



Bethlehem Campus and Star Community Health Community Health Needs Assessment

June 2022

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Icon Legend



St. Luke’s and Star Community Health Partner Quote (Key Informant/Community Forum Attendee)



St. Luke’s and Star Community Health Community Health Needs Assessment Data

Executive Summary

..... Key Findings

From our analysis of primary and secondary data, as well as the key CHNA informant interviews and work with our community members, we see significant issues facing our communities that impede healthy lifestyles. Our efforts in prevention, care transformation, research, and partnerships help support our work to promote sustainable programs and opportunities for our reach to focus on a wide range of health promotion and quality of life initiatives. While there are many issues that need to be addressed, the results from the 2022 CHNA found the top priorities for the St. Luke’s network and Star Community Health include:

2022 Community Health Needs Assessment
Top Priority Outcomes
COVID-19
Access to Care
Workforce Development
Food Insecurity
Obesity Reduction
Physical Activity Promotion
Mental Health
Opioids and other Substance Use
Housing
Transportation

The needs discussed within the health categories outlined in this document will serve as our guide in creating a detailed campus-specific implementation plan to best address the specific needs of the St. Luke’s Bethlehem campus and Star Community Health service area using three pillars:

- *Wellness and Prevention**
- *Care Transformation**
- *Research and Partnerships**

We will work collaboratively in partnership with our community and network partners to create a more equitable society with better health outcomes, especially among our most vulnerable populations such as our Hispanic communities, seniors, women, and children.

Introduction

..... Background

As part of the Patient Protection and Affordable Care Act, all nonprofit hospitals are required to conduct a Community Health Needs Assessment (CHNA) every three years to maintain tax-exempt status under section 501(c)(3) of the Internal Revenue Code. The goal of the assessment is to identify critical health disparities faced by populations within St. Luke’s University Health Network (SLUHN) service areas. The assessments state health priorities unveiled by community stakeholders, hospital professionals, and public health experts. Additionally, regional implementation plans will be crafted to build collaborative partnerships to determine the allocation of resources to address the specified health needs. To view our previous CHNA reports, please refer to the following link: <https://www.slhn.org/community-health/community-health-needs-assessment>. If you have any questions regarding any of these reports, please contact the Department of Community Health at (484) 526-2100.

..... Methodology

The CHNA is comprised of both primary and secondary data. The primary data were collected through three methods. First, key informant interviews were performed with leaders from each campus community to identify high level strengths and needs in their respective communities. A list of the interview questions can be found in Appendix A. Second, a community forum was held for each campus community through SLUHN and facilitated by Dr. Christopher Borick of Muhlenberg College. A list of organizations represented at the forum can be found in Appendix B. Due to the COVID-19 pandemic, key informant interviews were conducted through Microsoft Teams and the community forums were conducted through Zoom. Third, 11,523 voluntary community health surveys were administered throughout our fourteen campus geographic regions, where the main priority health needs were identified for each entity, and a total of 5,644 surveys were collected from the top 80 percent of zip codes in the Bethlehem campus service area. This assessment and data collection were also conducted in collaboration with Star Community Health, as the service areas and populations overlap. We used snowball sampling to reach respondents, especially those represented in our vulnerable populations. Snowball sampling is most effective when used to reach vulnerable populations to help to shed light on social determinants of health (SDOH) within hard-to-reach populations. To reach populations with diverse resources, surveys were completed in either paper or digital format. The survey findings document, also posted online, lists questions and responses recorded from CHNA surveys conducted in 2012, 2016, 2019, and 2022. Secondary data included the use of hospital network data as well as county, state, and national level data obtained from the following: U.S. Census, the Robert Wood Johnson Foundation, Vital Statistics, Community Commons, the American Community Survey (ACS), U.S. Department of Labor, the Behavioral Risk

Factor Surveillance System, as well as other data sources, which can be found in the footnotes. The needs identified in the interviews and community forums were supplemented by the survey data and secondary data to provide a comprehensive picture of the needs in the community and the factors impacting those needs.

..... Existing Bethlehem Community Assets

When describing Bethlehem, key informants mentioned that Bethlehem is proud and diverse with a strong sense of community and tradition. One key informant mentioned that “Bethlehem is one big community and there are a lot of smaller communities. There is definitely a sense of pride in the community, being a nationally recognized safe town, great town to retire in, and as the Christmas City. So, I think there is pride in our community and there is pride in the diversity of our community... the historical downtown, South Side is its own community, the school district itself has its own community...people are proud to be a part of it.” Another informant said that Bethlehem is a “diverse community with a range of people, backgrounds and opportunities. Within that range we have the same inequities that we see across the county. I think Bethlehem and our school district reflects the country’s larger make up.” “There are also a variety of nonprofits in Bethlehem that have been working together to help the community during the COVID-19 pandemic,” described one informant.

Bethlehem has a variety of community health programs, including the Health, Outreach, Prevention (HOPE) clinic which served 207 patients in 2020 living with, or at risk for, HIV. The Mobile Youth Vans served 368 unique school students from the Bethlehem Area School District. St. Luke’s Bethlehem has partnered with the Northampton Suicide Task Force since 2018 and has seen a 25% reduction in suicide across Northampton county residents. The Hispanic Center of the Lehigh Valley (HCLV) is a nonprofit organization located in Bethlehem with a mission to improve the quality of life for people in the Lehigh Valley. St. Luke’s has partnered with HCLV to provide support in community efforts and campaigns.

In response to COVID-19, the Hispanic Center moved their programming to virtual, but continued to serve the local community. St. Luke’s Bethlehem was also able to work with local hotels and community partners to provide quarantine/isolation locations for homeless individuals during COVID-19. Throughout the pandemic, SLUHN has been able to pivot and meet the needs of the community through existing relationships built with nonprofits, schools, and community-based organizations who have assisted in public health programming events, education, and connection to care and other resources in our service area.

When asked about community assets in the community forum, one attendee said:



“There are very strong connections between the city, nonprofits, and education institutions. In addition, individuals and leaders from organizations have strong relationships, both in formal and informal capacities.”

..... County Health Rankings

Every year, the Robert Wood Johnson Foundation releases data that compare counties to state averages, as well as U.S. top performers. Figure 1 depicts select health indicators for each of the counties in SLUHN's service area in 2021. There are 20 indicators evaluated for each county, with the U.S. top performers being the counties at the 90th percentile in the nation. The indicators are color-coded using a stoplight approach, in which green indicates that the value is better than both state and U.S. top performers, yellow indicates that the value is in between state and U.S. top performers, and red indicates that the value is at or worse than both state and U.S. top performers. In looking at the 2021 data table out of 180 values, 60% of values are red (108), 21% are yellow (38), and 19% are green (34). There has been a 47.8% overall increase in green tiles since 2018 during the last CHNA cycle.

Additionally, in Lehigh county, there are 85% red values, 0% yellow values, and 15% green values. Since 2018, 6 values changed from yellow to red, and one value changed to green.

In Northampton county, there are 55% red values, 25% yellow values, and 20% green values. In 2018, there were 30% red values, 65% yellow values, and 5% green values. From 2018 to 2021, there was an 83.3% increase in red values, a 61.5% decrease in yellow values, and a 300% increase in green values.

*The Robert Wood Johnson Foundation reports their findings as the year 2021, but many of the measures are reported from previous years. Please see <https://www.countyhealthrankings.org/> for more information.

2022 St. Luke's University Health Network Bethlehem campus and Star Community Health Community Health Needs Assessment

2021	U.S. Top Performers*	Pennsylvania (PA)	Berks (BR) County, PA	Bucks (BU) County, PA	Carbon (CR) County, PA	Lehigh (LH) County, PA	Monroe (MO) County, PA	Montgomery (MT) County, PA	Northampton (NO) County, PA	Schuylkill (SC) County, PA	New Jersey (NJ)	Warren (WA) County, NJ
Unemployment	2.6%	4.4%	4.3%	3.8%	5.4%	4.5%	5.4%	3.5%	4.5%	5.4%	3.6%	3.3%
Uninsured	6%	7%	7%	5%	6%	8%	8%	5%	6%	6%	9%	7%
Primary care physicians	1,030:1	1,230:1	1,600:1	1,180:1	2,380:1	990:1	2,420:1	730:1	1,210:1	1,870:1	1,180:1	1,680:1
Dentists	1,210:1	1,410:1	1,780:1	1,150:1	2,290:1	1,130:1	2,580:1	920:1	1,700:1	2,210:1	1,140:1	1,350:1
Poor physical health days	3.4	4.0	4.0	3.1	4.3	4.1	4.0	3.3	4.0	4.5	3.7	3.9
Food environment index	8.7	8.4	8.6	9.1	8.3	8.4	8.0	9.1	8.7	8.3	9.4	8.7
Physical inactivity	19%	22%	22%	18%	24%	17%	24%	18%	27%	24%	27%	28%
Access to exercise opportunities	91%	84%	86%	89%	75%	82%	86%	95%	87%	75%	95%	97%
Adult obesity	26%	31%	34%	28%	34%	31%	33%	25%	31%	37%	27%	32%
Excessive drinking	15%	20%	21%	23%	22%	22%	20%	22%	22%	21%	16%	21%
Adult smoking	16%	18%	20%	16%	23%	18%	20%	14%	19%	23%	13%	17%
Poor mental health days	3.8	4.7	4.6	4.4	5.1	4.7	4.9	4.4	4.7	5.2	3.8	4.6
Mental health providers	270:1	450:1	680:1	390:1	1,600:1	510:1	830:1	280:1	420:1	1,210:1	420:1	470:1
Low birthweight	6%	8%	8%	8%	9%	8%	9%	7%	8%	8%	8%	8%
Teen births	12	17	21	6	19	21	11	7	12	22	12	9
Sexually transmitted infections	161.2	463.4	475	245.1	175.4	511.9	367.8	295.1	411.0	244.8	405.5	206.9
High school graduation	94%	91%	87%	94%	89%	89%	90%	94%	91%	89%	90%	91%
Children in poverty	10%	17%	16%	7%	14%	18%	17%	7%	10%	16%	12%	9%
Severe housing problems	9%	15%	15%	15%	14%	16%	18%	15%	14%	11%	21%	15%
Social associations	18.2	12.2	11.4	7.7	13.9	10.2	7.6	11.2	10.6	13.2	8.7	9.5

University of Wisconsin Population Health Institute. County Health Rankings and Roadmaps. 2021.	KEY	At or above State/Top Performer	Between Top Performers and State	At or below State/Top Performer
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Figure 1

Demographics

..... Population

For the purposes of the CHNA, we define the top zip codes as those that account for 80% of the population served by the Bethlehem campus and Star Community Health (i.e., service area) (Figure 2). Although the Bethlehem campus and Star Community Health are in Lehigh county, the service area includes both Lehigh and Northampton counties. In the Bethlehem campus and Star Community Health service area, 30% of the patients reside in zip codes 18017 (Northampton), 18015 (Northampton), and 18018 (Lehigh). These remained the same as the previous 2019 CHNA.¹

A total of 675,027 people live in the 723.24 square mile area outlined in Figure 3 according to the U.S. Census Bureau American Community Survey 5-year estimates (2015-2019). The population density for this area is estimated at 933.34 persons per square mile, compared to 285.89 persons per square mile in Pennsylvania and 91.93 persons per square mile nationally. According to the 2010 Decennial Census, 89.8% of the Bethlehem campus and Star Community Health service area lives in an urban setting and 10.2% of the service area live in a rural setting. Urban areas are defined by population density, count, size thresholds and the amount of impervious surface or development (i.e., areas impervious to water seeping into the ground, concrete-heavy areas). Rural areas are all other areas not defined as urban. The Pennsylvania percentages for urban and rural living are 78.7% and 21.3%, respectively. The United States urban and rural percentages are 80.9% and 19.1%, respectively.

FY20 SLB - Zip Codes Comprising Top 80% of Facility Encounters		
Zip Code	% SLB Total (n = 442,789)	% Network Total (n = 1,554,201)
18017	11%	3.1%
18015	11%	3.0%
18018	8%	2.4%
18064	5%	1.4%
18020	4%	1.1%
18103	4%	1.1%
18042	4%	1.1%
18055	3%	0.9%
18045	3%	0.9%
18040	3%	0.9%
18102	3%	0.8%
18014	3%	0.7%
18067	2%	0.6%
18109	2%	0.6%
18036	2%	0.5%
18104	2%	0.5%
18052	2%	0.5%
18034	2%	0.4%
18229	1%	0.4%
18013	1%	0.3%
18951	1%	0.3%
08865	1%	0.3%
18360	1%	0.3%
18049	1%	0.2%
18301	1%	0.2%
18062	1%	0.2%
Total	80%	22.9%

¹ <https://www.slnh.org/community-health/community-health-needs-assessment/-/media/229533EA7CF34F7D9090CF48F56192F4.ashx>

Figure 2

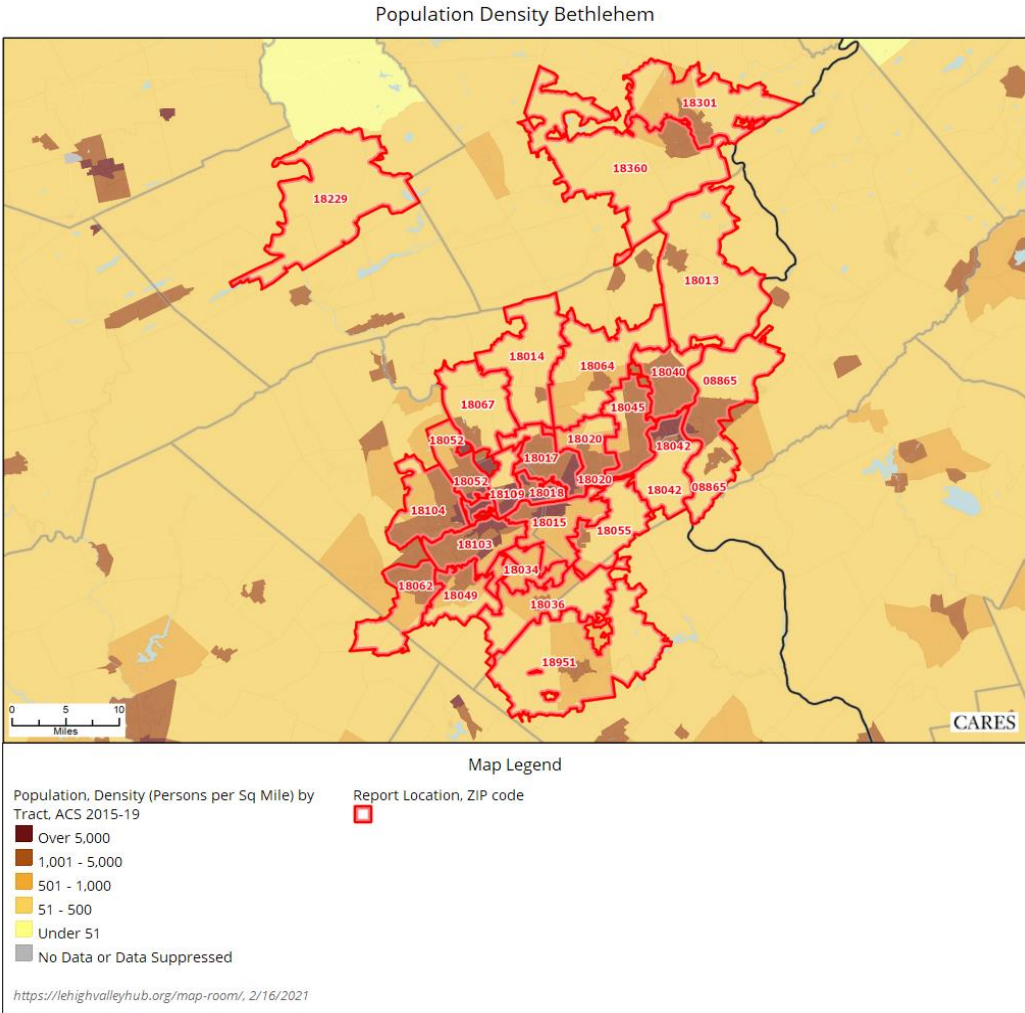


Figure 3

The following sections give a brief overview of the populations that the Bethlehem campus and Star Community Health serve. Understanding the demographics of the service area is essential to addressing needs and improving upon the region’s health services. The following data comes from ACS 5-year estimates (2015-2019) by the Census Bureau and St. Luke’s CHNA survey data unless otherwise stated.² Please refer to the Network and Campus CHNA Survey Findings document for more detailed information from the survey.

² <https://data.census.gov/cedsci/>

..... Age

The ACS reports 21.4% of the service area population are under 18 years old and 17.6% are 65 years and older (Figure 4). Combined, these groups account for 39% of the service area population leaving 61% between the ages of 18 and 64. In Lehigh county, 22.7% of the population are under 18 years old and 16.5% are 65 and older, leaving 60.8% of the population between the ages of 18 and 64. In Northampton county, 20.1% of the population are under 18 years old and 18.6% are 65 and older, leaving 61.3% of the population between the ages of 18 and 64. In Bethlehem city, 18.4% of the population is under 18 years old and 16.6% is 65 and older, leaving 65% of the population between the ages of 18 and 64. Most survey respondents from the Bethlehem campus and Star Community Health service area were over the age of 55, with 22% between 55-64 and 39% 65 and above. Ages 18-24 was the smallest group accounting for 2% of Bethlehem campus and Star Community Health respondents. Additionally, 16% were ages 45 to 54, 13% ages 35 to 44, and 8% were ages 25 to 34. The survey was not administered to patients below 18 years old, therefore, there are no responses from that age group. The median age of respondents was 60 years old.

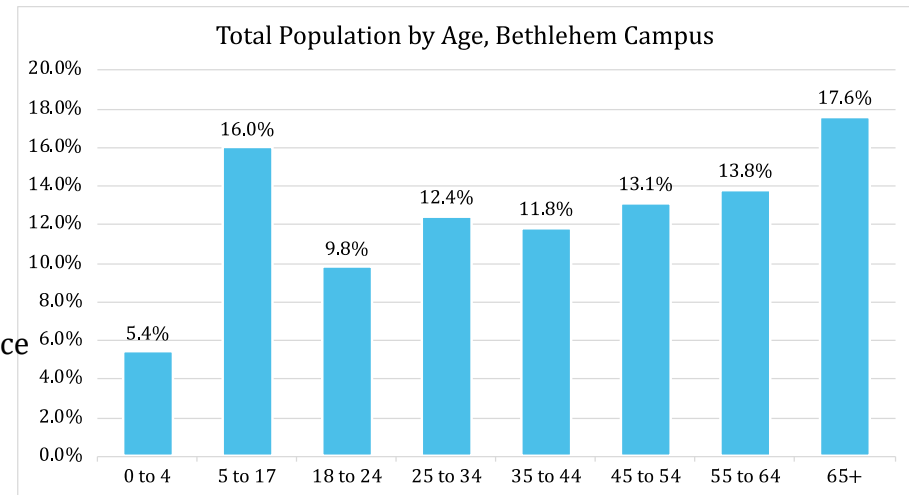


Figure 4

..... Sex

According to the 5-year estimates by the ACS, 51.2% of people identified as female and 48.8% identified as male in the St. Luke's Bethlehem campus and Star Community Health service area (Figure 5). This is similar to the national average, 50.8% and 49.2%, respectively. In Lehigh county, 51.1% of people identify as female and 48.9% as male. In Northampton county, 50.8% of people identified as female and 49.2% as male. In Bethlehem city, 51.9% of people identified as female and 48.1% identified as male. When asked about sex at birth in the CHNA survey, 63% of Bethlehem campus and Star Community Health survey respondents indicated female and 37% indicated male.

Total Population by Sex, Bethlehem Campus

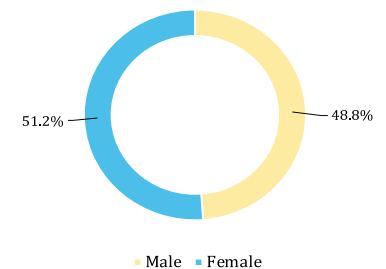


Figure 5

..... Ethnicity

Total Population by Ethnicity, Bethlehem Campus

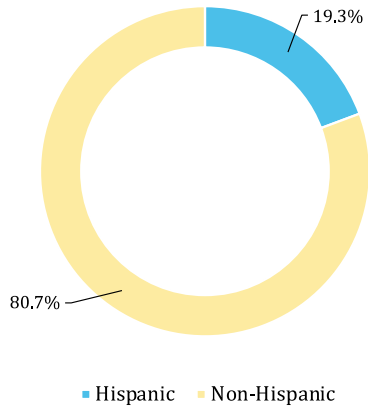


Figure 6

According to the ACS, in the St. Luke's Bethlehem campus and Star Community Health service area, 80.7% of the population identifies as non-Hispanic and 19.3% identifies as Hispanic (Figure 6). The population in Pennsylvania is 92.7% non-Hispanic and 7.3% Hispanic; the United States population is 82% and 18%, respectively. In Lehigh county, 75.5% of residents identify as non-Hispanic and 24.5% identify as Hispanic. In Northampton county, 86.8% of people identify as non-Hispanic while 13.2% identify as Hispanic. In Bethlehem city, 30.2% of people identify as Hispanic and 69.8% identify as non-Hispanic.

The majority of Bethlehem campus and Star Community Health survey respondents did not identify as Hispanic (88%) and 12% identify as Hispanic.

..... Race

The ACS reports that 80.7% of the service area identifies as White, followed by Other Race (8.4%), Black (7.7%), and Asian (3.2%). Data for people identifying as Native Hawaiian/Pacific Islander, Native American/Alaska Native, Other Race, and Multiple Races were combined with Other Race due to small sample sizes. In Lehigh county, the majority of the population identifies as White (79.3%), followed by Other Race (10%), Black (7.4%), and Asian (3.3%). In Northampton county, 85.6% of the population identifies as White, followed by Black (5.7%), Other Race (5.7%), and Asian (2.8%). In Bethlehem city, 76.9% of the population identifies as White, followed by Other Race (11.6%), Black (8.6%), and Asian (3.1%).

The majority of Bethlehem campus and Star Community Health survey respondents identified as White (87%), followed by Other Race (7%), Black (4%), and Asian (2%).

Total Population by Race, Bethlehem Campus

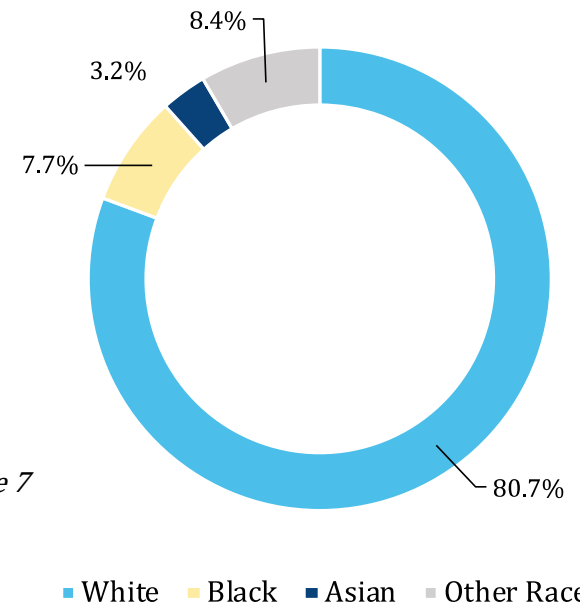


Figure 7

..... Vulnerable Populations

The following data was retrieved from the 5 year American Community Survey (2015-2019) by the Census Bureau.³

..... Black, Indigenous, People of Color (BIPOC)

It is important for St. Luke's to identify the BIPOC communities within the SLUHN service area in order to address specific needs. For example, Indigenous peoples historically lack proper access to health resources and information and often face discrimination when accessing healthcare facilities.⁴ Additionally, in regard to the COVID-19 pandemic, more than half of the infections have occurred among Black Americans, despite only comprising approximately 14% of the United States Population.^{5,6} Disparities in access to care for BIPOC communities can be detrimental to health outcomes and generate mistrust in healthcare.⁷ In the Bethlehem campus and Star Community Health service area, 7.7% of the total population identifies as Black and 19.3% of the total population identifies as Hispanic. Out of the BIPOC individuals who were surveyed for the network, 33% identified as Other Race, followed by Black (32%), Multiple Races (23%), Asian (10%), and American Indian or Alaskan Native (2%).

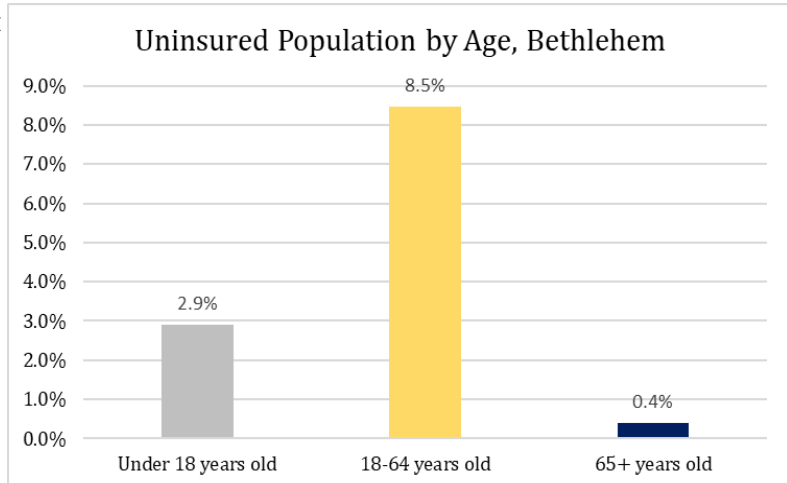


“Health care providers are exhausted, and then racism is layered upon workers of color. At the same time, we are seeing distrust among people of color regarding the broader health system, and in particular vaccines.”

