Equity Measure Domain: Clinical Outcomes

30-day Readmissions for Patients with Heart Failure

Description:
Patients with heart failure are at increased risk of being readmitted to the hospital within 30 days of care. Their risk is further increased if they are of non-white race.

Measure: Percent of patients with heart failure who are readmitted to an NC hospital within 30 days of discharge, stratified by race and ethnicity.

> Numerator: Number of patients with a primary diagnosis of heart failure who are readmitted within 30 days of hospitalization.
>
> Denominator: Number of patients with a primary diagnosis of heart failure who have been hospitalized.

Source: NCHA Patient Data System (PDS) - All hospitals and Ambulatory Surgical Centers in North Carolina submit pre-adjudicated claims data to the Patient Data System on a quarterly basis in accordance with the NC Medical Care Act. Through its partnership with providers, NC DHHS and the State Certified Data Processor, the Hospital Industry Data Institute (HIDI), NCHA may use the compiled database to provide aggregate analyses of health system utilization.

Rationale for measure selection:

Heart failure is a costly, morbid condition that is estimated to affect approximately 6.2 million individuals in the United States at a cost of $30.7 billion, which is estimated to increase to $69.8 billion by 2030. [Black] individuals are disproportionately diagnosed with heart failure compared with white individuals.[1] Sex/gender and race bias in evaluation and assessment for cardiovascular disease has been a longstanding issue in medicine.[2]

It is crucial to mention that Black people are also more likely to suffer from health inequities because of the social determinants of health. Both structural and social inequities, which cause increased stress and distrust in the medical system, a lack of nutritious food options (living in food deserts), and poor access to medical care have a direct link to the development of heart disease and heart failure.[3]

Differences in utilization and in health outcomes by race in North Carolina are notable. By tracking performance by race and ethnicity, trends related to these differences will be highlighted. Health systems can structure their quality improvement efforts to identify and address the underlying causes of disparities.

1 Young BA. Health Disparities in Advanced Heart Failure Treatment: The Intersection of Race and Sex. JAMA Netw Open. 2020 Jul 1;3(7):e2011034. doi: 10.1001/jamanetworkopen.2020.11034. PMID: 32692368. Accessed at: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2768392

2 Centers for Disease Control and Prevention. Accessed at: https://www.cdc.gov/heartdisease/heart_failure.htm

3 University of Chicago School of Medicine. Accessed at: https://www.uchicagomedicine.org/forefront/heart-and-vascular-articles/heart-disease-and-racial-disparities

