

# Chronic Illness Burden Grows as More N.J. Patients Experience Multiple Underlying Health Conditions

Chronic conditions and health inequity can have a great personal toll on individuals, along with the costs and complexity of healthcare delivery. This report examined how chronic conditions have changed over time within hospitalized populations in New Jersey. It assessed trends and variations of chronic conditions within hospitalized populations, analyzing differences by age, gender, and race/ethnicity. This report observed emerging shifts in patterns over time. Overall, data show that 26.0% of hospitalized patients had at least eight chronic conditions in 2022 and that chronic conditions are increasing among all demographic groups. While the rise is occurring at varying speeds, the trend is observed among males and females and across race and ethnic groups.

This report continues NJHA's focus on chronic illness and compliments CHART's previous reports that examined the state of [chronic conditions](#) and [severity of illness](#) in New Jersey.

## Method

Chronic conditions are identified using the Chronic Condition Indicator Refined (CCIR) (Classification software) for ICD-10-CM SAS-based software program. The Classification software is developed as part of the Healthcare Cost and Utilization Project, sponsored by the Agency for Healthcare Research and Quality.

The Classification software uses primary and secondary ICD-10-CM diagnosis codes to group the conditions as **“Not Chronic,” “Chronic”** or **“No determination is made on the identification of a chronic condition” (Not Determined)**. The focus of this study is only those conditions classified as “chronic.”

## Data

Inpatient data from the 2016-2022 Hospital Discharge Data Collection System were used. The Classification software program was run on each year's data to identify patients as “chronic,” “not chronic” or “not determined” on each of the potential 25 diagnosis codes. Once classified, a count of the number of chronic conditions was made on each record. After careful examination of observed trends on finer groups, the count of chronic conditions across primary and

secondary diagnosis codes (Ranging from 0-25) was then further grouped into three classifications: 0 chronic, 1-7 chronic conditions and 8 or more (8+) chronic conditions.

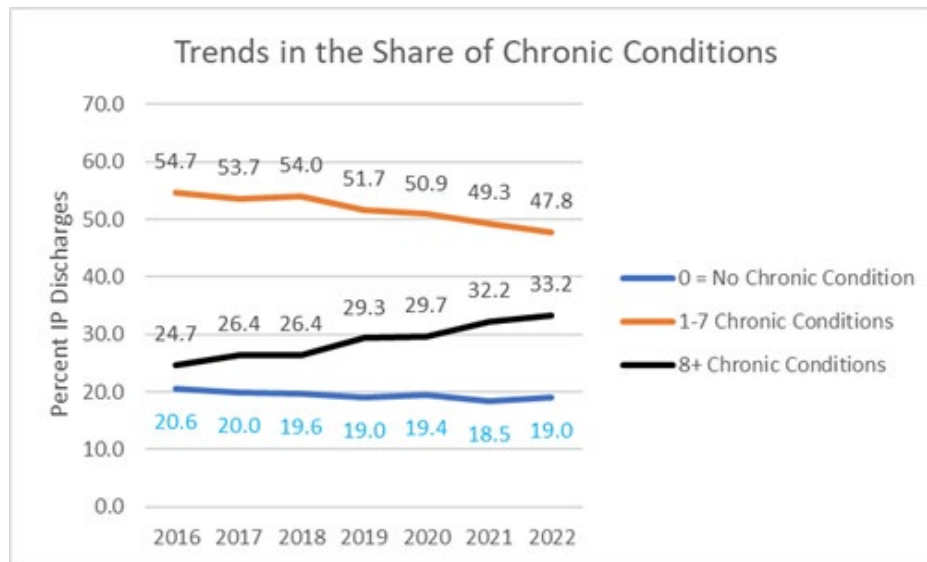
## Findings

The data and charts below show an increasing rise in chronic conditions over a seven-year period, with more New Jersey hospital patients experiencing multiple chronic illnesses. Presentations include statewide trends, differences by sex, age, race/ethnicity, and the top 10 MS-DRGs with 8+ chronic conditions.