..... Uninsured Population

Lack of insurance or adequate coverage is a primary barrier to healthcare because it prevents people from accessing crucial services required to monitor and maintain a healthy lifestyle. Medicare, a federal healthcare program in the United States available to most of the population ages 65 years and older, helps to nearly

Figure 8



³ <https://www.census.gov/programs-surveys/acs/>

⁴ <https://www.bsr.org/en/our-insights/blog-view/respecting-the-rights-of-vulnerable-groups>

⁵ <https://www.bsr.org/en/our-insights/blog-view/respecting-the-rights-of-vulnerable-groups>

⁶ <https://covid.cdc.gov/covid-data-tracker/>

⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4194634/>

eliminate the uninsured population in that age demographic, with only 0.4% in Pennsylvania and 0.8% in the United States ages 65 years and older uninsured. While Medicare is available to most of the population over 65 years old, lack of health insurance, or adequate health insurance, can lead to serious barriers to care. Of the population less than 65 years old, 7% in Pennsylvania and 10.2% in the United States are uninsured.

In the Bethlehem campus and Star Community Health service area, only 0.4% of the 65 and older population are uninsured, 8.5% of ages 18 to 64 are uninsured, and 2.9% of children under 18 years are uninsured. According to CHNA survey results, 3.4% of all surveyed respondents either have no coverage and pay cash or do not know if they have insurance. The discrepancy between service area and survey respondents is important to note as we continue to make efforts to reach our most vulnerable populations, which includes the uninsured population.

..... **ALICE**

Asset Limited, Income Constrained, Employed (ALICE) are households that earn more than the Federal Poverty Level, but less than the basic cost of living.⁸ Because ALICE households do not qualify for Federal assistance, they cannot always pay bills and have little money left over to put towards savings. ALICE households are often forced to make difficult decisions like choosing between paying rent or quality childcare. Problems that ALICE families face are often intertwined and affect each other, all of which can pose risks to health, safety and financial stability.⁹ These areas often include housing, childcare, education, food, transportation, health care, technology, and taxes. The most recent ALICE report (2018) found that 35% of households in Lehigh county were considered ALICE¹⁰, much higher than the Pennsylvania state average of 27%. In Lehigh county, 20,523 single or cohabitating households were ALICE, 8,584 families with children were ALICE, and 19,925 people 65 years and older were ALICE. This is partially due to the increase in living costs while wages have stayed stagnant. In 2018, the average cost of living for a single adult in Lehigh county was \$2,305 a month and \$27,660 a year, while the average hourly wage was \$13.83.¹¹ Out of all of the cities, boroughs and townships in Lehigh county, Fountain Hill borough has the highest amount of ALICE households (50%) and Allentown city has the second highest (43%). During this time in Northampton county, 13,746 single or cohabitating households were ALICE, 6,689 families with children were ALICE, and 15,786 people 65 years and older were ALICE. In 2018, the average cost of living for a single adult in Northampton county was \$2,335 a month and \$28,020 a year, while the average hourly wage was \$14.01. Out of the cities, boroughs and townships in Northampton county, the Wind Gap borough has the highest percent of ALICE households (58%) followed by the Portland borough (55%).

⁸ <https://www.unitedforalice.org/>

⁹ <https://www.unitedforalice.org/consequences>

¹⁰ <https://www.unitedforalice.org/pennsylvania>

¹¹ <https://www.unitedforalice.org/county-profiles/pennsylvania>

..... Children and Adolescents

According to the 5-Year (2015-2019) ACS estimates, 21.4% of the Bethlehem campus and Star Community Health service area is below 18 years old. Childhood is a crucial time for development in all aspects of life, thus it is important to study health behaviors and target initiatives towards addressing negative health patterns in youth. The 2019 Pennsylvania Youth Survey (PAYS)¹² is run by the Pennsylvania Commission on Crime and Delinquency and asks questions pertaining to drug use, violence, mental health, school safety, and more. PAYS is administered (by paper or online) biennially in odd years to students in grades 6, 8, 10, and 12. According to PAYS, 38.3% of children in Lehigh county report lifetime usage of alcohol and 16.8% report lifetime usage of marijuana.¹³ Lifetime use refers to using the drug at any point in their life and 30 day use refers to using the drug in the past 30 days. Additionally, 1 in 5 children in Lehigh county report experiencing bullying in the past 12 months, 41.2% of students in Northampton county report lifetime alcohol use, and 17.9% report lifetime marijuana use.¹⁴ Additionally, 26.2% of students in Northampton county reported experiencing some type of bullying within the last 12 months of when they were surveyed. The data in this section is reported from PAYS unless stated otherwise.

..... Tobacco, Nicotine, and Vaping

In Lehigh county, 6.8% of students reported a lifetime usage of cigarettes, a decrease of almost 3% since 2017. In the past 30 days, 16.9% of students report vaping, a decrease of more than 1% since 2017. Across Pennsylvania, 19% of students report 30-day vape use. However, it is important to note that electronic vaping use in the past year has increased for nicotine and marijuana/hash oil electronic vaping products, with 40.3% of Lehigh county students reported vaping nicotine in the past year; up almost 20% from 2017—the largest increase (3.67 times) was seen among 8th grade students. Additionally, 26.7% of students surveyed reported vaping marijuana or hash oil in the past year; up more than 15% since 2017. In Northampton county, 7.1% of students report lifetime usage of cigarettes and 1.7% report 30-day usage. Cigarette use continues to decline among all grades in Northampton county and is well below state level. 16.3% of students report vaping in the past 30 days. 46.5% of students use nicotine in their vape, a 26.2% increase from 20.3% of Northampton county students in 2017. 31.2% of Northampton county students use marijuana/hash oil in their vape, a 16.7% increase from 15.4% of students in 2017.

¹² [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\)-2019.aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS)-2019.aspx)

¹³ [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\).aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS).aspx)

¹⁴ [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\).aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS).aspx)

..... Other Substance Use

Substance use in children and adolescents can have a significant impact on their health and well-being.¹⁵ Substance use can affect their growth and development, especially brain development, lead to risky behaviors such as unprotected sex, and dangerous driving, as well as contribute to health problems in adulthood (e.g., heart disease and sleep disorders).¹⁶ In 2019, the PAYS survey found that lifetime alcohol use across the state was 41% and state lifetime use of marijuana was 17.3%. In Lehigh county, 38.3% of students have lifetime alcohol use and 16.8% lifetime use of marijuana. In Northampton county, 41.2% of students have lifetime alcohol use and 17.9% lifetime use of marijuana, 4.1% of students across Pennsylvania used prescription pain medication at some point in their life, and 3.9% have used over-the-counter drugs. In Lehigh county, lifetime prescription use was 4% and 3.8% for over-the-counter drugs. In Northampton county, lifetime prescription use was 4.9% and 4.3% for over-the-counter drugs. Students often view these drugs as safer than illicit drugs because they are prescribed by a doctor. Small portions of the state used cocaine, methamphetamines, heroin, ecstasy, and synthetic drugs. However, the most frequent “other drug” used were hallucinogens, with a 2.7% lifetime use. Lehigh county students had a 1.8% lifetime use of hallucinogens. Northampton county students had a 2.5% lifetime use of hallucinogens.

Regarding risky behavior while under the influence of drugs and other substances, 7.4% of Pennsylvania students engaged in binge drinking in the past two weeks, 1.5% of students reported driving while or shortly after drinking, and 3% indicated driving after using marijuana in the past year. In Lehigh county, 6.3% of students engaged in binge drinking in the past 2 weeks, 1.0% of students reported driving while or shortly after drinking, and 2.4% report driving after using marijuana in the past year. In Northampton county, 5.9% of students engaged in binge drinking in the past 2 weeks, 1.3% of students reported driving while or shortly after drinking, and 3.3% report driving after using marijuana in the past year. Finally, 34.3% of students in the state, and 34.3% of students in Lehigh county and 34.7% of students in Northampton county, reported *taking without permission* as their most frequent source/method of obtaining alcohol. The next highest source was *parents provided it for me*, which was 25.7% of students in the state, 29.6% of students in Lehigh county and 28.6% in Northampton county. For obtaining prescription drugs, the most common method was *taking them from a family member living in my home*, a method used by 41.4% of students in the state and 43.4% of students in Lehigh county. In Northampton county, the most common method for obtaining prescription drugs was a *family member giving it to them*, a method used by 38.7% of students in the state and 43.0% of students. For willingness to use, 24.5% of students across the state, 21.6% of students in Lehigh county, and 22.5% of students in Northampton county indicated a willingness to use alcohol if presented with the chance.

¹⁵ <https://www.cdc.gov/ncbddd/fasd/features/teen-substance-use.html>

¹⁶ <https://www.cdc.gov/ncbddd/fasd/features/teen-substance-use.html>

..... **Violence and Bullying**

It is important for all children to feel safe at school in order to learn, socialize, and develop. However, in the past year, 15.9% of students in Lehigh county and 20% in Northampton county report being threatened with violent behavior on school property in the past year. Additionally, 7% of Lehigh county and 7.7% of Northampton county students reported having been attacked on school property. Further, 1.7% of Lehigh county and 1.1% of Northampton county students have been attacked with a weapon. Additionally, 1.7% of Lehigh county and 0.8% of Northampton county students report bringing a weapon to school in the past 30 days, compared to the state average (0.9%).


Bullying is also a factor contributing to violence in schools, prompting some students to skip school, and potentially lowering self-esteem. 20.3% of Lehigh county students and 26.2% of students in Northampton county reported experiencing bullying in the past 12 months, compared to the state average (25.1%). The most common way students reported being abused was emotional abuse, insults, and name calling, followed by physical injury, and threats. Of the students who have been bullied in Lehigh county, 10.5% of them report being bullied via text or social media. Of the students in Lehigh county that indicated having been cyberbullied, 57.5% indicated feeling so sad or hopeless every day for the past 2 weeks they stopped doing usual activities; and in the past year, 40.3% of those students seriously considered suicide, 33.8% made a suicide plan, and 30.6% attempted suicide. In Northampton county, 15.1% of students who experienced bullying reported it occurring via text or social media. Of the students in Northampton county that indicated having been cyberbullied, 54.5% indicated feeling so sad or hopeless every day for the past 2 weeks they stopped doing usual activities; and in the past year, 39.4% of those students seriously considered suicide, 31.3% made a suicide plan, and 27.6% attempted suicide.

..... **Mental Health**

Mental health is an important indicator for children and adolescents social and emotional development. Important mental health habits such as resilience and good judgment aid in overall well-being. When asked about depression, the most common depressed thought expressed by Lehigh county (36.6%) and Northampton county (38.5%) students was *at times I think I am no good at all*, compared to the state average of 36.3%. Additionally, 38% of children in Pennsylvania, 38.3% of students in Lehigh county, and 41.1% in Northampton county report feeling sad or depressed MOST days in the past 12 months.

PAYS also asks questions pertaining to self-harm and suicide. In Pennsylvania, 14.4% of students indicated using self-harm (cutting, scraping, burning) in the past 12 months compared to 13.8% of students in Lehigh county and 15.7% in Northampton county. Additionally, 16.2% of students across the state indicated seriously considering suicide, 12.9% planned suicide, 9.7% attempted suicide, and 2.0% needed medical treatment as a result. In Lehigh county, 16.7% of students seriously considered suicide, 13.5% planned suicide, 10.7% attempted

suicide, and 2.3% needed medical treatment as a result. In Northampton county, 17.9% of students seriously considered suicide, 13.6% planned suicide, 10.4% attempted suicide, and 1.9% needed medical treatment as a result.


 ***“We now have more children at younger ages with more significant mental health needs. Before the pandemic, it was the most common concern from principals on the district. That has only been amplified by COVID. That is at the top of the list.”***

..... **Risk and Protective Factors**

The 2019 PAYS also illustrated some concerning trends regarding perceived importance of school with less than half of all students in Lehigh county and half in Northampton county feeling that school is going to be important for their future. Only 35.7% of students in 2019 reported enjoying being in school during the past year, a 6.3% reduction from 2017. Only 76.6% of all Lehigh county and 77.5% of Northampton county students report feeling safe at school which is below the state average (80%).

Many risk and protective factors come into play when understanding observed rates of drug use and mental health issues addressed in the CHNA. A risk factor is something that poses potential harm to a student's life and a protective factor is something that can help keep the student safe. Among the social risk factors, highest reported risk factors for both counties include perceived risk of drug use, low commitment toward school and parental attitudes favorable toward antisocial behavior. The highest reported protective factors include family attachment, prosocial involvement, and family rewards for prosocial involvement.

When speaking about how the pandemic has impacted children, one Bethlehem community forum attendee said:

 ***“Because of the pandemic dental and physical tests for many students have been delayed or missed altogether, and mental health problems have not been diagnosed. These issues are disproportionately found among students from lower income families.”***

..... **Seniors**

According to the 5-year ACS (2015-2019, there are approximately 119,448 people 65 years and older living in the Bethlehem campus and Star Community Health service area.¹⁷ In Lehigh county, there is an estimated 60,102 people 65 years and older. The U.S. Census Bureau reports the 65 and older population grew 34.2% in the last ten years and by 3.2% from 2018 to 2019¹⁸ and it is estimated that the 65 and older population will outnumber children by the year 2034.¹⁹ By 2060, adults 65 and older will account for 23.4% of the population, which is approximately 94.7 million people.

In 2018, 19.9% of Medicare beneficiaries in the Bethlehem campus and Star Community Health service area reported suffering from depression. In the same time frame, 20.7% Medicare beneficiaries in Lehigh county and 19.8% in Northampton county report suffering from depression.²⁰ All of these numbers are higher than the Pennsylvania state average (19.3%) and the United States average (18.4%).

Other important factors to observe in the senior population are the prevalence of diseases that begin to appear or worsen with age. Examples include diabetes, heart disease, high blood pressure, and high cholesterol. Figure 9 illustrates the percentage of Medicare beneficiaries within the Bethlehem campus and Star Community Health service area that report having these diseases.²¹ The Bethlehem campus and Star Community Health service area reflects similar prevalence to the Pennsylvania and United States averages for diabetes and heart disease, but there is still room for improvement with high blood pressure and high cholesterol. Of the respondents 65 years and older from the Bethlehem campus and Star Community Health service area, 18.4% have diabetes, 10.4% have had a heart attack or other disease, 53.7% have high blood pressure, and 36.3% have high cholesterol. While these numbers are lower than previously reported, chronic disease in seniors is a focus for healthy aging.

Food insecurity is another important factor in terms of senior health. Feeding America released a 2020 food insecurity report on seniors in America and found that 7.3% of seniors are food insecure.²² The report found that of the food insecure senior population, the highest insecure rates were found in racial and ethnic minorities, those with lower incomes, those who are younger seniors (ages 60-69), and those who are renters. In relation to consuming healthy foods, access to healthy foods is just as important.

¹⁷ <https://www.census.gov/programs-surveys/acs/>

¹⁸ <https://www.census.gov/newsroom/press-releases/2020/65-older-population-grows.html>

¹⁹ <https://www.census.gov/library/visualizations/2018/comm/historic-first.html>


²⁰ https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV_PUF

²¹ https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV_PUF

²² <https://www.feedingamerica.org/research/senior-hunger-research/senior>

2022 St. Luke's University Health Network Bethlehem campus and Star Community Health Community Health Needs Assessment

Percent of Medicare Beneficiaries						
	St. Luke's Survey	Bethlehem Service Area	Lehigh County	Northampton County	Pennsylvania	United States
Diabetes	18.4%	26.5%	26.1%	26.4%	25.8%	27.0%
Heart Attack and other Disease	10.4%	26.6%	24.7%	27.5%	27.3%	26.8%
High Blood Pressure	53.7%	62.5%	61.6%	64.4%	58.5%	57.2%
High Cholesterol	36.3%	57.1%	56.3%	58.6%	52.7%	47.7%

 *Figure 9: Data reported from St. Luke's survey and Centers for Medicare and Medicaid Services 2018 and gathered from lehighvalleyhub.org*

Each year, America's Health Rankings produces senior health reports for each state in the United States. The organization ranks the state on six categories: overall, behaviors, social and economic, physical environment, clinical care, and health outcomes, on a scale from 1-50 with a score of 1 as the best. Pennsylvania's best ranking appeared in clinical care (19) and worst in physical environment (46).²³ Clinical care assesses factors like access to care, quality of services provided, and preventive services. Physical environment assesses factors like air and water quality, pollution, and housing conditions.

Senior mental health is a growing concern in the United States, especially with isolation during the COVID-19 pandemic. According to America's Health Rankings 2020 Senior Report, 8.3% of senior adults in Pennsylvania experience frequent mental health distress, compared to the national average of 7.9%.²⁴ Frequent mental distress is defined as 14 or more poor mental health days a month and is associated with physical inactivity, insufficient sleep, obesity, smoking, and alcohol consumption. Other factors that can contribute to frequent mental distress are the inability to afford healthcare, living alone, and activity limitations due to chronic conditions, physical disabilities or mental health problems. One reason the senior population may not receive adequate mental care is due to the fact that symptoms of some mental health issues like depression or lapses in memory often get dismissed as typical aspects of aging.²⁵ Other health conditions related to aging also impact mental health in seniors; older adults with diabetes have a higher risk of developing depression or cognitive impairment while adults with coronary heart disease or whom have had a stroke are more likely to have frequent mental distress.^{26,27}

²³ https://www.americashealthrankings.org/explore/senior/measure/overall_sr_3/state/PA


²⁴ https://www.americashealthrankings.org/explore/senior/measure/overall_sr_3/state/PA

²⁵ <https://www.agingcare.com/articles/understanding-mental-health-issues-in-seniors-209387.htm>

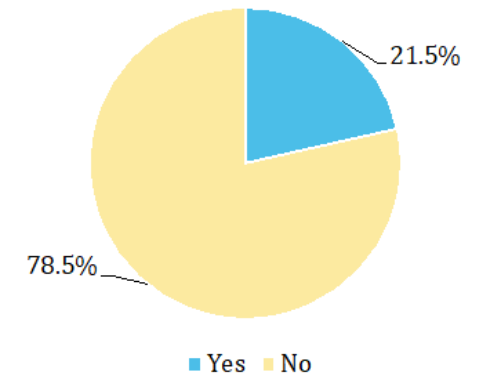
²⁶ <https://www.cdc.gov/aging/publications/coronary-heart-disease-brief.html>

²⁷ <https://www.nia.nih.gov/health/diabetes-older-people>

Falls are an important warning sign to look at in senior populations because falls are costly in dollars but also in quality of life. Falls are the leading cause of fatal and nonfatal injuries in older Americans.²⁸ The 2020 senior health report found that 24.2% of older adults in Pennsylvania had fallen within the last 12 months.²⁹ One in five falls among older adults causes serious injury, including hip fractures and head injuries. Common factors that can lead to falls are balance and gait, vision, medications, environment, and chronic conditions.³⁰ However, the number of falls can be reduced through practical lifestyle adjustments, educational programs, and community partnerships.³¹ Of adults 65 years and older surveyed in the Bethlehem campus and Star Community Health service area, 21.5% have ever fallen. Of this group, 17% have fallen 1-2 times, 3% have fallen 3-4 times, and 2% have fallen 5 or more times.

 *Figure 10*

Ever Fallen, Bethlehem Campus



Along with other health concerns that increase with aging, polypharmacy is one of the hardest to track. Polypharmacy lacks a central definition, but authors Dagli and Sharma define polypharmacy as the use of multiple medications generally referred to as five or more prescribed drugs per day.³² This is common among the senior population because of the need to treat various diseases and injuries that increase with age. Some symptoms of polypharmacy include tiredness, decreased alertness, incontinence, lack of appetite, falls, depression, tremors, hallucinations, and more.³³ In 2020 it was estimated that 44% of men and 57% of women 65 and older take five or more prescription and/or nonprescription drugs a week.³⁴ Polypharmacy has severe negative impacts on patient care and increases the risk for adverse drug reactions.³⁵ By increasing protective factors in the community the effects of aging can be mitigated and the senior population can thrive. A protective factor is a condition or characteristic that helps people deal more effectively with stressful events and lessens risk of vulnerability.³⁶ Engaging in physical activities or hobbies and eating well can have a positive impact on senior well-being. Regular exercise can reduce the risk of some diseases, lower blood pressure, and help cognitive function.³⁷ Self-efficacy, the belief in one's ability to achieve goals and influence life events, is also a potential protective factor. Research indicates that self-efficacy in older adults was related to increased energy, better sleep, decreased pain or discomfort, and increased overall satisfaction with life.³⁸ Engaging seniors in meaningful

²⁸ <https://www.ncoa.org/healthy-aging/falls-prevention/preventing-falls-tips-for-older-adults-and-caregivers/>

²⁹ https://www.americashealthrankings.org/explore/senior/measure/falls_sr/state/PA

³⁰ <https://www.ncoa.org/healthy-aging/falls-prevention/preventing-falls-tips-for-older-adults-and-caregivers/6-steps-to-protect-your-older-loved-one-from-a-fall/>

³¹ <https://www.ncoa.org/healthy-aging/falls-prevention/>

³² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4295469/>

³³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4295469/>

³⁴ <https://www.uspharmacist.com/article/polypharmacy-and-drug-adherence-in-elderly-patients>

³⁵ [https://www.npjournals.org/article/S1555-4155\(19\)31051-7/fulltext](https://www.npjournals.org/article/S1555-4155(19)31051-7/fulltext)

³⁶ https://www.respectaging.ca/training/Participant_Manual_-_Module_08.pdf

³⁷ <https://www.ncbi.nlm.nih.gov/books/NBK316205/>

³⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4437657/>

relationships and coordinating resources in the community can help their overall well-being and protect against some negative effects from aging. For the senior population, Healthy People 2030 seeks to reduce the rate of hospital admissions for diabetes among older adults, reduce fall related deaths, and to reduce the proportion of older adults who use inappropriate medicines.³⁹

..... **Lesbian, Gay, Bisexual, Transgender (LGBT)**

In 2020, the Bradbury-Sullivan LGBTQ Community Center in Allentown, Pennsylvania, with funding from the PA Department of Health, conducted a Pennsylvania statewide LGBT Needs Assessment (N=6,582). Results showed that 23.6% of Bradbury-Sullivan respondents have not visited the doctor for a routine check-up in a year or longer and 36% have not visited the dentist in the past year. Additionally, 1 in 3 Bradbury-Sullivan respondents fear seeking healthcare services because of past or potential negative reactions from healthcare providers. Within Lehigh county, 22.7% of respondents report feeling dissatisfied with their life and 52.3% of overall respondents report ever considering suicide in their life.

Within the Pennsylvania LGBT Health Needs Assessment, there were 257 respondents from Lehigh County. The mean age of respondents was about 39 years, but ages ranged from 13 years to 76 years old, providing a thorough analysis of the experiences of persons who identify as LGBT across the lifespan. 25.7% of these 257 respondents identify as either transgender or non-binary. From Northampton county, there were 213 respondents. The mean age of respondents was about 38 years, and the ages ranged from 13 years to 73 years

Category	Outcome Measures	Lehigh County PA LGBT Respondents	Northampton County PA LGBT Respondents
Mental Health	Ever Considered Suicide	52.3%	57.3%
	Dissatisfied with Life	22.7%	27.6%
Mental Health Access	Had a Mental Health Challenge in the last 12 months	66.4%	73.0%
	Seen by a Mental Health Provider in the las 12 months	48.0%	51.9%
Healthcare Barriers	Uninsured	4.9%	6.9%
	no Primary Care Provider	16.9%	16.3%
Discrimination and Violence	Experienced Discrimination	55.0%	54.9%
	Experienced Violence	19.5%	27.6%
Financial, Food and Housing Insecurity	Financially Insecure	43.1%	44.6%
	Food Insecure	27.1%	28.5%
	Ever Homeless	16.7%	29.2%
Chronic Disease	Diabetes Diagnosis	6.7%	7.6%
	Pre-Diabetes Diagnosis	5.8%	10.3%
	HIV Diagnosis	3.7%	4.4%
Tobacco and Drug Use	Current Cigarette Smoker (18+ years)	10.4%	14.9%
	Curren E-Cigarette Smokers (all ages)	6.9%	11.8%
	Ever Engaged in Chemsex	23.7%	29.4%

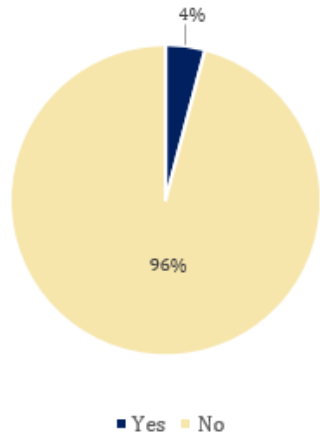
³⁹ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/older-adults>


Figure 11

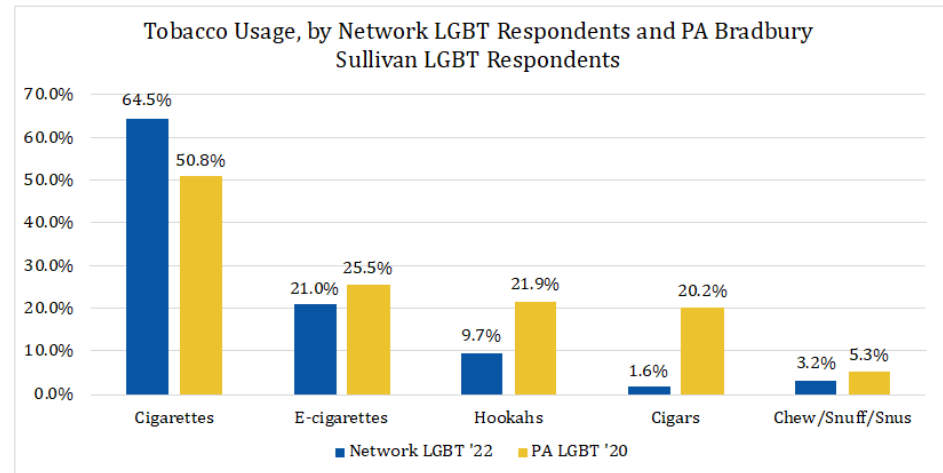
old. 57 of the 213 total respondents identified as transgender or non-binary.


