is critical to slow down the progression of chronic kidney disease. However, less than 10% of people with hypertension and less than 40% of people with diabetes receive screening for kidney impairment. A proactive population health model for CKD includes early screenings per the National Kidney Foundation (NKF) guidelines. These guidelines include prompt screening, diagnosis, and management of diabetes and high blood pressure with timely referrals to nephrologists. These guidelines are more critical for providers working in communities with a high percentage of under-represented minorities and socioeconomically disadvantaged citizens. The prevalence of both CKD and ESRD among these communities are disproportionately high. Kidney disease affects African Americans (16%) and Hispanics (14%) more than any other race or ethnicity. The prevalence of ESRD is three times greater for African Americans than non-Hispanic*

*whites.*

Utilizing the Rita Littlefield CKD CRC, the Task Force recommends promoting early detection of chronic kidney disease and aggressive treatment of comorbidities (hypertension, diabetes, obesity, cardiovascular disease) through education of healthcare providers including the offering of Continuing Medical Education Hours, Continuing Education Units, and provider toolkits. The Task Force recommends working with physician organizations such as the Texas Medical Association, Texas Academy of Family Physicians and similar groups to include the topics of early detection of CKD and management of comorbidities in their educational curriculum seminars.

CKD can also be improved through addressing food insecurity, including lack of access to nutritious food, as this can result in the development of chronic illness or the worsening of existing diseases including chronic kidney disease and obesity. Using the Rita Littlefield CKD CRC, provide education and information on resources to access to nutritious foods by working with organizations such as Feeding America and local food banks.

The Rita Littlefield CKD CRC will be linked to social media and will play a key role in promoting awareness, education, and early detection interventions. To maximize efficiency and availability of resources, the following interventions are recommended, and where applicable, will need to be made accessible through the Rita Littlefield CKD CRC:

- Reactivation of previous ESRD prevention campaigns, “Love Kidneys” and the “Save Their Kidneys” program to educate healthcare providers.
- The Department of State Health Services (DSHS) to offer presentations on CKD for its Grand Rounds Series at least once a year and made available through the Rita Littlefield CKD CRC.
- Assigned DSHS/HHS staff will contact the Texas Board of Nursing to partner and include educational and awareness information for CKD (recommended

by Task Force subject matter experts) in the Texas Board of Nursing Newsletter. A permanent link to the newsletter would be accessible through the Rita Littlefield CKD CRC.

- Focus on social determinants of health by addressing issues of food insecurity, transportation to appointments, and access to affordable medications to improve overall health outcomes. Resources to mitigate these barriers can be housed and accessed through the Rita Littlefield CKD CRC such as links, education and information to access to nutritious foods such as Feeding America, local food banks and programs like Texas A&M AgriLife Extension and the VIVA SA Healthy Corner Stores project
- Utilize available resources through Federal Agencies such as the Centers for Disease Control and Prevention (CDC), Centers for Medicare & Medicaid Services (CMS), National Institutes of Health (NIH), the Indian Health Service, Department of Veteran Affairs, and the Department of Defense, all of which support direct care systems that serve populations with a high prevalence of, or at high risk for, CKD (i.e., Kidney Interagency Coordinating Committee ([KICC](#)) and [Federal Chronic Kidney Disease \(CKD\) Matrix](#)). Links to access these resources will be made available through the Rita Littlefield CKD CRC.
- COVID-19 has demonstrated to healthcare workers the importance of telemedicine/telehealth as a means of expanding access to healthcare for Texans and should be considered as a permanent means of delivering care and an accepted means by national payors.

Task Force recommends the utilization of data driven approaches to identify communities within the state for CKD screenings such as:

- The Behavioral Risk Factor Surveillance System (BRFSS) conducted by the [National Center for Chronic Disease Prevention and Health Promotion](#) that collects data on physical activity levels, tobacco or alcohol use and health care access . Participants are asked to provide basic demographic information, such as age, race and ethnicity, income, and education level.

The survey is conducted by telephone and includes questions about health risk behaviors related to nutrition, physical activity, tobacco and alcohol use, diabetes, heart disease, immunizations, injuries, health care access and use of health care services. BRFSS has been conducted annually since 1984. Therefore, the data can be utilized to identify trends and develop public health strategies. Questions about income, educational level, and health care access are included in the survey and factor into the social determinants of health.

- TKF and SPKF data to determine where annual return(s) to certain communities is advantageous to follow up with individuals that were screened and counseled to determine the extent adoption of recommended lifestyle changes and the impact

Early identification and engagement are critical in managing CKD. The Task Force strongly recommends leveraging relationships and developing community coalitions that can increase collaboration between public and private organizations to address factors which can decrease the progression of CKD to ESRD. These coalitions will assist and support interventions and promote strategies to address issues impacting communities. Taking a community-based approach will allow for the development of strategies that can address gaps in health services and ensures alignment of goals that are identified as community needs.

<b>Recommended partnerships</b>	
<b>Nurses in the American Nephrology Nurses Association (ANNA)</b>	ANNA may assist with outreach and screenings utilizing their network and chapters throughout the state.
<b>Texas Quality Improvement Network (TMF)</b>	TMF may assist working with hospitals and the CKD CMS improvement goals and activities.

<b>DSHS Community Health Workers (CHW)</b>	DSHS CHW may work with their advisory committee to develop and promote a CKD outreach plan throughout the state.
<b>Texas Education Agency (TEA)</b>	Work with TEA approved Coordinated School Health Programs to promote education in school systems through programs such as the Coordinated Approach to Child Health (CATCH).

Leverage partnerships with nurses who are members of ANNA and have experience working in dialysis centers, nephrology offices, internal medicine clinics, and other settings where patients with CKD or potential renal failure are treated. A priority will include identifying local chapter ANNA nurses that may volunteer to assist in CKD testing during non-profit, community, or state sponsored events.

Leverage the existing community engagement of Quality Improvement Organizations (QIOs) such as TMF Quality Innovation Network. TMF is currently contracted with CMS to assist patients and families, providers and communities to make care safer, support active engagement and self- management of chronic conditions such as CKD, eliminate health disparities, promote best practices for healthy living, improve access to care, and make care affordable. The Task Force recommends the appropriate agency or department within the state government to contact TMF to discuss a collaborative effort that aligns with the goals stated above.

**INCREASING CKD EARLY DETECTION**

The Task Force recommends partnering with the American Heart Association (AHA), Texas Kidney Foundation (TKF), South Plains Kidney Foundation (SPKF), National Kidney Foundation (NKF,) American Diabetes Association (ADA) to expand community outreach, awareness, and free CKD screenings. TKF and South Plains Kidney Foundation are already providing awareness and can be the main two partnerships working together to lead CKD awareness efforts in Texas (with support from assigned DSHS/HHS staff), including:

- Developing strategies for both in person and virtual screenings.
- Collaborate with retail pharmacies such as Walgreens, CVS, Walmart and other potential organizations where there are accessible blood pressure monitors. Develop educational posters through the Love Kidneys Campaign to be posted at these sites to inform individuals about the importance of blood pressure monitoring.
- Utilize the screening model created by the TKF and utilized by SPKF so that community events by partnering organizations also include blood pressure checks, urine and blood collection (if possible), and a consultation on-site.
  - The referral process for the model should be expanded to include a referral to a nephrologist or properly trained PCP for individuals at risk (determined by on-site assessment).
- Include nephrologists at community CKD events to review lab results and lifestyle questionnaires with participants.
- Include information on hypertension and the impact on kidney health and when to seek care.
- Provide information about community events and screenings.
- Ask organizations such as the ADA and AHA to share data and results of diabetes and cardiovascular screenings from their respective organizations to identify potential “hot spots” throughout the state and spread awareness. Develop sustainable strategies to use during the current pandemic and beyond.
- Implement processes including telehealth screenings with in-home testing kits during the pandemic and to provide more access to care in rural areas.
- Send home testing kits for A1c and nephropathy.
- During telehealth sessions review results of home testing as well as provide information on nutrition and exercise, medication compliance, and address comorbidities.
- Expand the screening process that the TKF has put into place with Clinical Pathology Laboratories (CPL). There are 170 CPL locations throughout the state that are available to schedule appointments for lab screenings (A1c, nephropathy, BMI and wellness check). Individual appointments are

scheduled at the lab for screenings.

