

CHRONIC CONDITIONS

*Eroding the
Fabric of a
Healthy
Society*

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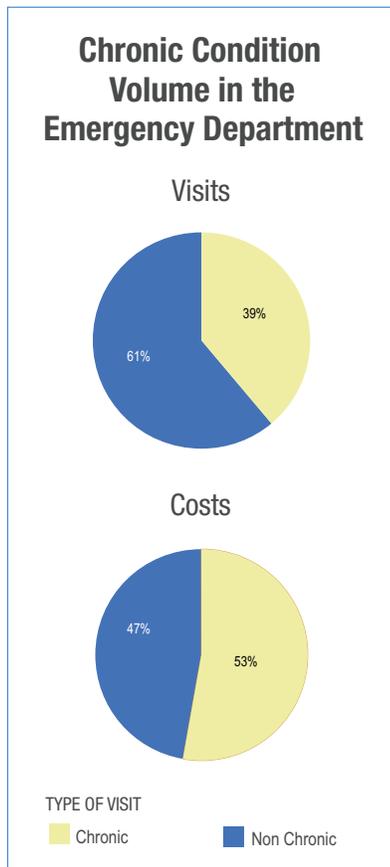
CHRONIC CONDITIONS: ERODING THE FABRIC OF A HEALTHY SOCIETY

Healthcare delivery in New Jersey is under increasing strain due to the rising prevalence of chronic disease. A chronic disease or illness is “a condition that is slow in progression, long in duration, and void of spontaneous resolution, and it often limits the function, productivity, and quality of life of someone who lives with it.”¹ In many cases these conditions cannot be prevented by vaccination or cured by medication. They must be managed. As of 2014, 60 percent of American adults had at least one chronic condition, and 42 percent had more than one chronic condition.² When a patient suffers from more than one chronic condition (e.g., diabetes, hypertension, and obesity) treatment is difficult to manage and expensive to deliver. Patients suffering from chronic disease often face hospital readmissions due in part to inadequate and disjointed care coordination and those readmissions raise costs throughout the healthcare system.



To better illuminate the impact of chronic conditions on healthcare consumption and delivery in New Jersey, NJHA’s Center for Health Analytics, Research & Transformation (CHART) examined patient record data from more than 3 million hospital emergency room visits. These claims, representing emergency room visits to 68 of the state’s 71 acute care hospitals in 2017, are valuable for understanding the magnitude and geographic disposition of chronic disease in New Jersey.

This analysis of chronic conditions reveals some of the many factors within New Jersey communities that are eroding efforts to improve the health of the people of New Jersey. The prevalence of chronic conditions is exacerbated in the most socio-economically challenged areas such as Atlantic City, Jersey City and Trenton and is more actively prominent in the African-American population.



ANALYSIS

Hospitals in New Jersey spend over \$2 billion annually providing emergency care to patients that present in their emergency rooms and are treated, released and not in need of admission to a hospital bed for more advanced treatment or a surgical procedure. In 2017, hospitals in New Jersey serviced 3.1 million of these “treat-and-release” emergency room visits.

Approximately 1.2 million, or 39 percent, of these visits were associated with patients that had one or more of the following chronic conditions as the primary or contributing factor associated with their emergency room visit:

- Hypertension
- Drug/Substance Abuse
- Diabetes
- High Cholesterol
- Asthma
- Anxiety
- Chronic Obstructive Pulmonary Disease (COPD)
- Chronic Kidney Disease
- Obesity
- Heart Failure
- Depression

While these 1.2 million patient visits represented 39 percent of the volume, they accounted for 53 percent of the cost associated with emergency department treatments.

1. Institute of Medicine. 2012. *Living Well with Chronic Illness: A Call for Public Health Action*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13272>.

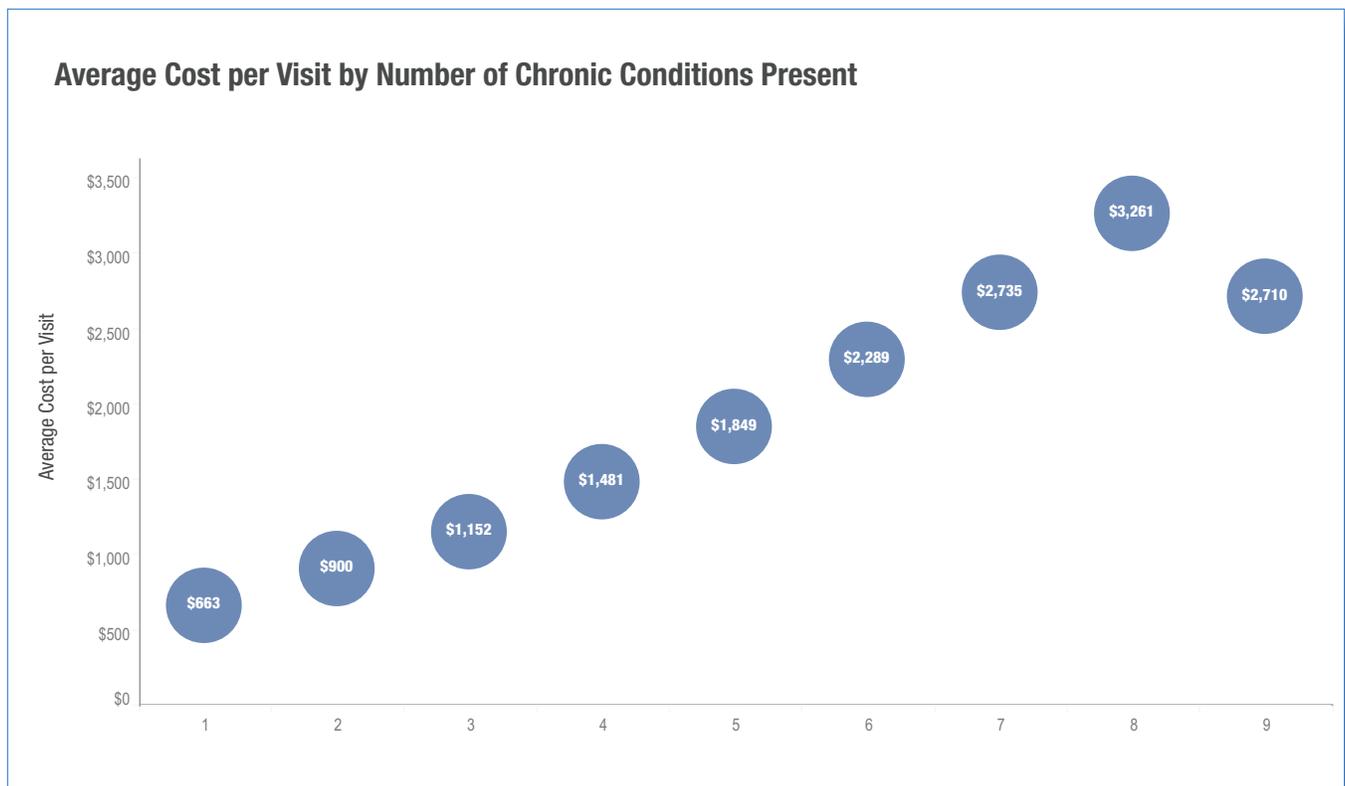
2. Buttorff, C.; Ruder, T.; Bauman, M. *Multiple Chronic Conditions in the United States*; Rand Corporation: Santa Monica, CA, USA, 2017; <https://www.rand.org/pubs/tools/TL221.html>; Date accessed November 8, 2018.

THE COMPOUNDING EFFECT OF CHRONIC CONDITIONS

- The average cost of a treat-and-release emergency department visit for a patient that was not compromised by the presence of a chronic condition was approximately \$480 per visit.
- However, those patients suffering from, or managing, one or more chronic conditions were exponentially costlier. Of all the patient visits with chronic conditions, 83 percent of the treat-and-release patient visits were associated with patients where one or two chronic conditions were present. On average those patient visits were 54 percent costlier than those where no chronic condition was present, with an average cost of \$738 per visit.