From the St. Luke's survey, we found that 4.1% of respondents from the Bethlehem campus and Star Community Health service area identify as LGBT. Additionally, 0.28% of all respondents in the network identify as non-binary, 0.08% identify as genderqueer, 0.06% identify as gender fluid, and 0.1% identify as another gender. When comparing Bradbury Sullivan LGBT respondents to CHNA LGBT respondents, rates of cigarette use and e-cigarette use fares similar; cigarettes are the most used tobacco product by respondents in both surveys. However, hookah use (21.9%) and cigar use (20.2%) is much higher in Bradbury Sullivan respondents than St. Luke's respondents, 9.7% and 1.6%, respectively. Figure 11 summarizes the key health outcomes and social determinants of health of Pennsylvania LGBT Health Needs Assessment respondents in Lehigh county and Northampton county.

LGBT Identification, Bethlehem



 *Figure 12*



 *Figure 13*

..... Disabled Population

In the Bethlehem campus and Star Community Health service area, 13.2% of people have a disability.⁴⁰ The six disability types considered in this category are hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty (serious difficulty walking or climbing stairs),

⁴⁰ data.census.gov/ Table (S1810)

self-care difficulty, and independent living difficulty.⁴¹ Of those who have a disability in the Bethlehem campus and Star Community Health service area, 9.5% are under 18 years old, 50.5% are between 18 and 64 years, and 40% are 65 years and older.

..... Veteran Population

Of the Bethlehem campus and Star Community Health service area population 18 years and older, 7% are veterans. The Census Bureau classifies a veteran as “a person 18 years old or over who has served (even for a short time), but is not now serving, on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World War II.”⁴² Of the 7% of veterans in the Bethlehem campus and Star Community Health service area, 93.5% are male and 6.5% are female.⁴³

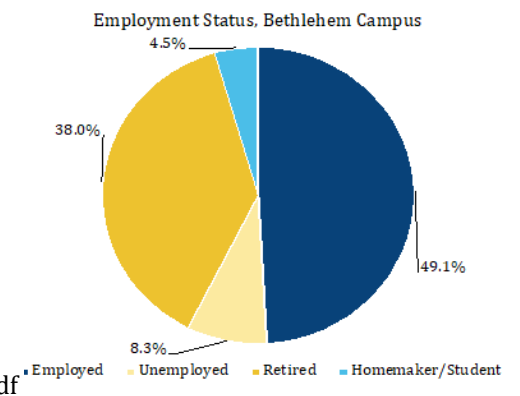



“It is a diverse community. Looking at the demographics, we are an older community, there is a large Hispanic population. We have our college population with Moravian and Lehigh. Diverse is the best way to describe it.”

Social and Economic Environment

..... Employment

Unemployment and underemployment have serious impacts on an individual's health. Income is a social determinant of health, and in addition to affecting one's income, unemployment and underemployment can leave individuals without health insurance, paid sick leave, and parental leave—exacerbating negative health outcomes when people are at their most vulnerable. The unemployment rate is 4.4% in Pennsylvania according to the Robert Wood Johnson Foundation 2021 data.⁴⁴ However, unemployment rates varied widely within the year due to the COVID-19 pandemic.



 **Figure 14**

⁴¹ <https://www.census.gov/topics/health/disability/guidance/data-collection-ac.html>

⁴² <https://www.census.gov/content/dam/Census/topics/population/veterans/guidance/acs-topic-information-veterans.pdf>

⁴³ [Data.census.gov/ Table \(S2101\)](https://data.census.gov/tables/S2101)

⁴⁴ <https://www.countyhealthrankings.org/>

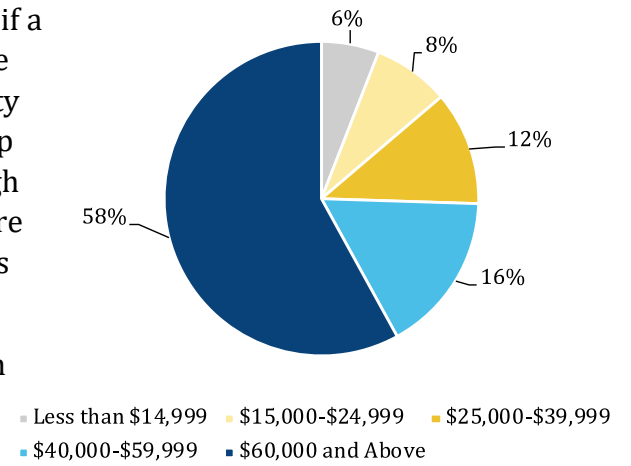
In January of 2020, Pennsylvania had an unemployment rate of 4.7%. However, that unemployment rate sky-rocketed to 16.1% by April of 2020—the highest observed since the U.S. Great Depression. Pennsylvania reached unemployment rates below 10% by September of 2020 and 4.5% of residents of both Lehigh and Northampton county experienced unemployment.⁴⁵ The majority of CHNA survey respondents from the Bethlehem campus and Star Community Health service area are employed (49.1%) or retired (38%), and 8.3% of respondents are unemployed and 4.5% are either a homemaker or a student.


..... Household Income and Poverty

The 2021 Federal Poverty Level (FPL) poverty guideline is measured at \$12,880 a year for one person and \$26,500 for a family of four.⁴⁶ If one person is 200% of the FPL, they make \$25,760; if a family of four is 200% of the FPL, they make \$53,000. ACS data (2019) reports that 27.6% of the Bethlehem campus and Star Community Health service area live 200% below the federal poverty level. This is below both Pennsylvania, 28.3%, and the United States, 30.7%, and 18102 is the zip code most affected by poverty. The ACS also reports that the median household income in Lehigh county is \$63,897 and the median household income in Northampton county is \$70,47, which are both higher than the median household income in Pennsylvania (\$61,744) and the United States (\$62,843).⁴⁷

The majority of the respondents surveyed in the Bethlehem campus and Star Community Health service area have a household income of \$60,000 and above (58%), 14% of respondents have a household income of \$24,999 and below, and 28% of people have a household income between \$25,000 and \$59,999. While we cannot determine how many people live below the FPL based on household size, these survey results do reveal that there are many respondents who could use support from food pantries, Federally Qualified Health Centers, government assistance, rent assistance, and more to supplement their income.

Household Income, Bethlehem Campus



 **Figure 15**

⁴⁵ <https://www.countyhealthrankings.org>

⁴⁶ <https://aspe.hhs.gov/2021-poverty-guidelines>

⁴⁷ [Data.census.gov/](https://data.census.gov/)

Education

While income and employment are linked to health status, educational attainment is linked to income and employment. These lay the building blocks for the next generation to have improved socioeconomic status and correlated positive health outcomes. The Healthy People 2030 high school target graduation rate is 90.7%.⁴⁸ In Pennsylvania, 91% of people have a high school diploma or equivalent, 89% of people in Lehigh county, and 91% in Northampton county.

Of all CHNA survey respondents in the service area, 97.4% have a high school education of higher, 0.7% have less than a high school education, and 1.9% have some high school education.

Broken down further, 20.9% of respondents have only a high school diploma, 30.8% have some college or an associate's degree (18.5% have some college and 12.3% have an associate's), 21.7% have a bachelor's degree, and 24% have a graduate degree. CHNA survey results show that respondents have much higher rates of higher education than the general public (Figure 16).

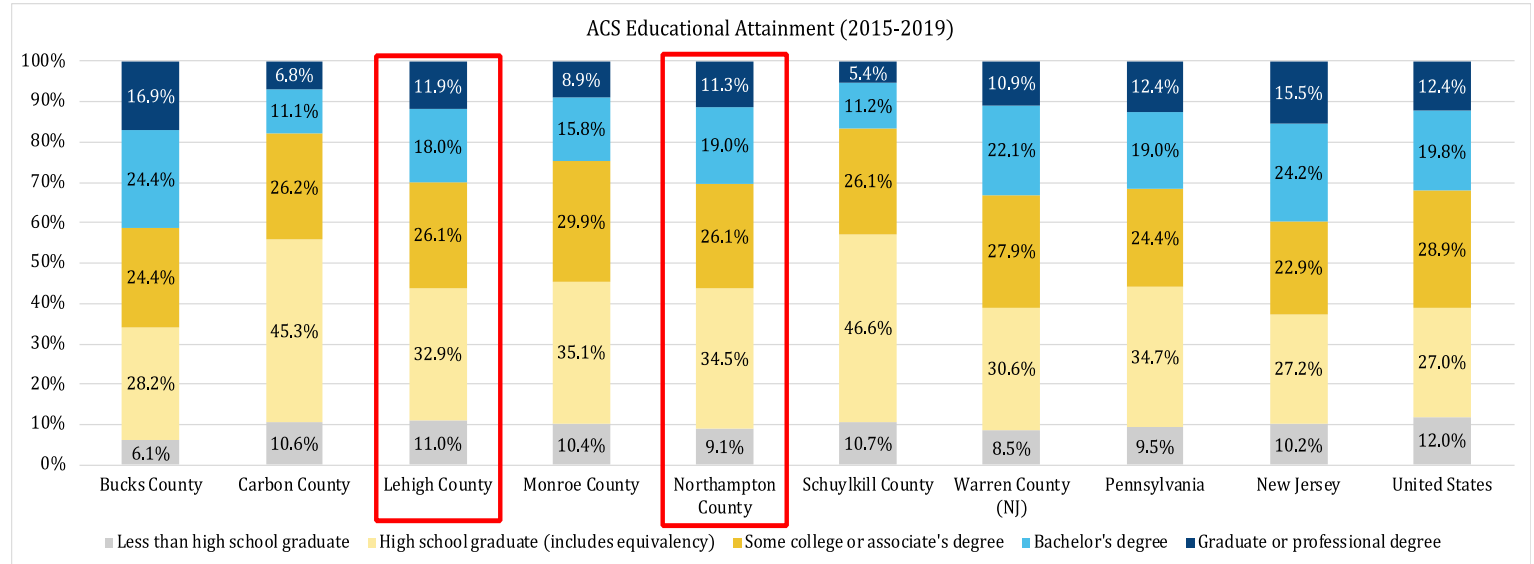


Figure 16

Additionally, survey data has lower percentages of respondents with less than a high school diploma compared to ACS findings. It should be noted that people with higher levels of education are more likely to live healthier and longer lives than those with lower education levels.⁴⁹ Healthy People 2030 states that children with less access to quality education are less likely to get safe, high-paying jobs and will be more

⁴⁸ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/adolescents/increase-proportion-high-school-students-who-graduate-4-years-ah-08>

⁴⁹ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/education-access-and-quality>

likely to have health problems (e.g., heart disease, diabetes). This is of significant concern because it is crucial to identify and work with populations with lower access to education and healthcare in order to aid in healthy lifestyles and well-being.

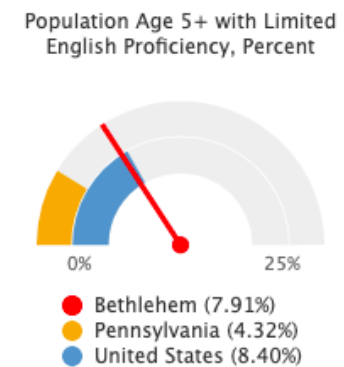
..... Language

English is the language most widely spoken in the Lehigh Valley area and surrounding areas of Pennsylvania. However, many people in our service area may be identified as having limited English proficiency. Limited English proficiency is reported as the percentage of the population five years and older who speak a language other than English at home and speak English less than “very well.” Respondents were not instructed on how to interpret the meaning of “very well.”⁵⁰ Speaking and understanding English is important in this service area because most health services are provided in English. Language can also be a large barrier to educational attainment, higher income, employment, accessing healthcare and thus good health outcomes. In the Bethlehem campus and Star Community Health service area, 7.9% of people are considered to have limited English proficiency, compared to 4.3% in Pennsylvania and 8.4% in the United States (Figure 17).

Translators and interpreters are required in locations where either 5% of the community speaks a different language or over 1,000 members speak a different language.⁵¹ A typically only translates the written word while interpreters translate orally. translator Figure 18 shows the zip codes of the Bethlehem campus and Star Community Health service areas. Columns shown in red text indicate areas that require translator or interpreter services.

In total, 10 zip codes require services for Spanish speakers, 3 zip codes require services for Arabic speakers, and 2 zip codes require services for other Indo-European languages (not including West Germanic and Slavic languages). Since Indo-European makes up more than one language, more than one interpreter or translator would be needed.

Figure 17



⁵⁰ https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2019_ACSSubjectDefinitions.pdf

⁵¹ https://www.hud.gov/program_offices/fair_housing_equal_opp/promotingfh/lep-faq#q3

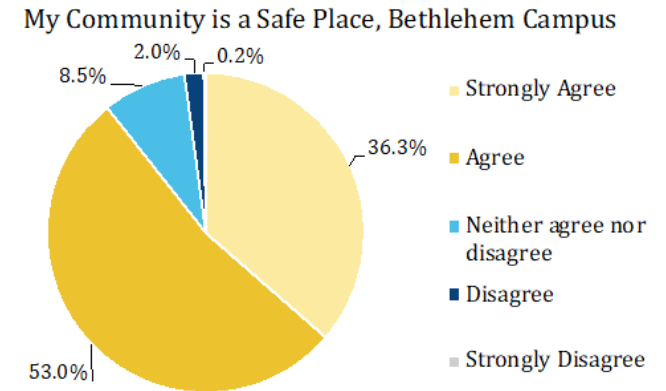
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Bethlehem Service Area Languages			
Top Zip Codes	Percentage and Number of Spanish Speakers in Zip Code	Percentage and Number of Spanish Speakers in Zip Code Who Speak English Less than "Very Well"	Next Frequent Language
18017	11.8% (4,399 people)	35.6% (1,564 people)	Other Indo-European languages (2.9%- 1,078 people)
18015	21.7% (6,857 people)	48.5% (3,329 people)	Chinese (incl. Mandarin, Cantonese) (1.9%- 609 people)
18018	15.2% (4,519 people)	39.3% (1,775 people)	Other Indo-European languages (2.0%- 585 people)
18064	2.8% (692 people)	51.3% (355 people)	Other Indo-European languages (1.3%- 335 people)
18020	4.8% (934 people)	29.0% (271 people)	Other Indo-European languages (3.3%- 651 people)
18103	27.9% (12,237 people)	48.5% (5,931 people)	Other Indo-European languages (1.6%- 693 people)
18042	12.8% (5,141 people)	42.6% (2,188 people)	Other Indo-European languages (1.5%- 591 people)
18055	3.8% (421 people)	15.0% (63 people)	Other Indo-European languages (3.0%- 330 people)
18045	6.0% (1,547 people)	22.1% (342 people)	Other Indo-European languages (3.8%- 972 people)
18040	3.5% (546 people)	18.9% (103 people)	Other Indo-European languages (1.4%- 227 people)
18102	50.3% (22,783 people)	47.3% (10,782 people)	Arabic (3.0%- 1,350 people)
18014	1.9% (215 people)	78.1% (168 people)	German or other West Germanic languages (1.0%- 115 people)
18067	3.4% (584 people)	53.4% (312 people)	German or other West Germanic languages (1.1%- 193 people)
18109	33.6% (5,500 people)	46.5% (2,560 people)	Arabic (6.9%- 1,127 people)
18036	2.0% (268 people)	12.3% (33 people)	Other Indo-European languages (1.3%- 176 people)
18104	9.2% (3,913 people)	35.1% (1,372 people)	Other Indo-European languages (3.6%- 1,522 people)
18052	12.2% (3,205 people)	46.0% (1,474 people)	Arabic (6.0%- 1,569 people)
18034	4.7% (414 people)	21.0% (87 people)	Other Indo-European languages (2.0%- 179 people)

Figure 18

..... Safety

Perceived safety is an important component of integrating into one’s community. People who do not feel safe in their neighborhood are less likely to participate in outdoor activities and are more likely to isolate themselves, which can have negative impacts on both physical and mental health. Violent crime, defined as “offenses that involve face-to-face confrontation between a victim and a perpetrator, including homicide, rape, robbery, and aggravated assault”⁵², is one measure of safety. According to Robert Wood Johnson 2021, Pennsylvania has a rate of 315 violent crime offenses per 100,000 population and the U.S. top performer rate at 63 per 100,000. Northampton county has a violent crime rate of 212 per 100,000 population and Lehigh county has a violent crime rate of 231 per 100,000 population and has declined in recent years.⁵³



 *Figure 19*

When asked to rate the degree to which they agree that their community is a safe place to live, the majority of respondents in the Bethlehem campus and Star Community Health service area agreed (53%), 36.3% strongly agreed, 8.5% neither agreed nor disagreed, 2% disagreed that their community is a safe place, and 0.2% strongly disagreed.

..... Social Associations

Related to safety, social association is a measure of the emotional and social support available to an individual. This indicator measures the number of membership associations per 10,000 population. The social association indicator in Lehigh county falls at 10.2 and 10.6 in Northampton county, which falls below Pennsylvania (12.2), and U.S. top performers (18.2),⁵⁴ demonstrating a need for more social associations.

⁵² <https://www.countyhealthrankings.org/app/new-jersey/2021/measure/factors/43/data>

⁵³ <https://www.countyhealthrankings.org>

⁵⁴ <https://www.countyhealthrankings.org>

Physical Environment

..... Food Insecurity

Food insecurity, according to the United States Department of Agriculture (USDA), is the lack of consistent access to a variety of foods for a quality diet.⁵⁵ A quality diet is one with access to a variety of foods that meet the individual’s taste and nutritional needs. Very low food security (VLFS) is when normal eating patterns are disrupted and households lack money or other resources to obtain food. The USDA’s annual report (2019) found that 10.5% of households nationwide are food insecure, 6.5% of which have low food security and 4.1% have VLFS.⁵⁶ Among households with children, 6.5% are food insecure and 0.6% have VLFS. The USDA report stated that households with children facing VLFS had to skip meals or not eat for entire days due to a lack of money for food.⁵⁷ In 2019, Pennsylvania had a food insecurity rate of 10.2% and VLFS rate of 4.1%.

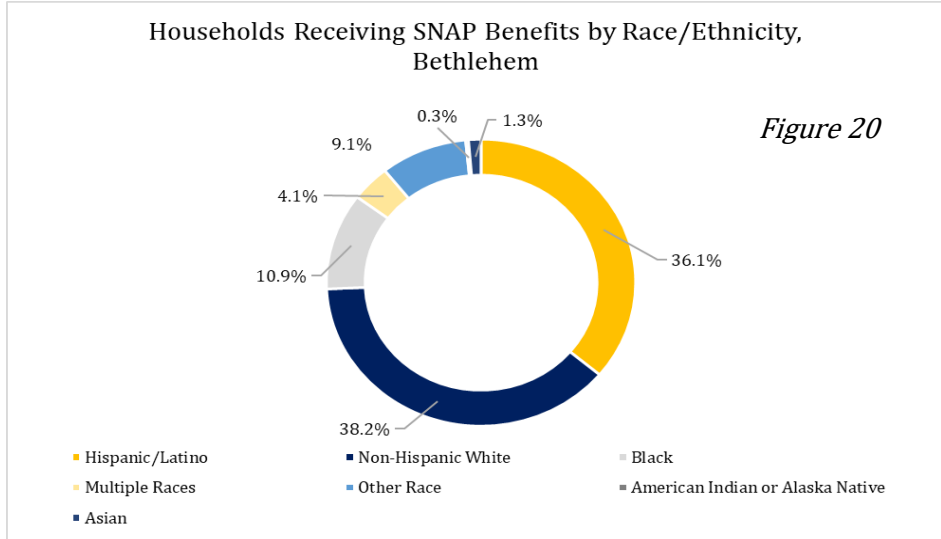


Figure 20

Government assistance programs aim to help reduce food insecurity through national programs such as the Supplemental Nutrition Assistance Program (SNAP), the National School Lunch Program (NSLP), and Women, Infants and Children (WIC). In 2019, an estimated 49.7% of households receiving SNAP were food insecure, 36.9% of households receiving free or reduced school lunches were food insecure, and 34.1% of households receiving WIC were food insecure.⁵⁸ Additionally, 57.7% of households classified as VLFS reported participating in one of these three federal assistance programs, with SNAP having the largest number of participants (47.8%). According to the ACS (2015-2019), 12.8% of households in the Bethlehem campus and Star Community Health service area received SNAP benefits.⁵⁹ Figure 21 depicts households receiving SNAP benefits by Census tract and Figure 20 illustrates SNAP recipients by race and ethnicity.

⁵⁵ <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>

⁵⁶ <https://www.ers.usda.gov/webdocs/publications/99282/err-275.pdf?v=4396.4>

⁵⁷ <https://www.ers.usda.gov/webdocs/publications/99282/err-275.pdf?v=4396.4>

⁵⁸ <https://www.ers.usda.gov/webdocs/publications/99282/err-275.pdf?v=4396.4>

⁵⁹ data.census.gov/

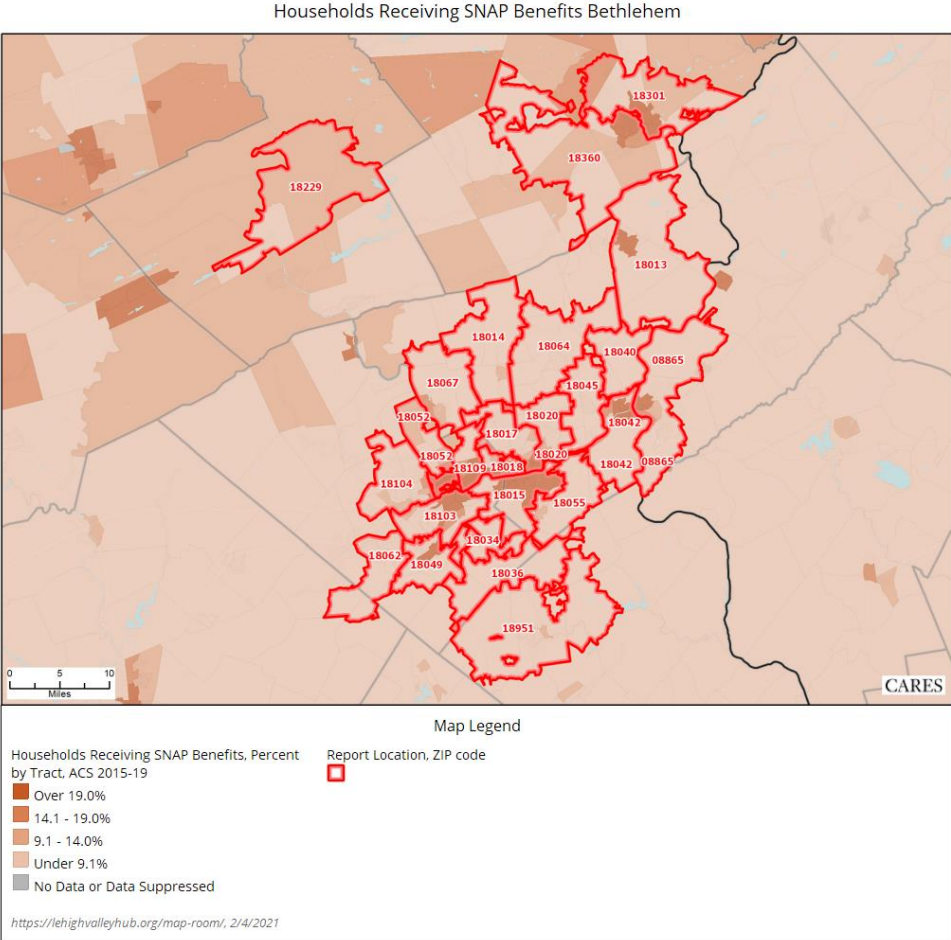


Figure 21

The COVID-19 pandemic required shutdowns across the county in 2020, resulting in many people losing jobs and their ability to afford food and other essential items to survive. Feeding America (2021) projected the potential rates of food insecurity because of COVID-19, estimating more than 50 million people experiencing food insecurity because of the pandemic.⁶⁰ Feeding America projects the annual food insecurity rate to increase to 12.9% in 2021, meaning that 1 in 8 people will be food insecure, along with 1 in 6 children. Additionally, the report projects the unemployment rate to be around 6.7% and the annual poverty rate to be 12% in 2021, which is a 0.9% increase from 2020.⁶¹ The food insecurity rate in Lehigh county was 13.5% in 2020, a 34% increase from 2019. In Northampton county, the food insecurity

⁶⁰ <https://www.feedingamerica.org/research/coronavirus-hunger-research>

⁶¹ <https://www.feedingamerica.org/research/coronavirus-hunger-research>

rate was 11.8%, a 37% increase from 2019. For 2021, Lehigh county is projected to have a food insecurity rate of 11.6%, 9.8% in Northampton county, and 12% in Pennsylvania. Additionally, 16.6% of children in Lehigh county in 2021 are projected to be food insecure. Lehigh county ranked 44 out of the 67 counties in Pennsylvania for food insecurity, with 1 ranked at the highest food insecurity rate. In Northampton county, 13.9% of children in 2021 are projected to be food insecure. Northampton county ranked 62 out of the 67 counties in Pennsylvania for food insecurity.