- Deliver primary health prevention through media campaigns.
- Promote the virtual use of health coaches to promote kidney health as well as registered dietitians and renal educators.

For the past three years TKF has used its accumulated internal statistical data (accumulated since 2013) to lead a comprehensive screening campaign in churches, flea markets, The model can be scaled and adapted to other community partner such as parks, schools, a NKF, ADA, AHA, and other organizations to provide a cohesive public/private effort that will improve access to care to the disadvantaged populations.

In 2013, 9007 physicians identified themselves as specializing in nephrology. That would result in about one nephrologist per 1,666 adults in the United States with chronic kidney disease stages 3 and 4 (Figure B8). Therefore, it is important within medical residency programs to train primary care residents on the importance of screening for chronic kidney disease and the aggressive management of the associated comorbidities.

## TRANSPLANT INITIATIVES AND RECOMMENDATIONS

Kidney transplantation provides the optimal method of renal replacement therapy for patients with end-stage kidney disease. Transplantation provides better long-term survival, higher quality of life and less medical expense compared to dialysis modalities. These advantages extend across all age groups of transplant recipients. Despite these advantages, transplant remains an option for a minority of ESRD patients. One reason is related to medical issues such as morbid obesity, cardiovascular disease and active cancer or infection. Timely referral to a transplant center and timely completion of medical evaluation and listing by the center may be an issue. Another important limitation relates to socio-economic aspects which may limit access to transplant and impact post-transplant care. By far the major limitation to transplant is organ availability, both with deceased donor or living donor organs.

Texas Renal Network 14 data for 2019 showed 54,408 Texans on dialysis and 17,590 persons living with a kidney transplant. There were 13,001 new patients starting dialysis with 2,179 new transplants (712 from living donors) during 2019. Only 332 persons received a transplant prior to having to start dialysis. There are currently over 8500 Texans wait-listed for a kidney transplant. USRDS data shows an adjusted mortality rate for dialysis patients of 165 per 1000 patient-years (decreased by 28% since 2001) versus a rate of 29 per 1000 patient-years for transplant (decreased by 41%). Annual maintenance costs for hemodialysis exceeds \$90,000 per patient versus \$38,000 for a transplant recipient. These figures indicate the magnitude of the problem and the potential for improvement in ESRD care with increased transplant activity.

To increase access to kidney transplantation by Texans with kidney disease, there are five principle areas which can be addressed:

- Educational- Public, Patient, and Professional targets
- Process Improvements- Diagnosis, Referral, Evaluation and Communication
- Deceased donation- increase donor registrations and improve donation rates
- Living donation- removal of financial and social barriers to donation
- Post-donation and post-transplant issues

Recommendations will be presented for each of these areas as part of a coordinated effort by the Chronic Kidney Disease Task Force.

## **Education**

Improving education and information availability regarding chronic kidney disease is a major goal of the Task Force to prevent disease, slow or stop its progression, and optimize treatment. As noted, transplant offers improved survival, quality of life and cost savings compared to dialysis. There is a need for increased public awareness of these benefits so that informed decisions can be made about organ donation and treatment options.

Patients need to know these options and the possibility to have a pre-emptive kidney transplant prior to dialysis to gain maximum benefits with decreased costs to them and to the health care system. There is a particular need for information directed to vulnerable patient populations that may be socio-economically disadvantaged. Culturally sensitive and appropriate education needs to be provided in a bilingual format for our state's large Hispanic population which has an increased risk for kidney disease.

Professional education needs to be directed not only to specialty areas such as nephrology, endocrinology and internal medicine, but to primary care physicians as well. Early referral for transplant is essential if the number of pre-emptive transplants is to be increased and time on dialysis shortened for patients. Transplant programs should encourage direct referrals from primary care physicians as well as early referral from nephrologists.

These educational goals should be developed and incorporated as part of the Rita Littlefield CKD CRC.

## **Process Improvement**

The referral and evaluation processes for kidney transplantation and living donation offer significant opportunities for improvement. Early referral for transplant is a key factor but there are often obstacles once a referral is initiated. Patients may not accept the need for transplant evaluation and appropriate education can potentially overcome this attitude. Wait time for a transplant center appointment can be an issue and transplant programs should have mechanisms to promptly accommodate new patients and to complete the evaluation within a reasonable time frame with a minimum number of additional visits. Distance to a center may be an issue and increased use of telemedicine could offer significant advantages along with coordination with the patients' local health care resources.

Living kidney donation offers significant advantages to patients and the health care system but a willing living donor can face significant barriers to completing donation. Once a potential donor is identified, the donor evaluation should proceed expeditiously at the donor's convenience. Donor opportunities may be lost to prolonged evaluation processes: donors move, take new jobs, become pregnant, or just lose interest because an evaluation is delayed or too slow causing a perception that living donation is not important or not a priority to the transplant team.

The Task Force should develop recommendations for appropriate referral points for transplant evaluation based on disease status. A suggested timeline for completion of patient and donor evaluations could be created and placed in the Rita Littlefield CKD CRC. Recommendations for appropriate use of telemedicine in the processes could be made along with addressing reimbursement issues related to telemedicine.

## **Deceased Organ Donation**

Organ availability remains the biggest obstacle to kidney transplantation for both patients and transplant programs. Coordination of donor identification, family consent and organ recovery is the responsibility of the three federally designated Organ Procurement Organizations serving Texas. The state could assist by providing a consistent public education and awareness program and encouraging coordinated activities by the three Organ Procurement Organizations. This would provide information to Texans, so they could make an informed choice about organ donation.

The Glenda Dawson Donate Life Texas Registry allows individuals to register their legally binding decision to donate rather than leaving the decision to their surrogate decision-maker. This preserves individual autonomy by ensuring an individual's desire to be an organ (and tissue) donor is carried without reliance on surrogate decision makers, often family members, who are forced to make the choice for the decedent at a time they are grieving. Texans are provided the opportunity to join the registry during transactions at the Texas Department of

Public Safety and the Texas Department of Motor Vehicles when applying for or renewing their driver's license, ID or vehicle registration. Over 12 million Texans are registered donors and increases in organ donations as a direct result of the registry continue to grow. The Task Force recommends the identification and expansion of electronic registration opportunities for Texans to register their decision to be a donor to include other state programs such as (but not limited to) hunting and fishing licenses or state park cards. Other states have done this with good results which can serve as a model for Texas programs.

In addition, we recommend that Texas hospitals be responsible to ensure all donor registrations are honored at the time of death and define a failure to honor a donor registration in internal hospital risk or quality policies as a 'sentinel event.' This would ensure hospitals conducted internal quality reviews and process improvements to identify and address root causes to mitigate future failures to proceed with procurement of organs from medically suitable and registered organ donors.