Figure 1: Adults Diagnosed with Heart Disease

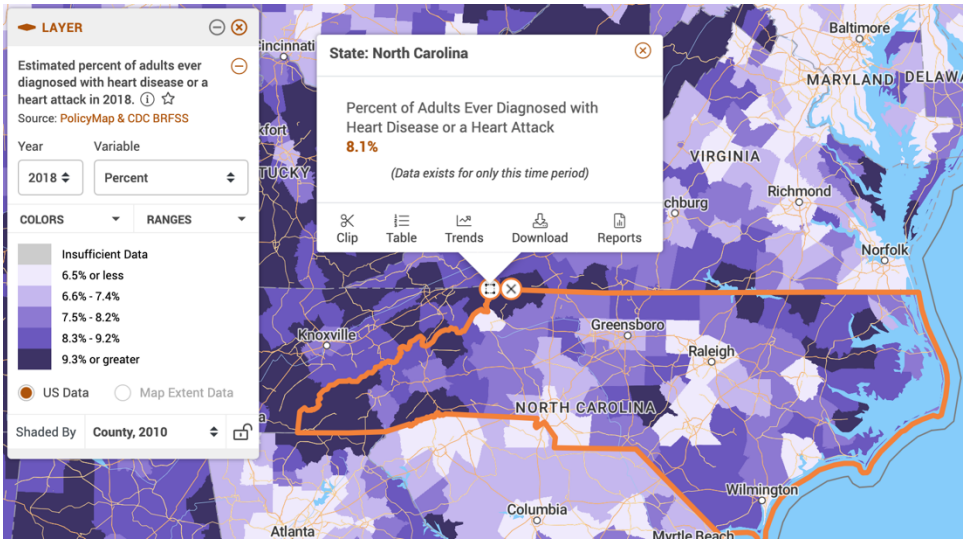


Figure 2: Medicare Beneficiaries with Heart Failure

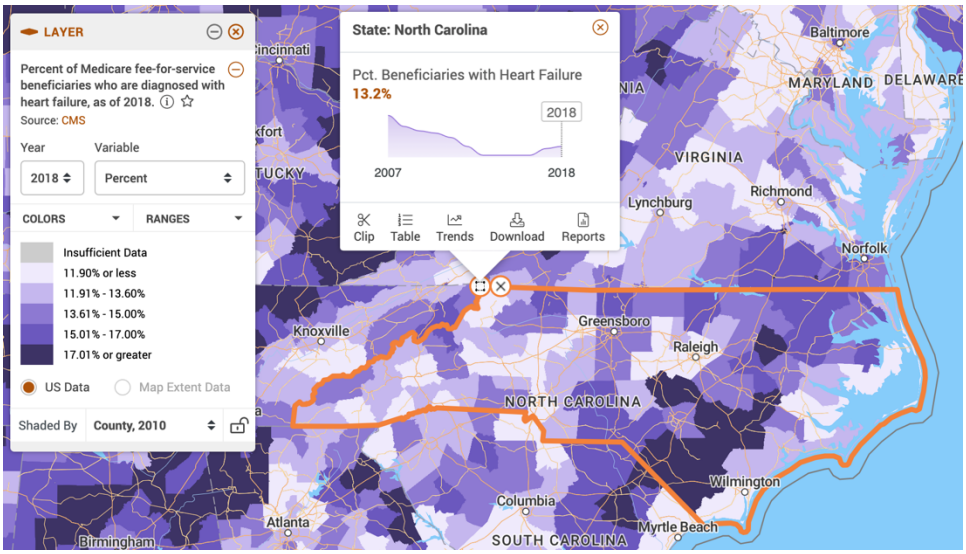
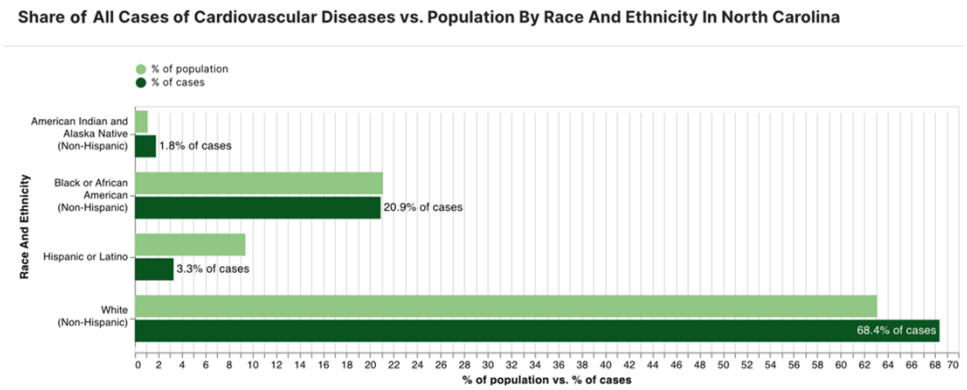
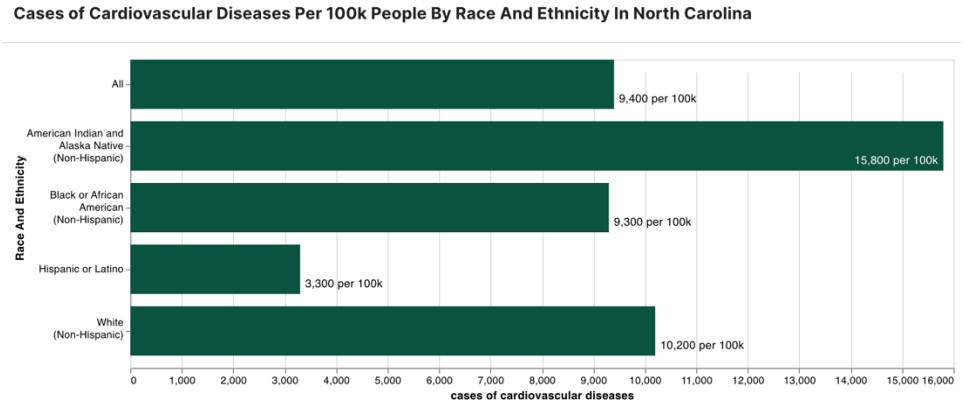