Lehigh and Northampton County Feeding America COVID-19 Food Insecurity Projections						
County	Rank 2021	2021	2020	2019	Change 2019-2020	2021 Child
Lehigh	44/67	11.6%	13.5%	10.0%	34.0%	16.6%
Northampton	62/67	9.8%	11.8%	8.6%	37.0%	13.9%

Figure 22

Additionally, availability of food can be a concern for children. PAYS asked students if they have been worried about running out of food one or more times in the past year, and 11.7% of students across Pennsylvania and 14.6% of students in Lehigh county and 14.8% of students in Northampton county agreed with this statement.⁶²

It is also important to note that the pandemic affected people of color (BIPOC) communities hardest in terms of unemployment and food insecurity. The Hispanic/Latino population had the highest unemployment rate among all racial and ethnic groups, spiking to 18.9% in April 2020. Additionally, Black individuals were already 2.4 times more likely to live in food insecure households than White individuals prior to the pandemic, and now 18 of the 25 counties across the country projected to have the highest food insecurity rates in 2020 are predominantly Black.⁶³



“Food deserts are growing in Bethlehem and I’m not sure the food banks can keep up with the demand. They do a great job but I think that the demand is stretching the resources very thin.”

Research studies have found that stress from inconsistent access to food can play an active role in fat accumulation and chronic disease.⁶⁴ In non-senior adults, food insecurity is associated with decreased nutrient intakes, increased rates of mental health problems, hypertension,

⁶² [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\)-2019.aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS)-2019.aspx)

⁶³ <https://www.feedingamerica.org/research/coronavirus-hunger-research>

⁶⁴ <https://doi.org/10.3945/an.112.002543>

and poor sleep outcomes.⁶⁵ In children, food insecurity is associated with increased risks of asthma, lower nutrient intakes, cognitive problems, aggression, and anxiety. Food insecure children may also have higher risks of hospitalization, poor overall health, asthma, depression, and worsened oral health.⁶⁶ Food deserts also play a role in food insecurity and chronic disease. A food desert is an area that has limited or nonexistent access to affordable and healthy grocery stores.⁶⁷ Living in a food desert has been linked to a poor diet and a greater risk for obesity, while people who live near a grocery store are more likely to consume fruits and vegetables and are less likely to be obese.⁶⁸ Typically in food deserts, there is a large amount of fast food and corner stores with inexpensive, high calorie food that lacks nutritional value. Long term consumption of unhealthy food can increase likelihood of obesity, type 2 diabetes, heart disease, and other diet-related conditions.⁶⁹

The Robert Wood Johnson Foundation also ranks counties based on their food environment index; the food environment index is measured by the “percentage of the population that is low income and does not live close to a grocery store.”⁷⁰ Lehigh county scored 8.4 out of 10 and Northampton county scored 8.7 out of 10, with 10 as the best.⁷¹

In 2015, Buy Fresh Buy Local, a Greater Lehigh Valley organization with aims to increase food access and consumption of locally grown food, released a report on the status of the Lehigh Valley's local food economy. In this report, Buy Fresh Buy Local stated that one third of the average Lehigh Valley family grocery bill is spent on sweeteners, jams, candy, frozen prepared meals, snack foods, and condiments.⁷² Instead, the organization suggests families should purchase locally grown, healthy foods that will promote a healthy lifestyle. The report noted that locally grown food created about \$17 million of economic activity in the Lehigh Valley each year and for every dollar receive by food related farms in Lehigh and Northampton counties, an average of 45 cents of economic activity is added to the Lehigh Valley.⁷³ Additionally, the percentage of SNAP benefits spent at local farmer's markets was extremely low. Increasing accessibility and educating communities about SNAP use at farmer's markets will help farmers and food insecure families to purchase healthy fruits and vegetables. Shopping locally for fresh fruits and vegetables not only helps the economy in the Lehigh Valley, but also helps reduce the risk of chronic disease.

⁶⁵ <https://www.healthaffairs.org/doi/10.1377/hlthaff.2015.0645>

⁶⁶ <https://www.healthaffairs.org/doi/10.1377/hlthaff.2015.0645>

⁶⁷ <https://foodispower.org/access-health/food-deserts/>

⁶⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5708005/>

⁶⁹ <https://foodispower.org/access-health/food-deserts/>

⁷⁰ <https://www.countyhealthrankings.org/app/pennsylvania/2020/measure/factors/133/description>

⁷¹ <https://www.countyhealthrankings.org/app/pennsylvania/2021/rankings/lehigh/county/outcomes/overall/snapshot>

⁷² <http://www.buylocalglv.org/wp-content/uploads/2016/01/Assessment-Report-LV-Food-Economy-FINAL-1.pdf>

⁷³ <http://www.buylocalglv.org/wp-content/uploads/2016/01/Assessment-Report-LV-Food-Economy-FINAL-1.pdf>

..... Housing and Blight

Stable and safe housing is an important factor that sets the foundation to achieve quality education, valuable social interactions, and access to nutritious foods. According to Healthy People 2030, safe housing is considered a social determinant of health, which are “conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.”⁷⁴ Housing affects other sectors including education, health, racial equity, economic stability, homelessness, hunger, crime, the environment, and disability rights.⁷⁵ Over time, homeownership can help build wealth and savings, which are important in relation to health; but not everyone has had equal opportunity to homeownership. Years of discriminatory practices and inability to benefit from homeownership programs has led to a disproportionate homeownership rate between races.⁷⁶ Healthy People 2030 has made housing a focus, including efforts to reduce the proportion of families that spend 30% or more of income on housing, increase the proportion of homeless adults who get mental health services, and to increase the proportion of homes that have an entrance without steps to make it accessible for people with disabilities.⁷⁷



“The number one need that we see is housing. That was pre COVID and now through COVID it has gotten worse. We are seeing in the South Side, an apartment that used to be \$300 for a room, it is now \$600 for a single room. We were working with a family from Donegan who work at the casino getting paid 12 dollars an hour. So they were living in a hotel because they could not find an apartment. A family with three children living in a hotel is not sustainable. The housing crisis has gotten worse with the pandemic.”

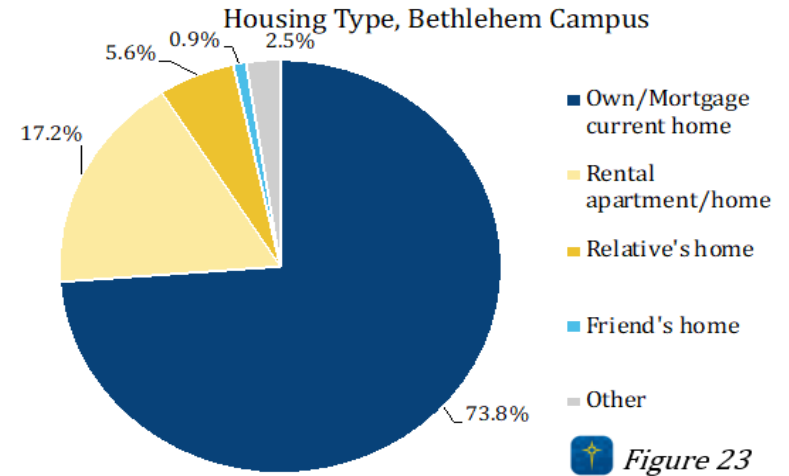
In a 2020 housing report, the Lehigh Valley Planning Commission (LVPC) assessed the state of housing situations across the Lehigh Valley, which includes Allentown, Bethlehem, and Easton (Lehigh and Northampton counties). Using ACS data (2018), LVPC found that 38% of residents in the Lehigh Valley are cost-burdened.⁷⁸ Refer to Figure 26 for more information on cost-burdened households. In further analysis with the Federal Reserve of Philadelphia, LVPC identified 78,000 Lehigh Valley residents who work in jobs that require close physical


⁷⁴ <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>
⁷⁵ <https://www.opportunityhome.org/related-sectors/>
⁷⁶ <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>
⁷⁷ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/housing-and-homes>
⁷⁸ <https://lvpc.org/data-lv-housing.html>

contact, which puts them at greater risk for COVID- 19.⁷⁹ Lehigh Valley residents who are considered cost-burdened owners, cost-burdened renters, or at-risk workers have the highest risk for experiencing displacement and or housing loss because of the COVID-19 pandemic.⁸⁰

The COVID-19 pandemic has resulted in thousands of people losing jobs, leaving them vulnerable to evictions or foreclosures. The CDC issued a moratorium on September 4, 2020 temporarily halting evictions. The moratorium was set to end December 31, 2020, however it was pushed back until January 31, 2021 and was extended further to March 31, 2021 as the virus persisted.⁸¹ The moratorium was meant to keep people in their current housing situations regardless of ability to pay rent, however it did not exclude tenants from paying rent. While this was a temporary solution, people facing eviction are likely to experience high rates of depression, anxiety and psychological distress.⁸²

To get an understanding of how the Bethlehem campus and Star Community Health service area population lives, we asked respondents to indicate their housing type. Due to small sample size, “Other” consists of individuals living in a shelter (.05%), group home (0.23%), senior living (0.84%), homeless (0.23%), or Other (1.12%). The majority of respondents own or have a mortgage on their home (73.8%), rent their home (17.2%), live at a relative’s home (5.6%), Other (2.5%), and live at a friend’s home (0.9%).



 *Figure 23*

One indicator used to assess housing status is the percentage of households that are cost-burdened. According to the department of Housing and Urban Development (HUD), a household is considered cost-burdened if 30% or more of the income goes toward their mortgage or rent.⁸³ A household is considered to be severely cost-burdened if 50% or more of their income goes toward paying mortgage or rent. These situations can be detrimental to an individual’s overall well-being because there is less disposable income to pay for food, healthcare costs, transportation and other out of pocket expenses. A 2019 report by the County Health Rankings and Robert Wood Johnson (RWJ) Foundation found that 1 in 10 households across the United States spend more than half of their income on housing costs (severe cost-burdened).⁸⁴ The report also found that severe cost-burdened households are more likely to be affected by food insecurity, child poverty, and fair or poor

⁷⁹ <https://lvpc.org/data-lv-housing.html>

⁸⁰ <https://lvpc.org/data-lv-housing.html>

⁸¹ <https://www.cdc.gov/coronavirus/2019-ncov/more/pdf/CDC-Eviction-Moratorium-01292021.pdf>

⁸² <https://doi.org/10.1016/j.socscimed.2017.01.010>

⁸³ https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html

⁸⁴ <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>

health. Additionally, segregated counties across the United States have higher cost-burdened rates for both Black and White households. However, nearly 1 in 4 Black households spend more than half of their income on housing.⁸⁵ Cost-burdened housing is a significant problem in the St. Luke's service area as wages and housing costs are not always aligned.

Further assessing wage disparities, the National Low Income Housing Coalition (NLIHC) released a report on fiscal year 2020's housing costs and wages. Out of all states, Pennsylvania ranks 26 with the highest housing costs.⁸⁶ In Pennsylvania, the fair market rent for a two-bedroom apartment is \$1,000, meaning that for a household to not be cost-burdened, they must earn \$3,333 a month or \$39,992 annually.⁸⁷ This translates into an hourly wage of \$19.23, however Pennsylvania's state minimum wage is only \$7.25 an hour. Someone living on the state minimum wage would need to work 106 hours a week to afford rent each month. The Lehigh Valley (Allentown, Bethlehem, Easton) is the fourth most expensive area in Pennsylvania, requiring \$19.73 an hour to afford an apartment and not be cost-burdened. In Lehigh county, the fair market value for a two-bedroom apartment is \$1,026, requiring \$19.73 an hour or \$41,040 annually to afford an apartment and not be cost-burdened. Based on the 2020 estimated hourly mean wage for renter in Lehigh county, \$16 an hour, an individual would need to work 1.2 full time jobs to afford an apartment.⁸⁸ In Northampton county, the fair market rent for a two-bedroom apartment is \$1,026, requiring \$19.73 an hour or \$41,040 annually to afford an apartment and not be cost-burdened. Based on the 2020 estimated hourly mean wage for renters in Northampton county, \$13.51 an hour, an individual would need to work 1.5 full time jobs to afford an apartment.

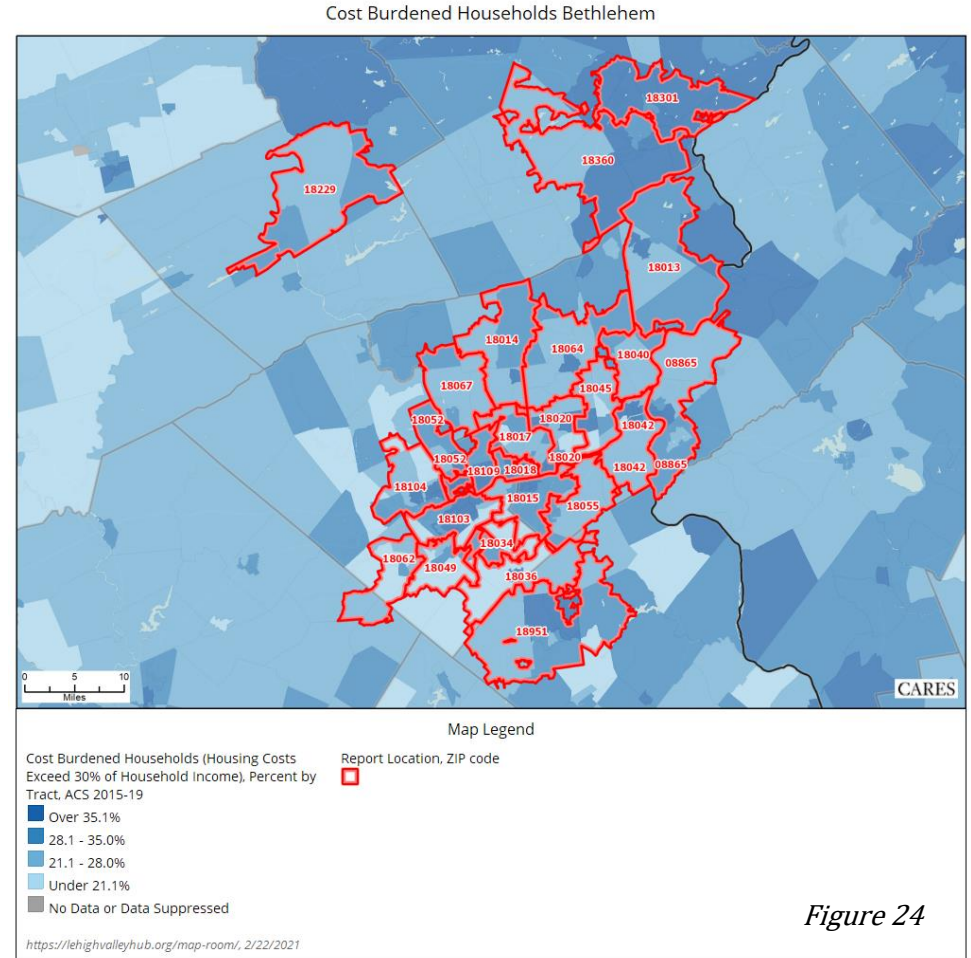


Figure 24

⁸⁵ <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>

⁸⁶ <https://reports.nlihc.org/oor>

⁸⁷ <https://reports.nlihc.org/sites/default/files/oor/files/reports/state/PA-2020-OOR.pdf>

⁸⁸ <https://reports.nlihc.org/sites/default/files/oor/files/reports/state/PA-2020-OOR.pdf>

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The 10 lowest income census tracts from Lehigh county have an average of 50.5% of households meeting criteria for cost-burdened households (Figure 25). This percentage is drastically higher than both the Pennsylvania, 28.9%, and the National averages, 31.8%. Census tracts 9 and 18 have almost 60% of households paying 30% or more of their income towards mortgage or rent. Figure 24 depicts the cost-burdened households in the service area.

Bethlehem (Lehigh)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Cost Burdened
Census Tract 19, Lehigh County, PA (18052, 18102, & 18104)	\$ 25,201	41.6%
Census Tract 97, Lehigh County, PA (18101, 18102, & 18105)	\$ 26,327	45.5%
Census Tract 16, Lehigh County, PA (18102)	\$ 26,807	54.5%
Census Tract 10, Lehigh County, PA (18101 & 18102)	\$ 27,059	51.3%
Census Tract 12, Lehigh County, PA (18101 & 18102)	\$ 29,583	46.3%
Census Tract 18, Lehigh County, PA (18101 & 18102)	\$ 29,846	59.9%
Census Tract 9, Lehigh County, PA (18102)	\$ 32,096	59.7%
Census Tract 7, Lehigh County, PA (18052 & 18102)	\$ 32,760	50.2%
Census Tract 96, Lehigh County, PA (18109)	\$ 34,217	46.4%
Census Tract 5, Lehigh County, PA (18101 & 18102)	\$ 34,528	49.7%
Average of 10 Census Tracts	\$ 29,842	50.5%
Pennsylvania	\$ 61,744	28.9%
National	\$ 62,843	31.8%

Figure 25: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

The average cost-burdened percent in the lowest income census tracts from Northampton county is 43.6%. This is much higher than the Pennsylvania and national averages, 28.9% and 31.8%, respectively. Even more significant, half of the residents in census tract 112 are considered cost-burdened (Figure 26).

Bethlehem (Northampton)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Cost Burdened
Census Tract 105, Northampton County, PA (18017)	\$ 25,000	44.8%
Census Tract 111, Northampton County, PA (18015)	\$ 28,056	40.0%
Census Tract 108, Northampton County, PA (18018)	\$ 33,714	35.0%
Census Tract 112, Northampton County, PA (18015)	\$ 33,903	50.5%
Census Tract 144, Northampton County, PA (18042, 18044, & 18045)	\$ 35,000	40.9%
Census Tract 110, Northampton County, PA (18015)	\$ 35,223	43.4%
Census Tract 109, Northampton County, PA (18015)	\$ 37,917	47.2%
Census Tract 143, Northampton County, PA (18042 & 18045)	\$ 41,913	44.3%
Census Tract 152.01, Northampton County, PA (18013 & 18072)	\$ 43,455	40.9%
Census Tract 142, Northampton County, PA (18042)	\$ 45,625	49.4%
Average 10 Census Tracts	\$ 35,981	43.6%
Pennsylvania	\$ 61,744	28.9%
National	\$ 62,843	31.8%

Figure 26: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

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Two other important metrics to look at are the percentage of households that lack complete kitchens and the percentage of households that lack complete plumbing. It is important to assess the conditions inside of houses because they give an indication of living standards and assess the quality of household facilities.

According to the 2019 ACS subject definitions guide, a complete kitchen must include a sink with a faucet, a stove or range, and a refrigerator.⁸⁹ If a household lacks any one or more of these facilities, the household is considered to lack a complete kitchen. A complete plumbing facility must include hot and cold running water, and a bathtub or shower.⁹⁰ If a household lacks one or both facilities, the house is considered to lack complete plumbing. Without a complete kitchen, families are unable to cook nutritious meals and may rely more heavily on fast food or other ready-made food. For households lacking complete plumbing facilities, families may not be able to bathe regularly leading to worsened hygiene. The 10 lowest income census tracts have an average of 2.9% of households lack a complete kitchen. This is slightly higher than the national average and lower than the Pennsylvania state average. Additionally, tracts 97 and 9 have the highest percent of households lacking a complete kitchen, 7.8% and 7.0%, respectively (Figure 27).

Figure 28: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

Bethlehem (Lehigh)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Lacking complete kitchen
Census Tract 19, Lehigh County, PA (18052, 18102, & 18104)	\$ 25,201	0.5%
Census Tract 97, Lehigh County, PA (18101, 18102, & 18105)	\$ 26,327	7.8%
Census Tract 16, Lehigh County, PA (18102)	\$ 26,807	1.4%
Census Tract 10, Lehigh County, PA (18101 & 18102)	\$ 27,059	2.1%
Census Tract 12, Lehigh County, PA (18101 & 18102)	\$ 29,583	2.7%
Census Tract 18, Lehigh County, PA (18101 & 18102)	\$ 29,846	1.4%
Census Tract 9, Lehigh County, PA (18102)	\$ 32,096	7.0%
Census Tract 7, Lehigh County, PA (18052 & 18102)	\$ 32,760	2.4%
Census Tract 96, Lehigh County, PA (18109)	\$ 34,217	0.3%
Census Tract 5, Lehigh County, PA (18101 & 18102)	\$ 34,528	3.4%
Average of 10 Census Tracts	\$ 29,842	2.9%
Pennsylvania	\$ 61,744	3.4%
National	\$ 62,843	2.8%

Figure 27: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

Bethlehem (Northampton)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Lacking complete kitchen
Census Tract 105, Northampton County, PA (18017)	\$ 25,000	2.6%
Census Tract 111, Northampton County, PA (18015)	\$ 28,056	0.0%
Census Tract 108, Northampton County, PA (18018)	\$ 33,714	5.8%
Census Tract 112, Northampton County, PA (18015)	\$ 33,903	7.0%
Census Tract 144, Northampton County, PA (18042, 18044, & 18045)	\$ 35,000	9.7%
Census Tract 110, Northampton County, PA (18015)	\$ 35,223	8.5%
Census Tract 109, Northampton County, PA (18015)	\$ 37,917	5.9%
Census Tract 143, Northampton County, PA (18042 & 18045)	\$ 41,913	9.5%
Census Tract 152.01, Northampton County, PA (18013 & 18072)	\$ 43,455	3.7%
Census Tract 142, Northampton County, PA (18042)	\$ 45,625	13.1%
Average 10 Census Tracts	\$ 35,981	6.6%
Pennsylvania	\$ 61,744	3.4%
National	\$ 62,843	2.8%

⁸⁹ https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2019_ACSSubjectDefinitions.pdf

⁹⁰ https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2019_ACSSubjectDefinitions.pdf

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The average percent of the 10 lowest income households in Northampton county lacking a complete kitchen is 6.6%, over double the national average and well above the Pennsylvania state average. 8 out of these 10 census tracts have 5% or more households that lack a complete kitchen, with census tract 142 reporting 13.1% of its households lacking a complete kitchen (Figure 28).

The average percent of households lacking complete plumbing in Lehigh county shows a low percentage (0.9%) compared to the averages of Pennsylvania (2.6%), and the nation (2.1%). Census tracts 5 and 9 appear to have the highest percent of households lacking complete plumbing, 2.0% and 4.4%, respectively.

Figure 29: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

Bethlehem (Lehigh)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Lacking complete plumbing
Census Tract 19, Lehigh County, PA (18052, 18102, & 18104)	\$ 25,201	0.0%
Census Tract 97, Lehigh County, PA (18101, 18102, & 18105)	\$ 26,327	1.9%
Census Tract 16, Lehigh County, PA (18102)	\$ 26,807	0.0%
Census Tract 10, Lehigh County, PA (18101 & 18102)	\$ 27,059	0.0%
Census Tract 12, Lehigh County, PA (18101 & 18102)	\$ 29,583	0.0%
Census Tract 18, Lehigh County, PA (18101 & 18102)	\$ 29,846	0.4%
Census Tract 9, Lehigh County, PA (18102)	\$ 32,096	4.4%
Census Tract 7, Lehigh County, PA (18052 & 18102)	\$ 32,760	0.5%
Census Tract 96, Lehigh County, PA (18109)	\$ 34,217	0.0%
Census Tract 5, Lehigh County, PA (18101 & 18102)	\$ 34,528	2.0%
Average of 10 Census Tracts	\$ 29,842	0.9%
Pennsylvania	\$ 61,744	2.6%
National	\$ 62,843	2.1%

The average percent of the 10 lowest income households in Northampton county lacking complete plumbing is 3.3%, slightly above both the Pennsylvania and national percentages. While some of the census tracts have a low percent of households lacking complete plumbing, tracts 144,143 and 142 all have significantly higher amounts of households lacking complete plumbing, 7.6%, 9.5% and 7.9%, respectively.

Figure 30: Data is reported from the 5-year ACS (2015-2019) estimates by the U.S. Census Bureau

Bethlehem (Northampton)		
Geographic Area Name (Zip Code)	Median Household Income (lowest first)	% Lacking complete plumbing
Census Tract 105, Northampton County, PA (18017)	\$ 25,000	0.0%
Census Tract 111, Northampton County, PA (18015)	\$ 28,056	0.0%
Census Tract 108, Northampton County, PA (18018)	\$ 33,714	1.3%
Census Tract 112, Northampton County, PA (18015)	\$ 33,903	1.0%
Census Tract 144, Northampton County, PA (18042, 18044, & 18045)	\$ 35,000	7.6%
Census Tract 110, Northampton County, PA (18015)	\$ 35,223	2.9%
Census Tract 109, Northampton County, PA (18015)	\$ 37,917	2.9%
Census Tract 143, Northampton County, PA (18042 & 18045)	\$ 41,913	9.5%
Census Tract 152.01, Northampton County, PA (18013 & 18072)	\$ 43,455	0.0%
Census Tract 142, Northampton County, PA (18042)	\$ 45,625	7.9%
Average 10 Census Tracts	\$ 35,981	3.3%
Pennsylvania	\$ 61,744	2.6%
National	\$ 62,843	2.1%



“Affordable housing in Bethlehem is becoming more and more challenging for residents. The costs of rents or mortgages are so high that other needs get pushed aside.”

Homelessness is another important indicator when assessing housing. Each year, HUD collects homeless data across the country, also known as the Continuums of Care data. As of January 2020, an estimated 13,375 people in Pennsylvania experienced homelessness on any given day.⁹¹ Of the 13,375 people who reported experiencing homelessness, 1,550 were family households, 977 were Veterans, 716 were unaccompanied young adults (ages 18-24), and 1,772 were individuals experiencing chronic homelessness.⁹²

Each school year, the Pennsylvania Education for Children and Youth Experiencing Homelessness Program records the number of homeless students served by the program. The population includes children under the age of 5 and youth enrolled in pre-K through 12th grade.⁹³ The unique count is based on where the child was identified as homeless and attributed to the local education agency.⁹⁴ Of the eight counties that St. Luke's reaches in Pennsylvania, 7,656 students were identified as homeless in the 2018-2019 school year. This number does not encompass the entire child homeless population as it does not include children who were not served by this program (i.e., students not in the Pennsylvania public school system). During the 2018-2019 school year, Lehigh county reported 1,278 homeless students, which is slightly less than the previous school year (1,396).⁹⁵ Northampton county reported 890 homeless students, slightly more than the previous school year which (814 students).

