CHART
Center for Health Analytics, Research & Transformation at NJHA

BULLETIN

Chronic Kidney Disease On the Rise in New Jersey

The Center for Health Analytics, Research and Transformation (CHART) at the New Jersey Hospital Association has produced several reports examining chronic conditions, which included chronic kidney disease. Chronic kidney disease (CKD), also known as chronic kidney failure, is characterized by a gradual decline in kidney function. In advanced stages, it leads to the dangerous accumulation of fluid, electrolytes, and waste in the body. Common risk factors for CKD include diabetes, high blood pressure, heart disease, obesity, and a family history of the disease.

This report examines the prevalence of chronic kidney disease (CKD) among individuals admitted to the hospital in the years 2016-2024, with a focus on socio-demographic disparities by sex, age group, and race/ethnicity[1]. It also analyzes trends in CKD prevalence, kidney transplantation, and age-adjusted kidney disease mortality rates to underscore the condition's growing public health impact. The findings reveal significant variation in CKD prevalence across demographic groups.

Key Findings

- Over the past nine years, the percentage of patients diagnosed with chronic kidney disease (CKD) has steadily increased across all age, sex, and racial/ethnic groups.
- Among male patients, CKD prevalence rose by 57.4%, from 4.9% in 2016 to 7.7% in 2024. Among females, prevalence increased by 57.9%, from 3.1% to 4.8% over the same period.
- Consistent with trends in CKD prevalence rates, the Black male and Black female populations exhibited the highest age-adjusted kidney disease mortality rates compared to other demographic groups, indicating persistent racial disparities in CKD mortality.

Literature Review

According to the Centers for Disease Control and Prevention (CDC), data from the 2017–March 2020 National Health and Nutrition Examination Survey (NHANES) estimated that over 1 in 7 U.S. adults—approximately 35.5 million people (14%)—have CKD. The prevalence was found to be higher among women (14.4%) compared to men (11.8%). Age was also a significant factor, with the highest prevalence among individuals aged 65 and older (33.7%), followed by those aged 45-64 (12.3%) and 18-44 (6.3%).

[1] In this report, race/ethnicity represents mutually exclusive groups classified as Hispanic of any race (Hispanic), non-Hispanic Asian (Asians), non-Hispanic Black (Black), non-Hispanic White (White), non-Hispanic Other (Other).

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In terms of racial and ethnic disparities among U.S. adults aged 18 and older, CKD was most prevalent among Black individuals (19.5%), followed by Hispanics and Asians (13.7% each), and Whites (11.7%). Alarmingly, about 90% of adults with CKD remain unaware of their condition.

A November 2025 study published in The Lancet on the global burden of disease estimated that 1.5 million people died from chronic kidney disease in 2023, making it the 9th leading cause of death worldwide. The study also found that the number of adults aged 20 years and older living with chronic kidney disease has more than doubled between 1990 and 2023, increasing from 378 million to 788 million, respectively. The global age-standardized mortality rate due to CKD in adults rose from 24.9 per 100,000 to 26.5 over the same period, an increase of 6·1%.

According to Mallamaci and Tripepi (2024), an estimated 10% of the global population—approximately 850 million people—have CKD. Notably, 85% of those affected reside in low- to middle-income countries. The authors identified several key risk factors for CKD, including age, arterial hypertension, diabetes, obesity, proteinuria[2], and dyslipidemia. Additionally, environmental factors such as dietary salt intake and pollution contribute significantly to the risk of developing the disease.

A review of 73 eligible studies on CKD and Type 2 diabetes by Fried, Folkerts, Smela, et al. (2021) found that the incidence of CKD among individuals with Type 2 diabetes was 37.0%, while its prevalence was 43.5%. The study also concluded that Type 2 diabetes patients with CKD had higher mortality rates than those without the condition.