Deceased organ donor families are grieving from the loss of their loved one when the life-saving act of donation is initiated. Often these families are faced with making the decision to donate because the donor was a child or they did not know the donor's wishes. There is presently no formal recognition or acknowledgement of the act of donation despite the lives saved and benefits to others. We recommend the development of a recognition program of the donor to be provided to their families. This acknowledgement could be as simple as a letter from the Governor or a certificate or medal of some type. A program of this nature would serve not only serve as a source of pride for deserving donor families but critically help raise awareness of the heroic act of donation when surviving family members share the recognition with others.

## **Living Kidney Donation**

Living kidney donation offers enormous benefits to everyone except the donor

although they do get satisfaction from having done something wonderful, saving a life. However, this satisfaction is often tempered by issues created by donation such as loss of stored vacation or sick leave, lost wages, travel and lodging expenses, lack of medical coverage for routine and complications after donation, and other factors. For some prospective donors these issues present such significant barriers that they are forced to withdraw from consideration because the negative financial impact to themselves and their dependents/family members would be too great. Every effort should be made to identify, reduce or eliminate these types of disincentives to living donation.

Some living donors qualify for the National Living Donor Assistance Program (NLDAC) which provides reimbursement for some of these expenses or losses which was recently expanded by raising qualifying income levels and reimbursement amounts. Although transplant centers usually refer eligible donors for this program, many potential donors are unaware that assistance might be available. Links to the NLDAC and other charitable programs for living donors should be included in the Rita Littlefield CKD CRC.

Time off work, medical leave, job protection and avoidance of health and life insurance and/or short term or long term disability discrimination for donation are also concerns. Some of these concerns were addressed on a national level when the US Congress passed the Living Donor Protection Act of 2019. These should be further addressed at a legislative level in Texas to remove these disincentives to living donation, to include support for House Bill 317 the *Texas Living Donor Support Act*.

Living donors do have some risks associated with donation which can result in medical or psychological complications that require additional care or some disability. Although the recipient's insurance provides coverage for a donors' evaluation and the donation event, coverage for the care needed after donation is variable and often missing. Texas Medicaid, which funds a large portion of the pediatric renal transplants and many adult transplants, provides no coverage for a

living donor after discharge from the donation event including routine care or complications. We recommend expansion of Texas Medicaid to include separate payment to transplant hospitals to cover the costs of the living donation component of the case and to ensure after discharge from donation, a living donor has adequate coverage in place.

There are a few “donor protection programs” offered by nonprofit organizations in the United States that provide eligible living donors access to medical and life insurance for kidney donation related events, and access to temporary disability insurance not currently covered by the recipient’s Medicare or other coverage. The Task Force recommends the development of funding or programs that would ensure every living donor who saves the life of a Texan could access this type of coverage and/or allowing living donors some eligibility for other existing state programs that could provide temporary recovery assistance.

## **Post-Transplant Issues**

Kidney transplant does provide a “new” kidney to the patient, but it is not a cure for kidney disease. It is the best available treatment and requires continued medical management to ensure long-term success. Continued immunosuppression medications are necessary for life and while most of these are now generic with lower costs, it still can be a problem for patients. Medicare provides immunosuppression coverage as part of End-Stage Renal Disease benefits but terminates in three years after transplant if the recipient is not eligible for Medicare for other reasons. There is currently a bill approved by the House of Representatives, pending approval by the Senate to provide long-term coverage for drugs for kidney recipients. (H.R. 5534: Comprehensive Immunosuppressive Drug Coverage for Kidney Transplant Patients Act of 2019). This bill if made into law will be extremely impactful to the benefit of transplant patients.

The Texas Kidney Health Program has provided medication assistance to transplant

recipients and this should be continued and possibly expanded, especially if Congress fails to act. If national coverage was available for immunosuppression through the approval of HR 5534, state funds that had been allocated to cover these services could be freed up for other benefits including the recommendations of this Task Force and provide an opportunity to expand assistance to Texas kidney patients.

## 4. Conclusion

Given the increase in CKD prevalence in Texas over the past decade, there is concern escalating healthcare costs resulting from complications of poorly controlled comorbidities and treatment expenditures will continue to inhibit affordability and sustainability of the healthcare delivery system. Furthermore, there is great concern that the sequelae of symptomatic COVID-19 will significantly increase chronic kidney disease among our population above the current baseline. This poses a simultaneous threat at multiple levels: fiscally for the Legislature and Texas taxpayers, as well as to the health and quality of life for all Texans.

The Task Force is committed to identifying ways to simultaneously reduce overall health care expenditures related to kidney disease and associated co-morbidities while improving the delivery of evidence-based, cost effective, prevention and healthcare services that improve population health for Texans.

We believe that the recommendations in this report will accomplish this important goal which include:

1. Establishing and funding the Rita Littlefield CKD Centralized Resource Center within the appropriate state agency. This Center is pivotal to effectuating all of our recommendations and to be a source of comprehensive information for all Texans to learn about kidney disease, early detection and prevention of kidney disease, lifestyle changes to mitigate the onset of kidney disease, available treatments and clinical trials available to patients, organ donation and transplantation to name a few.
2. Establishing and funding the Clinical Trial and Continuous Quality Improvement Network within the appropriate state agency. Findings from this Network will be made public through the Rita Littlefield CKD Resource Center.
3. Implementing an effective and state-wide plan for educating Texans about CKD, its early detection, and importantly its prevention. Collaborating and finding synergies with key state and national partners will be important.
4. Enhancing Kidney Transplantation Initiatives and Awareness.

The CKD task force is convinced that these recommendations will make our great State of Texas healthier and thereby more productive in every way including economically. The members also have concluded that telehealth will be an important strategy for enhancing access to health care professionals to all Texans and especially those who live in rural regions of our State. The task force stands ready to assist Governor Abbot and the Legislature in providing on going advice and expert counsel in the implementation of these recommendations as needed.

## List of Acronyms

<b>Acronym</b>	<b>Full Name</b>
ADA	Americans Diabetes Association
AHA	American Heart Association
AKI	Acute Kidney Injury
ANNA	American Nephrology Nurses Association
BRFSS	Behavioral Risk Factor Surveillance System
CATCH	Coordinated Approach to Child Health
CDC	Centers for Disease Control and Prevention
CHW	Community Health Workers
CKD	Chronic Kidney Disease
CMS	Centers for Medicare and Medicaid
CPL	Clinical Pathology Laboratories
CRC	Centralized Resource Center
DSHS	Department of State Health Services
ESRD	End Stage Renal Disease
HHSC	Health and Human Services Commission
KICC	Kidney Interagency Coordinating Committee

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NHANES	National Health and Nutrition Examination Survey
NLDAC	National Living Donor Assistance Center
NIH	National Institutes of Health
NKF	National Kidney Foundation
QIOs	Quality Improvement Organizations
SPKF	South Plains Kidney Foundation
TEA	Texas Education Agency
TKF	Texas Kidney Foundation
TMF	Texas Quality Improvement Network
USRDS	United States Renal Data System