The Robert Wood Johnson Foundation also produces County Health Rankings measuring many social determinants of health. One measure pertinent to housing is the percent of people living with severe housing problems. A household is considered to have a severe housing problem if one or more of these conditions is met: lacking a complete kitchen, lacking complete plumbing facilities, house is overcrowded, or the house is severely cost-burdened.⁹⁶ Lehigh county ranks 61 out of 67 counties in Pennsylvania and Northampton county ranks 54 for severe housing problems, with 1 as the least amount of problems. 16% of residents in Lehigh county and 14% in Northampton county have one or more of the housing problems listed above, compared to 15% of households in Pennsylvania.⁹⁷

Bethlehem Blight Betterment (B3) Initiative Plan occurred in 2018 with the City of Bethlehem and other planning organizations. The purpose of the plan was to identify blighted areas to improve the city. The Market Value Analysis, a tool to understand local real estate

⁹¹ <https://www.usich.gov/homelessness-statistics/pa/>

⁹² https://files.hudexchange.info/reports/published/CoC_PopSub_State_PA_2019.pdf

⁹³ <https://www.education.pa.gov/>

⁹⁴ <https://www.education.pa.gov>

⁹⁵ <https://www.education.pa.gov/Documents/K-12/Homeless%20Education/Reports/2017-18%20Unique%20and%20Duplicate%20Counts%20by%20County.pdf>

⁹⁶ <https://www.countyhealthrankings.org/app/pennsylvania/2020/measure/factors/136/description>

⁹⁷ <https://www.countyhealthrankings.org/>

markets, was used to precisely target intervention strategies in weak markets and support sustainable growth in stronger markets. This tool used data like housing characteristics, housing value, and distress. The analysis found that West Bethlehem is a middle market with some strong pockets, North Bethlehem is the strongest market in the city, Central Bethlehem is the most diverse in terms of market types, and South Bethlehem is the most distressed area in the city.⁹⁸ Using Census data at that time, the analysis also found that the highest percentages of Bethlehem's Hispanic, Black, and youth populations live in neighborhoods that have the lowest market type, primarily South Bethlehem. Additionally, an overwhelming majority of families living in poverty live in the lowest market types. Some of the goals following the analysis are to stabilize deteriorating neighborhoods, improve housing conditions, provide consistent and transparent code enforcement and initiatives for repairing and or stabilizing properties, and effectively use limited resources. Some of the action steps moving forward are to adopt data driven strategic code enforcement, establish registration for vacant properties, establish tax sale eligibility standards, and develop neighborhood improvement plans in select areas.⁹⁹

..... Air and Water Quality

Air quality is a growing concern, especially in urbanized and industrialized areas. Poor air quality can irritate the eyes, nose, and throat, and also cause long term health effects.¹⁰⁰ Air quality is typically assessed by two components, ozone (O₃) and Particulate Matter (PM). Ozone is a gas molecule that is harmful to breathe and aggressively attacks lung tissue. Ozone is dangerous because it can be carried by wind far downstream, causing harm to people in multiple areas. Ozone can also cause premature death, immediate breathing problems, long term exposure risks, and potential cardiovascular harm.¹⁰¹ PM is a particle that occupies the air we breathe but is small enough that we cannot see it unless there are large amounts of PM in one area. Large amounts of PM would result in reduced visibility, or haziness in the air. PM 2.5 is the smallest particle and most dangerous size because it can easily pass through lung tissue and into the blood stream.¹⁰² Objectives for environmental health determined by Healthy People 2030 are to increase the proportion of people with safe water to drink, reduce the amount of toxic pollutants in the environment, and to reduce the number of days people are exposed to unhealthy air.¹⁰³ According to the American Lung Association, Lehigh county earned a 'D' for high ozone days for 2016-2018. The weighted average of O₃ was 2.7 and the county had a total of 8 orange days. Orange days are characterized as unhealthy days for sensitive groups. Lehigh county earned a 'B' for PM with a 0.0 weight average and 1 orange day. Northampton county earned an 'F' for high ozone days for 2016-2018. The weighted average of

⁹⁸ https://www.bethlehem-pa.gov/CityOfBethlehem/media/COBfiles/oldbeth/econdev/pdf/2018/Appendix_A_MVA_Results.pdf

⁹⁹ https://www.bethlehem-pa.gov/CityOfBethlehem/media/COBfiles/oldbeth/econdev/pdf/2018/Bethlehem_Action_Plan_Final.pdf

¹⁰⁰ <https://www.sparetheair.org/understanding-air-quality/air-pollutants-and-health-effects/whos-at-risk>

¹⁰¹ <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone>

¹⁰² <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/particle-pollution>

¹⁰³ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/environmental-health>

O₃ was 4.3 and the county had a total of 13 orange days. Northampton county earned a 'B' for PM days, with 0.7 weight average and 2 unhealthy days for sensitive groups.

Bethlehem (Lehigh)				
	Weight average	Orange days	Red days	Purple days
High Ozone	2.7	8	0	0
High PM	0	1	0	0

Figure 31: Orange- unhealthy for sensitive groups, Red- unhealthy, Purple- very unhealthy, DNC- Did Not Collect

Bethlehem (Northampton)				
	Weight average	Orange days	Red days	Purple days
High Ozone	4.3	13	0	0
High PM	0.7	2	0	0

Figure 32: Orange- unhealthy for sensitive groups, Red- unhealthy, Purple- very unhealthy, DNC- Did Not Collect

Additionally, the CHNA survey asked respondents to indicate if they have ever been diagnosed with asthma. When distributed by income, 18.4% of respondents in the Bethlehem campus and Star Community Health service area who make less than \$14,999 have asthma. For those who make \$60,000 and above, 8.2% have asthma. Respondents with lower incomes may have higher asthma rates due to location of housing, quality of air in their neighborhood, and lack of access to air purifiers; however, all income brackets have high levels of asthma, indicating a need for cleaner air in Bethlehem.

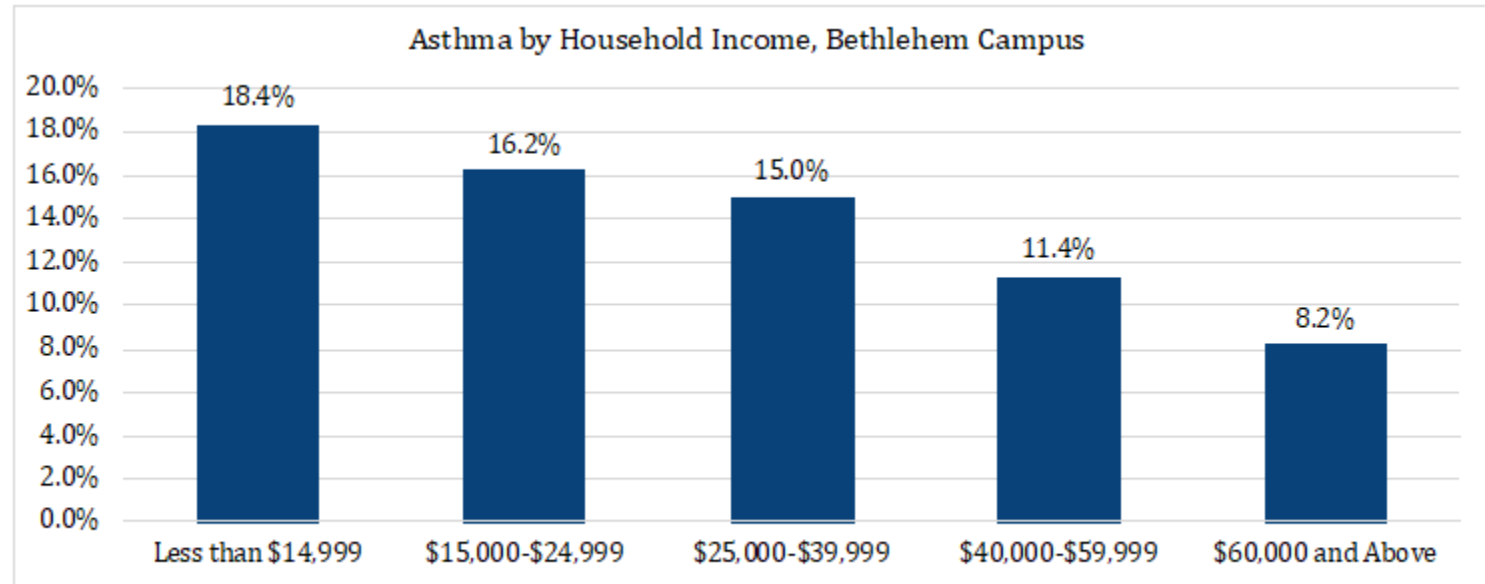


Figure 33

Water quality is another important aspect of the environment. Water is delivered in two ways, through wells and through municipalities. Each municipality is required to report water quality reports each year, but well quality is difficult to track because it is not regulated by the

state. From Pennsylvania's Department of Environment Protection (DEP) water report in 2019, 11% of Pennsylvania households use well water and 89% of households use community water systems.¹⁰⁴ The report tracks violations within the Maximum Contaminant Level (MCL) which is the highest level of contaminant allowed in drinking water. The water is permitted to have some contaminants in them if it does not exceed the MCL. This is important to note because even though a water system does not have violations, it does not necessarily mean the water is completely safe. The water report also tracks the Maximum Residual Disinfectant Level (MRDL) which limits the amount of disinfectants allowed in safe drinking water.¹⁰⁵ Some of the typical contaminants tested are chlorine, fluoride, radium, turbidity, organic carbon, lead and copper.¹⁰⁶ Water contaminants can result in a variety of negative health impacts, like gastrointestinal illness, worsened nervous or reproductive system, and a variety of diseases (e.g., cancer).¹⁰⁷ The effects can also be short term or long term, while also going unseen, potentially worsening the effects over time.

Lehigh county uses the Lehigh County Authority to report on water quality in the county but the city of Bethlehem also conducts their own water quality report.¹⁰⁸ Both entities reported no violations in contaminant level for 2019. However, the city of Bethlehem found that in July and December 2019, one location out of the 102 routine sample sites had coliform bacteria detected. Coliform bacteria in water means there is a presence of fecal contamination which can cause some dysenteric symptoms. There were no reports of illnesses related to this instance. The Lehigh County Authority tests for other contaminants in addition to those specified by the EPA, specifically: microbiological contaminants, radioactive contaminants, inorganic contaminants, disinfection by-products, volatile organic contaminants and synthetic organic contaminants. None of these were found in the Lehigh county water.¹⁰⁹

Northampton county reports their water quality report through the Northampton Borough Municipal Authority (NBMA) and the Easton Suburban Water Authority. The water source for the Easton Suburban Water Authority is the Delaware River and the NBMA's source is Lehigh River and the Spring Mill Dam.¹¹⁰ Neither of the reports recorded any violations in the 2019 water quality report. The NBMA also tested for other contaminants not on the EPA's list which include twenty-one volatile organic contaminants; fifteen synthetic organic contaminants; nine inorganic contaminants; and three microbiological contaminants.¹¹¹ None of these contaminants were detected in the Northampton water. The Easton Suburban Water Authority also tested for other contaminants such as aluminum, foaming agents (MBAS), sulfate and zinc; all were within the recommended range. It is also important to understand the risk of lead in drinking water. While most

¹⁰⁴ http://files.dep.state.pa.us/Water/BSDW/DrinkingWaterManagement/PublicDrinkingWater/PA_DEP_2019_Annual_Compliance_Report.pdf

¹⁰⁵ <https://www.state.nj.us/dep/watersupply/pdf/violations2019.pdf>

¹⁰⁶ http://files.dep.state.pa.us/Water/BSDW/DrinkingWaterManagement/PublicDrinkingWater/PA_DEP_2019_Annual_Compliance_Report.pdf

¹⁰⁷ <https://www.epa.gov/report-environment/drinking-water>

¹⁰⁸ <https://www.bethlehem-pa.gov/CityOfBethlehem/media/WSRMedia/CCR%20Reports/consumerConfidence2019.pdf>

¹⁰⁹ <https://lehighcountyauthority.org/wp-content/uploads/AWD.pdf>

¹¹⁰ <https://www.eswater.net/info/report-2019.pdf>

¹¹¹ <https://www.nbma.org/water-quality-report>

counties in the St. Luke’s service area do not have lead that contaminates drinking water from the source, lead pipes, faucets, and other risks of lead poisoning may exist in homes. Higher prevalence for lead poisoning is found in low income homes and in Black American populations.¹¹²

..... Transportation

The type of transportation a person takes to work can be a good indicator of health. Walking, biking, or taking public transportation to work promotes regular physical activity and decreases air pollution, which in turn decrease chronic diseases and obesity rates.¹¹³ A goal of Healthy People 2030 is to increase the amount of people using public transportation to get to work.¹¹⁴ People who drive to work are less likely to reach the recommended physical activity goal for the day; driving to work can also have a significant effect on obesity, diabetes and heart disease.¹¹⁵ However, it is not always feasible for someone to walk, bike or take public transportation to work as many cities lack the proper infrastructure. One Bethlehem key informant commented on how challenging public transportation is:



“Transportation tends to still be a challenge, especially for someone who does not have a vehicle whether it is getting to a job or an appointment.”

Figure 34 depicts the modes of transportation used to get to work by people in Lehigh county, Northampton county, Pennsylvania, and the United States. For all four geographies, most people drive alone to work. Lehigh county reported 80.6% of commuters drive alone to work and Northampton county reported 82.8%, which is slightly higher than Pennsylvania (75.9%), and the United States (76.3%). However, only small portions of people commute to work via public transportation or walking. Compared to Pennsylvania and the United States, significantly less Lehigh and Northampton county commuters use public transportation.

Bethlehem (Lehigh and Northampton)				
Mode of Transportation to Work	Lehigh %	Northampton %	PA %	US %
Drive Alone (Car, Truck or Van)	80.6%	82.8%	75.9%	76.3%
Carpool	9.5%	6.9%	8.5%	9.0%
Use Public Transportation	2.1%	1.6%	5.6%	5.0%
Taxi	0.0%	0.0%	0.1%	0.2%
Motorcycle	0.0%	0.1%	0.1%	0.2%
Bike	0.2%	0.1%	0.5%	0.5%
Walk	2.3%	2.5%	3.6%	2.7%
Other	0.6%	1.4%	0.8%	0.9%
Work From Home	4.6%	4.5%	4.9%	5.2%

Figure 34

¹¹² https://www.cdc.gov/nceh/lead/prevention/populations.htm?CDC_AA_refVal=https%3A%2F%2F
¹¹³ <https://ephtracking.cdc.gov/showCommunityDesignAddLinkTypesOfTransportationToWork>
¹¹⁴ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/transportation>
¹¹⁵ <https://ephtracking.cdc.gov/showCommunityDesignAddLinkTypesOfTransportationToWork>

Though a large portion of the Lehigh and Northampton county populations commute to work by car, 8.7% of people in Lehigh county and 6.9% in Northampton county do not have access to a car. These are around the United States percentage (8.6%), and below Pennsylvania (10.9%).¹¹⁶ People who do not have access to a car must then rely on public transportation, walking or other modes of transportation. This can be an issue because poor public transportation and lack of walkability in some parts of the county may lead to individuals missing health appointments or screenings, which are crucial to healthy living.

Residents of Lehigh county do have some access to public transportation, specifically Lehigh and Northampton Transportation Authority (LANTA). LANTA offers 35 different buses that travel on routes throughout the county and Northampton county. LANTA also offers the LANTA Van service for individuals who are disabled, needing medical assistance, and or 65 years or older.¹¹⁷ However, routes and frequency of services is limited.

Many community forum attendees mentioned the limited access of the area's public transportation, even mentioning how it impacts certain populations like older adults. One attendee said:



“There are some public transportation options that are available to residents, but they are pretty limited. The limited transportation options reduce employment opportunities and access to lots of key services. We haven’t invested in this area as well as we could.”

Clinical Care

..... Access to Care

Many challenges exist in the Bethlehem community regarding access to care. There exist disparities in access to care for minority and migrant populations. A Bethlehem key informant gave an example of how poor access to care creates barriers for Spanish-speaking populations:



“Having to use a phone for interpretation in a medical appointment- diagnosis or going through a medical appointment using a phone to translate is not okay. It is not okay to be diagnosed with cancer that way.”

¹¹⁶ Data.census.gov (Table B25044)

¹¹⁷ <https://www.lantabus.com/lantavan/>

Lack of access is a complex, multi-faceted issue and a key informant suggests that working more with the community and non-profit organizations would, in part, address lack of coordination issues:



“The healthcare systems need to have a better coordination working with the non-profits. The non-profits have the trust of the community. There has to be more focus from a funding perspective for capacity building for non-profits. We need to strengthen the agencies and they would better serve the community.”

..... Primary Care Providers (PCPs)

Primary care providers (PCPs) are gatekeepers to the healthcare system. Often, they are a patient's first point of contact and referral to further care by specialists. County Health Rankings reports a ratio of the number of individuals in a population served by one physician in the county. The smaller the ratio, the more physicians there are in the area in relation to population size. Lehigh county has a ratio of 990:1, which significantly outperforms Pennsylvania overall ratio at 1,230:1 and U.S. top performers with a ratio of 1,030:1.¹¹⁸ Northampton county has a ratio of 1,210:1, on par with Pennsylvania. To assess the frequency of visits, the CHNA survey asked how long it has been since the respondent last visited their PCP.

The majority of respondents from the Bethlehem campus and Star Community Health service area have seen a PCP within the past year (81.8%), followed by within the past 2 years (10.2%), within the past 5 years (3.7%), and 5 or more years (1.8%). Additionally, 2.5% of respondents do not know the last time they saw a PCP (1%) or do not have a PCP (1.5%).

It is also important to look at an individual's last visit to a PCP by their type of insurance. Lack of insurance or high copays may hinder individuals from seeking medical attention, which could result in worsened health conditions. As seen in the CHNA survey results (Figure 36), lack of insurance impacts the frequency of doctor's visits. For respondents who do not have insurance coverage, only 40% have seen a PCP within the past year, which is drastically lower than Medicare (92%) and Medicaid (81%)- both of which are government funded assistance.

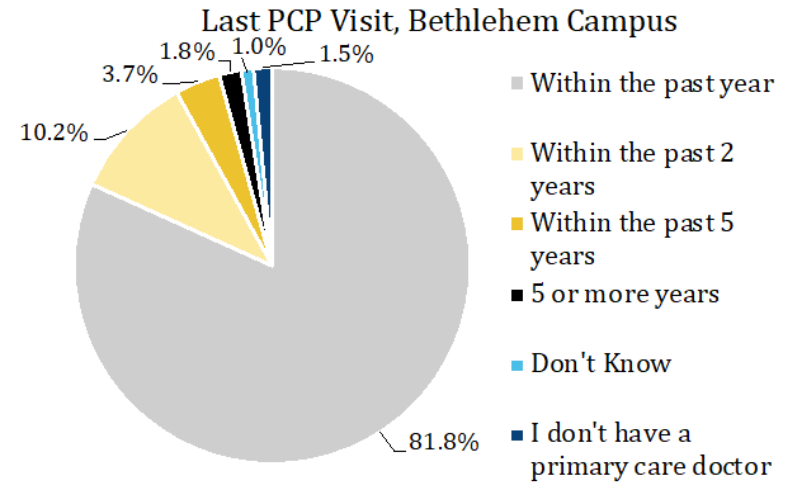


Figure 35

¹¹⁸ <https://www.countyhealthrankings.org/>

Additionally, those without insurance coverage (14%) and those who do not know their insurance type (7%) have the highest rates of not having a PCP. These findings reinforce the need for Federally Qualified Health Centers that offer services on a sliding pay scale.

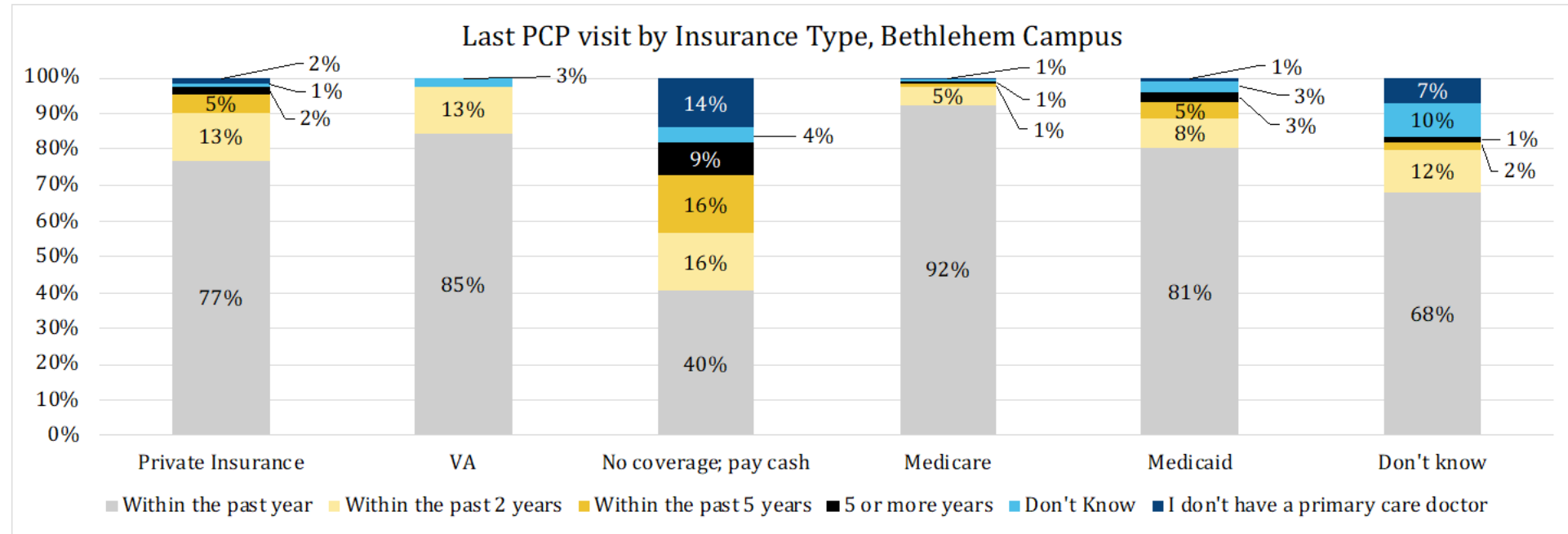


Figure 36

Finally, the CHNA survey asks respondents where they go most often when they are sick or in need of medical advice to get and understanding of their use of service providers. The majority of respondents go to a doctor's office (82.1%), followed by an urgent care center (6.9%), using the Internet (5.7%), and using an emergency room (1.8%). While a majority of respondents use a doctor's office, bringing in more PCPs who have diverse backgrounds and accept many types of insurances will allow more individuals to seek help at a doctor's office rather than on the Internet or an emergency room.

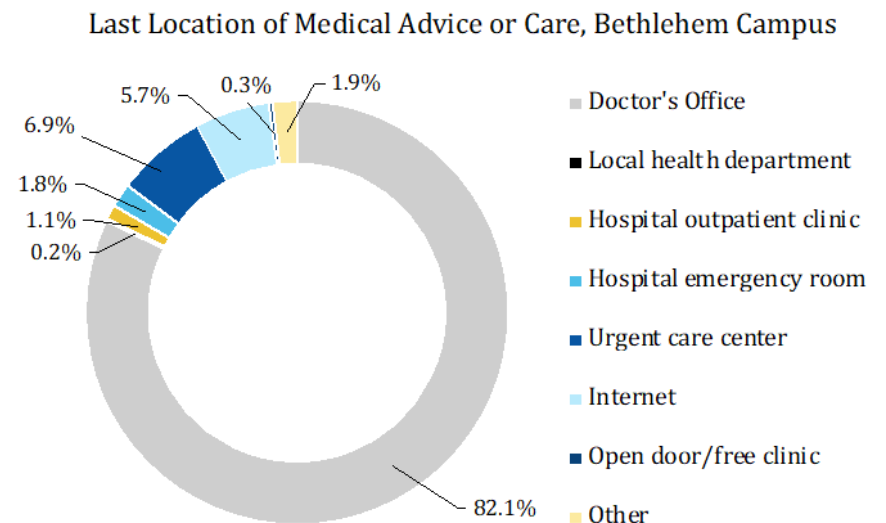
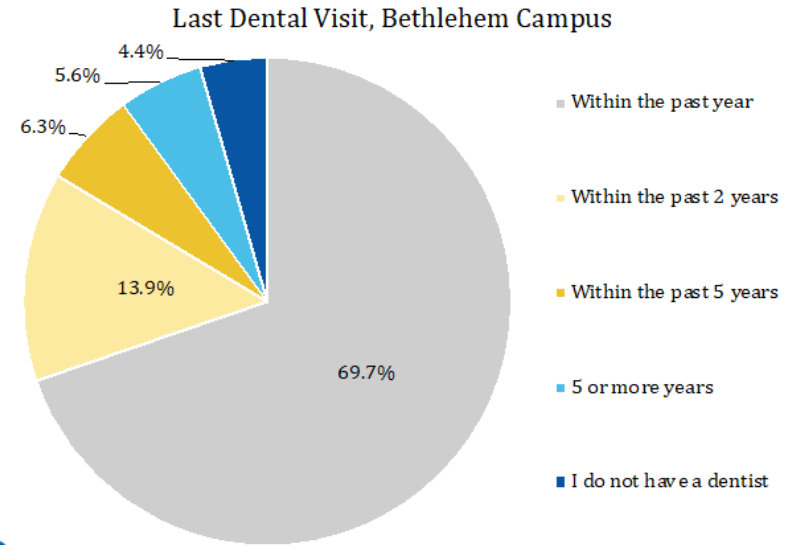



Figure 37

..... **Dentists**

The Mayo Clinic refers to dental health as “a window to your overall health.”¹¹⁹ Oral pain can be debilitating in some circumstances and oral health can affect one’s overall daily life, impacting their ability to go to work or school. Poor oral health can also lead to a host of other issues in the body. A buildup of bad bacteria in your mouth due to poor oral hygiene can cause respiratory, digestive, and cardiovascular diseases.