Following an extensive literature review, Luyckx, Tuttle, Garcia-Garcia, et al. (2017) concluded that morbidity and mortality from CKD are rising worldwide. The primary causes of this increase are the growing prevalence of diabetes, hypertension, and obesity. The authors suggested that public health policies targeting lifestyle factors associated with these conditions could play a significant role in reducing the risk of CKD. By addressing dietary habits, physical activity, and other modifiable behaviors, these policies could contribute to better kidney health on a global scale.

In 2023, the New Jersey Behavioral Risk Factor Survey System (NJBRFSS) estimated that the risk-adjusted prevalence of kidney disease among 18 years old or older was 2.6% among women, compared to 3.6% among men[3]. As will be explored later, this gender disparity aligns with broader patterns observed in patient populations.

Foreman, Marquez, Dolgert, et al. (2018) analyzed 250 causes of death worldwide and identified chronic kidney disease as the 16th leading cause of death in 2016. Their projections indicate that by 2040—just 15 years from now—CKD will become the 5th leading cause of death globally, following ischemic heart disease, stroke, lower respiratory infections, and chronic obstructive pulmonary disease (COPD).

The health outcomes and economic burden of CKD have also been extensively documented in the United States. For example, the National Institutes of Health (NIH) estimated that, in 2021, Medicare fee-for-service (FFS) spending for CKD patients aged 66 and older—excluding those with end-stage kidney disease—accounted for 24.1% of total Medicare FFS expenditures for this age group, amounting to approximately $77 billion.

[2] The presence of an abnormally high amount of protein in the urine.

[3] The fact that nearly 90% of individuals with chronic kidney disease (CKD) are unaware of their condition suggests that responses in the NJBRFSS survey may have underestimated the self-reported prevalence.

According to the Institute for Health Metrics and Evaluation (IHME), chronic kidney disease ranked as the 8th leading cause of poor health and early death in New Jersey in 2019. That same year, CKD also placed 7th in healthcare spending, with statewide costs approaching $2 billion.

Data from the New Jersey Department of Health reveals that by 2022, the impact of the COVID-19 pandemic—which had surged to become the 4th leading cause of death—affected mortality rankings. As a result, kidney disease mortality in the state ranked as the 10th leading cause of death, with an age-adjusted death rate of 15.0 per 100,000 population.

The increasing prevalence of chronic conditions in New Jersey—particularly diabetes, hypertension, and obesity—underscores the growing significance of CKD as a critical health concern. Given its far-reaching social, economic, and health implications, CKD warrants policy discussions aimed at mitigating its impact in the coming decades.

Data

This study examined patient-level data from hospital admissions between 2016 and 2024, sourced from the New Jersey Hospital Discharge Data Collection System (NJDDCS). The NJDDCS includes International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) diagnosis and procedure codes, External Causes of Injury Codes, patient demographics, billing details, and various other patient characteristics. Primarily designed for billing purposes, the NJDDCS contains up to 25 diagnosis codes and 25 procedure codes per patient, with chronic kidney disease recorded among these diagnoses.

In addition to NJDDCS, age-adjusted death rates were drawn from historical death records available at the New Jersey State Health Assessment Data (NJSHAD) which provides searchable data on vital statistics and others departmental sources.

Method

ICD-10-CM codes were reviewed to identify chronic kidney disease diagnoses among both inpatient and outpatient cases, including those in emergency and other outpatient departments.

The study utilized the SAS software tool to process the data and generate statistical summaries, which were presented in Excel tables for further analysis. The analysis focused on demographic disparities, tracked CKD trends by discharge year, and examined inpatient (including same-day medical/surgical) and emergency department CKD cases based on patient demographic characteristics.

Findings

The data highlights significant disparities in CKD prevalence across sex, age groups, and racial/ethnic backgrounds among patients. Additionally, both the total number of CKD cases and the percentage share within these demographic categories have steadily increased over time.

CKD prevalence also varies considerably by type of hospital encounter. In 2024, CKD accounted for 18.3% of inpatient admissions[4], 5.0% of same-day medical/surgical cases, and 2.7% of emergency department visits.