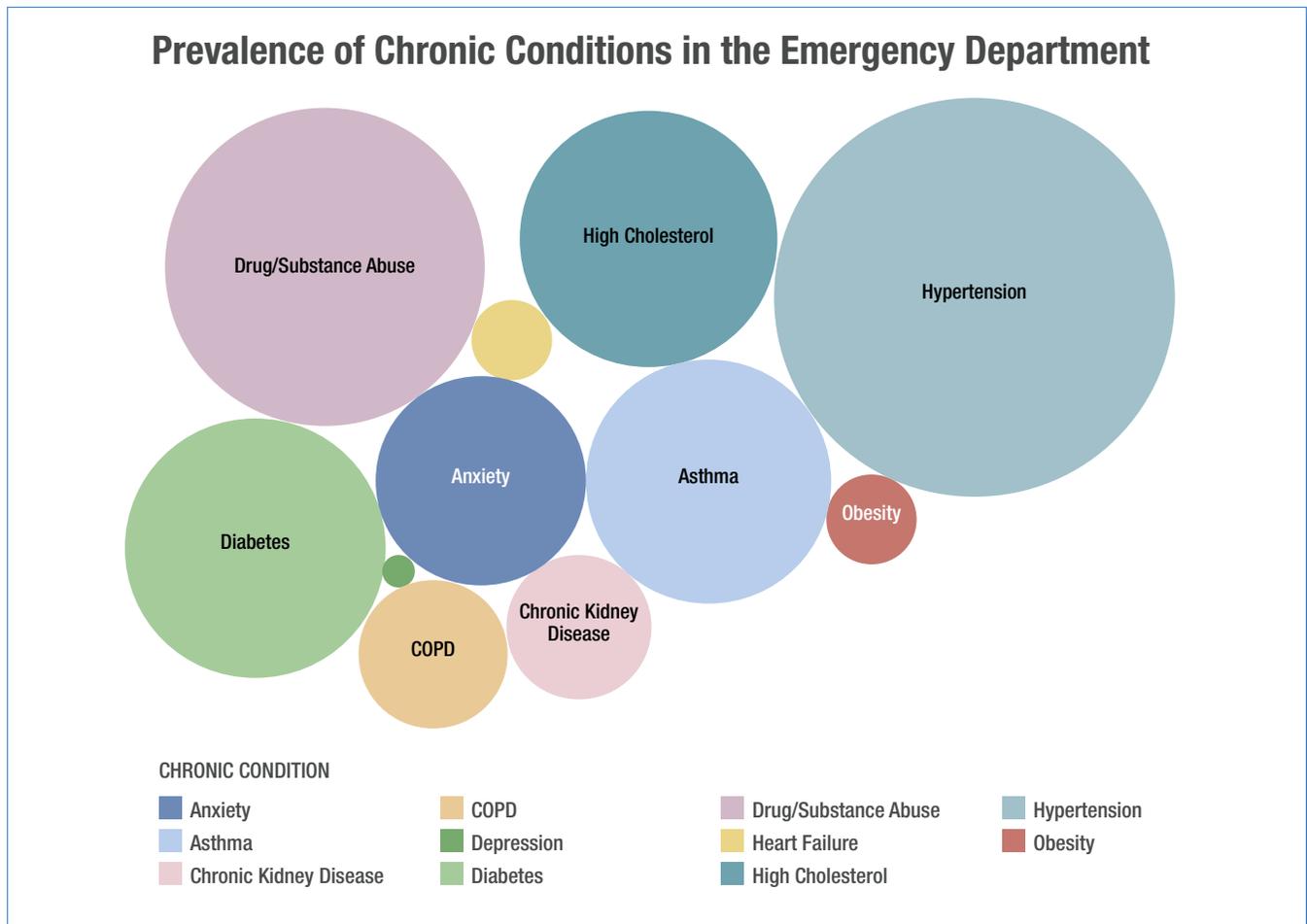
# OF CHRONIC CONDITIONS	VISITS	% TO TOTAL	TOTAL COSTS	AVERAGE COST
1	676,741	56.28%	\$448,640,561	\$662.94
2	312,552	25.99%	\$281,251,153	\$899.85
3	142,207	11.83%	\$163,809,394	\$1,151.91
4	50,539	4.20%	\$74,823,032	\$1,480.50
5	15,390	1.28%	\$28,450,338	\$1,848.62
6	4,061	0.34%	\$9,297,642	\$2,289.50
7	873	0.07%	\$2,387,254	\$2,734.54
8	155	0.01%	\$505,444	\$3,260.93
9	28	0.00%	\$75,886	\$2,710.21
10	1	0.00%	\$13,782	\$13,782.00
TOTAL			\$1,009,254,486	

- Sixteen percent of these patients presented in hospital emergency departments with three or four chronic conditions and the cost of care to those patients was 158 percent more expensive than for a patient with no chronic conditions, with the average cost of emergency department care for these patients averaging \$1,238 per visit.
- Finally, the remaining chronic condition patients were suffering from five or more chronic conditions and their cost of care was 314 percent higher than that of a patient with no chronic conditions. The average cost of care for these patients was \$1,986.



The most common chronic conditions found in New Jersey hospital emergency department treat-and-release patient records were:

- Hypertension – 19%
- Drug/Substance Abuse – 12%
- Diabetes – 8%
- High Cholesterol – 8%
- Asthma – 7%



SOCIETAL IMPACT OF CHRONIC CONDITIONS

Managing and reducing the presence of chronic conditions will not only have a positive impact on bending the cost curve but will also have a societal benefit. A recent study by the Milken Institute³ found that the direct healthcare costs associated with chronic diseases in the United States totaled \$1.1 trillion in 2016 – an amount equal to nearly one-third (32.2 percent) of the nation’s health expenditures, or 5.8 percent of gross domestic product (GDP).

However, the total cost of chronic disease in the United States extends beyond direct expenditures for medical treatment. Individuals living with chronic illness are often forced to miss work (or school) as they struggle with one – and often

multiple – chronic conditions. In a 2016 study that examined the association between employee absenteeism and chronic conditions, researchers found that individuals with a chronic condition had significantly greater absenteeism than those without one. In addition, the rate of absenteeism increased with the number of health risk factors or chronic diseases reported.⁴

Even when a chronic condition does not result in an individual missing work, studies have shown that workplace performance suffers.⁵ The issue of workers being present at their job, but, due to an illness or another medical condition, not functioning fully is known as “presenteeism” and, when combined with absenteeism, represents the additional “indirect” costs

3. Milken Institute, *The Costs of Chronic Disease in the U.S.*, August 2018.

4. Asay GRB, Roy K, Lang JE, Payne RL, Howard DH. Absenteeism and Employer Costs Associated With Chronic Diseases and Health Risk Factors in the US Workforce. *Prev Chronic Dis* 2016;13:150503. DOI: <http://dx.doi.org/10.5888/pcd13.150503>, October 6, 2016.

5. Schultz AB, Edington DW. Employee health and presenteeism: a systematic review. *J Occup Rehabil*. 2007;17(3):547–579. doi: 10.1007/s10926-007-9096-x. <https://www.ncbi.nlm.nih.gov/pubmed/17653835>.

FINDINGS

The analysis shows that there is a clear relationship between social determinants of health such as employment status, income and nutrition, and poor health status. The three poorest counties in the state are Cumberland (median household income - \$49,537), Essex (\$54,860) and Atlantic (\$55,456). These counties are also home to three of the four highest unemployment rates in the state. The statewide average unemployment rate is 4.4 percent, while Cumberland (6.6 percent), Essex (5.7 percent) and Atlantic (5.4 percent) rank at or near the bottom of the state.



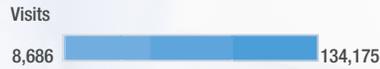
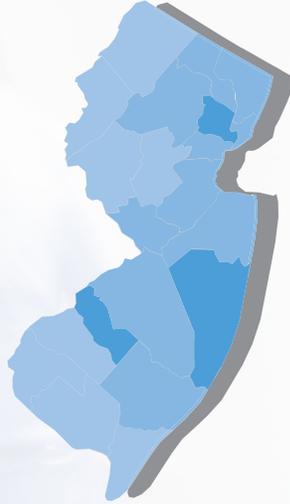
These three counties also exhibit the highest rates of patients with chronic conditions presenting in hospital emergency departments. In relation to population, the statewide average use rate for patient visits where chronic conditions are present is 129.62 visits per 1,000 population. Cumberland county's use rate is almost double the statewide average at 237.29. Atlantic county is 202.15 and Essex county is 166.00.

County Ranking - Chronic Patients

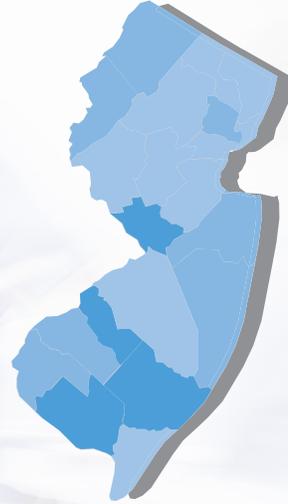
COUNTY	USE RATE	VISITS	% TOTAL CC	POPULATION	UNEMPLOYMENT	MEDIAN HOUSEHOLD INCOME
Cumberland County	237.29	36,195	3.0%	152,538	6.6%	\$49,537
Atlantic County	202.15	54,564	4.5%	269,918	5.4%	\$55,456
Camden County	197.21	100,718	8.4%	510,719	5.1%	\$63,028
Mercer County	191.80	71,872	6.0%	374,733	4.1%	\$73,966
Warren County	176.59	18,859	1.6%	106,798	4.2%	\$72,999
Salem County	173.35	10,885	0.9%	62,792	5.6%	\$61,341
Essex County	166.00	134,175	11.2%	808,285	5.7%	\$54,860
Ocean County	161.51	96,574	8.0%	597,943	4.3%	\$63,108
Monmouth County	141.37	88,546	7.4%	626,351	3.9%	\$87,297
Sussex County	141.33	20,024	1.7%	141,682	4.1%	\$87,388
Gloucester County	139.14	40,659	3.4%	292,206	4.6%	\$78,592
Burlington County	121.50	54,503	4.5%	448,596	4.2%	\$80,034
Passaic County	115.73	59,323	4.9%	512,607	5.5%	\$61,664
Union County	105.08	59,255	4.9%	563,892	4.7%	\$70,476
Morris County	104.44	52,186	4.3%	499,693	3.5%	\$102,798
Middlesex County	101.65	85,668	7.1%	842,798	4.0%	\$80,716
Hudson County	97.58	67,489	5.6%	691,643	4.2%	\$60,894
Cape May County	93.36	8,734	0.7%	93,553	4.6%	\$59,338
Somerset County	77.00	25,828	2.1%	335,432	3.7%	\$102,405
Bergen County	76.52	72,573	6.0%	948,406	3.8%	\$88,487
Hunterdon County	69.46	8,686	0.7%	125,059	3.4%	\$108,177
Total NJ Counties	129.62	1,167,316	97.1%	9,005,644	4.4%	\$76,126
Out of State		35,231	2.9%			