### Trends in Chronic Conditions

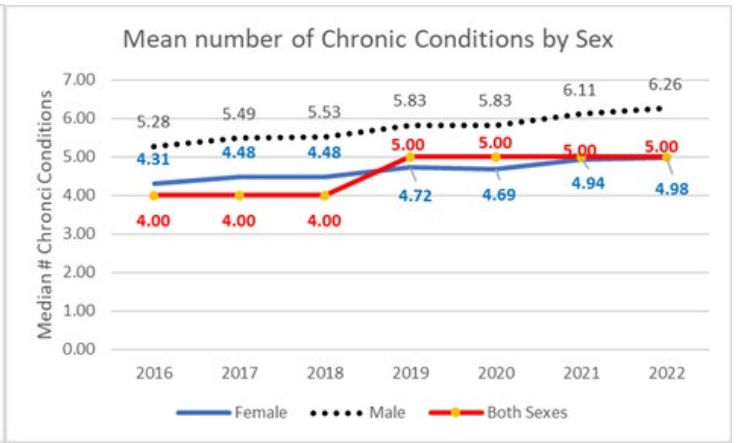
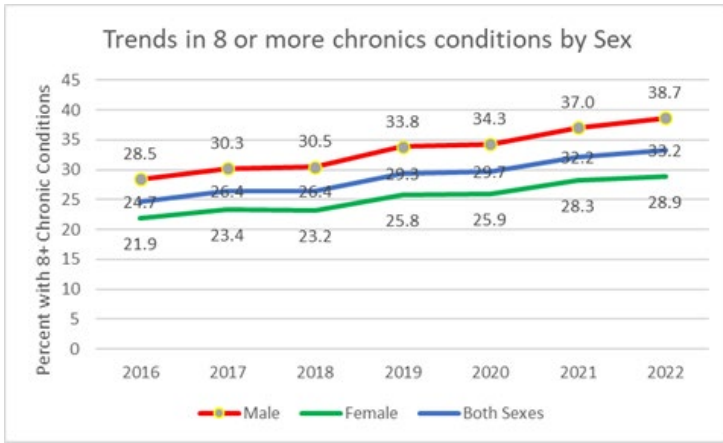
The proportion of patients with 8+ chronic conditions has been rising at an average rate of 1.4% per year, while the share of patients with 1-7 chronic conditions has been declining at an average rate of 1.2% per year. This indicates that hospitals are serving increasingly more complex patients.

The chart below illustrates that the decline in the share of patients with 1-7 chronic conditions was due to the upward shift in the share of patients with 8+ chronic conditions. As a result, the focus of the study is primarily on patients with 8+ chronic conditions.



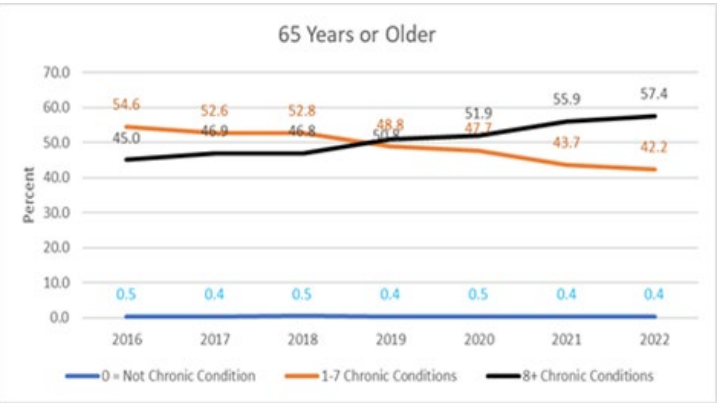
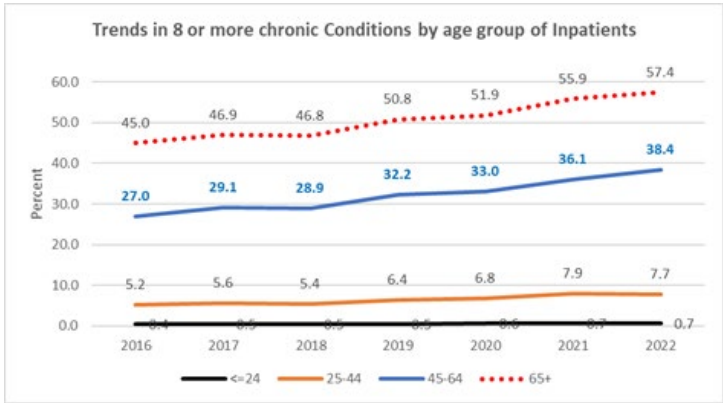
### Variation of Chronic Conditions by Sex

The shares of patients with 8+ chronic conditions have been growing by year both for males and females. The share for males has consistently been higher than that for females, and the differences between the shares have widened. Male shares have been growing, on average, at 1.7% per year compared with 1.2% for females. The average number of chronic conditions has also been consistently higher for males compared with females (see the panel on “Mean number of chronic conditions by Sex”).