The order of CKD prevalence remains remarkably consistent across racial and ethnic groups, with the highest percentage among inpatients, followed by same-day medical/surgical patients, and then emergency department patients. Due to the stability in relative CKD shares across race/ethnicity over time, this report discusses statistics for all types of hospital encounters combined.

Figure 1 illustrates that male patients in New Jersey consistently exhibited higher CKD prevalence than females. In 2016, 4.9% of male patients were diagnosed with CKD, compared with 3.1% of female patients. By 2024, these percentages increased to 7.7% for males and 4.8% for females, reflecting growth rates of 57.4% and 57.9%, respectively.

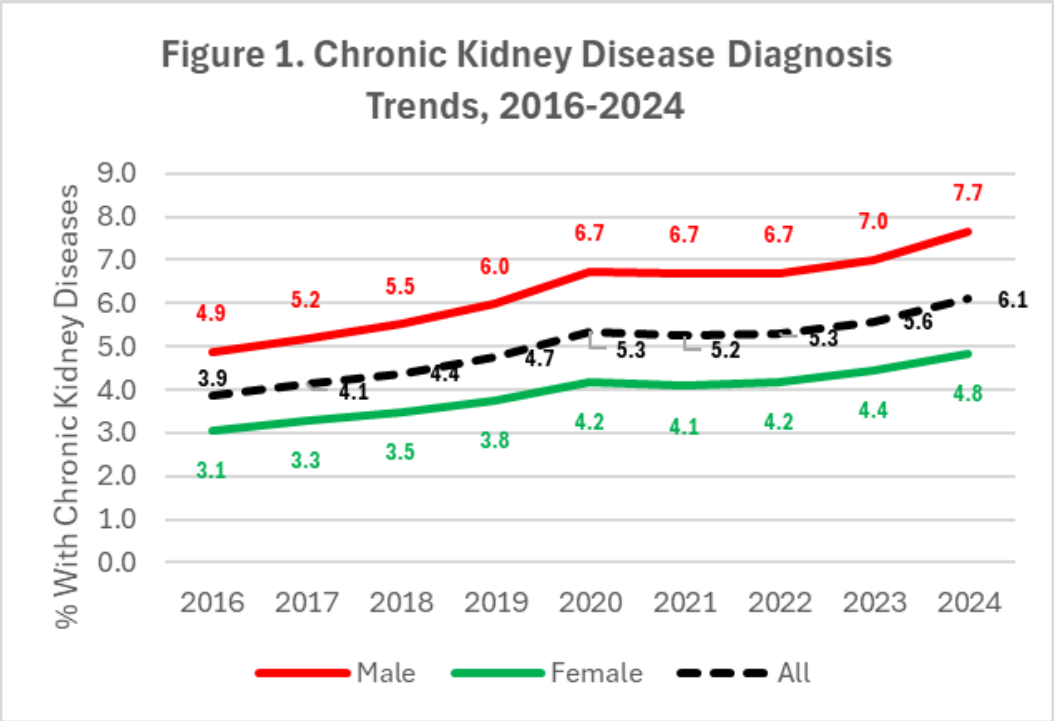


Figure 2 illustrates that CKD prevalence is highest among older patients, with those aged 65+ experiencing a 16.0% prevalence rate in 2024, compared to 5.8% among individuals aged 45–64. Within each age group, CKD rates have steadily increased throughout the study period. These trends align with kidney disease prevalence estimates from the New Jersey Behavioral Risk Factor Surveillance System (NJBRFSS).

[4] The annual number of inpatients fluctuated throughout the study period (2016-2024), with the relative shares ranging from 19.1% in 2023 to 22.6% in 2020.