Chronic Condition Emergency Department Visits - Distribution in New Jersey

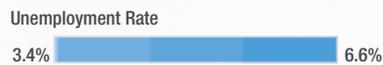
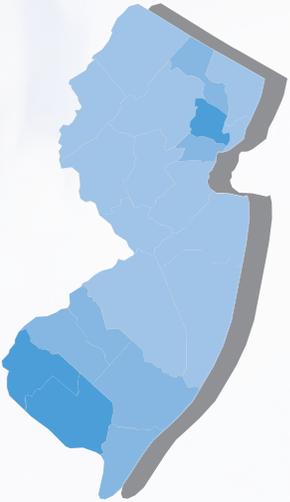
Visits by County



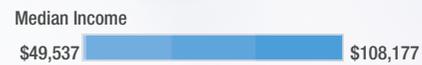
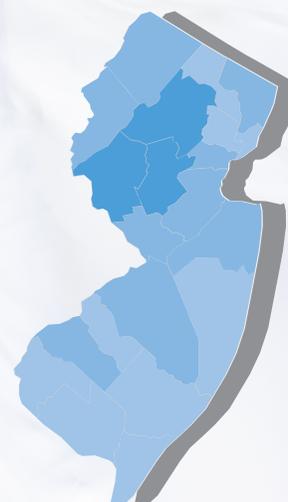
Use Rate by County per 1,000 Population



Unemployment Rate by County



Median Household Income by County



A further drill down to the zip code level data is even more compelling. For example, in 2017, there were 54,564 emergency room visits by patients with chronic conditions residing in Atlantic county. Thirty-four percent of those visits (18,618 visits) were by patients residing in a single zip code (08401). This volume dwarfs the next highest zip code in the state (07305 – Jersey City, 13,879 visits).

Top 10 Zip Codes - Chronic Patients

Zip	City/Town	Visits
08401	Atlantic City	18,618
07305	Jersey City	13,879
08618	Trenton	13,830
07104	Newark	12,877
07103	Newark	12,742
07111	Irvington	12,075
08861	Perth Amboy	11,916
08360	Vineland	11,475
08104	Camden	11,458
08701	Lakewood	11,263

CONCLUSIONS

Chronic disease creates a significant financial and community burden in New Jersey and is a significant driver of death and disability. Information contained in this study strongly illuminates the need for policy makers, healthcare providers, state public health agencies, other stakeholders and individuals themselves to take the necessary steps to effectively begin the process of mitigating and reducing the presence of chronic disease. Chronic disease places an enormous financial strain on the healthcare delivery system, but more importantly, has a debilitating impact on quality of life for the residents of New Jersey. This crisis is exacerbated in the poorest communities in the state where access to basic needs such as employment, a living wage, nutritious food and transportation are limited.

Focused initiatives, such as awareness and prevention programs, can have the real effect of reducing and ultimately preventing the societal burden of chronic conditions. Healthcare is migrating toward a prevention model, where early intervention and access to care in the most appropriate settings can help in preventing the presence and magnitude of chronic conditions, leading to improved health status for the residents of New Jersey, improved productivity and lower healthcare costs. Efforts to accelerate and support this transition should be embraced across the state.

RECOMMENDATIONS

Explore strategic partnerships to expand the availability and use of mobile health clinics, school-based chronic care management programs and health fairs across New Jersey, with an emphasis on providing preventive care to low-income communities.



Evidence suggests that mobile health clinics produce significant cost savings and represent a cost-effective care delivery model that improves health outcomes in underserved groups (see <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5629787/>).

Promote the use of chronic disease management apps and monitoring devices for managing chronic conditions such as diabetes and hypertension.

Seek to promote/expand/increase awareness of successful programs such as the Chronic Disease Self-Management Program (CDSMP) and the Transforming Communities Initiative (TCI).

CDSMP is a program developed at Stanford University that provides self-management education workshops for people with chronic health problems that teaches skills useful for managing a variety of chronic conditions.

TCI is a population health effort that supports innovative and evidence-based solutions to address tobacco use, childhood obesity and community building to address the physical environment, economic revitalization, housing and other social determinants of health.

Convene employers, payers and providers in a chronic conditions summit to discuss joint initiatives aimed at improving population health and mitigating the pervasive growth in chronic conditions, including exploration of data-sharing arrangements.

Spotlight

HYPERTENSION

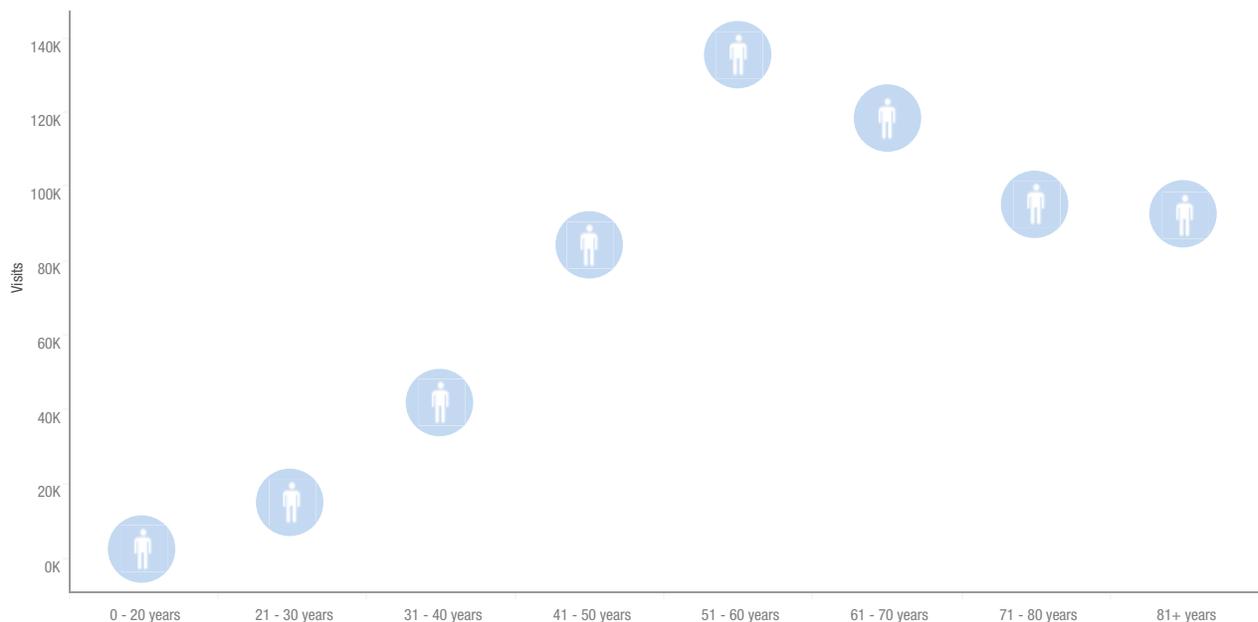
One in five New Jersey residents that present in a hospital emergency room and are treated and released are suffering from hypertension. One out of two New Jersey residents suffering from a chronic condition that present in a hospital emergency room and are treated and released are suffering from hypertension.

Hypertension, also known as high blood pressure, is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure typically does not cause symptoms. Long-term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease and dementia. Hypertension can permanently damage eyes, lungs, the heart or kidneys. Once hypertension causes complications, treating these complications requires costly medical interventions such as cardiac bypass surgery and dialysis.

Hypertension is a significant health problem in New Jersey that is more prominent in the elderly population. In fact, 75 percent of the patients with hypertension that were treated and released from a hospital emergency department were over the age of 50. The average age of a patient treated and released from a hospital emergency department is 38. The average age of a hospital emergency department treat-and-release patient with hypertension is 62.

Long-term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease and dementia. Hypertension can permanently damage eyes, lungs, the heart or kidneys.

Age Distribution of Hypertension Patients in the Emergency Department



HYPERTENSION - EMERGENCY DEPARTMENT VISITS BY AGE AND GENDER

Age	FEMALE		MALE	
	Visits	% to Total	Visits	% to Total
0 - 20 years	1,182	0.37%	1,329	0.51%
21 - 30 years	8,027	2.49%	6,967	2.66%
31 - 40 years	22,709	7.04%	19,175	7.33%
41 - 50 years	44,362	13.74%	39,774	15.20%
51 - 60 years	68,376	21.18%	66,936	25.58%
61 - 70 years	62,601	19.39%	55,651	21.27%
71 - 80 years	55,308	17.13%	39,905	15.25%
81+ years	60,218	18.66%	31,945	12.21%
	322,783		261,682	

Identifying hypertension as a prominent chronic condition that has a debilitating impact on health status and the overall cost of healthcare is not a new finding. Nor is the goal of reducing its stronghold on society. The medical and human costs associated with other health disorders such as heart disease, kidney failure and stroke, can be improved through better hypertension management. This study encourages a more thoughtful discussion around developing a useful framework to build on current strategies utilized for more effective hypertension management.

