Chronic Kidney Disease Among Montanans with Diabetes

Burden Facts

- Chronic kidney disease (CKD) was documented in 34,000 Emergency Department (ED) visits and 44,000 hospital admissions between 2020-2024 in Montana.
- Cardiovascular disease was the most common comorbidity among visits with CKD, followed by diabetes.
- 16% of ED visits and 14% of hospital admissions for CKD included end-stage renal disease (ESRD).
- Among hospital admissions for CKD, nearly 5% resulted in death. Eight% of admissions with ESRD resulted in death.

Chronic Kidney Disease is Reversible if Recognized

Chronic kidney disease (CKD), also called kidney failure, is a critical and preventable outcome in which the kidneys gradually lose their function. A potentially deadly disease, late-stage CKD, also known as end-stage renal disease (ESRD), occurs when the kidneys have completely failed to function. CKD is heavily associated with diabetes, hypertension, and cardiovascular disease; these comorbidities are commonly associated with one another, further exacerbating the risk of developing CKD[1,2].

CKD often remains silent until later stages of the disease. When signs and symptoms do manifest, these may include foamy urine, frequent urination, itchy or dry skin, feeling tired, nausea, loss of appetite, and unexpected weight loss. Diagnosis of the disease requires both an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR) test[2].

Prevention of CKD, even among patients with chronic disease, can be achieved by following instructions on over-the-counter medications, achieving and maintaining a healthy weight, quitting or avoiding smoking, exercising regularly, reducing and managing stress, and managing chronic conditions that lead to the disease. Treatment focuses on slowing the progression of kidney damage and managing conditions contributing to it, although artificial filtering (dialysis) or kidney transplant are crucial for preserving the patient's life in cases of ESRD[1,2]. This report examines the estimated number of Montanans with CKD in associated hospitalizations over the past five years (2020-2024).

CONTACT

Montana Diabetes Program

diabetes@mt.gov

1-844-MTHLT4U

(1-844-684-5848)

RESOURCES

- The National Kidney Foundation webpage provides guidance and resources for medical professionals and patients regarding kidney diseases and their prevention and treatment[3].
- Montana Department of Public Health and Human Services offers a variety of programs to prevent and reduce chronic disease. The Chronic Disease Prevention and Health Promotion webpage has a full listing of opportunities[4].

Emergency Department Visits and Hospital Admissions

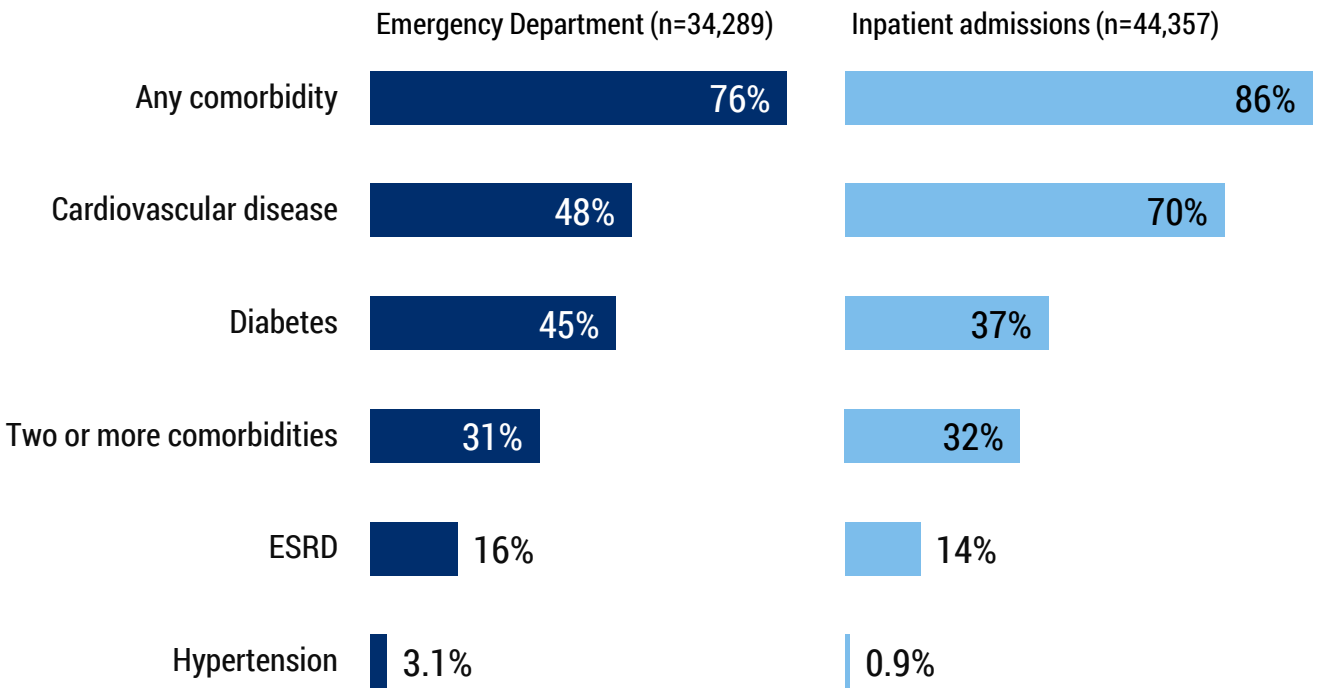
Chronic kidney disease (CKD) was identified as either a primary or contributing diagnosis in 34,289 Emergency Department (ED) visits between 2020-2024 (2.4% of all visits). Death occurred in 0.6% of these visits. By comparison, CKD was more common among inpatient hospital admissions; between 2020-2024 there were 44,357 inpatient admissions with CKD (10% of all admissions), with death occurring in five% of these cases. Five% of ED visits with CKD became hospital admissions, whereas only 1.7% of ED visits without CKD were admitted for further care[5].