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## References

- <sup>1</sup> Lili Chan and Steven G. Coca KIDNEY360 1: 588–590, 2020. doi: <https://doi.org/10.34067/KID.000372202>
- <sup>2</sup> Chan L, Chaudhary K, Saha A, Chauhan K, Vaid A, Baweja M, et al. Acute Kidney Injury in Hospitalized Patients with COVID-19. JASN 2020 DOI: doi: <https://doi.org/10.1681/ASN.2020050615.2020>
- <sup>3</sup> Pei G, Zhang Z, Peng J, Liu L, Zhang C, Yu C, et al. Renal Involvement and Early Prognosis in Patients with COVID-19 Pneumonia. J Am Soc Nephrol. 2020; ASN: 2020030276.
- <sup>4</sup> Chronic Kidney Disease in the United States, 2019. Centers for Disease Control and Prevention. <https://www.cdc.gov/kidneydisease/publications-resources/2019-national-facts.html>
- <sup>5</sup> TMF: Improving Chronic Disease. Chronic Kidney Disease. Change Package. Version 1 September 2020novation Network (2020).
- <sup>6</sup> End Stage Renal Disease Network of Texas, Inc. #14, Annual Report 2019.
- <sup>7</sup> US Renal Data System 2019 Annual Data Report: Epidemiology of Kidney Disease in the United States. <https://www.usrds.org/media/2371/2019-executive-summary.pdf>
- <sup>8</sup> US Renal Data System 2019 Annual Data Report: Epidemiology of Kidney Disease in the United States. <https://www.usrds.org/media/2371/2019-executive-summary.pdf>.
- <sup>9</sup> Data from End Stage Renal Disease Network of Texas which described a survey examining the all-cause mortality of patients with CKD and/or Type 2 Diabetes Mellitus in the US (n=15,046)
- <sup>10</sup> US Renal Data System 2019 Annual Data Report: Epidemiology of Kidney Disease in the United States. <https://www.usrds.org/media/2371/2019-executive-summary.pdf>.
- <sup>11</sup> Psychosocial Aspects of Chronic Kidney Disease, Chapter 4 <https://doi.org/10.1016/B978-0-12-817080-9.00004-X>
- <sup>12</sup> HRSA. U.S. Organ Procurement and Transplantation Network. Based on OPTN data as of February 20, 2020. <https://optn.transplant.hrsa.gov/data/view-data-reports/national-data>.
- <sup>13</sup> US Renal Data System 2019 Annual Data Report: Epidemiology of Kidney Disease in the United States. <https://www.usrds.org/media/2371/2019-executive->

summary.pdf.

<sup>14</sup> US Renal Data System 2019 Annual Data Report: Epidemiology of Kidney Disease in the United States. <https://www.usrds.org/media/2371/2019-executive-summary.pdf>.

<sup>15</sup> Purnell TS, Luo X, Cooper LA, et al. Association of Race and Ethnicity With Live Donor Kidney Transplantation in the United States From 1995 to 2014. JAMA. 2018; 319(1): 49-61. doi:10.1001/jama.2017.19152

<sup>16</sup> Chronic Kidney Disease in the US, 2019. Centers for Disease Control and Prevention. <https://www.cdc.gov/kidneydisease/basics.html>

<sup>17</sup> San Antonio Department of Government and Public Affairs. (2020) *District 3 VIVA SA Healthy Corner Store Initiative: Expanding Footprint* <https://www.sanantonio.gov/gpa/News/ArtMID/24373/ArticleID/19328/District-3-VIVA-SA-Healthy-Corner-Store-Initiative-Expanding-Footprint>

## **Appendix A. Chronic Kidney Disease Task Force Membership**

Member	Positions Held	Role per Task Force Composition *
Francisco G. Cigarroa M.D.	<b>CKD Task Force Chair</b> , Education of Living & Deceased Donation Transplants Subcommittee Member	Kidney Transplant Surgeon
Ms. Mary E. Albin	Education & Prevention Subcommittee Member, Early Detection & Co-Morbidities Member	End Stage Renal Expert
Mr. Dany J. Anchia	<b>Education &amp; Prevention Subcommittee Chair</b> , Education of Living & Deceased Donation Transplants Subcommittee Member, Legislative Issues Subcommittee Member	Nephrologist Nurse
Bruce A. Brockway M.D.	Early Detection & Co-Morbidities Member, Treatment Subcommittee Member	Private Renal Care Provider
Roberto Collazo-Maldonado M.D.	Education of Living & Deceased Donation Transplants Subcommittee Member, Treatment Subcommittee Member	Primary Care Physician
Ms. Amie B.E. Duemer	Education & Prevention Subcommittee Member, Education of Living & Deceased Donation Transplants Subcommittee Member	South Plains Kidney Foundation Representative
Ahmed O. "Osama" Gaber M.D.	Education of Living & Deceased Donation Transplants Subcommittee Member, Legislative Issues Subcommittee Member	Kidney Transplant Surgeon
Richard L. Gibney M.D.	Education of Living & Deceased Donation Transplants Subcommittee Member, Treatment Subcommittee Member	Family Physician

Lisa Glen, MD	Education & Prevention Subcommittee Member, Early Detection & Co-Morbidities Member	State Medicaid Program Representative
Ryan Guillen	CKD Task Force Member	House of Representatives
Ms. Anne K. Ishmael	Early Detection & Co-Morbidities Member, Legislative Issues Subcommittee Member	Renal Dietitian Representative
Ms. Nichole Jefferson	Education of Living & Deceased Donation Transplants Subcommittee Member, Treatment Subcommittee Member	National Kidney Foundation Representative
Ms. Tiffany N. Jones-Smith	Early Detection & Co-Morbidities Member, Treatment Subcommittee Member, Legislative Issues Subcommittee Member	Texas Kidney Foundation Representative
Ms. Rita L. Littlefield	<b>Legislative Issues Subcommittee Chair</b> , Early Detection & Co-Morbidities Member	Texas Renal Coalition Representative
Ms. Julie Llerena	Education & Prevention Subcommittee Member, Treatment Subcommittee Member	HHSC Kidney Health Care Program Representative
Anilkumar T. "Anil" Mangla Ph.D.	Education & Prevention Subcommittee Member, Early Detection & Co-Morbidities Member, Legislative Issues Subcommittee Member	Nephrologist State Medical Representative
Mohammad R. "Hamed" Mizani M.D.	Education & Prevention Subcommittee Member, Treatment Subcommittee Member	Nephrologist Private Practice
Navid Saigal M.D.	Education & Prevention Subcommittee Member, Early Detection & Co-Morbidities Member	Clinical Laboratories Representative

Kumar Sharma M.D.	<b>Treatment Subcommittee Chair</b> , Legislative Issues Subcommittee Member	Pathologist
Phil Stephenson	CKD Task Force Member	House of Representatives
Leslie A. Weisberg M.D.	<b>Early Detection &amp; Co-Morbidities Chair</b> , Education & Prevention Subcommittee Member	Preferred Provider or HMO
Francis H. Wright Jr., M.D.	<b>Education of Living &amp; Deceased Donation Transplants Subcommittee Chair</b> , Legislative Issues Subcommittee Member	Health Care System Representative

\* Chapter 83 of the Health and Safety Code outlines a broad set of required backgrounds for the Governors appointees. Membership as assigned on the Task Force does not provide complete specificity regarding the training and titles of each member within their respective profession or role within their community or organization.