Lehigh county’s ratio of individuals in the population to dentist is 1,130:1, which scores better than Pennsylvania overall with a ratio of 1,410:1 and U.S. top performers with a ratio of 1,210:1. Northampton county’s ratio is 1,700:1, far worse than the state and U.S. However, in recent years, there has been a trend of an increasing number of dentists in the county per population.¹²⁰



 *Figure 38*

Within the past year, 69.7% of respondents from the Bethlehem campus and Star Community Health service area have seen a dentist, 13.9% of respondents have seen a dentist within the past 2 year, 6.3% have seen a dentist within the past 5 years, and 5.6% have seen a dentist 5 or more years ago while 4.4% of respondents do not have a dentist. Additionally, 63.1% of respondents use private insurance to cover dental services, followed by no coverage (29.4%), Medicaid (7.2%), and Veteran’s Administration (0.4%).

..... **Mental Health Providers**

Mental health has also been identified as a large challenge facing the communities in all our counties. The COVID-19 pandemic has greatly impacted access to mental healthcare. As an indicator of mental healthcare providers and access in the county, Lehigh county has an overall ratio of population to mental healthcare providers of 510:1 and Northampton county, 420:1. Pennsylvania overall is at 450:1 and U.S. top performers at 270:1.¹²¹ Two forum attendees mentioned limited mental healthcare providers as issues in Bethlehem.

¹¹⁹ <https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/dental/art-20047475>

¹²⁰ <https://www.countyhealthrankings.org/>

¹²¹ <https://www.countyhealthrankings.org/>



“Mental health capacity in the Lehigh Valley is very low and while the health networks are trying to increase capacity the gaps remain. I suspect the isolation and deferred treatment of the last year has only compounded the problem and we will face a backlog of cases.”



“Finding mental health professionals for clients is extremely difficult, and the wait times for services are so long that problems just get worse.”

..... Health Insurance

Uninsured rates represent a major barrier to access to care. Often, uninsured patients get very ill before seeking care, leading to higher medical costs. An issue that is prevalent in many areas is the lack of providers ability to take a range of insurances. Federally Qualified Health Centers (FQHC) are a crucial step in treating people without insurance and insurance that has minimal coverage. The Health Resources and Services Administration (HRSA) defines a community-based health care provider as one who offers primary care services to underserved areas.¹²² FQHCs must provide services on a sliding fee scale based on the patient's ability to pay. While FQHCs are crucial to addressing health needs, knowledge and awareness that FQHCs exist and take all or no insurance is crucial. Community Health Workers (CHW) are the next step in bridging the health gap. CHWs are defined as “a frontline public health worker who is a trusted member and/or has an unusually close understanding of the community served.”¹²³ The CHW is the liaison between health and social services and the community. They serve an important role in improving quality of services with cultural competency, increasing health knowledge in the community, and providing advocacy. CHWs help inform people of the services available, regardless of insurance type or being uninsured, helping to increase access.

Uninsured rates in Lehigh county stand at 6.5% overall and 4.6% in Northampton county compared to 5.8% of people in the Bethlehem campus and Star Community Health service area. When broken down by age, 2.9% of those uninsured in the Bethlehem campus and Star Community Health service area are under 18 years old, 8.5% are between ages 18-64, and 0.4% are 65 years and older. In Pennsylvania, 5.7% of people are uninsured and 8.8% of people in the United States.¹²⁴

Survey respondents from the Bethlehem campus and Star Community Health service area with a household income less than \$14,999 primarily use Medicaid (34.4%), do not know their primary insurance (26.3%), or have no insurance (22.3%). Conversely, those whose household income is \$60,000 or above primarily use private insurance (73.4%), Veterans Administration (45.7%), or Medicare (44.5%). Only 1.5% of respondents whose primary insurance is private insurance make less than \$14,999. These findings reinforce the need for

¹²² <https://www.hrsa.gov/opa/eligibility-and-registration/health-centers/fqhc/index.html>


¹²³ <https://www.apha.org/apha-communities/member-sections/community-health-workers>

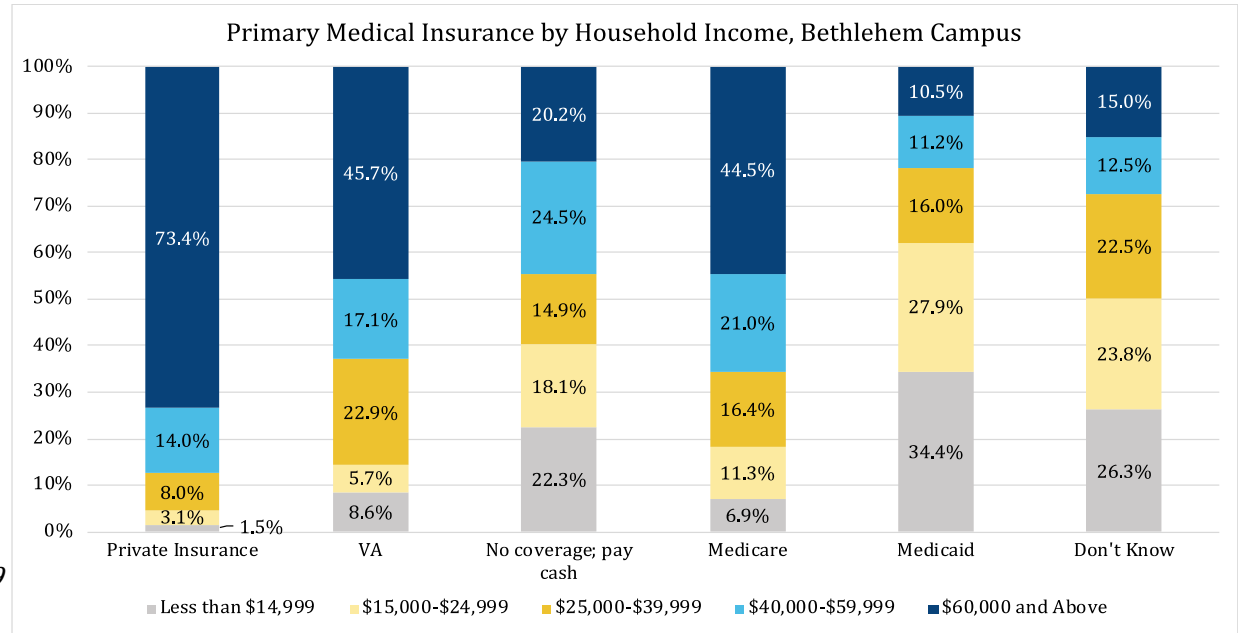
¹²⁴ <https://data.census.gov/cedsci/>


2022 St. Luke's University Health Network Bethlehem campus and Star Community Health Community Health Needs Assessment

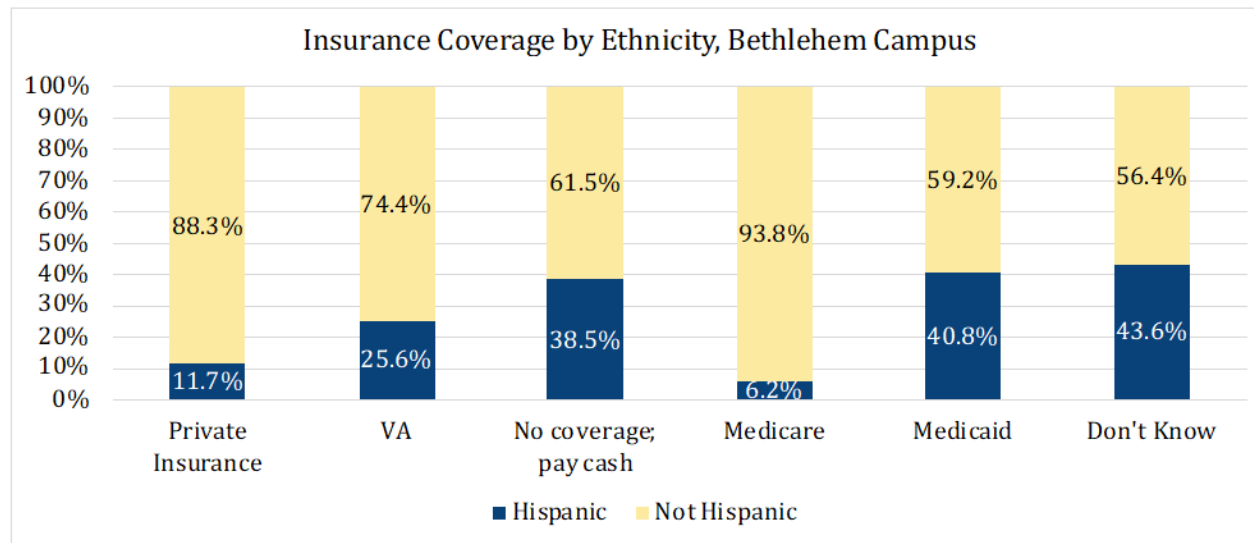
FQHCs and FQHC look-alikes like Star Community Health in St. Luke's service areas along with doctors who accept Medicaid and uninsured patients.

In addition, to assess the relationship between income and insurance, it is also important to look at ethnicity and insurance. Of respondents in the Bethlehem campus and Star Community Health service area with private insurance, 11.7% are Hispanic; Veteran's Administration, 25.6%; with no coverage, 38.5%; Medicare, 6.2%; Medicaid, 40.8%; and of those who do not know, 43.6%.

 *Figure 39*



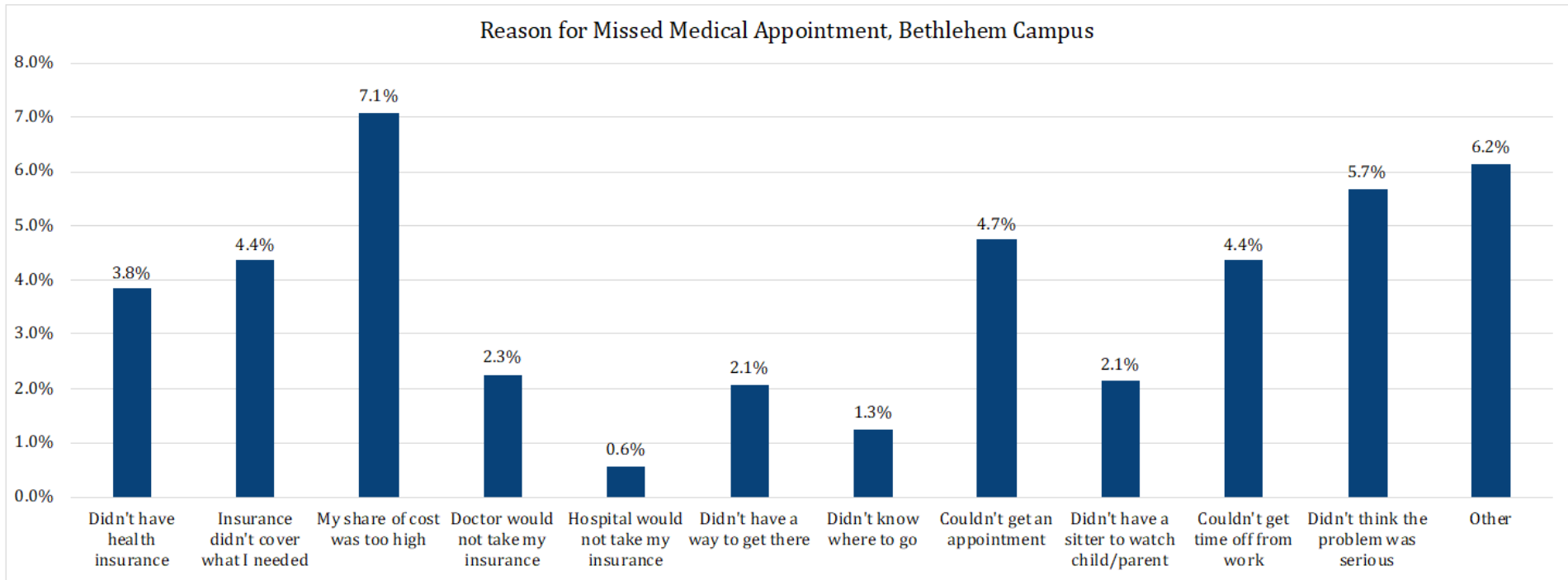
 *Figure 40*




..... Hospital Data

St. Luke’s is one of two major health networks in the Lehigh Valley with a variety of health services ranging from behavioral health to cardiology to gastroenterology and more. St. Luke’s addresses the inequities through partnerships in the communities with nonprofits, schools, and businesses. Through these partnerships we implement enhanced care, health initiatives, support, as well as outreach for health education, healthy lifestyles, and preventative care.

When asked to indicate reasons for any recently missed medical appointments, the top three reasons reported in the Bethlehem campus and Star Community Health service area were: share of cost was too high (7.1%), other (6.2%), and didn’t think the problem was serious enough (5.7%). Only 0.6% of respondents indicated their reason for missing an appointment was due to the hospital not taking their insurance. These findings further reinforce the need for more adequate health insurance and facilities that offer assistance or sliding scales to lessen the financial burden of healthcare. In order to better support our service area population, St. Luke’s provides charity care to help alleviate some of the financial burden. During the 2020 fiscal year, St. Luke’s provided \$287.3 million dollars in charity care throughout the network.



 *Figure 41*

..... Top Reasons for Hospitalization

Hospital data helps us to better understand the major health issues in our community. This allows us, from both a treatment and prevention perspective, to focus efforts on priority areas most affecting the health of our patient population. The top 10 reasons for hospitalization at Bethlehem campus and Star Community Health are listed in the table below. Single live born infant delivered vaginally is the most common diagnosis during an inpatient encounter; this accounts for 3.7% of Bethlehem total patient encounters.

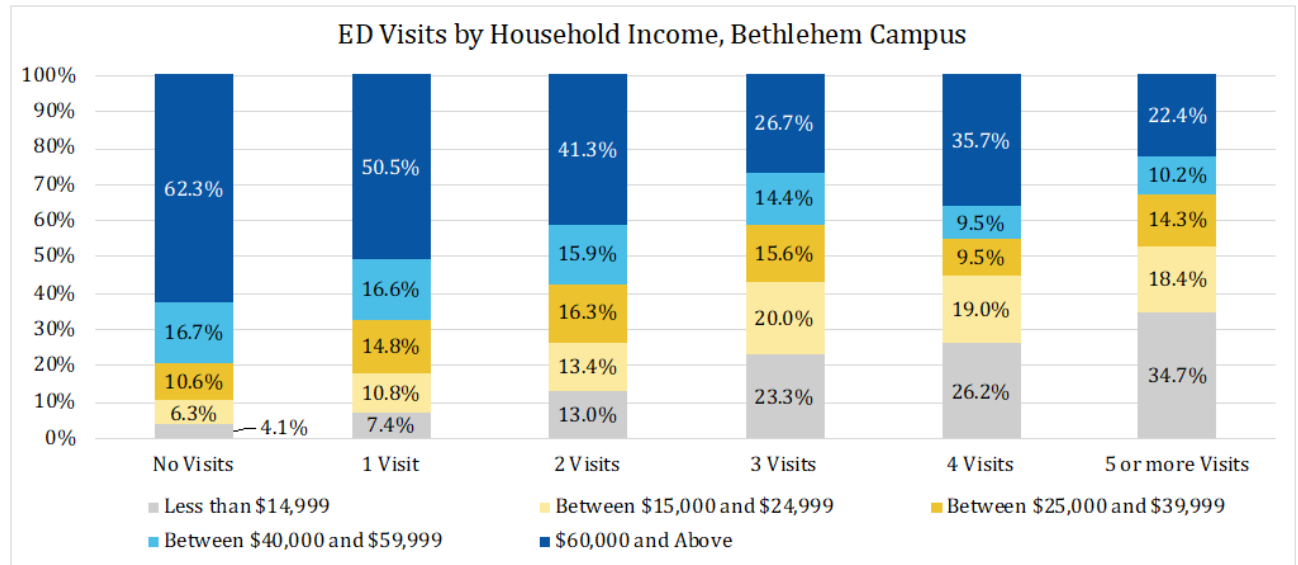
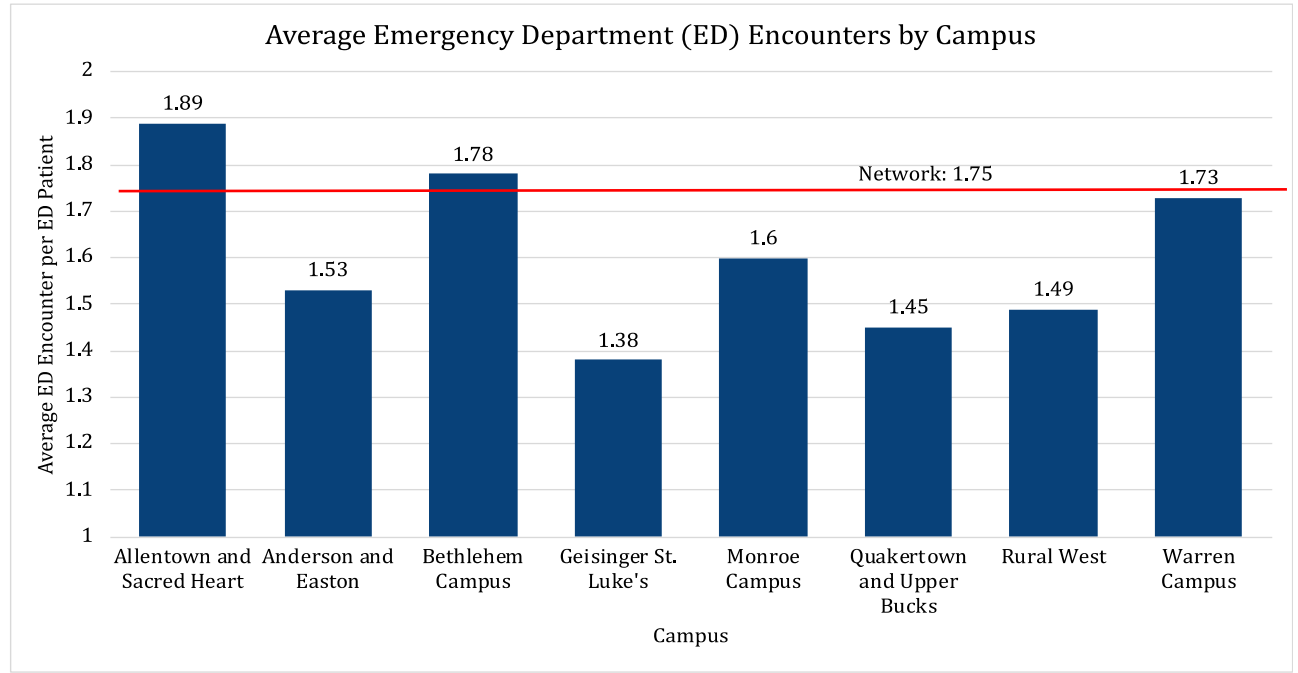
Principal Diagnosis	Ranking
Single live born infant, delivered vaginally	1
Sepsis, unspecified organism	2
Single live born infant, delivered by cesarean	3
Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	4
Acute kidney failure, unspecified	5
Other specified sepsis	6
Non-ST elevation (NSTEMI) myocardial infarction	7
Hypertensive heart disease with heart failure	8
Nonrheumatic aortic (valve) stenosis	9
Maternal care for low transverse scar from previous cesarean delivery	10


Figure 42

..... Emergency Department Encounters

In fiscal year 2020, the average number of emergency department (ED) encounters per ED patient seen at St. Luke’s Bethlehem campus and Star Community Health was 1.53, which is below the network average and among the lowest in the network (Figure 43). Note that multiple service areas contain multiple hospitals and therefore multiple EDs. The ED encounters are an average of the encounters at those hospitals.

Emergency department utilization can be used as an indicator to gauge lack of PCP coverage. When comparing ED visits by household income, a clear finding emerges, those who make less than \$14,999 frequent emergency departments the most of any income bracket; 34.7% of respondents who indicated visiting an ED 5 or more times in the past year make less than \$14,999. Additionally, those who make \$60,000 and above frequent the ED the lowest of any income bracket; 62.3% of respondents who have not visited an ED in the past year make \$60,000 and above. These findings suggest that there needs to be more affordable PCP access for lower income patients, as well as education related to appropriate ED use.



 *Figure 44*

Health Behaviors

..... Obesity

According to the CDC, obese adults have a higher risk for developing heart disease, type 2 diabetes and certain cancers, and, as a result, obesity is estimated to cost the U.S. healthcare system \$147 billion annually.¹²⁵ For each obese individual, their medical costs are estimated to be \$1,429 higher than the medical costs of an individual whose BMI falls into the normal weight category. Many factors play a role in the obesity epidemic and its rapid increase over the last few decades including: lack of vegetable consumption, a lack of physical activity, poor portion control, and poor access to outdoor recreational activities and healthy foods.

In 2018, 42.4% of U.S. adults were obese—an almost 12% increase in obesity rates since 2000.¹²⁶ The 2020 report by Trust for America's Health (TFAH) using 2019 data reports that “socioeconomic factors such as poverty and discrimination have contributed to higher rates of obesity among certain racial and ethnic populations. Black adults have the highest level of adult obesity nationally at 49.6%; that rate is driven in large part by an adult obesity rate among Black women of 56.9%.”¹²⁷ Additionally, concerns have risen in recent years as obesity is an underlying health condition associated with some of the most serious consequences of COVID-19. This means that 42% of all Americans are at increased risk of serious, possibly fatal, health impacts from COVID-19 due to their weight and health conditions related to obesity.¹²⁸

The TFAH reported that Pennsylvania ranks 22 out of 51 states (including Washington, DC) for percentage of adults with obesity and ranks 21 for adults who are overweight.¹²⁹ Additionally, 41.5% of Black adults, 30.9% of Hispanic/Latino adults and 31.3% of White adults in Pennsylvania are obese. The age bracket with the greatest number of adults with obesity in Pennsylvania is 45-64 years old, accounting for 38.2% of adults with obesity. When assessing childhood obesity, the most recent report found that 12.8% of children ages 2-4 and 17.4% of children ages 10-17 in Pennsylvania are obese.

Robert Wood Johnson's County Health Rankings also assess obesity by measuring the percentage of the adult population (age 20 and older) that reports a body mass index (BMI) greater than or equal to 30 kg/m². According to the CDC, “Body Mass Index (BMI) is a person's weight

¹²⁵ <https://www.cdc.gov/obesity/adult/causes.html>

¹²⁶ <https://www.cdc.gov/obesity/data/adult.html>

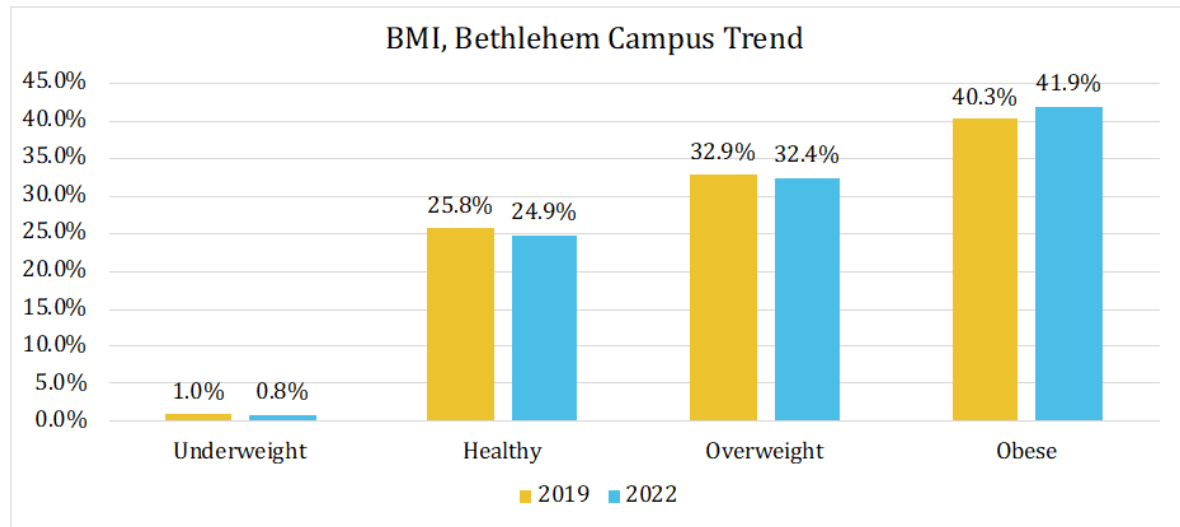
¹²⁷ <https://www.tfah.org/report-details/state-of-obesity-2020/>


¹²⁸ <https://www.tfah.org/report-details/state-of-obesity-2020/>

¹²⁹ https://www.tfah.org/wp-content/uploads/2020/09/TFAHObesityReport_20.pdf

in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. BMI can be used to screen for weight categories that may lead to health problems, but it is not diagnostic of the body fatness or health of an individual.”¹³⁰

A BMI below 18.5 is considered underweight, 18.5-24.9 is considered normal, 25.0-29.9 is considered overweight, and 30 or above is considered obese. The County Health Rankings reports that 31% of adults in Pennsylvania are obese. Lehigh and Northampton county both report that 31% of their adult population are obese. Since 2019, the obesity rate has gone up slightly in the Bethlehem service area. According to BMI measurements, 0.8% of respondents are underweight, 24.9% are healthy, 32.4% are overweight, and 41.9% are obese according. The percentage of respondents who are obese (41.9%) has increases since 2019 (40.3%).