Figure 2. Percentage of Patients With Chronic Kidney Disease, 2016-2024

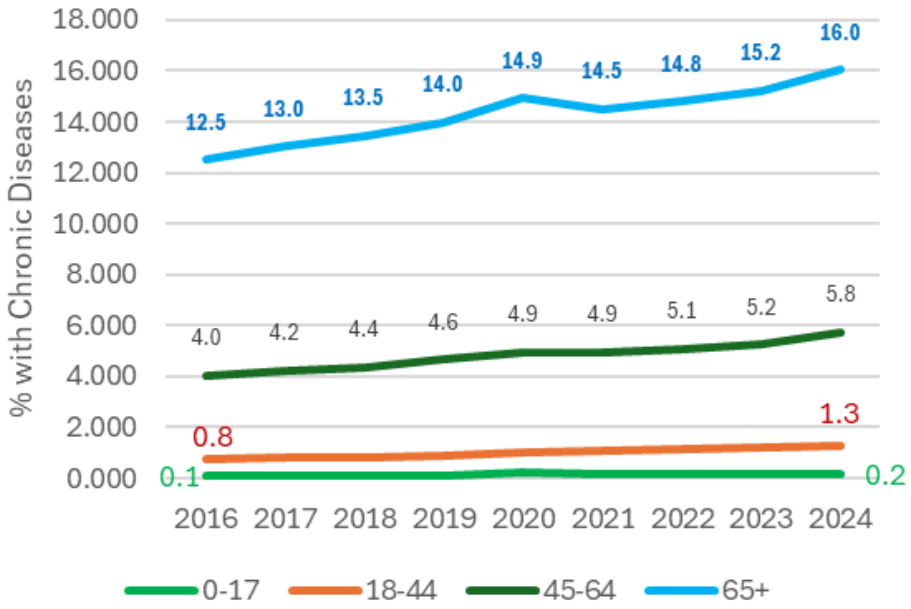


Figure 3. Percentage of Patients With Chronic Kidney Disease by Race/Ethnicity, 2016-2024

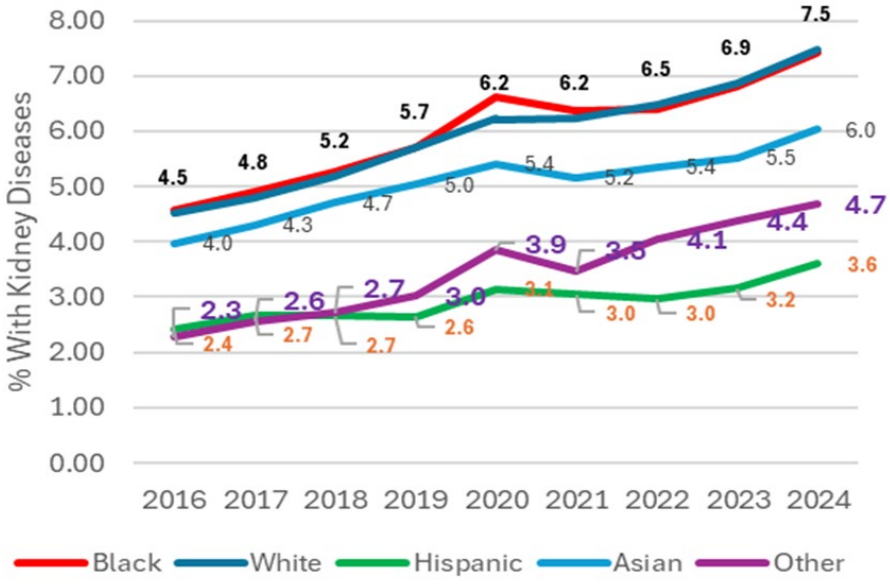
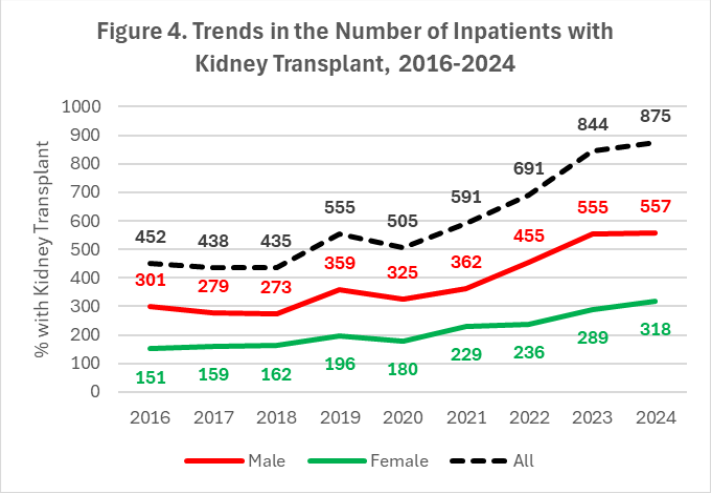
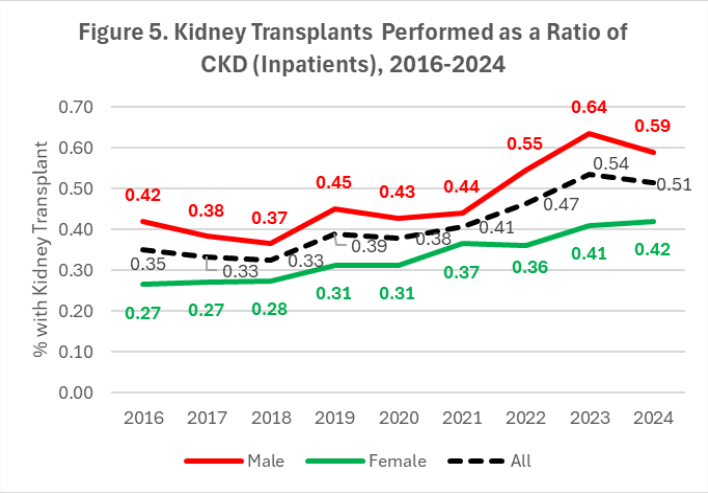