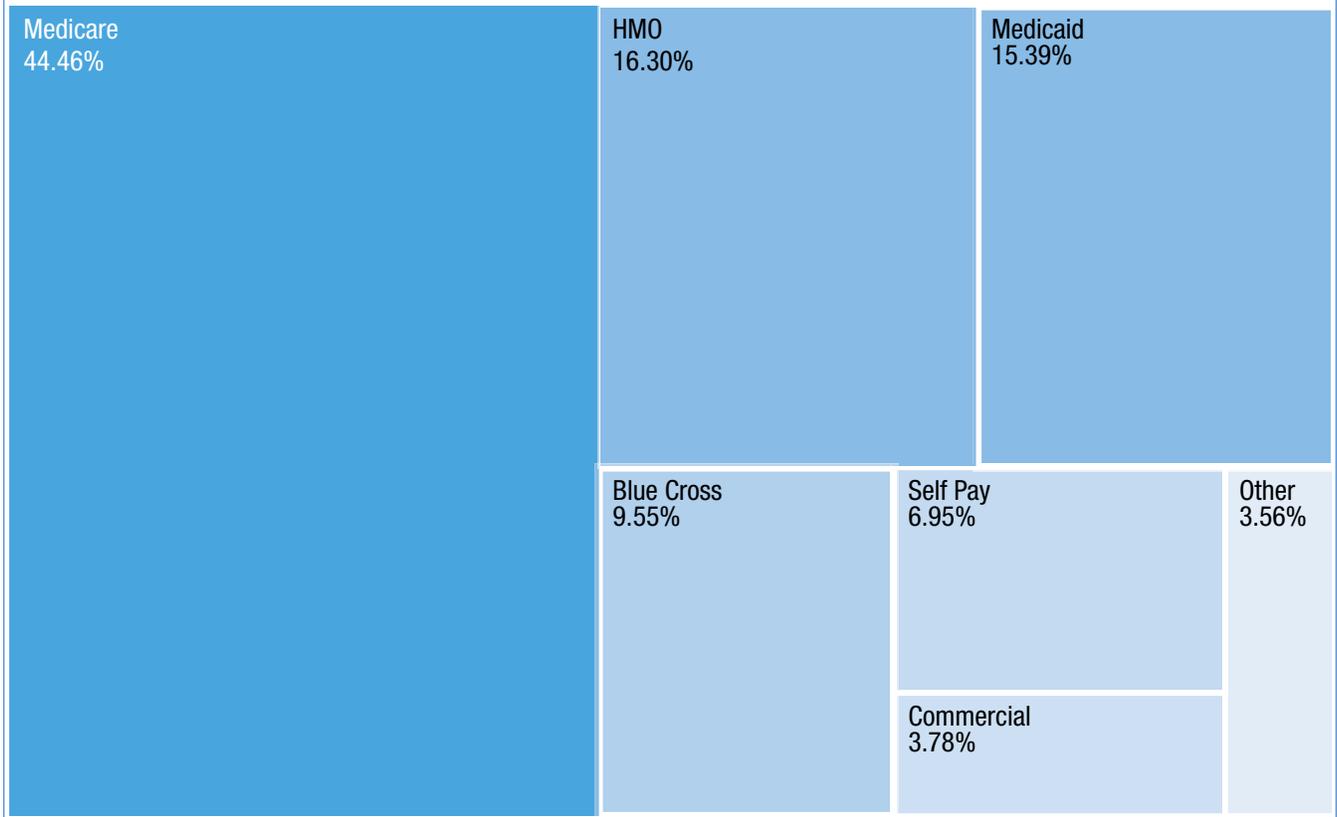
PER THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

- One in three American adults suffer from high blood pressure.
 - High blood pressure contributes to 1,000 deaths per day.
 - People with high blood pressure are:
 - Four times more likely to die from a stroke
 - Three times more likely to die from heart disease.
 - 69 percent of people that have a first heart attack suffer from high blood pressure.
 - 77 percent of people that have a first stroke suffer from high blood pressure.
 - 74 percent of people with chronic heart failure suffer from high blood pressure.
 - Only 47 percent of people with high blood pressure have their condition under control.
- Reducing systolic blood pressure by 12-13 mmHg could reduce:
 - Stroke by 37 percent
 - Coronary heart disease by 21 percent
 - Deaths from cardiovascular disease by 25 percent
 - Deaths from all causes by 13 percent.

Of the 11 chronic conditions evaluated in this study, hypertension was the most prevalent, present almost 600,000 times in New Jersey hospital emergency department treat-and-release patient records. This accounts for 48.6 percent of the chronic condition activity in hospital emergency departments.

This study establishes that chronic conditions are more prevalent in the elderly population, but when the data is stratified by gender, the rate of hospital emergency department activity associated with elderly women outpaces that of elderly men.

Hypertension Patients in the Emergency Department by Payer



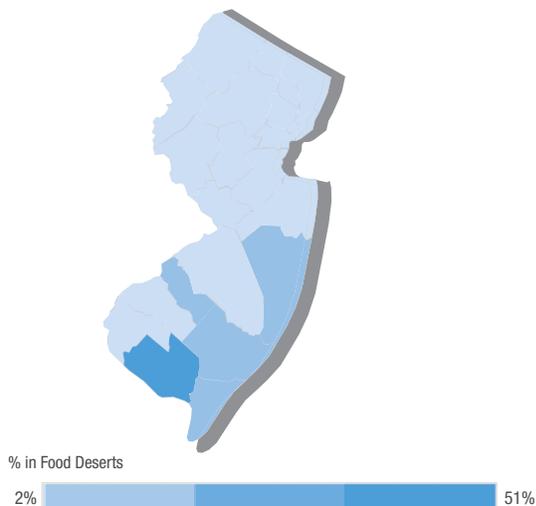
ZIP CODE ANALYSIS

A comprehensive evaluation of zip code level data identified zip code 08401 – Atlantic City – as the number one zip code most compromised by the presence of chronic conditions. While this study relies heavily on hospital emergency department claims data, the staff at CHART also overlaid data from other public sources to create a more comprehensive analysis. The following social determinants of health were examined for each of the top three spotlight zip codes analyzed in this report:

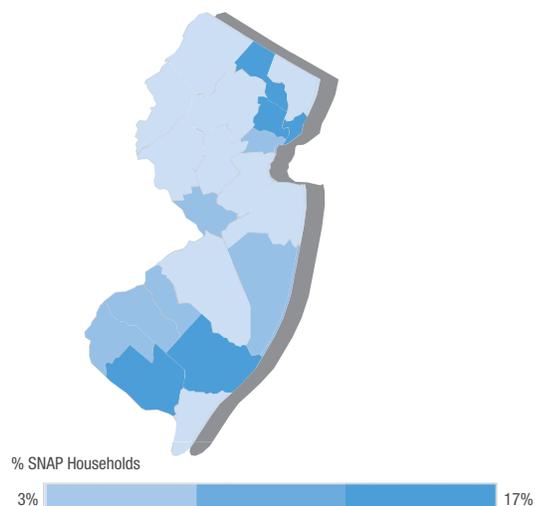
- **INCOME** – Median household income, as sourced from the Census' American Community Survey, is compared on the zip code, city, county and statewide levels.
- **UNEMPLOYMENT** – Unemployment levels, obtained from the New Jersey Department of Labor and Workforce Development, are arrayed across zip code, city, county and statewide levels.
- **RACE** – CHART's analysis of the patient-level claims data allows an analysis of the racial breakout of chronic condition emergency department patients on the zip code level. A comparison is done to the racial breakout of the zip code overall to identify racial disparities among those with chronic conditions.
- **FOOD AND TRANSPORTATION ACCESS** – The United States Department of Agriculture's Food Access Research Atlas describes food deserts within census tracts across the country. A tract is defined as a food desert when it is a low-income tract in which at least one of the following is true: at least 100 households are located more than a half-mile from the nearest supermarket and have no vehicle access; or at least 500 people or 33 percent of the population live more than 20 miles from the nearest supermarket, regardless of vehicle availability. The Food Access Research Database also provides information on households receiving Supplemental Nutrition Assistance Program (SNAP) support. This program, previously identified as the Food Stamp Program, helps low-income households pay for groceries. This data provides insight not only into food access (location of food and ability to purchase), but also the availability of transportation.

Food Deserts in New Jersey

Percent of County Residents in Food Deserts



Percent of County Households Receiving SNAP Benefits



ATLANTIC CITY

Zip code 08401 was selected for further micro-analysis due to its experience of 18,618 chronic condition-related emergency department visits in 2017. This volume of visits establishes zip code 08401 as the highest chronic condition-utilizing zip code in the state.