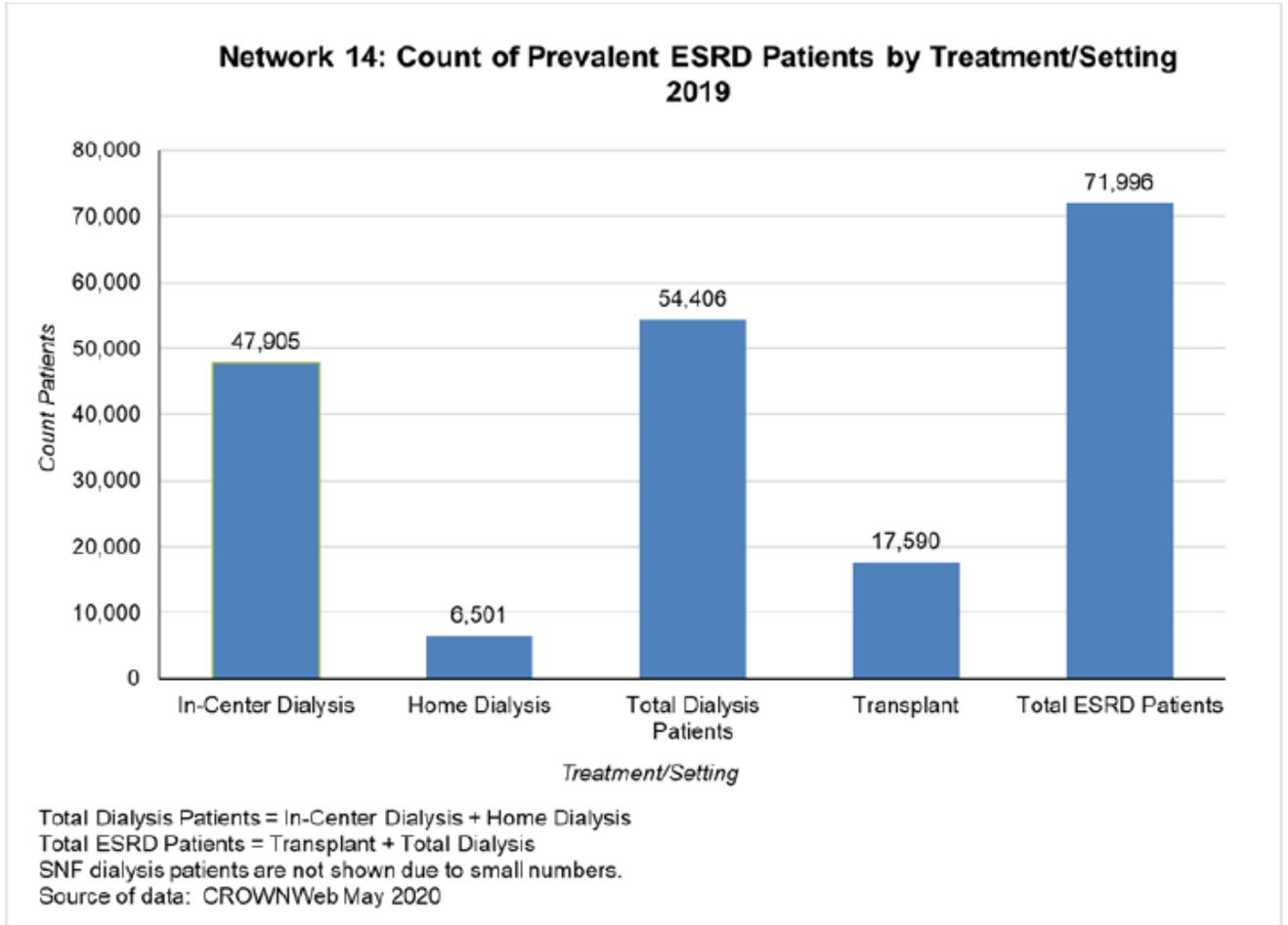
### **CKD Task Force Advisory Members**

Ms. Jennifer Milton	<b>Special Advisor to the Chair Person</b>	Chief Administrative Officer, University Transplant Center
Ms. Mary Kathryn Zambrano	<b>CKD Task Force Liaison</b>	Policy Specialist, Health and Human Services Commission

## Appendix B. CKD Task Force Report Data

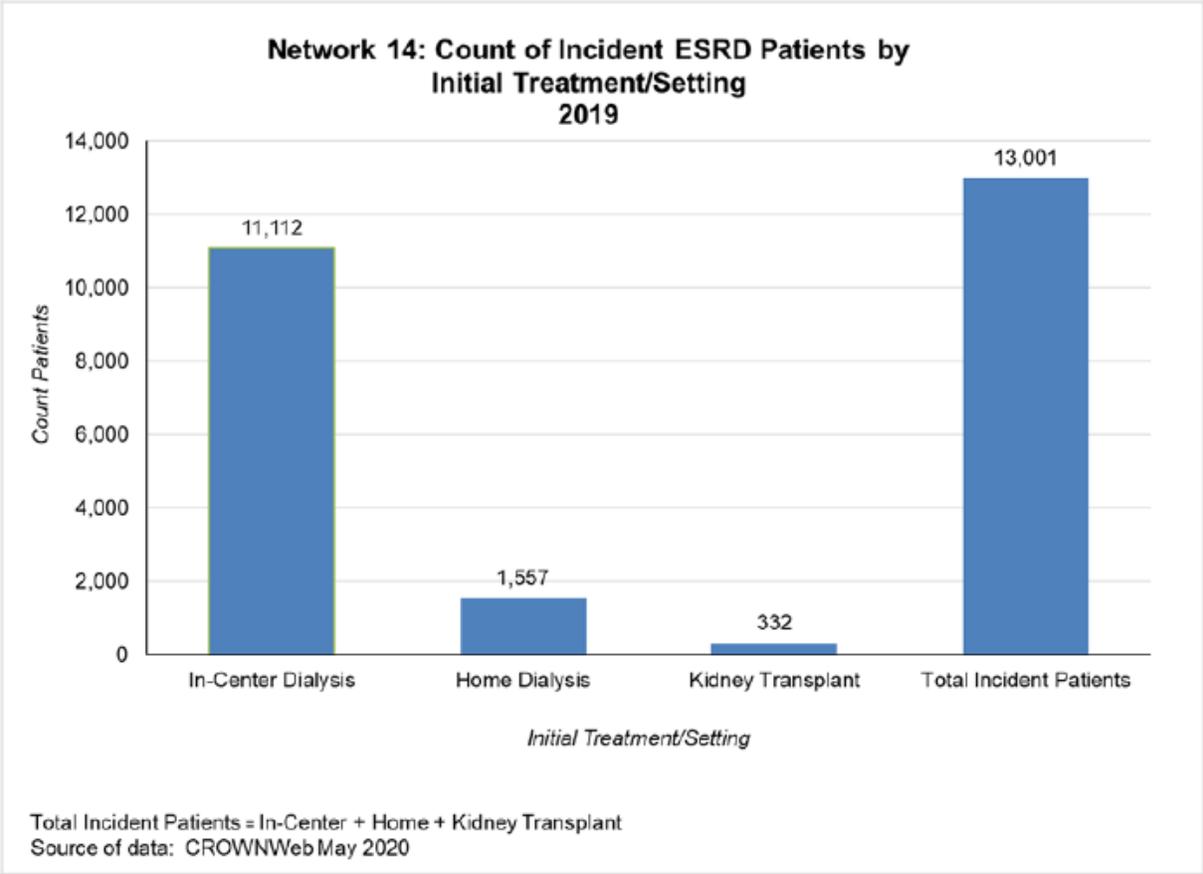
Figures and Charts referenced in State Plan for CKD Treatment