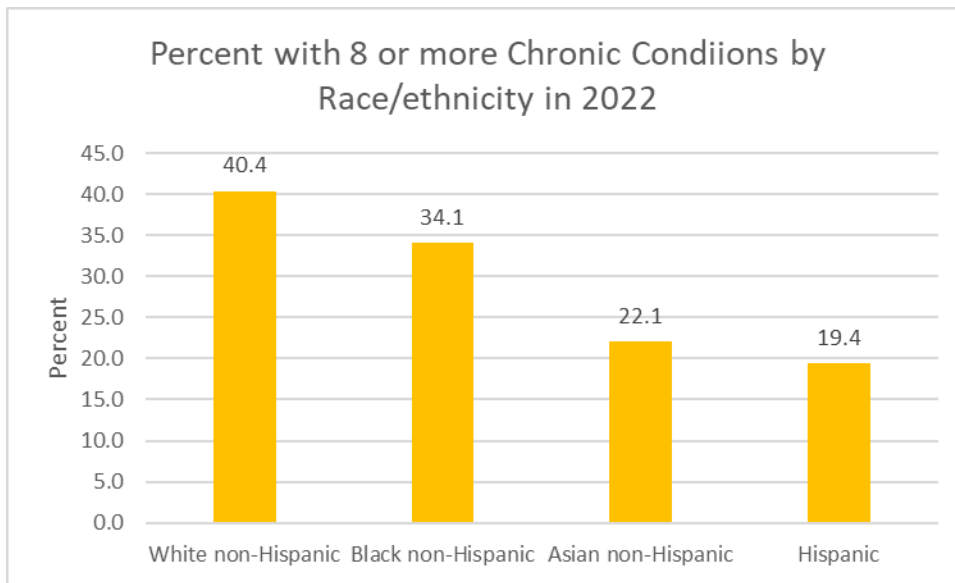
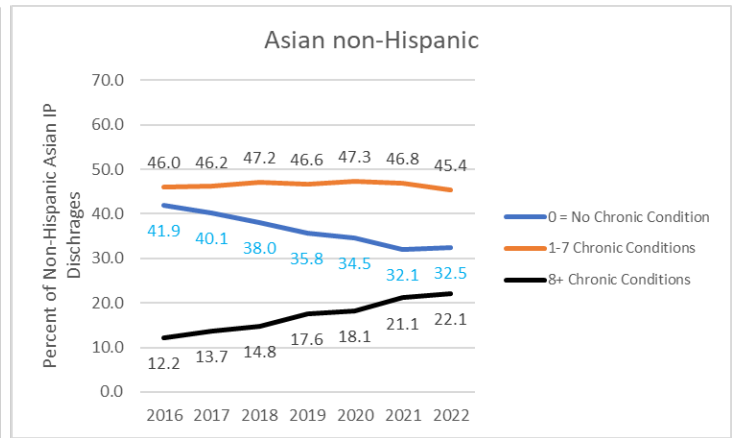
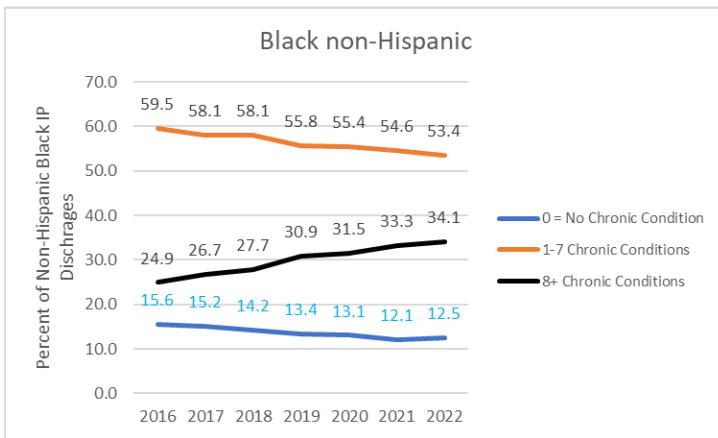
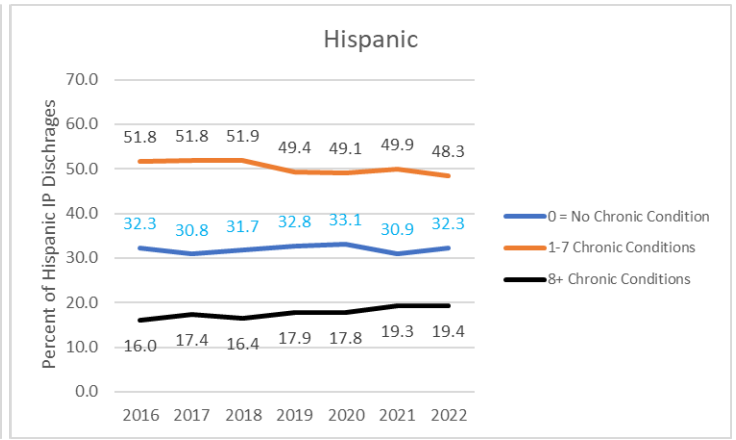
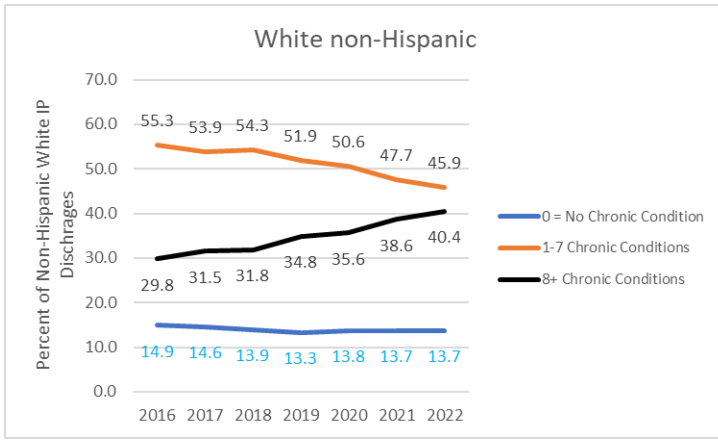
### Chronic Conditions and Age