Figure 3



Sources: America's Health Rankings (updated 2021) and American Community Survey 5-year estimates (updated 2019).

Figure 4

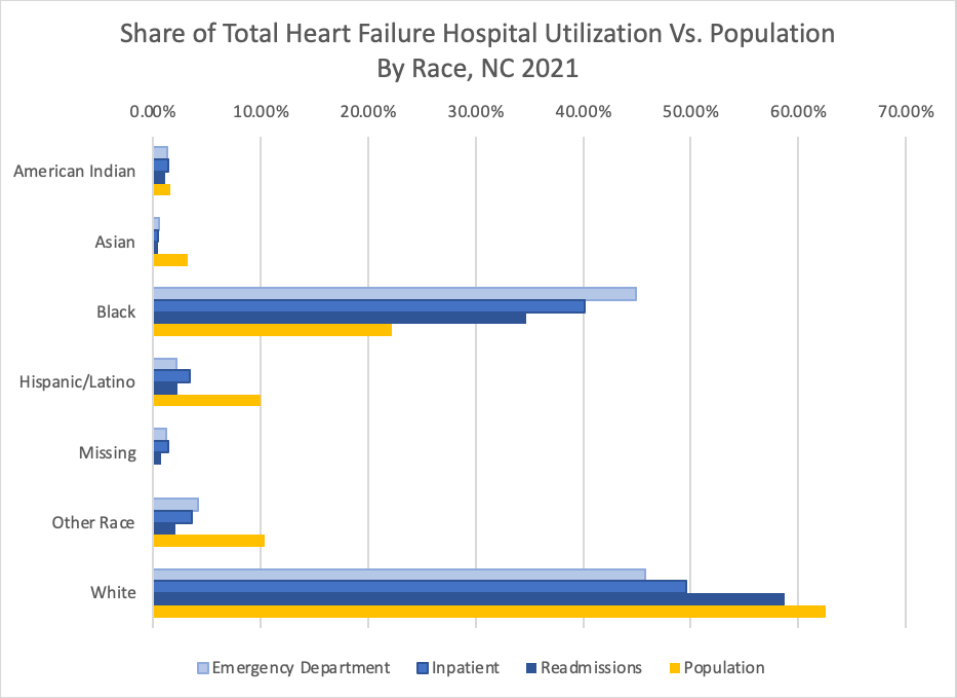


Sources: America's Health Rankings (updated 2021) and American Community Survey 5-year estimates (updated 2019).

Hospitalization and readmission for diabetes are not equally distributed among the groups with heart failure across the population. This reflects differences in ongoing care for chronic illness in the community and in the hospital setting.[4]

4 Health Equity Tracker, Satcher Health Leadership Institute. Morehouse School of Medicine. Accessed at: https://healthequitytracker.org.