Figure B1 - Count of Prevalent ESRD Patients by Treatment Setting



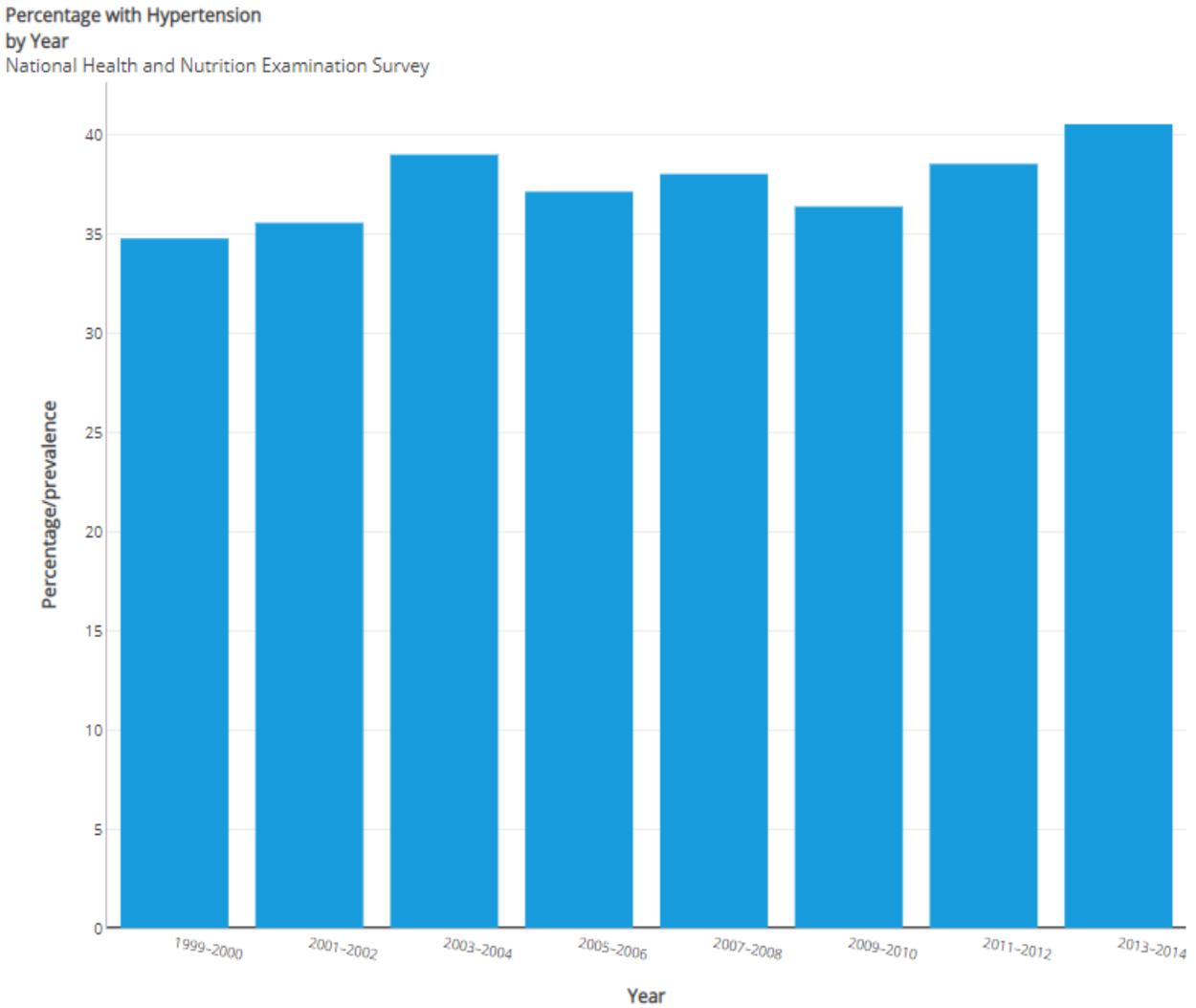
Data from End Stage Renal Disease Network of Texas. Network 14: Count of Prevalent ESRD Patients by Initial Treatment/Setting 2019

Figure B2 - Count of Incident ESRD Patients by Initial Treatment Setting



Data from End Stage Renal Disease Network of Texas. Network 14: Count of Incident ESRD Patients by Treatment/Setting 2019

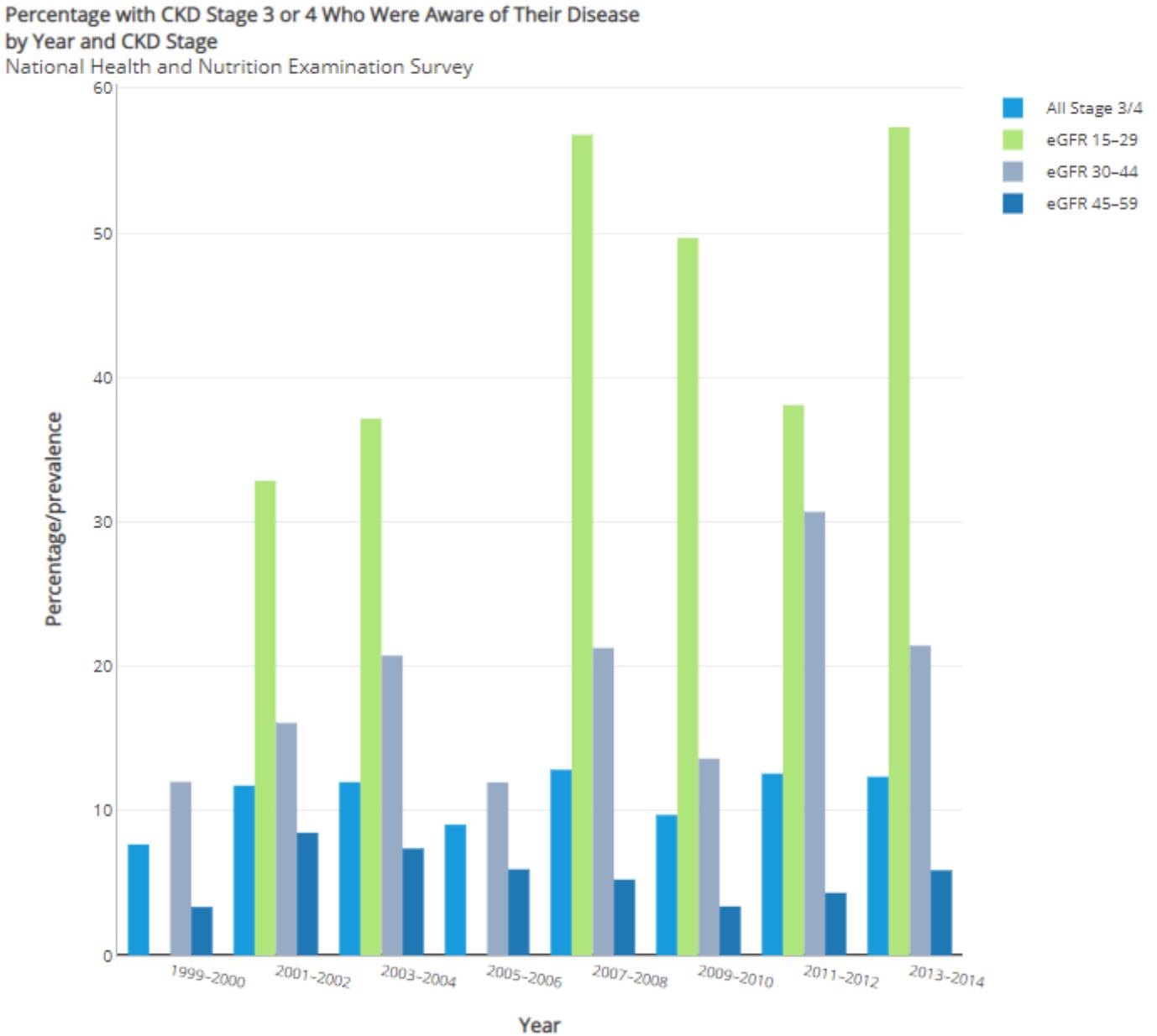
Figure B3 – Percent of Adults with Hypertension or Blood Pressure greater than or equal to 140/90 mmHg