CHRONIC CONDITION STATISTICS

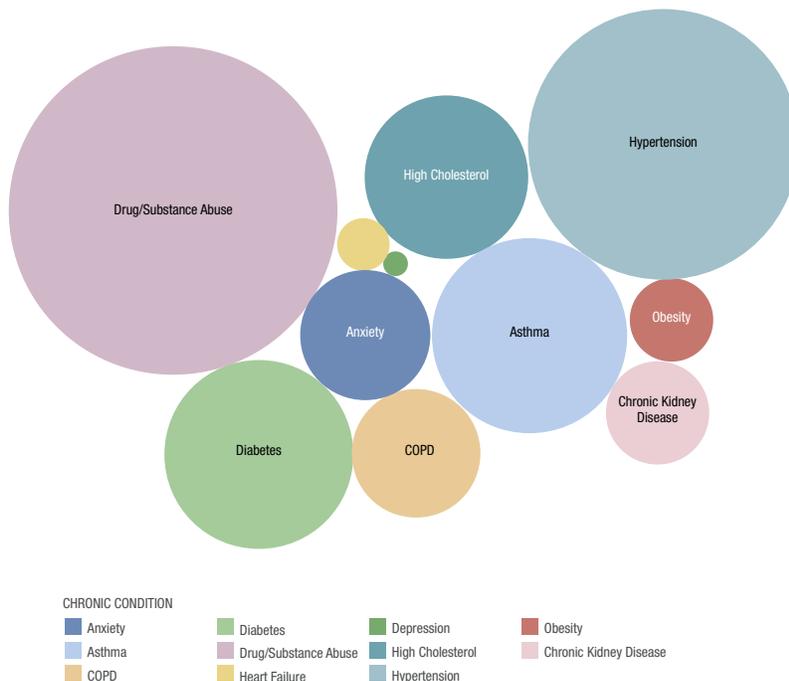
Out of the 11 chronic conditions identified for analysis in this study, drug/substance abuse was the most prevalent in 08401. Drug/substance abuse was present 56 percent of the time in chronic condition emergency department visits from this zip code. Hypertension was the second most common condition, present 38 percent of the time. The magnitude of these two chronic conditions is in contrast to the statewide averages, where hypertension ranks highest and drug/substance abuse ranks second.

Ninety percent of emergency department chronic condition visits in zip code 08401 had between one and three chronic condition codes present on their record. The remaining 10 percent of visits had between 3 and 11 condition codes present. Zip code 08401 also exhibited a significant volume of “high utilizers” (patients that presented at a single hospital emergency department 25 times or more in a given year). There were 20 of these individuals located in 08401. Five of those presented in a single hospital emergency department 45 or more times in a 12-month period.

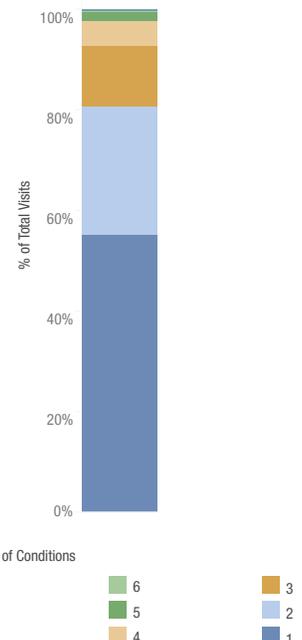
Statewide, hypertension in the most commonly reported chronic condition in the emergency department, followed by drug/substance abuse.

However, in zip code 08401, this trend is reversed with drug/substance abuse reported in 56% of chronic condition emergency department visits from the zip code and hypertension reported in 38%.

Prevalence of Chronic Conditions in the Emergency Department - 08401



Number of Chronic Conditions Per Visit 08401

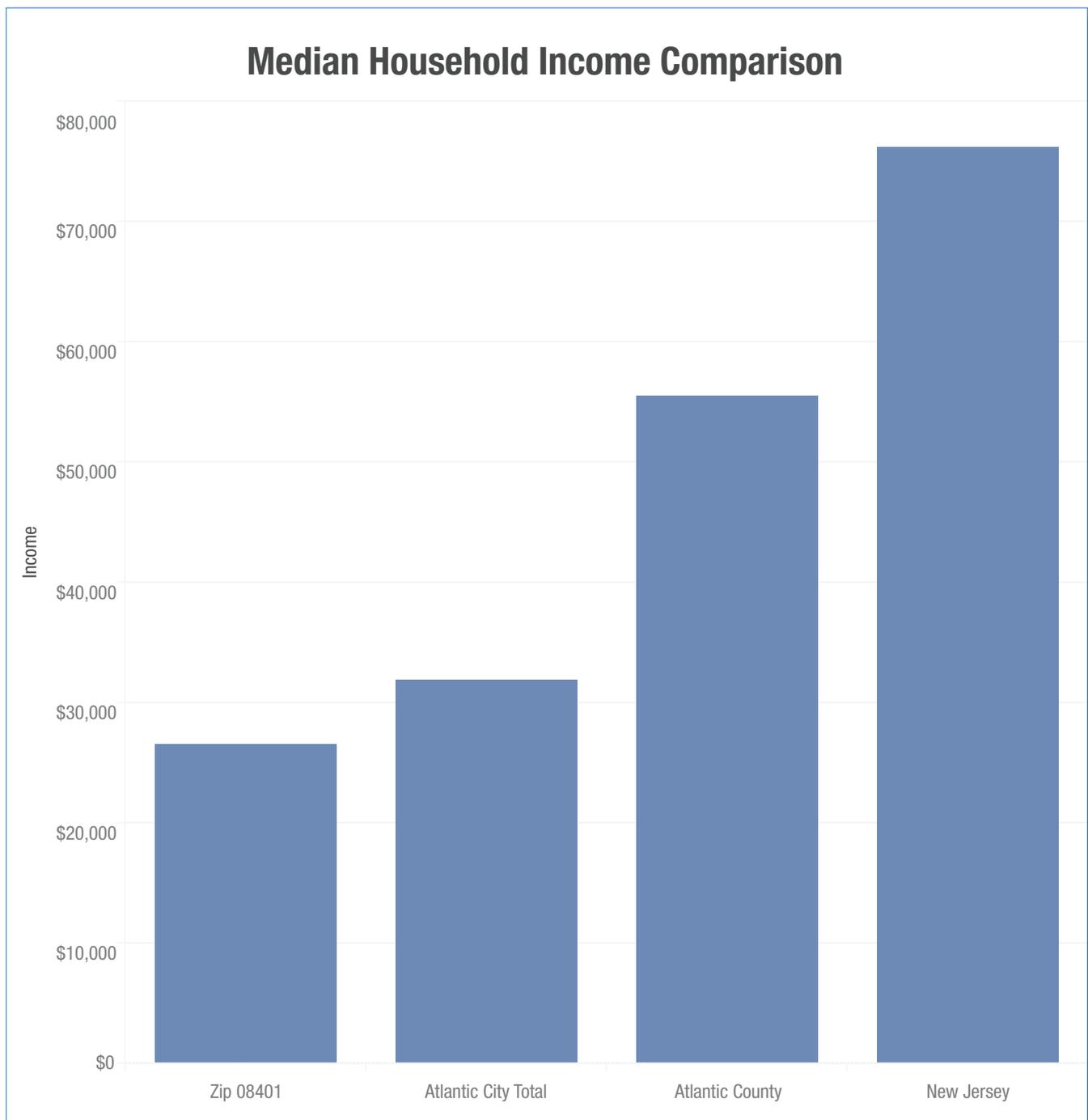


INCOME

The median household income for zip code 08401 falls well short of Atlantic City overall, Atlantic County and New Jersey. Zip code 08401's median household income is \$26,566. The median household income for Atlantic County is \$31,809 and the statewide median is \$76,126.

UNEMPLOYMENT

The unemployment rate for Atlantic County is markedly higher at 5.4 percent than the statewide rate of 4.4 percent. Unemployment for zip code 08401 trends higher than both, with 12 percent of households receiving unemployment benefits (<https://www.unitedstateszipcodes.org/08401/>).