 Figure 45

..... Physical Inactivity

According to the CDC, fewer than 1 in 4 children get enough physical exercise and only 1 in 4 adults meet physical activity guidelines.¹³¹ Healthy People 2030 aim to reduce the proportion of adults who engage in no leisure time physical activity and increase the proportion of adults who meet current physical aerobic physical activity recommendations of exercise for 30 minutes a day 5 days a week.¹³²

County Health Rankings measure physical inactivity as the percentage of adults aged 20 and over reporting no leisure-time physical activity. Robert Wood Johnson reports that “physical activity improves sleep, cognitive ability, and bone and musculoskeletal health, as well as reduces risks of dementia. Physical inactivity is not only associated with individual behavior but also community conditions such as expenditures on recreational activities, access to infrastructure, and poverty.”¹³³ In Pennsylvania, 22% of adults have no leisure-time physical activity along with 17% of adults in Lehigh county, which is the lowest of all service area counties and 27% of adults in

¹³⁰ <https://www.cdc.gov/healthyweight/assessing/bmi/index.html>

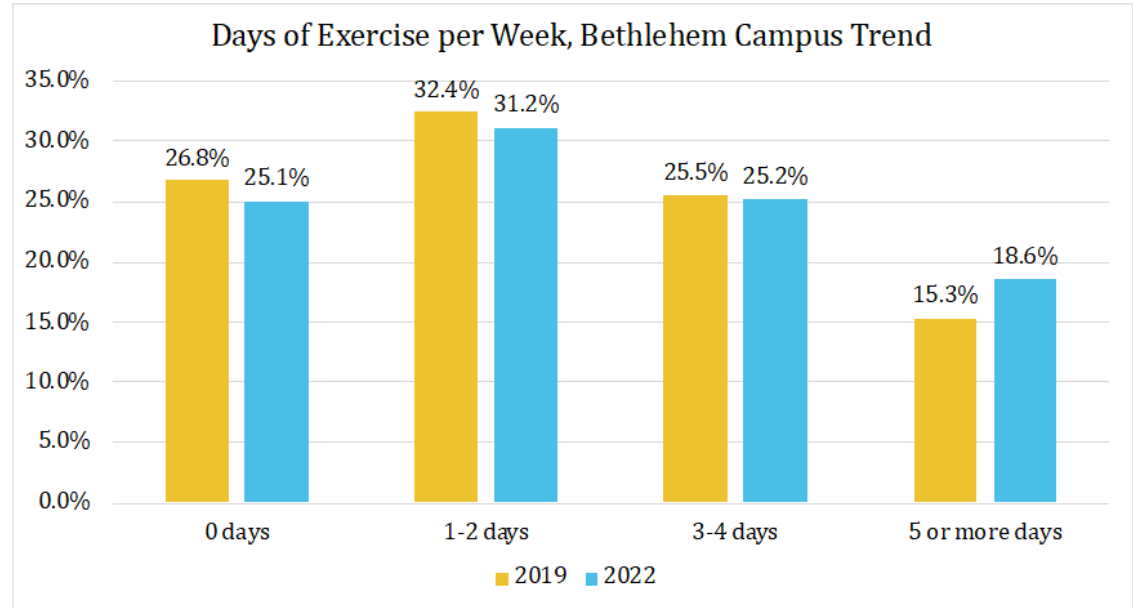
¹³¹ <https://www.cdc.gov/physicalactivity/data/index.html>


¹³² <https://health.gov/healthypeople/objectives-and-data/browse-objectives/physical-activity/>

¹³³ <https://www.countyhealthrankings.org/>

Northampton county, which is the highest of all service area counties. Additionally, the Rankings measure access to exercise opportunities, which “measures the percentage of individuals in a county who live reasonably close to a location for physical activity. Locations for physical activity are defined as parks or recreational facilities. Individuals are considered to have access to exercise opportunities if they: reside in a census block that is within a half mile of a park; or reside in an urban census block that is within one mile of a recreational facility; or reside in a rural census block that is within three miles of a recreational facility.”¹³⁴ In Pennsylvania, 84% of individuals have access to exercise opportunities along with 82% of individuals in Lehigh county and 87% of individuals in Northampton county.

When asked how many days a respondent exercises 30 minutes, 25.1% of respondents from the Bethlehem campus and Star Community Health service area indicated 0 days. However, 31.2% of respondents indicated exercising 1-2 days a week, 25.2% exercising 3-4 days a week, and 18.6% exercising 5 or more days a week- the Healthy People 2030 recommendation. The number of respondents who exercise 5 or more days per week has increased 3 percentage points since 2019.



 Figure 46

A community forum attendee mentioned that lack of walkable communities hinders physical activity in Bethlehem:



“We don’t promote walking nearly enough, and the expansion of business logistic parks have worsened the situation. Some communities are trapped in areas with no walking access, and often these are poorer neighborhoods.”

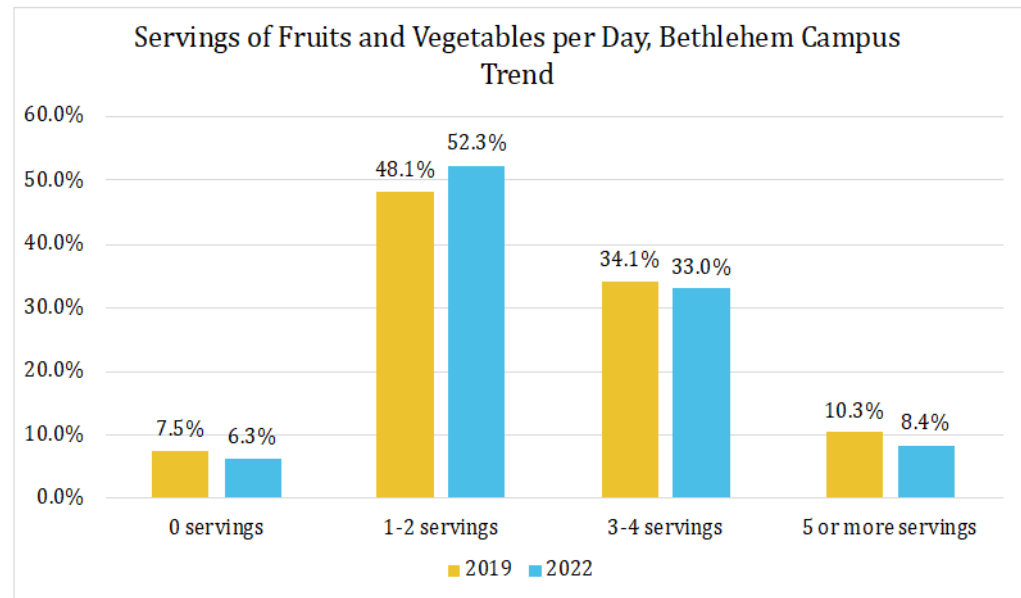
¹³⁴ <https://www.countyhealthrankings.org/>


..... Diet

Diet (i.e., fruit and vegetable consumption) plays a large role in overall health and reducing chronic disease. The CDC states that eating a diet filled with a variety of fruits and vegetables can reduce the risk of type 2 diabetes, certain cancer, cardiovascular disease¹³⁵—all which play a role in the top leading causes of death nationally.

Released in February 2021, the CDC surveyed adults 20 years and older, finding that the majority of adults consumed a serving of fruit (67.3%) or vegetable (95%) on a given day, with more women reporting eating a serving of a fruit and vegetable on a given day.¹³⁶ Compared to our survey results, 93.3% of network survey respondents and 93.7% of Bethlehem campus and Star Community Health service area respondents report eating at least one serving of fruit or vegetables per day. Additionally, America’s Health Rankings surveyed adults across the country asking respondents to indicate consuming two or more servings of fruit and three or more servings of vegetables daily (five servings total).¹³⁷ In Pennsylvania, 7% of adults consume two or more servings of fruit and three or more servings of vegetables daily along with 8% of adults in the U.S.

The sweet food consumption NHANES survey assessed sweet food consumption of snack or meal bars, sweet bakery products, candy, and other desserts, but excluded fruit and all types of beverages. Sweet foods are typically a major source of energy, added sugar, and saturated fats with limited essential ingredients.¹³⁸ It is recommended to limit this consumption and emphasize a diet with nutrient-dense foods. The surveyed was asked to adults 20 and older, finding that 61% of adults ate sweet foods on any given day, with the percentage increasing among adults 60 years or older.¹³⁹ Sweet food consumption was also highest among the middle- and highest-income groups compared to the lowest income group.



 **Figure 47**

¹³⁵ <https://www.cdc.gov/nccdphp/dnpao/division-information/media-tools/adults-fruits-vegetables.html>

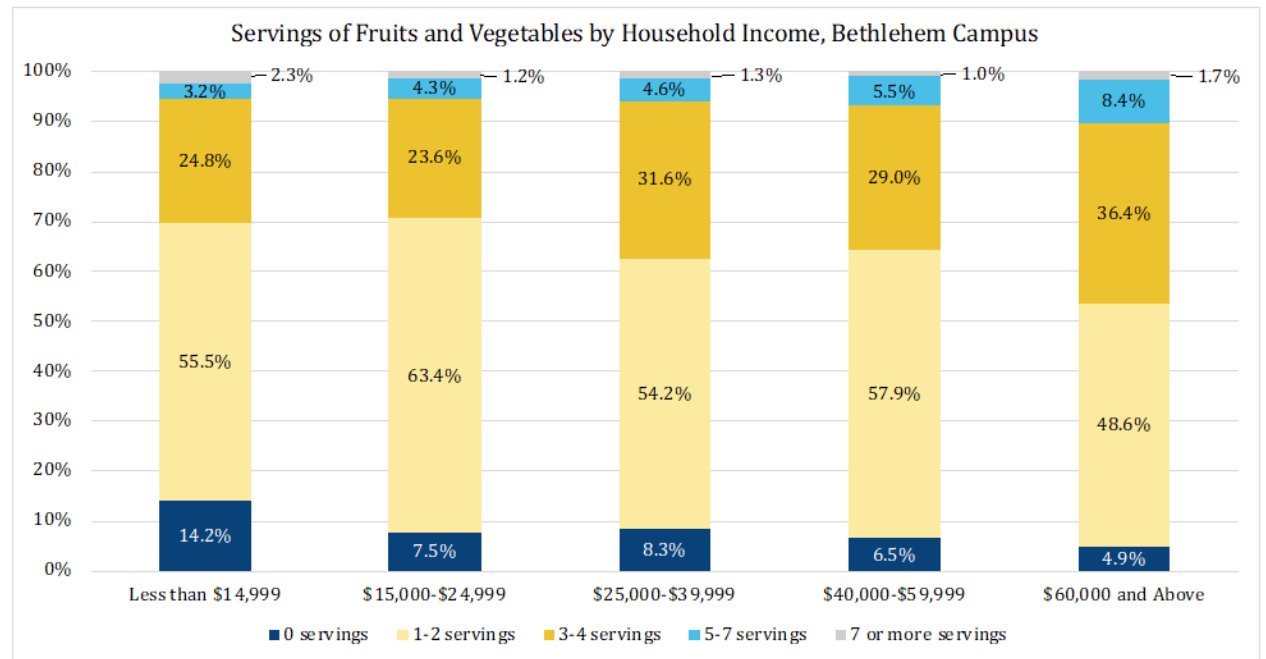
¹³⁶ <https://www.cdc.gov/nchs/data/databriefs/db397-H.pdf>


¹³⁷ <https://www.americashealthrankings.org/explore/annual/measure/fvcombo/state/U.S.>

¹³⁸ https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/DBrief/34_Sweet_foods_children_1518.pdf

¹³⁹ https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/DBrief/33_Sweet_foods_adults_1518.pdf

In the 2022 CHNA survey, we found that only 8.4% of respondents from the Bethlehem campus and Star Community Health service area eat 5 or more servings of fruits and vegetables per day. The majority of respondents (52.3%) eat 1-2 servings per day, and 6.3% do not eat any servings. Furthermore, looking at fruit and vegetable consumption by income shows that serving size increases with income. Of respondents who make less than \$14,999, 14.2% do not consume any fruits and vegetables. The majority of respondents in each income bracket consume 1-2 servings of fruits and vegetables a day, followed by 3-4 servings per day. Respondents who make \$60,000 and above have the highest percentage of respondents who eat 5 or more servings a day (10.1%).



 **Figure 48**

..... Free or Reduced Lunch

During the 2018-2019 school year, 53.3% of students in Pennsylvania were eligible for free or reduced lunch.¹⁴⁰ Free or reduced lunch is a part of the National School Lunch Program (NSLP), a federally assisted meal program providing nutritionally balanced, low cost or free school lunches each day in public, private, and residential child care institutions.¹⁴¹ To qualify for the NSLP, families must have an income at or below 130% of the poverty level. In 2016, the NSLP reached 30.4 million children nationwide.

¹⁴⁰ <https://datacenter.kidscount.org/data/tables/2720-school-lunch--students-eligible-for-free-or-reduced-price-lunch?loc=40&loct=10#detailed/2/any/false/1740/any/10325>

¹⁴¹ <https://www.fns.usda.gov/nslp>

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Percent of Children During 2018-2019 School Year with Free or Reduced Lunch Eligibility	
Lehigh--Southern Lehigh (Suburban)	17.5%
Lehigh--Northwestern Lehigh (Rural)	18.1%
Lehigh--Parkland (Suburban)	24.6%
Lehigh--East Penn (Suburban)	25.7%
Lehigh--Salisbury Township (Suburban)	41.2%
Lehigh--Northern Lehigh (Suburban)	45.3%
Lehigh--Lehigh Career & Tech Institute	47.3%
Lehigh--Arts Academy CS (N/A)	49.3%
Lehigh--Whitehall-Coplay (Suburban)	54.5%
Lehigh--Catasauqua Area (Suburban)	70.4%
Lehigh--Arts Academy Elem CS (N/A)	81.5%
Lehigh--Roberto Clemente CS (Urban)	87.6%
Lehigh--Lincoln Leadership Academy CS (Urban)	94.4%
Lehigh--Allentown City (Urban)	100%
Lehigh--Executive Education Academy CS (N/A)	100%
Average	57.1%

Figure 49

Percent of Children During 2018-2019 School Year with Free or Reduced Lunch Eligibility	
Northampton--Nazareth Area (Suburban)	22.5%
Northampton--Saucon Valley (Suburban)	25.9%
Northampton--Northampton Area (Suburban)	33.7%
Northampton--Pen Argyl Area (Rural)	35.8%
Northampton--Bangor Area (Rural)	43.9%
Northampton--Lehigh Valley Academy Regional CS (N/A)	45.4%
Northampton--Wilson Area (Suburban)	46.0%
Northampton--Bethlehem AVTS	50.3%
Northampton--Career Institute of Technology	51.1%
Northampton--Bethlehem Area (Urban)	56.1%
Northampton--Easton Area (Suburban)	61.1%
Northampton--Easton Arts Academy Elem CS (N/A)	63.0%
Northampton--Lehigh Valley Dual Language CS	100.0%
Average	48.8%

Figure 50

In Lehigh county, an average of 57.1% of all students qualify for free or reduced lunch. Allentown City and Executive Education Academy report 100% of their students as eligible for free or reduced lunches and Southern Lehigh reports the lowest number of students eligible, 17.5%.¹⁴² Northampton county is also included as Bethlehem Area School District. In Northampton county, 48.8% of students qualify for free or reduced lunches. At Lehigh Valley Dual Languages CS, 100% of students are eligible for free or reduced lunches and Nazareth Area reports the lowest number of students eligible (22.5%).

¹⁴² <https://datacenter.kidscount.org/data/tables/2720-school-lunch--students-eligible-for-free-or-reduced-price-lunch?loc=40&loct=10#detailed/2/any/false/1740/any/10325>

..... Sexual Activity

Healthy People 2030 reports that there are more than 20 million new cases of preventable sexually transmitted infections (STI) in the United States each year.¹⁴³ Healthy People 2030 objectives are to increase knowledge and education of sexual education across adolescents and adults, and to decrease the rate of STIs and sexually transmitted diseases (STDs). Adolescents may experience developmental changes that affect physical and mental health, potentially increasing risky behaviors. Risky behaviors increase the chances of STIs and teen pregnancy. Healthy People 2030 objectives for teen pregnancy are to reduce pregnancies in adolescents, increase the percentage of adolescents using effective birth control, and to increase the number of adolescents who receive formal sexual education before age 18.¹⁴⁴

The Robert Wood Johnson Foundation's County Health Rankings assess two sexual activity measures: STI and teen births. The 2021 rankings use STI data that reflects the number of new chlamydia cases per 100,000 population, and there was a 21% increase in both chlamydia and gonorrhea. Chlamydia is important to assess because it is the "most common bacterial sexually transmitted infection (STI) in North America and is one of the major causes of tubal infertility, ectopic pregnancy, pelvic inflammatory disease, and chronic pelvic pain."¹⁴⁵ Chlamydia also disproportionately impacts adolescent women; a reported 1 in 20 sexually active women ages 14-24 have chlamydia.¹⁴⁶ In Pennsylvania, the rate is 463.4 new cases per 100,000 population. Lehigh county's rate is 511.9, the highest of all service area counties. Northampton county's rate is 411.0 per 100,000.

There are also strong connections between teen birth, poor socioeconomic status, and/or mental outcomes. Teenage mothers who give birth are less likely to achieve an education level beyond high school and are more likely to experience psychological distress.¹⁴⁷ The measure is represented by the number of births per 1,000 female population ages 15-19 years. In Pennsylvania, the rate is 17. The rate in Lehigh county is 21 per 1,000 population and in Northampton county, 12 per 1,000 population. In addition to the impact of teen pregnancy on mothers, the prevalence of low birthweight in teen pregnancy is significant. Low birthweight is when a baby is born weighing less than 5 pounds, 8 ounces. Approximately 1 in 12 babies (8%) in the United States is born with low birthweight. A low birthweight may have significant complications, including birth defects, infections, trouble eating, and trouble gaining weight.¹⁴⁸ Teen mothers (and mothers over 40) are

¹⁴³ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/sexually-transmitted-infections>

¹⁴⁴ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/adolescents>

¹⁴⁵ <https://www.countyhealthrankings.org/>

¹⁴⁶ <https://www.cdc.gov/std/chlamydia/stdfact-chlamydia-detailed.htm>

¹⁴⁷ <https://www.countyhealthrankings.org/>

¹⁴⁸ <https://www.marchofdimes.org/complications/low-birthweight.aspx#>

highly likely to have a low birthweight child. Between 2015-2019, 8.2% of births in both Northampton and Lehigh counties were low birthweight.

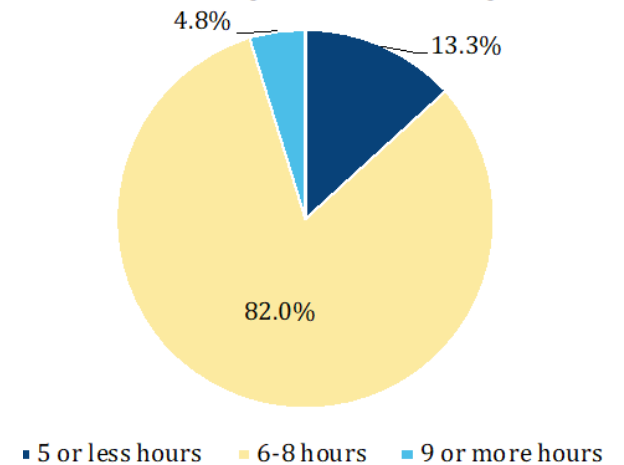
..... Sleep


The Robert Wood Johnson Foundation indicates that sleep is an important part of a healthy lifestyle and a lack of sleep can have serious negative health effects.¹⁴⁹ Healthy People 2030 also reports that approximately 1 in 3 adults do not get enough sleep.¹⁵⁰ Ongoing sleep deficiency has been linked to a number of health conditions such as heart disease, stroke, depression, and anxiety. Some of the objectives for Healthy People 2030 are to reduce the number of motor vehicle crashes due exhaustion and to increase the proportion of children and adults who get enough sleep. The 2021 Robert Wood Johnson County Health Rankings assessed the percent of adults who report less than 7 hours of sleep on average. In Pennsylvania, 39% of adults report less than 7 hours of sleep and 38% of adults in Lehigh county get less than 7 hours of sleep a night. In Northampton county, 41% of adults get less than 7 hours of sleep a night, which is the highest among all service area counties.

The 2019 PAYS survey asked students to indicate if on average, they get less than 7 hours of sleep a night.¹⁵¹ In Pennsylvania, 37.9% of students reported averaging less than 7 hours of sleep a night compared to 41.7% of students in Lehigh county and 41.1% of students in Northampton county. The survey also asked if students “felt tired or sleepy during the day,” “every day,” or “several times” during the past two weeks; 64.7% of students across Pennsylvania indicated consistent sleepiness during the past 2 weeks and 67.2% of students in Lehigh county agreed with the statement, the highest percentage among service area counties.

To get an understanding of how many hours of sleep CHNA survey respondents get, we asked respondents to indicate, on average, the number of hours they sleep in a 24-hour period. The majority of respondents in the Bethlehem campus and Star Community Health service area (82%) get 6-8 hours of sleep per night, 4.8% of respondents get more than 8 hours per night (recommended), and 13.3% only get 5 hours or less per night.

Hours of Sleep, Bethlehem Campus



 Figure 51

¹⁴⁹ <https://www.countyhealthrankings.org/>

¹⁵⁰ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/sleep>

¹⁵¹ [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\)-2019.aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS)-2019.aspx)

..... Mental Health

Mental health has been an increasing issue during the last 10 years, even prior to COVID-19. Mental health disorders can affect people of all age and racial groups, but some populations have disproportionately higher rates of diagnosis.¹⁵² Mental health disorders like anxiety and depression can affect a person’s ability to take part in healthy behaviors and result in physical health problems making it harder for them to get treatment for mental disorders.¹⁵³ Goals related to mental health for Healthy People 2030 are to increase the proportion of people who get treatment for substance use and mental health disorders, increase the proportion of children and adolescents with symptoms of trauma who get treatment, increase quality of life for cancer survivors, reduce the suicide rate, and increase the proportion of public schools with a counselor, social worker, and psychologist. To help reach, educate, and connect people with mental health disorders to care, there is a local National Alliance on Mental Illness (NAMI) or related chapter in each service area. In Lehigh and Northampton county, there is the Lehigh Valley NAMI.¹⁵⁴

According to the State of Mental Health in America 2021 Report, 19% of adults prior to COVID-19 experienced a mental illness. Now, 10.8% of Americans suffering from a mental illness are uninsured and 24% of adults with a mental illness report an unmet need for treatment.¹⁵⁵ The report ranks states on their prevalence rates and access to care for adults and youth. States ranked 1-13 have lower prevalence and higher access to care, while 40-51 (including The District of Columbia) have higher prevalence rates and lower access to care. For overall rankings, Pennsylvania ranks 5 for adults and 2 for youth, indicating a lower prevalence rate and higher access to care.¹⁵⁶

Figure 52

State of Mental Health in America 2021 State Adult Rankings			
	PA %	PA rank	US
Adults with Any Mental Illness (AMI)	18.2%	11	19.0%
Adults with Substance Use Disorder in the past year	7.3%	15	7.7%
Adults with serious thoughts of suicide	4.2%	12	4.3%
Adults with AMI who are uninsured	6.0%	8	10.8%
Adults with AMI who did not receive treatment	53.0%	21	57.0%
Adults with AMI reporting an unmet need	26.8%	44	23.6%
Adults with disability who could not see a doctor due to costs	22.5%	10	28.7%

The 2021 report indicated that 19% of Americans report experiencing any mental illness (AMI) which is characterized as having a diagnosable mental, behavioral, or emotional disorder other than a developmental or substance use disorder. Pennsylvania ranks 11 with a 18.2% prevalence rate. Additionally, 4.6% of adults experience a severe mental illness.

¹⁵² <https://health.gov/healthypeople/objectives-and-data/browse-objectives/mental-health-and-mental-disorders>

¹⁵³ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/mental-health-and-mental-disorders>

¹⁵⁴ <https://www.nami-lv.org/>

¹⁵⁵ <https://www.mhanational.org/issues/state-mental-health-america>

¹⁵⁶ <https://mhanational.org/issues/2021/ranking-states>

The 2021 Report also ranked states by youth measures. 13.8% of youth ages 12-17 report suffering from at least one major depressive episode in the past year. A major depressive episode is “a period of two weeks or longer in which a person experiences certain symptoms of major depression: feelings of sadness and hopelessness, fatigue, weight gain or weight loss, changes in sleeping habits, loss of interest in activities, or thoughts of suicide.”¹⁵⁷ Additionally, 9.7% of youth cope with severe major depression. See Figure 53 for more information on questions asked.