Centers for Disease Control and Prevention. Chronic Kidney Disease Surveillance System—United States. website. <https://nccd.cdc.gov/ckd>

Centers for Disease Control and Prevention. Chronic Kidney Disease Surveillance System—United States. website. <http://www.cdc.gov/ckd>

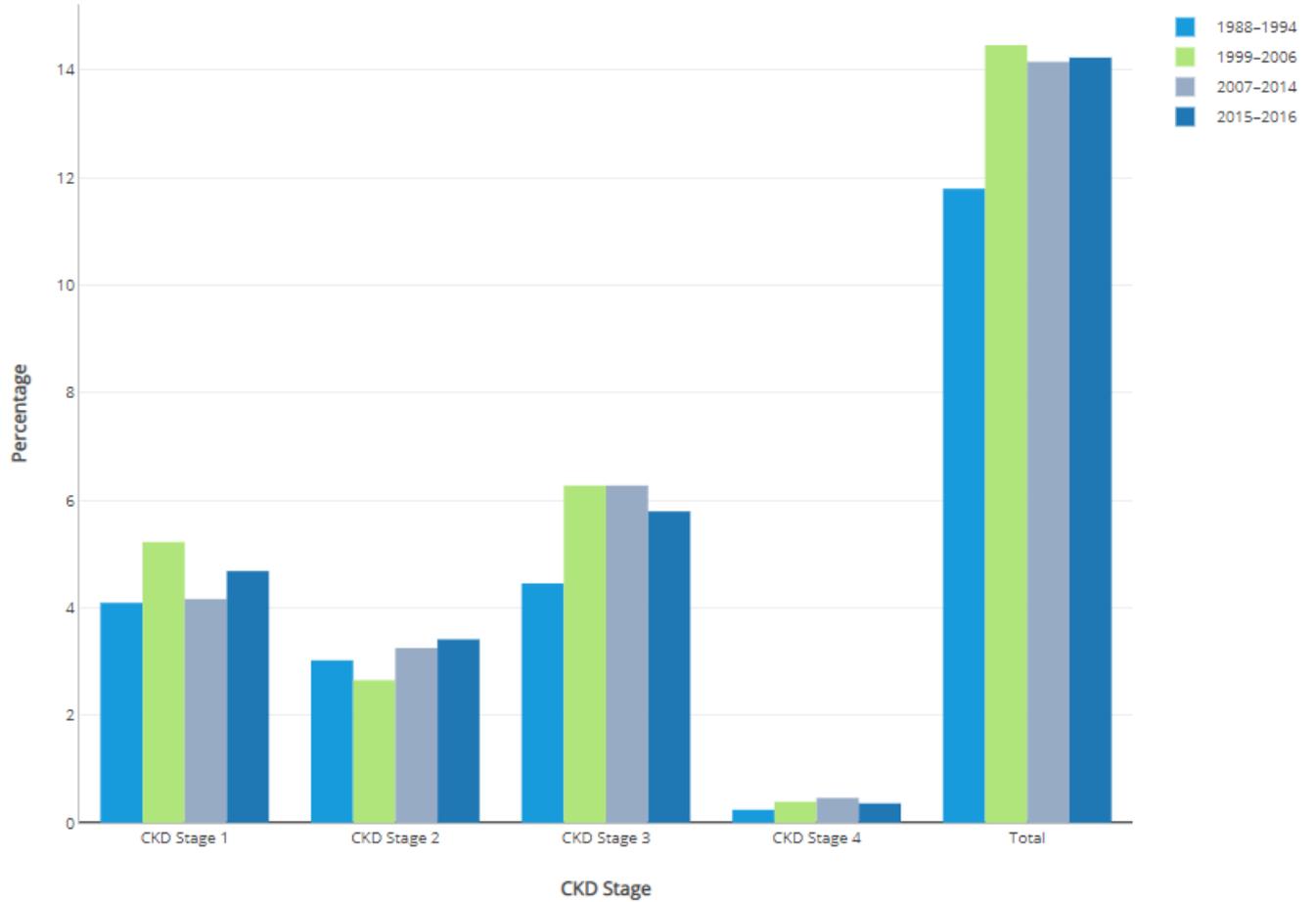
Figure B4 - Awareness of disease among individuals with CKD stages 3 and 4



Centers for Disease Control and Prevention. Chronic Kidney Disease Surveillance System—United States. website. <http://www.cdc.gov/ckd>

# Figure B5 - Prevalence of CKD by stage

Prevalence of CKD by CKD Stage and Year, 1988-1994 to 2015-2016  
National Health and Nutrition Examination Survey

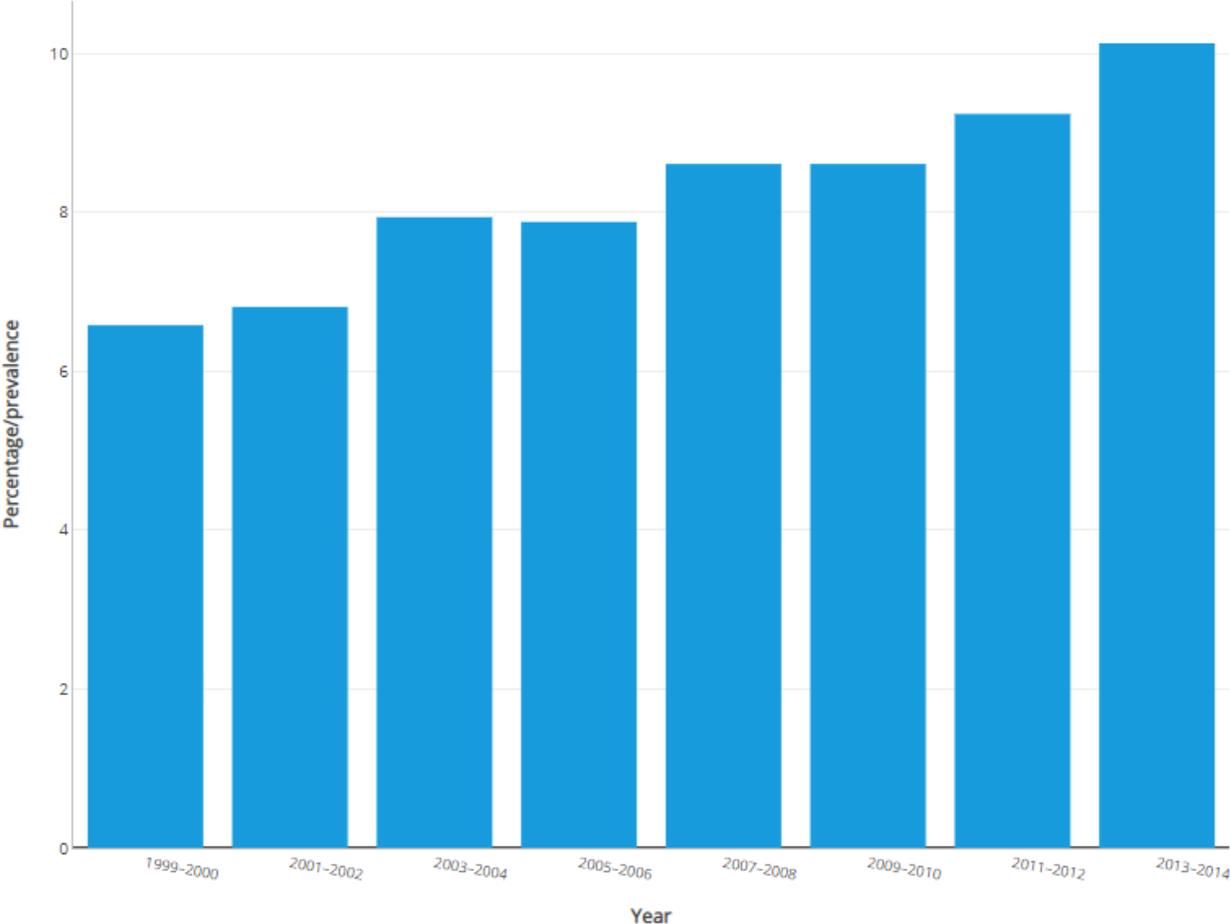


Centers for Disease Control and Prevention. Chronic Kidney Disease Surveillance System—United States. website. <https://nccd.cdc.gov/ckd>