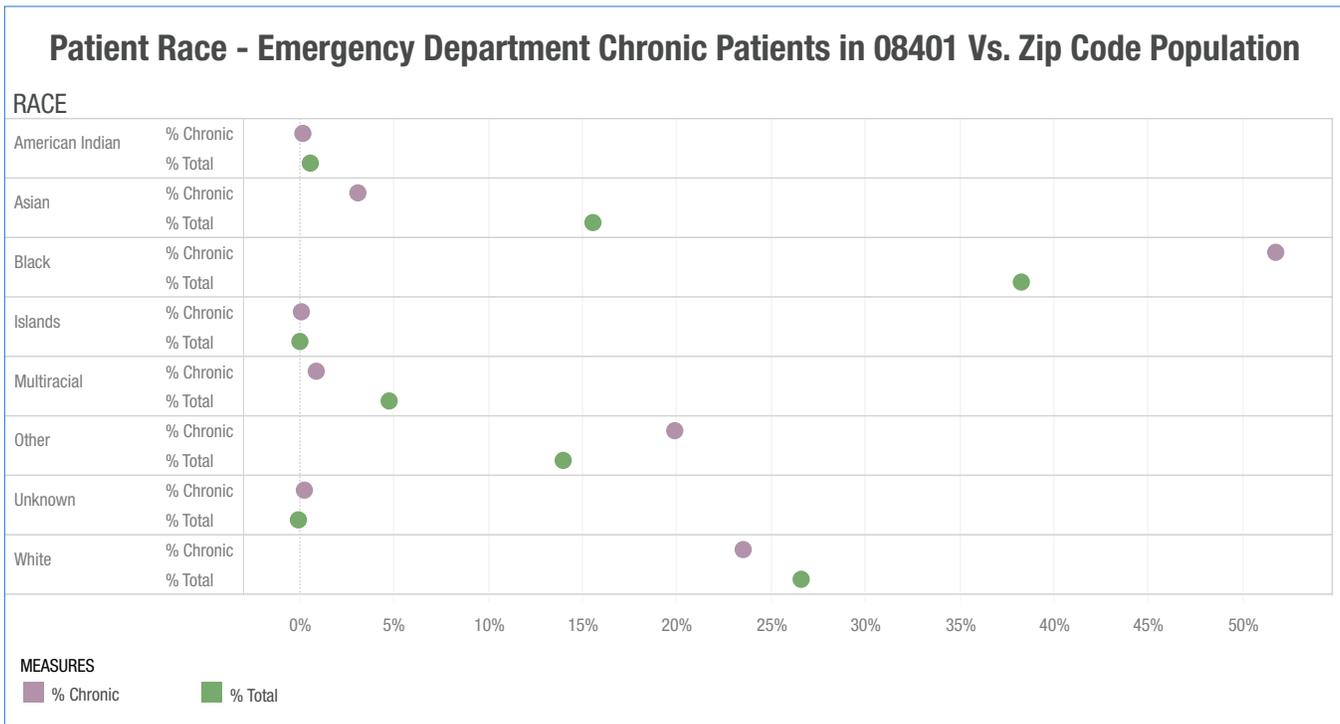
RACE

Racial disparities can be found among chronic condition emergency department patients in zip code 08401. The overall population of 08401 is approximately 38 percent African American. However, when examining the presence of chronic condition emergency department visits in this zip code, 52 percent of the visits were from African American patients. The inverse is true for the Asian population in this zip code; overall in the zip code nearly 16 percent identify as Asian, however the Asian population accounted for just 3 percent of the chronic condition emergency department visits.

FOOD/TRANSPORTATION ACCESS

The following statistics demonstrate the problems identified with food and transportation access in zip code 08401:

- 50 percent of the population lives in a census tract identified as a food desert, with no vehicle access and live a half-mile or more from the nearest grocery store
- This compares to 31 percent in Atlantic County and only 10 percent overall in New Jersey.



- The 50 percent in the Food Desert population account for 21,211 people, with 21 percent of those being children under the age of 17 and another 13 percent being senior citizens.
- 45 percent of the population has no access to a vehicle.
- This compares to 14 percent in Atlantic County and just under 12 percent overall in New Jersey.
- Nearly 29 percent of the households in 08401 are receiving SNAP benefits.
- This compares to 12 percent in Atlantic County and 8.5 percent overall in New Jersey.

SUMMARY ANALYSIS

Zip code 08401 is strongly illustrative of the impact of social determinants of health on population health and magnifies that in this zip code poor population health, as measured by the prevalence of chronic conditions, is magnified in both the low income and African American populations that reside in this community. An astounding 50 percent of the population lives in a food desert, and nearly half do not have access to a vehicle, which can have a debilitating impact on personal nutrition. The median household income is approximately 35 percent of the statewide average, further compromising the health status of the community.

JERSEY CITY

Zip code 07305 was selected for further micro-analysis due to its experience of 13,879 chronic condition related emergency department visits in 2017. This volume of visits establishes zip code 07305 as the second highest chronic condition-utilizing zip code in the state.

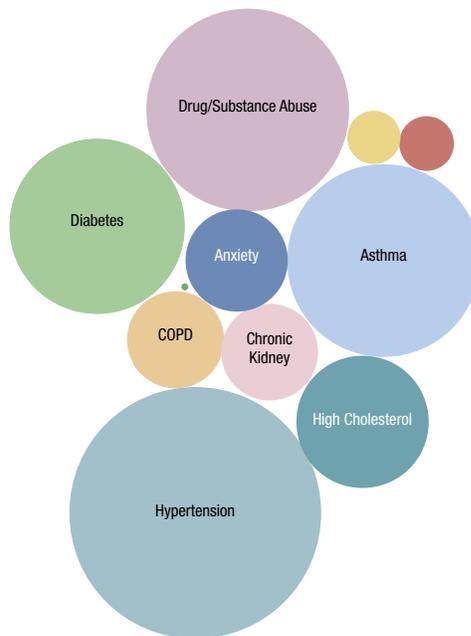
CHRONIC CONDITION STATISTICS

Out of the 11 chronic conditions identified for analysis in this study, hypertension was the most prevalent in 07305. Hypertension was present 47 percent of the time in chronic condition emergency department visits from this zip code. Drug/substance abuse was the second most common condition, present roughly 31 percent of the time. The magnitude of these two chronic conditions aligns with the statewide averages, where Hypertension also ranks highest, with drug/substance abuse second. However, 07305's presence of asthma is 53 percent higher than the statewide percentage of chronic condition emergency department visits, signaling a need for further exploration.

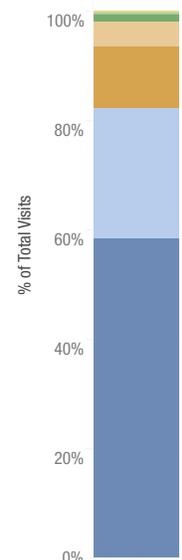
Statewide, hypertension in the most commonly reported chronic condition in the emergency department, followed by drug/substance abuse.

Zip code 07305 follows this trend with hypertension present in 47% of chronic condition emergency department visits from this zip code and drug/substance abuse reported in 31%.

Prevalence of Chronic Conditions in the Emergency Department - 07305



Number of Chronic Conditions Per Visit 07305



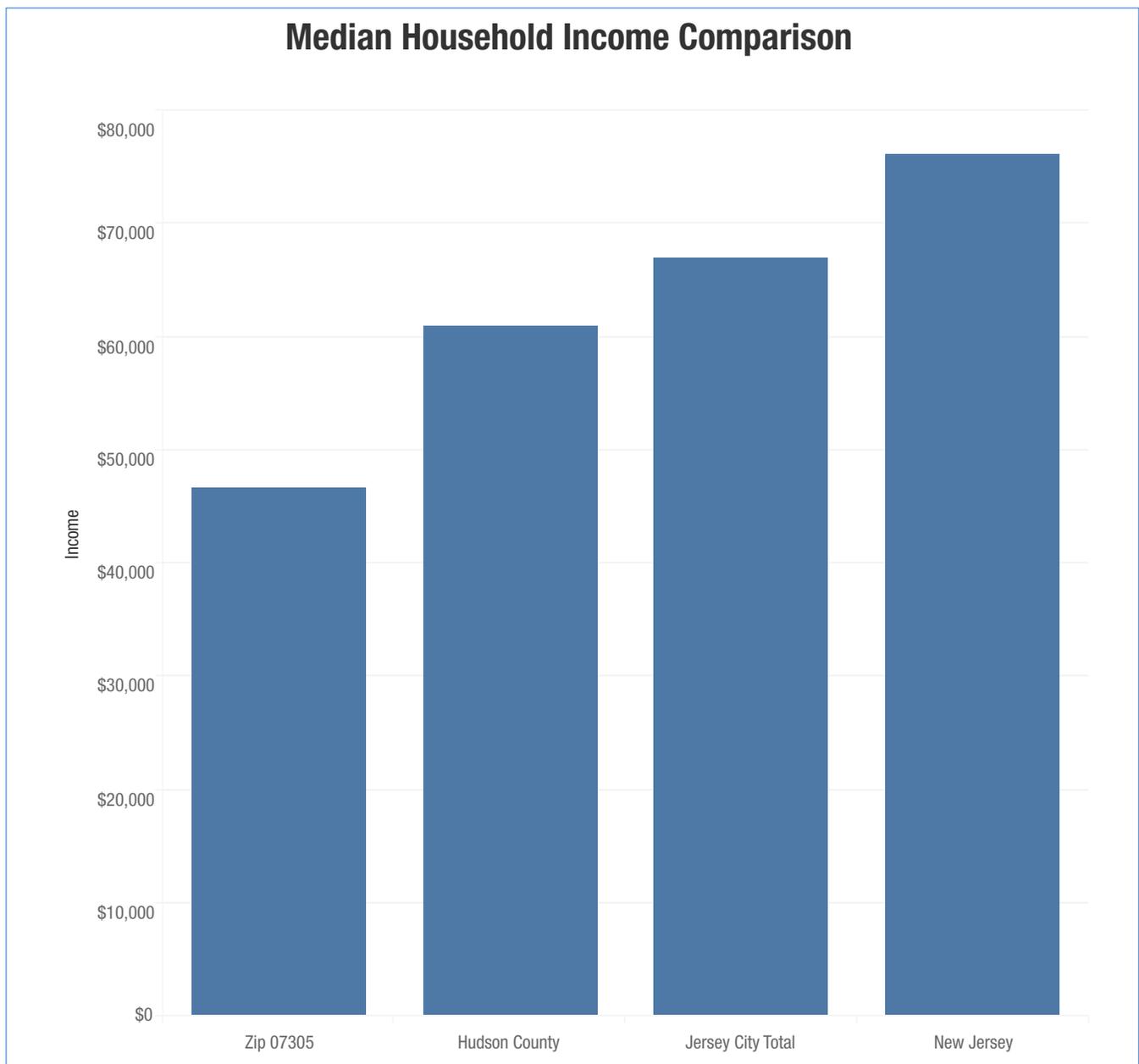
Ninety three-percent of emergency department chronic condition visits in zip code 07305 had between one and three chronic condition codes present on their record. The remaining visits had between three and 10 condition codes present. Zip code 07305 also exhibited a number of “high utilizers” (patients that presented at a single hospital emergency department 25 times or more in a given year). There were 11 of these individuals located in 07305. Three of those presented in a single hospital emergency department 45 or more times in a 12-month period.