Figure 5



American Indians make up 1.6% of the population, have 1.8% of cardiovascular disease cases, and average 1% of hospital utilization for heart failure. People of Black race make up 22.2% of the population, have 20.9% of cardiovascular disease cases, and average 38% of hospitals utilization for heart failure. People of white race make up 62.6% of the population, have 68.4% cardiovascular disease cases, and average 57% of hospital utilization for heart failure.

Figure 6

	Population	Percent of cases	Average utilization
American Indian	2%	2%	1%
Asian	3%		1%
Black	22%	21%	38%
Missing	0%		1%
Other Race	10%		2%
White	63%	68%	57%

Figure 7

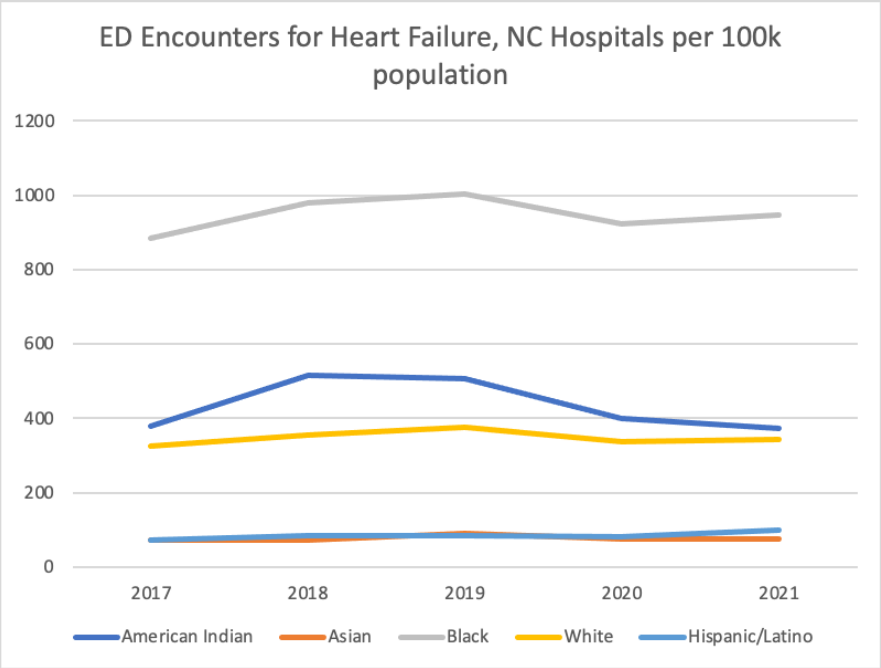


Figure 8

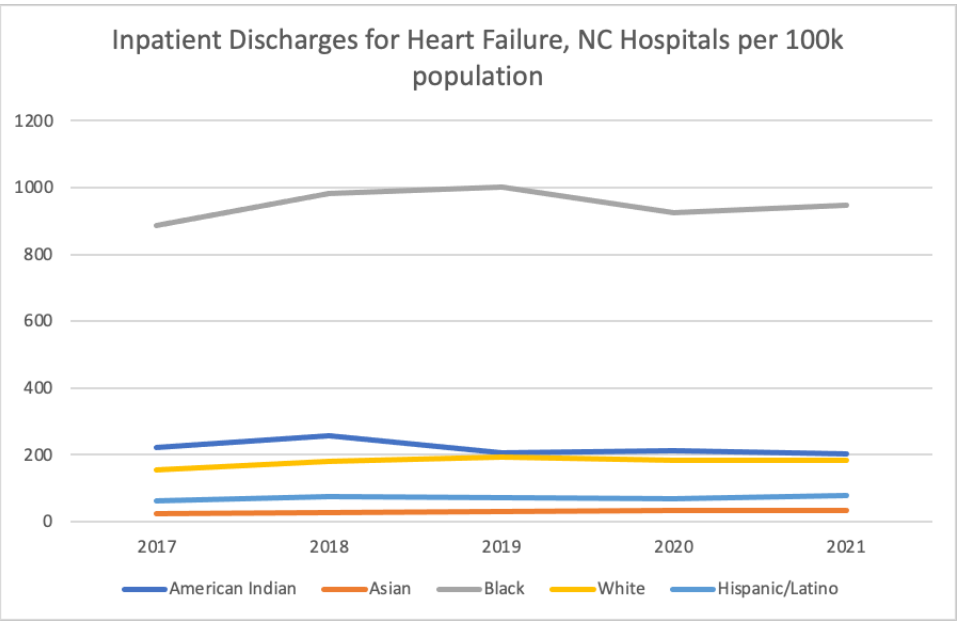
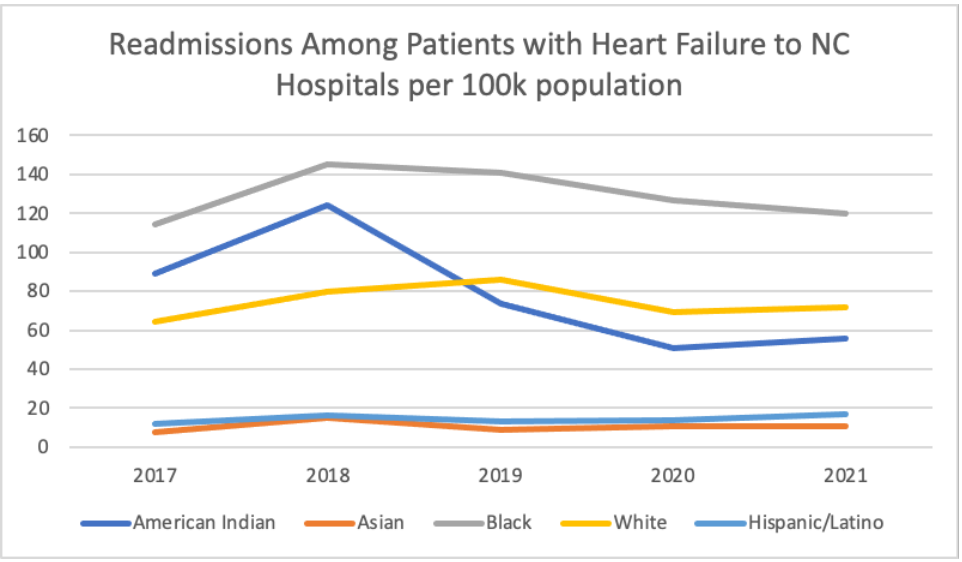


Figure 9



Focusing on readmissions due to heart failure aligns with hospitals' public reporting for the CMS Hospital Readmissions Reduction Program. This data is not typically disaggregated by race and ethnicity but could be analyzed in different ways.[5]

5 Centers for Medicare & Medicaid Services. Accessed at: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program

Codes for Heart Failure:

https://qualitynet.cms.gov/inpatient/measures/readmission/methodology

ICD-10-CM Code (index claim, principal diagnosis code)	Description
I11.0	Hypertensive heart disease with heart failure
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
I50.1	Left ventricular failure, unspecified
I50.20	Unspecified systolic (congestive) heart failure
I50.21	Acute systolic (congestive) heart failure
I50.22	Chronic systolic (congestive) heart failure
I50.23	Acute on chronic systolic (congestive) heart failure
I50.30	Unspecified diastolic (congestive) heart failure
I50.31	Acute diastolic (congestive) heart failure
I50.32	Chronic diastolic (congestive) heart failure
I50.33	Acute on chronic diastolic (congestive) heart failure
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.810	Right heart failure, unspecified
I50.811	Acute right heart failure
I50.812	Chronic right heart failure
I50.813	Acute on chronic right heart failure
I50.814	Right heart failure due to left heart failure
I50.82	Biventricular heart failure
I50.83	High output heart failure
I50.84	End stage heart failure
I50.89	Other heart failure
I50.9	Heart failure, unspecified