Among ED visits, 76% of CKD related visits had a comorbidity of diabetes, hypertension, cardiovascular disease, and/or ESRD. Cardiovascular disease occurred the most (48%), followed by diabetes (45%), ESRD (16%) and hypertension (3.1%; Figure 1) [5].

Among inpatient admissions, 86% of CKD related visits had a comorbidity of diabetes, hypertension, cardiovascular disease, or end-stage renal disease (ESRD). The most common of these were cardiovascular disease (70%), followed by diabetes (37%), ESRD (14%) and hypertension (0.9%; Figure 1) [5].

Figure 1. Most patients with CKD who visited an ED or were admitted to a hospital had at least one comorbid condition of cardiovascular disease, diabetes, end-stage renal disease (ESRD), and/or hypertension[5].

Percentage of emergency department visits/ hospital inpatient admissions with CKD and another chronic comorbidity.



Conclusions

Although uncommon in both ED and inpatient settings, CKD is a serious condition that needs to be identified and treated early. While the prevalence of the disease in the ED setting is low, this is likely to be deflated by the wide variety of reasons that patients choose to visit emergency care. Additionally, the severity of the disease may prompt more intensive care and attention compared to other diseases, resulting in more use of direct pathways to hospital admission that don't require the ED. Patients with CKD in the ED were transferred to further care more than twice as often as patients without the disease (5% versus 1.7%)[5]. Medical care for CKD can be complex due to the high prevalence of other chronic conditions patients may experience. Fortunately, organizations such as the National Kidney Foundation provide resources for both patients and health care professionals alike to guide care and prevention[3]. The Montana Department of Public Health and Human Services also partners throughout the state to deliver and support a variety of programs that address prevention and management of chronic conditions known to lead to CKD[4]. Utilizing these resources can help prevent the progression of chronic disease in patients and overall improve patient health.

Data and Methods

These data come from the 2020-2024 Montana Hospital Discharge Data (MHDD). MHDD is provided to DPHHS through an agreement with the Montana Hospital Association and is derived from the Uniform Billing 2004 form for all inpatient stays and emergency department visits at participating facilities. MHDD covers about 90% of annual hospitalizations and ED visits in Montana. However, it does not include visits at Indian Health Services (IHS) facilities, the Veterans Administration hospital at Fort Harrison, or the Montana State Hospital, Warm Springs. MHDD represents a count of unique visits and does not represent individual people as the data does not contain personal identifiers, and therefore, cannot distinguish multiple visits for a single person.

CKD cases were identified as hospitalizations and ED visits among Montana residents with a discharge diagnosis code beginning with N18 in either the primary diagnosis field or any of the subsequent available nine diagnosis fields. ESRD was identified from the same population having a diagnosis code beginning with N18.6.

References

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