INCOME

The median household income for zip code 07305 falls well short of Jersey City overall, Hudson County and New Jersey. Zip code 07305’s median household income is \$46,625. The median household income for Hudson County is \$60,894 and the statewide median is \$76,126.

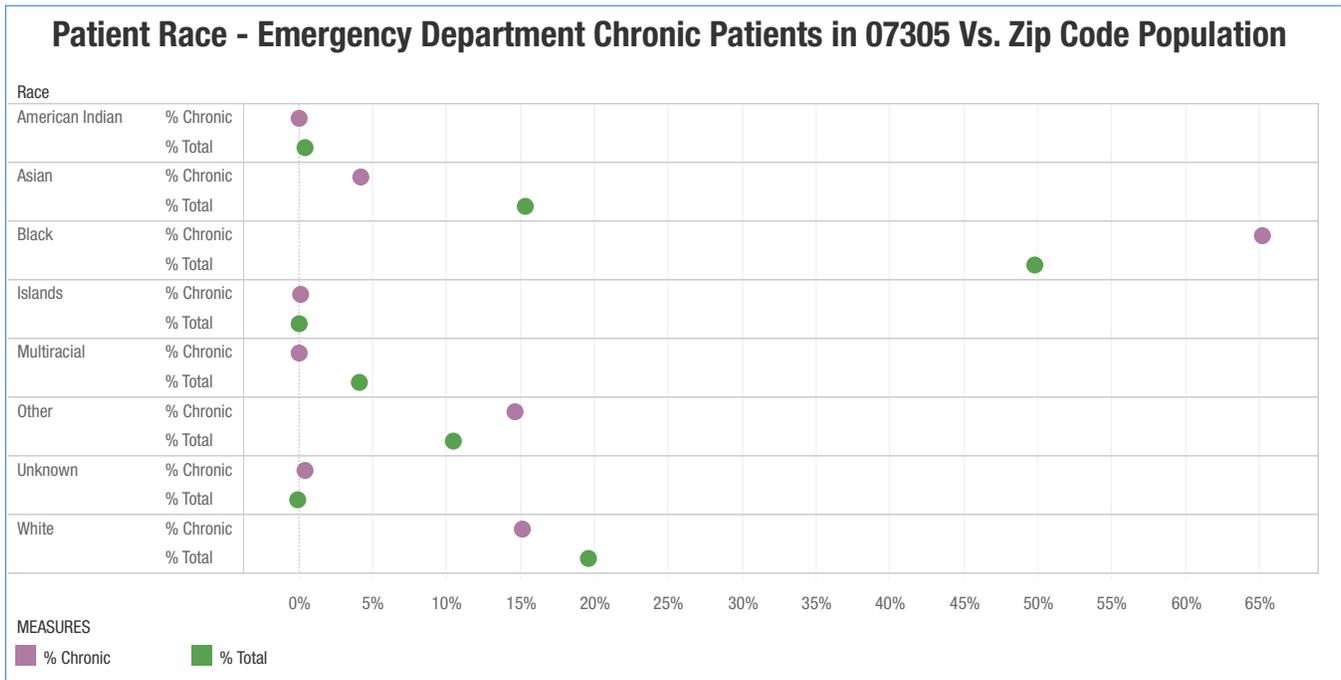
UNEMPLOYMENT

The unemployment rate for Hudson County overall is 4.2 percent, which is lower than the statewide rate of 4.4 percent. Unemployment in zip code 07305 trends slightly higher than both, with 5 percent of households receiving unemployment benefits (<https://www.unitedstateszipcodes.org/07305/>).



RACE

Racial disparities can be found among chronic condition emergency department patients in zip code 07305. The overall population of 07305 is approximately 50 percent African American. However, when examining the presence of chronic condition emergency department visits in this zip code, 65 percent of the visits were from African American patients. The inverse is true for the Asian population in this zip code; overall in the zip code 15 percent identify as Asian, however the Asian population accounted for just 4 percent of the chronic condition emergency department visits.



FOOD/TRANSPORTATION ACCESS

The following statistics demonstrate the problems identified with food and transportation access in zip code 07305:

- Nearly 15 percent of the population lives in a census tract identified as a food desert, with no vehicle access and live a half-mile or more from the nearest grocery store .
- This compares to only 6.7 percent in Hudson County and 10 percent overall in New Jersey.
- The 15 percent in the food desert population account for 10,660 people, with 16 percent of those children under the age of 17 and nearly 8 percent senior citizens.
- 30 percent of the households have no access to a vehicle.
- This compares to 32 percent in Hudson County and just under 12 percent overall in New Jersey.

- Over 20 percent of the households in 07305 are receiving SNAP benefits.
- This compares to 14 percent in Hudson County and 8.5 percent overall in New Jersey.

SUMMARY ANALYSIS

Zip code 07305 is somewhat illustrative of the impact of social determinants of health on population health. Poor population health, as measured by the prevalence of chronic conditions, is elevated in both the low income and African American populations that reside in this community, but access to the food and transportation is less a factor in 07305 than in the other “top three” chronic conditions zip codes identified in this study. This makes 07305 – Jersey City an anomaly compared to other zip codes highly compromised by the presence of chronic conditions. This zip code is one of the most highly compromised but does not exhibit the same food/transportation obstacles present in the similarly compromised zip codes.

TRENTON

Zip code 08618 was selected for further micro-analysis due to its experience of 13,830 chronic condition-related emergency department visits in 2017. This volume of visits establishes zip code 08618 as the third highest chronic condition-utilizing zip code in the state.

CHRONIC CONDITION STATISTICS

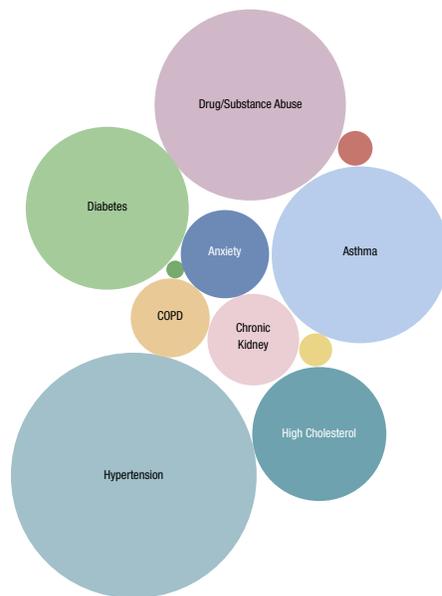
Out of the 11 chronic conditions identified for analysis in this study, hypertension was the most prevalent in 08618. Hypertension was present 50 percent of the time in chronic condition emergency department visits from this zip code. Drug/substance abuse was the second most common condition, present 30 percent of the time. The magnitude of these two chronic conditions is slightly higher than the statewide averages, where hypertension also ranks highest, with drug/substance abuse second. However, 08618's presence of asthma is 42 percent higher than the statewide average, signaling a need for further exploration.

Ninety-five percent of emergency department chronic condition visits in zip code 08618 had between one and three chronic condition codes present on their record. The remaining visits had between three and 10 condition codes present. Zip code 08618 also exhibited a number of "high utilizers" (patients that presented at a single hospital emergency department 25 times or more in a given year). There were 15 of these individuals located in 08618. Eight of those presented in a single hospital emergency department 45 or more times in a 12-month period.

Statewide, hypertension in the most commonly reported chronic condition in the emergency department, followed by drug/substance abuse.

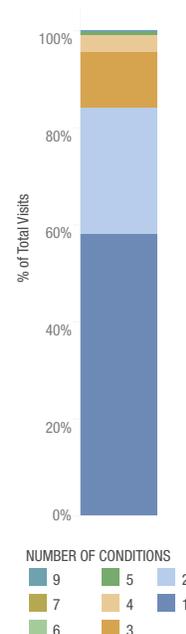
Zip code 08618 follows this trend with hypertension present in 50% of chronic condition emergency department visits from this zip code and drug substance/abuse reported in 30%.