Figure 3 illustrates trends in CKD prevalence by race/ethnicity, showing a steady increase across all racial and ethnic groups over time. The data highlights that Black and White patients consistently had the highest CKD prevalence each year compared to other groups.

However, disparities appear to have widened since 2019, with Black and White patients still maintaining higher CKD rates compared to Asian, Hispanic, and other racial/ethnic groups. Throughout the study period, Hispanic patients consistently recorded the lowest CKD prevalence.

Trends in Kidney Transplantation



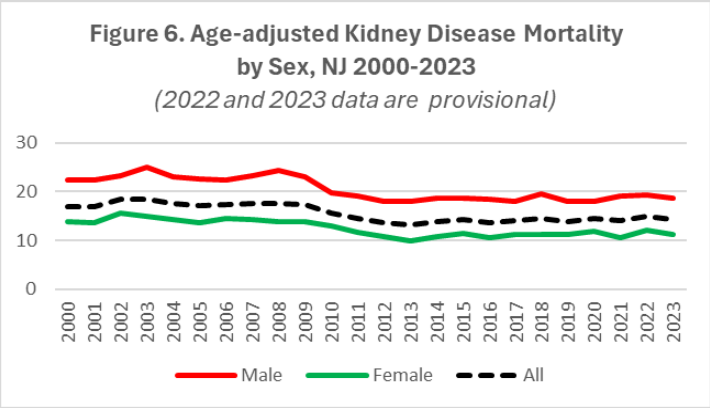


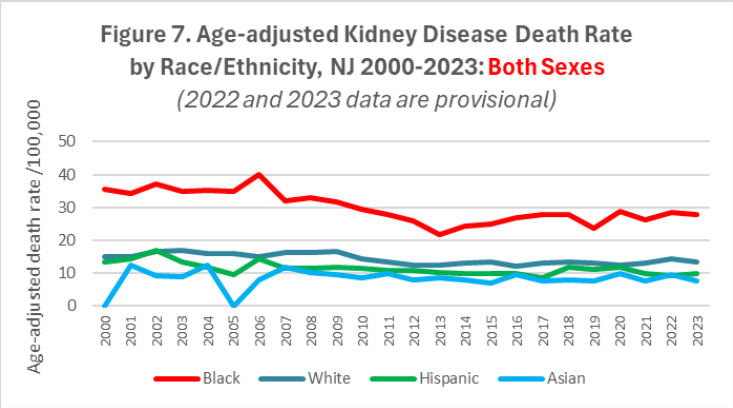
Chronic kidney disease can often lead to the need for kidney transplantation. To examine this relationship, we analyzed whether trends in kidney transplantation corresponded with the rise in CKD diagnoses. Figure 4 illustrates the steady increase in the number of transplants performed in New Jersey hospitals between 2016 and 2024. To assess consistency, we also calculated the ratio of kidney transplants performed relative to the number of diagnosed CKD patients (Figure 5).