As expected, chronic conditions vary by age with younger ages accounting for less of the burden of chronic conditions compared with older age groups. Despite the variations by age group, data show that the share of patients with 8+ chronic conditions has been growing among 25 or older discharges. The fastest increase was among individuals 65+ years with an average of 2.2% per year followed by those 45-64 years which grew by an average of 1.9% per year. The share of 8+ chronic conditions for 65+ years was below that of 1-7 chronic conditions through 2018, after which it overtook the share of patients with 1-7 chronic conditions.



### Variation of Chronic Conditions by Race/ethnicity

Chronic conditions affect various race/ethnic groups differently. In 2022, the final year of this study period, 40.4% of white non-Hispanics had 8+ chronic conditions, followed by 34.1% for Black non-Hispanics, 22.1% for Asian non-Hispanic, and 19.4% of Hispanics. The seven-year trends show that, among non-Hispanic Whites, the share of chronic conditions increased from 29.8% in 2016 to 40.4% in 2022, a 36% jump, compared with a 37% increase among non-Hispanic Blacks. Among Hispanics, a smaller but noticeable growth has also occurred amounting to 11%. Although the share of 8+ chronic conditions is lower among non-Hispanic Asians, there was an 81% jump from 12.2% in 2016 to 22.1% in 2022. Any increase in chronic conditions of this magnitude is concerning.



## The Top 10 MS-DRGs

CHART reviewed the top 10 Medicare Severity Diagnosis Related Groups (MS-DRGs) among patients who had at least eight chronic conditions. Overall, 26.0% of eligible patients (or 168,651 of 648,918) had eight or more chronic conditions. Among those suffering 8+ chronic conditions, the top five most

common are: sepsis, which can cause chronic inflammation and other impacts; heart failure; respiratory infection; acute myocardial infarction, or heart attack, accompanied with ongoing associated complications; and pneumonia. By diagnosis code, the top 10 diseases accounted for 46.2% of total 8+ chronic conditions with “Septicemia or Severe Sepsis without MV>96 hours with MCC”<sup>1</sup> topping the list with 21,250 (or 12.6%) closely followed by “Heart Failure and Shock with MCC” with 19,284 (or 11.4%). The table below lists the top 10 MS-DRGs in decreasing order of patients with 8+ chronic conditions.