Prevalence of Chronic Conditions in the Emergency Department - 08618



- CHRONIC CONDITION
- Anxiety
 - Asthma
 - Chronic Kidney Disease
 - COPD
 - Depression
 - Diabetes
 - Drug/Substance Abuse
 - Heart Failure
 - High Cholesterol
 - Hypertension
 - Obesity

Number of Chronic Conditions Per Visit 08618



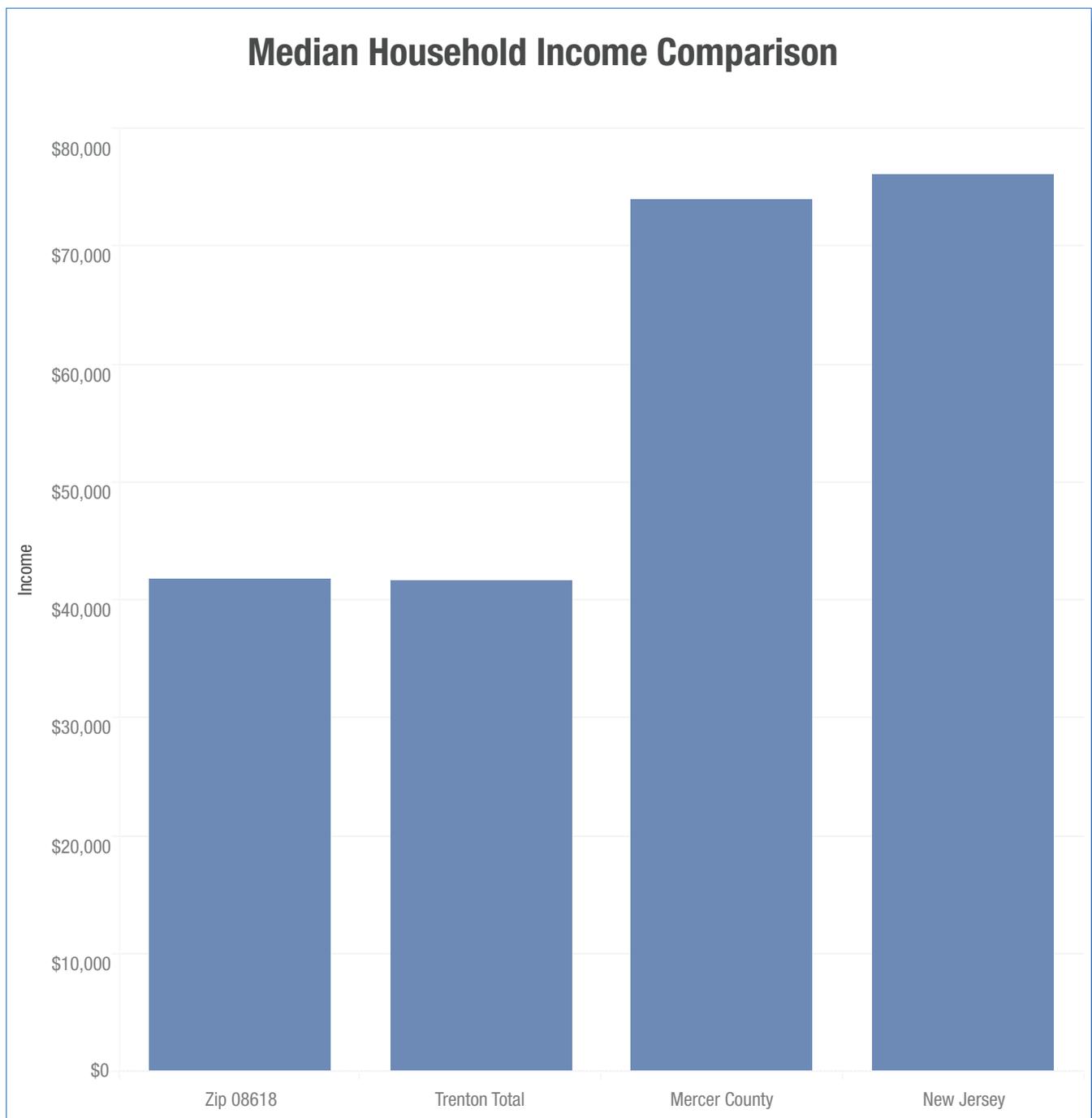
- NUMBER OF CONDITIONS
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10

INCOME

The median household income for zip code 08618 aligns with Trenton overall but falls well short of Mercer County and New Jersey. Zip code 08618 median household income is \$41,757. The median for Mercer County is \$73,966 and the statewide median is \$76,126.

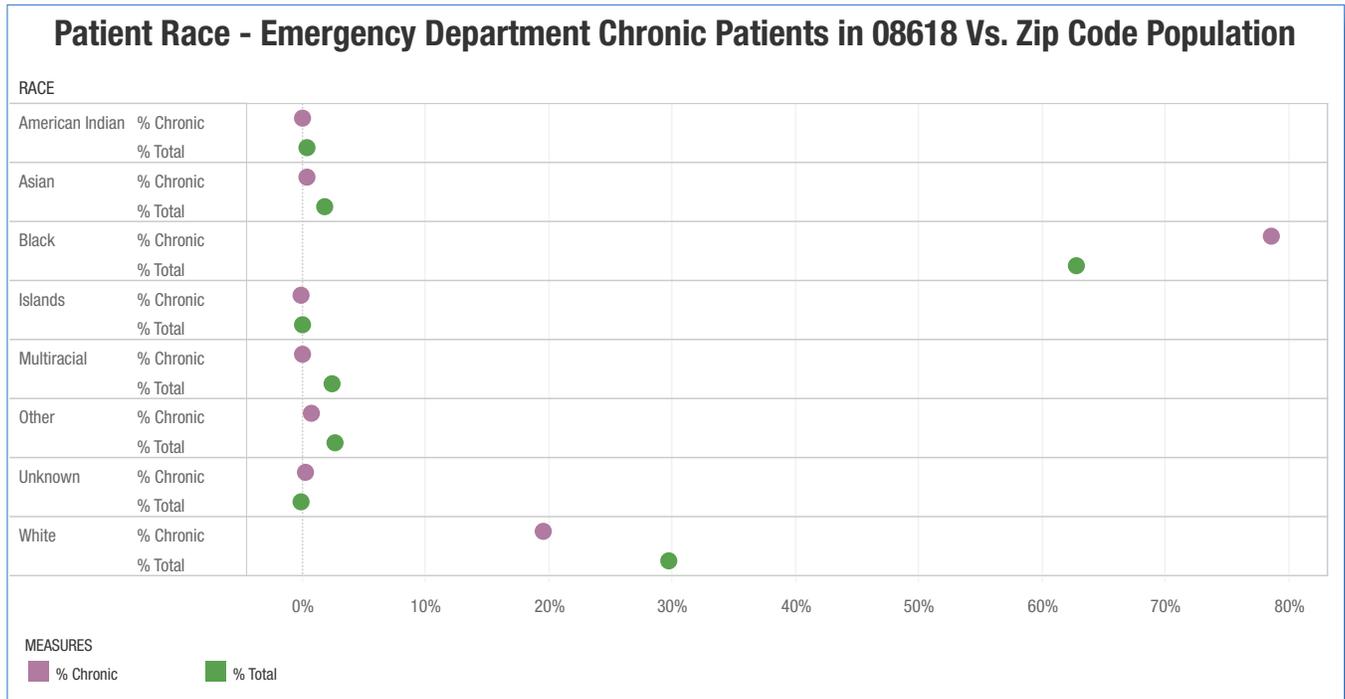
UNEMPLOYMENT

The unemployment rate for Mercer County overall is 4.1 percent, which is lower than the statewide rate of 4.4 percent. Unemployment for zip code 08618 trends higher than both, with 7 percent of households receiving unemployment benefits (<https://www.unitedstateszipcodes.org/08618/>).



RACE

Racial disparities can be found among chronic condition emergency department patients in zip code 08618. The overall population of 08618 is approximately 63 percent African American. However, when examining the presence of chronic condition emergency department visits in this zip code, 79 percent of the visits were from African American patients. The inverse is true for the white population in this zip code; overall in the zip code 30 percent identify as white, however, the white population accounted for approximately 20 percent of the chronic condition emergency department visits.



FOOD/TRANSPORTATION ACCESS

The following statistics demonstrate the problems identified with food and transportation access in zip code 08618:

- Nearly 42 percent of the population lives in a census tract identified as a food desert, with no vehicle access and live a half-mile or more from the nearest grocery store.
- This compares to approximately 16 percent in Mercer County and 10 percent overall in New Jersey.
- The 42 percent in the food desert population account for 29,161 people, with 29 percent of those being children under the age of 17 and nearly 19 percent being senior citizens.
- 24 percent of the households have no access to a vehicle.

- This compares to 12 percent in Mercer County and just under 12 percent overall in New Jersey.
- 19 percent of the households in 08618 are receiving SNAP benefits.
- This compares to 9 percent in Mercer County and 8.5 percent overall in New Jersey.

SUMMARY ANALYSIS

Zip code 08618 is also illustrative of the impact of social determinants of health on population health and magnifies that in this zip code poor population health, as measured by the prevalence of chronic conditions, is magnified in both the low income and African American populations that reside in this community. Driven in part by poor access to food and transportation, 08618 – Trenton is a community highly compromised by the presence of chronic conditions.



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