Between 2016 and 2024, the number of kidney transplants performed increased by 94%. However, the ratio of kidney transplants to CKD inpatient volume rose by only 46% over the same period. In comparison, the percentage share of all CKD patients grew from 3.9% to 6.1%, reflecting a 58% increase (see Figure 1).

Disparities in Kidney Mortality

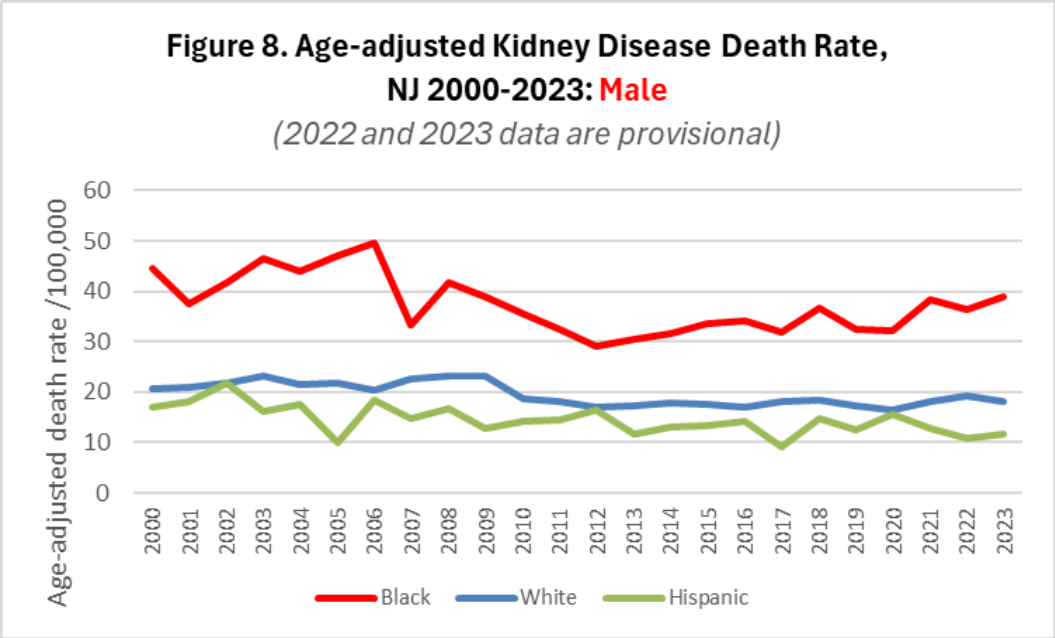
Males experienced a higher mortality rate from kidney disease compared to females (Figure 6). After remaining stable between 2002 and 2008, the death rate for both genders declined through 2012. Since then, the rates appear to have stabilized.