National Health and Nutrition Examination Survey (NHANES)

Figure B6 - Prevalence of Diabetes

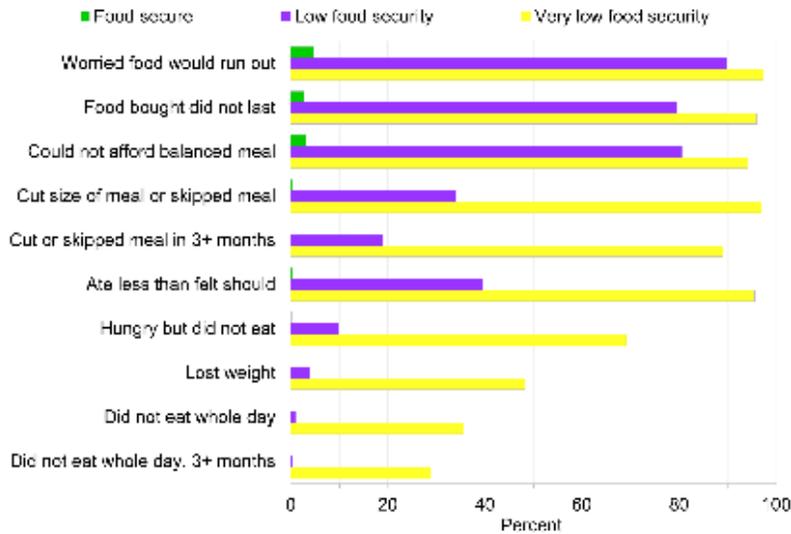
Percentage with Diabetes  
by Year  
National Health and Nutrition Examination Survey



Centers for Disease Control and Prevention. Chronic Kidney Disease Surveillance System—United States. website. <https://nccd.cdc.gov/ckd>

Figure B7 – Percent of households reporting food insecurities

Percentage of households reporting indicators of adult food insecurity, by food security status, 2019

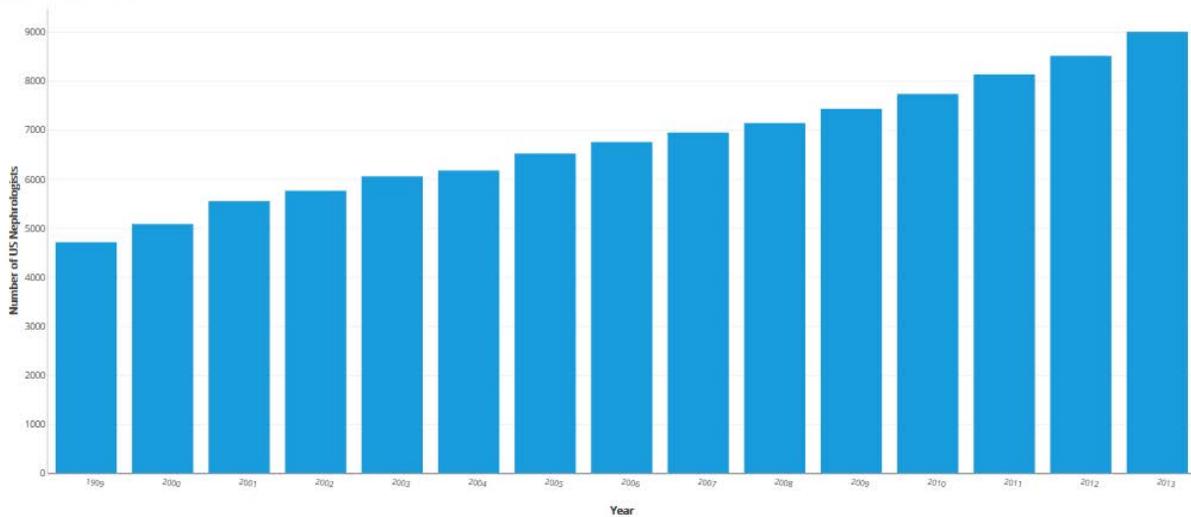


Source: USDA, Economic Research Service, using data from the December 2019 Current Population Survey Food Security Supplement.

Sept, 2020 USDA Economic Research Service  
<https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>

Figure B8 – Nephrologists in the United States

Number of Nephrologists in the U.S. by Year  
 American Medical Association



Centers for Disease Control and Prevention, Chronic Kidney Disease Surveillance System—United States, website: <https://nckrd.cdc.gov/ckid>

The above graph illustrates the shortage of nephrologists within the US.

Table B-1

<b>U.S. Transplant Waiting List – Candidates by Race/Ethnicity</b>					
<b>Organ</b>	<b>All Candidates</b>	<b># of Black Candidates</b>	<b>Black % of All Candidates</b>	<b># of White Candidates</b>	<b>White % of All Candidates</b>
All Organs	112,258	32,260	28.7	45,441	40.5
Kidney	94,458	30,029	31.8	33,680	35.7
Liver	12,647	932	7.4	8,497	67.2
Heart	3,686	1,034	28.1	2,140	58.1
Lung	1,309	179	13.7	918	70.1

Source: HRSA. U.S. Organ Procurement and Transplantation Network (OPTN). Based on OPTN data as of February 20, 2020.

<https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/>\*

Table B-2

<b>Transplants Performed in the U.S. by Recipient Ethnicity, 2019</b>		
	<b>Number</b>	<b>Percentage of Total 2019 Transplants</b>
Black	6,755	21.0
White	21,248	54.5
Total Transplants	39,718	100

Source: HRSA. U.S. Organ Procurement and Transplantation Network (OPTN). Based on OPTN data as of February 20, 2020.

<https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/>

Table B-3

<b>U.S. Organ Donors Recovered, 2019</b>					
<b>Donor Type</b>	<b># of All Donors</b>	<b># of Black Donors</b>	<b>Black % of All Donors</b>	<b># of White Donors</b>	<b>White % of All Donors</b>
Living	7,381	616	8.3	5,269	71.4
Deceased	11,870	1,798	15.1	7,784	65.6
Total	19,251	2,414	12.5	13,053	67.8

Source: HRSA. U.S. Organ Procurement and Transplantation Network (OPTN). Based on OPTN data as of February 20, 2020.

<https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/>

Table B-4

<b>U.S. Organ Donors Recovered, 2019</b>				
<b>Donor Type</b>	<b># of Black Donors</b>	<b>% of Black Donors</b>	<b># of White Donors</b>	<b>% of White Donors</b>
Living	616	25.5	5,269	40.4
Deceased	1,798	74.5	7,784	59.6
Total	2,414	100	13,053	100

Source: HRSA. U.S. Organ Procurement and Transplantation Network (OPTN). Based on OPTN data as of February 20, 2020.

<https://optn.transplant.hrsa.gov/data/view-data-reports/national-data/>