	0 = Not Chronic Condition		1-7 Chronic Conditions		8+ Chronic Conditions	
	#	%	#	%	#	%
SEPTICEMIA OR SEVERE SEPSIS WITHOUT MV >96 HOURS WITH MCC	242	0.68	14,034	39.50	21,250	59.82
HEART FAILURE AND SHOCK WITH MCC	0	0.00	3,823	16.54	19,284	83.46
RESPIRATORY INFECTIONS AND INFLAMMATIONS WITH MCC	396	1.92	10,314	50.00	9,916	48.08
ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE WITH MCC	0	0.00	880	15.40	4,836	84.60
SIMPLE PNEUMONIA AND PLEURISY WITH MCC	219	2.67	3,261	39.72	4,730	57.61
RENAL FAILURE WITH MCC	3	0.05	1,704	30.70	3,843	69.24
INFECTIOUS AND PARASITIC DISEASES WITH O.R. PROCEDURES WITH MCC	70	1.14	2,290	37.35	3,771	61.51
CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH MCC	0	0.00	2,123	37.06	3,606	62.94
INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION WITH MCC	0	0.00	1,556	30.84	3,490	69.16
GASTROINTESTINAL HEMORRHAGE WITH CC	26	0.41	3,047	48.09	3,263	51.50

## Discussion

The findings in this report show that chronic conditions are rising among patients and that their speed of growth as well as their burden varies by demographic groups. As a clear indication of the growing complexity of patients served in the state, the shares of 8+ chronic conditions have been increasing among all patient groups and the rate of growth varied by gender, age and race/ethnicity.

Highlights of the study:

- New Jerseyans appear to be increasingly living with progressively more chronic conditions.
- The fastest growth in chronic conditions was recorded among patients with eight or more chronic conditions.
- The share of patients with eight or more chronic conditions has been rising among males, females, race/ethnic groups, and among age groups.
- White non-Hispanic and Black non-Hispanic patients, whose relative shares grew by 36% and 37% between 2016 and 2022, respectively, are the primary drivers of the rise in 8+ chronic conditions.
- The increase in the share of patients with 8+ chronic conditions among Asian non-Hispanic was much faster compared to other groups (81% jump between 2016 and 2022).
- Chronic conditions have been rising at an average of 2.2% per year and at an average of 1.9% per year among 45-64 and 65+ years old, respectively.
- Consistent with findings in this report, the New Jersey Behavioral Risk Factor Survey (NJBRFS) data also show that self-reported chronic conditions by White-non-Hispanic, Black non-Hispanic

<sup>1</sup> MCC stands for “Multiple chronic conditions”; MV stands for “Mechanical Ventilation.”

and those 65 or older New Jerseyans grew by 20%, 9% and 15%, respectively, between 2016 and 2020.

Further analysis of the data also suggests that having eight or more chronic conditions is positively correlated with being male, age, length of stay, being White, being non-Hispanic or being Black non-Hispanic. Consistent with the findings on the trend charts, being Hispanic, non-Hispanic Asian or non-Hispanic Other are associated with having lower extreme chronic condition counts. Not surprisingly, having COVID-19 is also positively correlated with many chronic conditions on a patient.

## References

- [Chronic Conditions Indicator Refined \(CCIR\) Software](#)
- [New Jersey Behavioral Risk Factor Survey](#)
- [NJHA/CHART: Chronic Conditions Study](#)
- [NJHA/CHART: Vulnerable Communities Study](#)
- [New Jersey Hospital Discharge Data Collection System](#)
- [Severity of Illness](#)
- Washington Post: [Life expectancy in U.S. is falling amid surges in chronic illness - Washington Post](#)

Visit [www.njha.com/chart](http://www.njha.com/chart) for additional resources.  
[The New Jersey Hospital Association \(njha.com\)](http://www.njha.com)