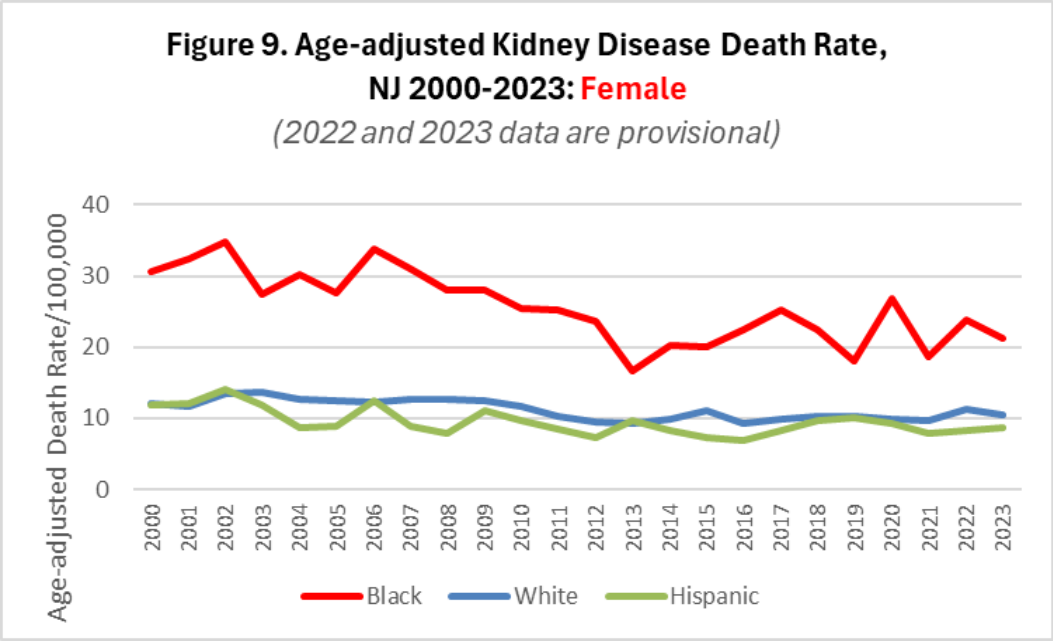




By race/ethnicity, the age-adjusted kidney mortality rate for both sexes combined declined from 2000 to 2013, then increased through 2018. After a drop in 2019, the rate rose again in subsequent years (Figure 7). This post-2019 increase may be attributed to the rise in the age-adjusted death rate among Black males (Figure 8).

Between 2009 and 2013, age-adjusted mortality rates for females, Whites, Asians, and Hispanics remained stable or experienced brief declines. However, after 2013, mortality rates increased among Black and White males while remaining stable at a higher than 2013 level for females (Figures 7-9).





Discussion

Chronic kidney disease (CKD) is a significant health concern due to its severe outcomes and its association with debilitating, often fatal risk factors. Among these, hypertension, diabetes, and obesity—each of which has been rising in New Jersey—are commonly cited. Additionally, being over 45, male, and Black are key demographic factors linked to higher CKD prevalence.

To further assess CKD-associated risk factors, we conducted a Pearson correlation analysis between CKD and variables such as age, gender, race/ethnicity, health insurance status, hypertension, cholesterol levels, heart disease, and overweight/obesity. The correlation coefficients affirm disparities by sex, age, and race/ethnicity. Moreover, statistically significant correlations exist between CKD and hypertension, diabetes, and heart disease.

An analysis of kidney disease age-adjusted death rates by sex and race/ethnicity from 2000 to 2023 reveals substantial declines through 2013, followed by divergent trends. For instance, while age-adjusted kidney disease mortality rates for Black males decreased until 2013, they began rising in 2014. Among Black females, rates declined through 2013 but have since stabilized at a higher than the 2013 level (see Figures 9 and 10). The overall post-2013 increase in age-adjusted kidney disease mortality is primarily driven by the rise in death rate among Black males (Figure 8).

Although the specific reasons behind the decline in age-adjusted kidney disease death rates from 2000 to 2013 remain unclear, early diagnosis, treatment, and patient education are widely recognized as key factors in mitigating CKD severity. To better understand the rise in CKD prevalence and the stagnation

of kidney disease mortality in recent years, examining the impact of social determinants of health could help inform more effective policy interventions.

Additionally, the disparity between CKD prevalence and the rate of kidney transplantation warrants further investigation, particularly regarding its impact on kidney disease mortality among Black males and females. Given the broad decline in kidney disease mortality from 2000 to 2013 across all racial and ethnic groups, identifying the factors behind this improvement may provide valuable insights for future policy development.

Visit www.njha.com/chart for additional resources.
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