State of Mental Health in America 2021 State Youth Rankings			
	PA %	PA rank	US
Youth with at least on Major Depressive Episode (MDE) in the past year	11.9%	3	13.8%
Youth with Substance Use Disorder in the past year	7.1%	4	9.7%
Youth with severe MDE	3.4%	8	3.8%
Youth with MDE who did not receive mental health services	57.5%	28	59.6%
Youth with severe MDE who received some consistent treatment	37.1%	10	27.3%

During the COVID-19 pandemic, the National Center for Health Statistics (NCHS) partners with the U.S. Census Bureau to ask people about the frequency of anxiety and depression symptoms they have experienced in the Household Pulse Survey.¹⁵⁸ The survey has been ongoing, broken up into phases. Phase 1 ran April 23, 2020 to July 21, 2020. Phase 2 ran August 19, 2020 to October 26, 2020. Phase 3 ran October 28, 2020 to March 29, 2021. Phase 3.1 ran April 14, 2021 to July 5, 2021. Phase 3.2 ran July 21 to October 11, 2021. All Phases had periods of break in between. Nationally, 27.3% of adults reported experiencing symptoms of an anxiety disorder within the past 7 days at mid-October 2021, with the highest percentage at 37.2% in November 2020 and the lowest at 25.5% at the beginning of July 2021. Additionally, 21.8% of adults report experiencing symptoms of a depressive disorder within the past 7 days at mid-October 2021, with the highest percentage at 30.2% in December 2020 and the lowest 20.9% at the beginning of July 2021. When anxiety and depression symptoms were surveyed together, 31.6% of adults report experiencing symptoms of either an anxiety disorder or depressive disorder in the past 7 days at mid-October 2021, with the highest 42.6% at the end of November 2020 and the lowest at 29% at the beginning of July 2021. However, in Pennsylvania at mid-October 2021, 31% of people reported symptoms of an anxiety disorder in the past 7 days, which ranks 7 out of 51 states including Washington, DC. The higher the ranking, the higher the percentage. During this time in Pennsylvania, 24% of people report experiencing a depressive disorder in the past 7 days, ranking 13 out of 51. Lastly, when asked together, 33.8% of people in Pennsylvania report experiencing an anxiety disorder or depressive disorder, ranked 14 out of 51.

Starting in Phase 2, the Pulse survey began asking about mental healthcare. At mid-October 2021, 11% of people in the U.S. report needing counseling or therapy in the last 4 weeks but not receiving care. In Pennsylvania, 11% of people report needing counseling and not receiving care, ranking 25 out of 51. Additionally, as of July 5, 2021, 18.6% of respondents across the U.S. delayed or did not get care in the last 4 weeks. This has been on a downward trend since June 30, 2020 when 45.7% of people delayed or did not get care. This question did not get

¹⁵⁷ <https://www.bridgestorecovery.com/major-depression/what-is-a-major-depressive-episode/>

¹⁵⁸ <https://www.cdc.gov/nchs/covid19/pulse/mental-health.htm>

asked again after the completion of Phase 3.1. As of July 5, 2021 in Pennsylvania, 19% of people delayed or did not get care in the last 4 weeks. Finally, in mid-October 2021, 10% of people in the U.S. at the time of the interview did not have health insurance. The uninsured rate at the time of the interview has consistently been between 10 and 14% since Phase 1. During this time in Pennsylvania, 8% of people were uninsured at the time of the interview, ranking 22 out of 51.

Prior to COVID-19, depression was still an issue facing the U.S. and the residents of our service area. The National Institute of Mental Health (NIMH) defines depression as a mood disorder that causes “severe symptoms [that] affect how you feel, think, and handle daily activities, such as sleeping, eating, or working. To be diagnosed with depression, the symptoms must be present for at least two weeks.”¹⁵⁹ Some signs of depression are, but not limited to: a persistent sad mood; feelings of hopelessness or pessimism; decreased energy or fatigue; difficulty concentrating, remembering or making decisions; and thoughts of death or suicide. Depression can happen at any age but is more common in adulthood. In midlife or older adults, depression can co-occur with other serious medical illnesses like diabetes, cancer, heart disease, and Parkinson’s disease.¹⁶⁰ Risk factors include personal or family history of depression, major life changes, trauma, stress, and certain physical illnesses and medications. Depression can be treated with medications, psychotherapy (counseling), or a combination of both.

In Pennsylvania, the state asked about depression on the 2019 Behavioral Health Risk Factor Surveillance System (BRFSS), which included depression, major depression, and minor depression (dysthymia). The survey found that 20% of people in Pennsylvania were depressed. The survey broke the counties into clusters, finding that 19.4% of Carbon, Lehigh, and Northampton report a depression diagnosis.¹⁶¹

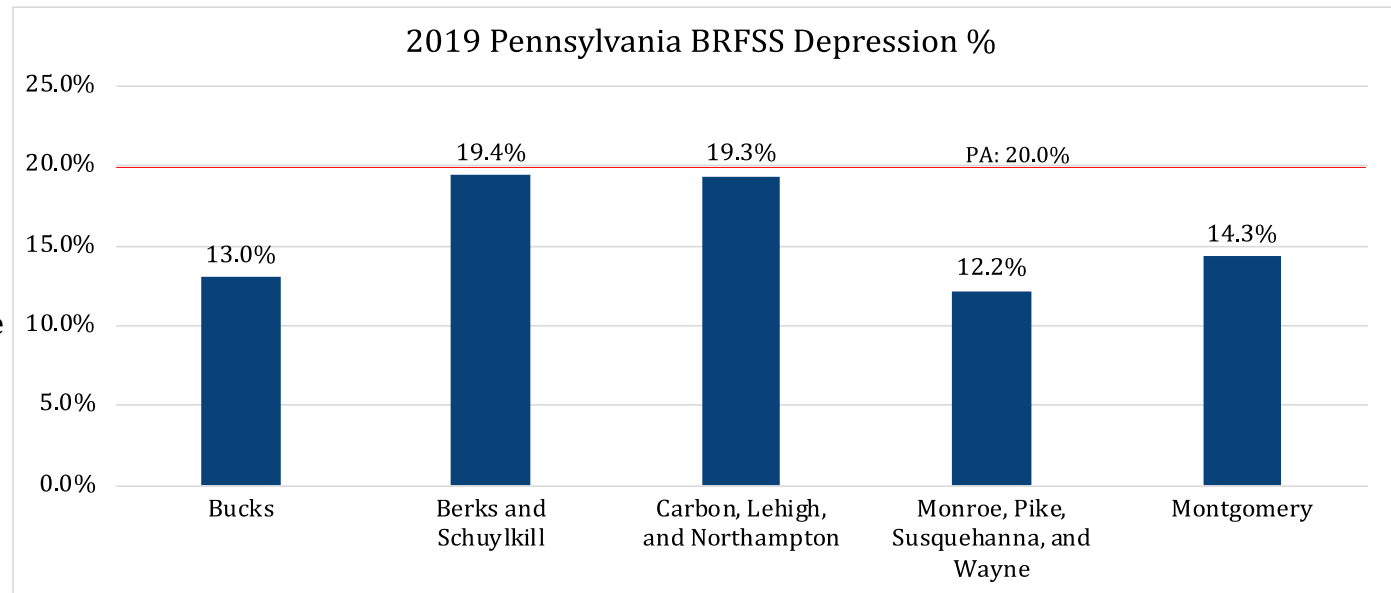


Figure 54

¹⁵⁹ <https://www.nimh.nih.gov/health/topics/depression/index.shtml>

¹⁶⁰ <https://www.nimh.nih.gov/health/topics/depression/index.shtml>

¹⁶¹ <https://www.health.pa.gov/topics/HealthStatistics/BehavioralStatistics/BehavioralRiskPAAAdults/Pages/BehavioralRisksPAAAdults.aspx>

Anxiety is another common mental health disorder that affects people across the country. Anxiety is a normal part of life, but for a disorder, it is more than temporary worry or fear. The NIMH says “for a person with an anxiety disorder, the anxiety does not go away and can get worse over time. The symptoms can interfere with daily activities such as job performance, schoolwork, and relationships.”¹⁶²

Risk factors for anxiety disorders differ for each disorder, but generally include temperamental traits of shyness or behavioral inhibition in childhood, exposure to a stressful or negative life or environmental events in early childhood or adulthood, a history of anxiety in relatives, and some health conditions.¹⁶³ Anxiety disorders can be treated with psychotherapy, medication, or a combination. In 2020, the CDC released a report of symptoms of generalized anxiety disorder among adults in the U.S. Generalized Anxiety Disorder (GAD) displays excessive anxiety or worry, most days for at least 6 months, about numerous things, causing significant problems in areas of life like social interactions, school, and work.¹⁶⁴ The CDC survey found that 9.5% of adults experienced mild symptoms of anxiety, 3.4% experienced moderate symptoms of anxiety, and 2.7% experienced severe symptoms of anxiety in the past 2 weeks, while 84.4% of people reported no or minimal symptoms.¹⁶⁵ The percentage of adults who experienced all types of symptoms was highest among those 18-29 years and decreased with age. One significant finding in the study was that women are more likely to experience all levels of anxiety symptoms than men.

In addition to anxiety and depression, substance use is another disorder that has continued to affect many Americans. A substance use and suicide study done by Substance Abuse and Mental Health Services Administration (SAMHSA) in 2016 found that nearly 1 in 12 adults in the United States had a substance use disorder.¹⁶⁶ The NIMH describes substance use disorder as a mental disorder that affects a person's brain and behavior with drug use and can interfere with a person's ability to work, to go to school, and to have good relationships with family and friends.¹⁶⁷

2019 CDC Percent of Adults in US Experiencing Anxiety Symptoms

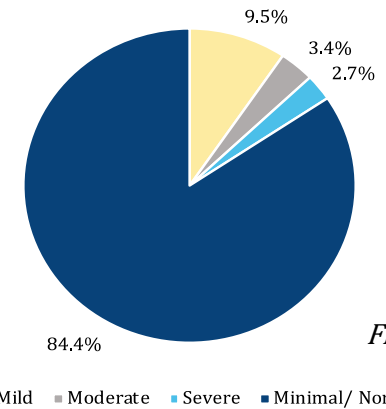



Figure 55

 ***“Mental health and substance abuse continue to be gigantic concerns for the area, with really large numbers of cases and not nearly enough capacity to handle the demand adequately.”***

¹⁶² <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

¹⁶³ <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

¹⁶⁴ <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

¹⁶⁵ <https://www.cdc.gov/nchs/products/databriefs/db378.htm>

¹⁶⁶ <https://store.samhsa.gov/sites/default/files/d7/priv/sma16-4935.pdf>

¹⁶⁷ <https://www.nimh.nih.gov/health/topics/substance-use-and-mental-health/index.shtml>

Substance use disorders also co-occur at high prevalence rates with anxiety disorders, depression disorders, bipolar disorders, and attention-deficit disorder (ADHD).¹⁶⁸ Additionally, people with schizophrenia have higher rates of alcohol, tobacco, and drug use disorders than the general population. Approximately 1 in 4 individuals with a serious mental illness (i.e., diagnosable mental, behavioral, or emotional disorders that cause serious functional impairment interfering with one or more major life activities) also have a substance use disorder.¹⁶⁹ Substance use disorder vulnerability can largely be attributed with genetics, but physical and emotional trauma also puts people at a higher risk. The 2021 State of America report previously found that 7.7% of adults in America reported having a substance use disorder in the past year.¹⁷⁰ Additionally, 2.9% of adults reported having an illicit drug use disorder in the past year and 5.7% of adults reported having an alcohol use disorder in the past year; 7.3% of adults in Pennsylvania have a substance use disorder, ranking 15 out of 51.

In 2016, the SAMHSA study found that opiates, including heroin and prescription pain killers, were present in 20% of suicide deaths in the U.S. Additionally, 22% of all suicide deaths in 2016 involved alcohol intoxication. Alcohol is a commonly used substance, but its ability to increase aggressiveness and constrict cognition, which impairs coping strategies and may increase risk of suicidal behaviors.¹⁷¹

Suicide involves dynamic interactions between national issues, community issues, families and relationships, and individual health and or well-being.¹⁷² It has become a growing concern as it is now the 10th leading cause of death among all ages in the United States, but second leading cause of death for 10-34 years and fourth for 35-54 years.¹⁷³ Suicide is likely to remain a significant issue during, and well beyond, the pandemic. The long-term effects on the general population, the economy, and vulnerable groups is unknown, but the impact on mental health and suicide risk may also be increased during the pandemic due to the stigma towards individuals with COVID-19 and their families.¹⁷⁴ Therefore, responses to suicide should target the whole population, focusing on particular risk factors like financial stressors, alcohol consumption, isolation, and access to care.¹⁷⁵

A CDC Suicide Mortality report in the United States from 1999-2019 was released February 2021, outlining the suicide rate over a 10-year period. The age-adjusted rate in 2019 was 13.9 per 100,000 people, which is slightly lower than the rate in 2018, 14.2.¹⁷⁶ The 2019 crude

¹⁶⁸ <https://www.drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders/part-1-connection-between-substance-use-disorders-mental-illness>

¹⁶⁹ <https://www.drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders/part-1-connection-between-substance-use-disorders-mental-illness>

¹⁷⁰ <https://mhanational.org/issues/2021/ranking-states>

¹⁷¹ <https://store.samhsa.gov/sites/default/files/d7/priv/sma16-4935.pdf>

¹⁷² https://www.mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf

¹⁷³ <https://www.cdc.gov/nchs/products/databriefs/db398.htm>

¹⁷⁴ [https://doi.org/10.1016/S2215-0366\(20\)30171-1](https://doi.org/10.1016/S2215-0366(20)30171-1)

¹⁷⁵ [https://doi.org/10.1016/S2215-0366\(20\)30171-1](https://doi.org/10.1016/S2215-0366(20)30171-1)

¹⁷⁶ <https://www.cdc.gov/nchs/products/databriefs/db398.htm>

rate is 24.5 per 100,000 people.¹⁷⁷ In 2018, the National Hospital Ambulatory Medical Care Survey (NHAMCS) reported 312,000 emergency visits for self-injury.¹⁷⁸ CDC WONDER data shows the 2019 crude rate of suicide by intentional self-harm from 1999-2019.¹⁷⁹ In 2019, 11.9 per 100,000 deaths were death by intentional self-harm.

A Bethlehem key informant discussed the lack of cultural sensitivity among mental health providers and their minority patients:



“Recently I was a part of the community meeting that shared they could not find psychologists that are Spanish speaking or that are able to work with African American community. Clients are complaining because of the lack of cultural sensitivity or about how uncomfortable they are throughout the session. The agency is unable to fire them though because they are the only option in the area. People do not feel safe with them. They are dissatisfied. The providers do not do their job and do not care about the client’s needs.”

Released in September 2020, the National Vital Statistics Report and CDC published a report on suicide among adolescent and youth ages 10-24 years from 2000-2018. The average percent increase in suicide deaths among 10-24 years in the U.S. from 2007-2009 to 2016-2018 is 47.1% nationally and 53.6% in Pennsylvania.¹⁸⁰ After a period of stability from 2000-2007, the suicide rate among youth and adolescents increased 57.4%, which went from 6.8 deaths per 100,000 in 2007 to 10.7 per 100,000 in 2018. The northeast states had among the lowest suicide rates in the country from 2016-2018. Pennsylvania’s suicide rate in 2016-2018 was 10.6 per 100,000 deaths.¹⁸¹

In response to growing suicide rates, in September 2020 Pennsylvania created a suicide prevention plan, outlining 8 specific prevention goals including prevention awareness efforts that reduce stigma and promote safety, help-seeking, and wellness; promote trauma-informed approaches to support all Pennsylvania residents as part of upstream, universal suicide prevention efforts; and provide quality training on the prevention of suicide and management of suicide risk across multiple sectors and settings.¹⁸²

Some populations are more vulnerable than others to mental disorders, substance use and suicide. A SAMHSA study published in June 2020 found that Hispanic populations are more likely to lack high-quality evidence-based cultural grounded treatment options and have disparities in treatment outcomes.¹⁸³ Additionally, 1 in 20 Hispanic people do not receive services from a mental health specialist due to

¹⁷⁷ <https://wonder.cdc.gov/controller/datarequest/D76;jsessionid=BF94A69A2EA7B26A79CC60EBC4B1>

¹⁷⁸ <https://www.cdc.gov/nchs/fastats/suicide.htm>

¹⁷⁹ <https://wonder.cdc.gov/controller/datarequest/D76;jsessionid=808281E7650E525FCF44896FE0B4>

¹⁸⁰ <https://www.cdc.gov/nchs/data/nvsr/nvsr69/nvsr-69-11-508.pdf>

¹⁸¹ <https://www.cdc.gov/nchs/data/nvsr/nvsr69/nvsr-69-11-508.pdf>

¹⁸² <https://www.dhs.pa.gov/Services/Mental-Health-In-PA/Documents/PA%20Statewide%20Suicide%20Prevention%20Plan.pdf>

¹⁸³ https://mhccnetwork.org/sites/default/files/2020-06/Mh_Disparities_Booklet.pdf

stigma, discrimination, and lack of knowledge about services. This is a population that should be targeted by providing culturally appropriate counseling to encourage care-seeking behaviors.

Another population particularly vulnerable to suicide are Veterans. A 2019 National Veteran Suicide Prevention Report by the U.S. Veterans Affairs found that in 2017, veterans accounted for 13.5% of all deaths by suicide in the U.S.¹⁸⁴ Additionally, an average of 16.8 veterans died by suicide each day in 2017. Suicide rates in veterans tend to be affected by economic disparities, homelessness, unemployment, disability status, community connection, and personal health and well-being. Veterans served by the Veterans Health Administration (VHA) who die by suicide are more likely to have sleep disorders, traumatic brain injuries, or a mental disorder diagnosis.¹⁸⁵ These suicide rates tend to be higher of individuals who live in rural areas and individuals who are isolated. Veterans ages 18-34 years old had the highest suicide rate in 2017, 44.5 per 100,000, which has increased 76% from 2005 to 2017.¹⁸⁶ Veterans are a group that require specialized services and care that addresses the needs of the population.

..... Substance Use

According to a 2019 U.S. Health CDC report, 11.7% of people in the United States have used an illicit drug in the past month.¹⁸⁷ An illicit drug is one that is highly addictive and forbidden by law. Some of these include marijuana, opioids like fentanyl and heroin, and stimulants like cocaine and methamphetamine. The Substance Use and Mental Health Services Administration (SAMHSA) defines substance use disorders as occurring “when the recurrent use of alcohol and/or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home.”¹⁸⁸ Substance use commonly co-occurs with mental health disorders. Please refer to the mental health section for more detailed information. Substance use is a growing concern in the United States and within our service areas, particularly related to the COVID-19 pandemic. To address the concerns with alcohol, drug and tobacco use, some of Healthy People 2030's objectives are to reduce the number of adults who used drugs in the past month, increase the rate of people with a substance use disorder who got treatment in the past year, increase the proportion of adolescents who think substance use is risky, and to reduce the rate of opioid related emergency department visits.¹⁸⁹

¹⁸⁴ https://www.mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf

¹⁸⁵ https://www.mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf

¹⁸⁶ https://www.mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf

¹⁸⁷ <https://www.cdc.gov/nchs/data/hus/2019/020-508.pdf>

¹⁸⁸ <https://www.samhsa.gov/find-help/disorders>

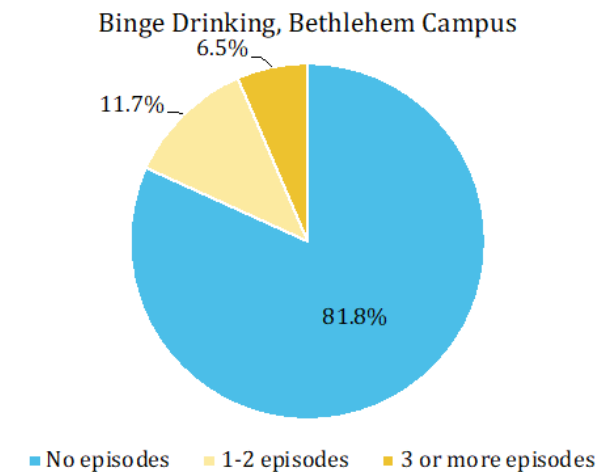
¹⁸⁹ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/drug-and-alcohol-use>


..... Alcohol

A 2019 CDC alcohol use report found that 25.1% of adults 18 and older have had at least one heavy drinking day (five or more drinks for men and four or more drinks for women) in the past year.¹⁹⁰ The percentage for binge drinking in women is 19.8% and for men, 30.9%.¹⁹¹ Nationally, 1 in 4 adults heavily drank in the past year. In 2019, there were 24,110 alcoholic liver deaths in the U.S. and 39,043 alcohol-induced deaths, which do not include accidents and homicides. Pennsylvania's crude rate for alcohol-induced deaths was 8.2 per 100,000 population. In Lehigh county there were 8.4 alcohol-induced deaths per 100,000 population.¹⁹²

Pennsylvania's Behavioral Risk Factor Surveillance System (BRFSS) surveyed about binge drinking, chronic drinking, and made an assessment about how many people in each county cluster would be at risk for a drinking problem. Binge drinking is "defined as a pattern of drinking that brings a person's blood alcohol concentration (BAC) to 0.08 g/dl or above. This typically happens when men consume 5 or more drinks or women consume 4 or more drinks in about 2 hours."¹⁹³ The CDC reports that binge drinking is the most common, costly, and deadly pattern of excessive alcohol use in the United States.¹⁹⁴ Binge drinking can be associated with unintentional car crashes, violence, sexually transmitted diseases, fetal alcohol spectrum disorders, cancer, and more. Chronic drinking is when someone drinks more than the recommended one (women) or two (men) drinks a day, and more than seven (women) and fourteen (men) drinks in a week.¹⁹⁵

In 2019, the binge drinking percentage in Pennsylvania was 17% and chronic drinking was 6%. The report clustered certain counties together and reported on risk for a drinking problem. The Carbon, Lehigh and Northampton cluster was reported to have 7% of people at risk for a drinking problem.¹⁹⁶ When asked how many binge drinking episodes a CHNA survey respondent has had in the past month, 81.8% of respondents in the Bethlehem campus and Star Community Health service area indicated no episodes. However, 11.7% have had 1-2 episodes in the past month and 6.5% had 3 or more episodes. In 2018, the Census Bureau released a County Business Patterns (CBP) report. One of the businesses assessed were liquor stores. Liquor store access reports on places primarily engaged in retailing liquor and packaged alcoholic beverages, like beer and wine. This excludes places preparing alcohol for consumption



 **Figure 55**

¹⁹⁰ <https://www.cdc.gov/nchs/fastats/alcohol.htm>

¹⁹¹ https://public.tableau.com/profile/tina.norris#!/vizhome/FIGURE9_1/Dashboard9_1

¹⁹² <https://wonder.cdc.gov/controller/saved/D76/D99F021>

¹⁹³ <https://www.cdc.gov/alcohol/fact-sheets/binge-drinking.htm>

¹⁹⁴ <https://www.cdc.gov/alcohol/fact-sheets/binge-drinking.htm>

¹⁹⁵ <https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>

¹⁹⁶ <https://www.health.pa.gov/topics/HealthStatistics/BehavioralStatistics/BehavioralRiskPAAAdults/Pages/BehavioralRisksPAAAdults.aspx>

(e.g., bars, restaurants) or places that sell alcohol as a secondary retail product (e.g., gas stations, grocery stores). Research has found that liquor stores are disproportionately located in predominantly Black census tracts.¹⁹⁷ This is an issue because increased access to liquor poses a higher risk of developing alcohol use and/or a substance use disorder. The number of liquor stores is reported per 10,000 population. The Bethlehem campus and Star Community Health service area did not have any available data, but Lehigh county has 1.4 per 10,000 population and Northampton has 1.34 per 10,000 population.¹⁹⁸

The Robert Wood Johnson Foundation also put out 2021 County Health Rankings on excessive drinking and alcohol impaired driving deaths. Excessive drinking measures the percentage of the county's adult population that reports binge or heavy drinking in the past 30 days. Pennsylvania reported 20% and Lehigh and Northampton county both reported 22%. The alcohol impaired driving measure assesses the percentage of motor vehicle deaths with alcohol impairment. Alcohol reduces brain function and impairs thinking, which can hinder driving. Drivers 21-24 years old caused 27% of all alcohol impaired deaths in 2015-2019.¹⁹⁹ Pennsylvania reported 26% of all vehicle deaths with alcohol impairment. Lehigh county reported 30%, which ties with Bucks county for the highest out of all service area counties. Northampton county reported 28%.

Vehicle Deaths with Alcohol Impairment

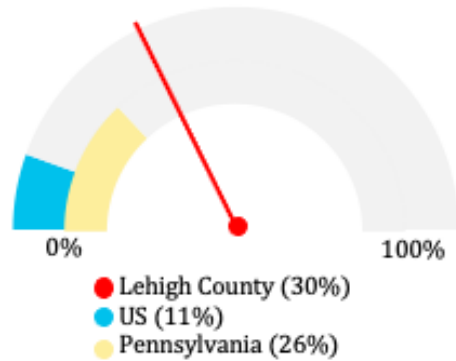


Figure 56

Vehicle Deaths with Alcohol Impairment

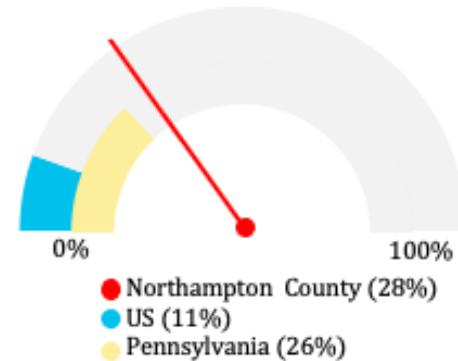


Figure 57

¹⁹⁷ DOI: 10.1016/s0277-9536(00)00004-6

¹⁹⁸ <https://www.census.gov/programs-surveys/cbp.html>

¹⁹⁹ <https://www.countyhealthrankings.org/>

..... **Stimulants**

The drug overdose report for 1999-2019 by the CDC indicates that the age-adjusted rate of drug overdose deaths involving cocaine increased from 1.4 per 100,000 population in 1999 to 4.9 in 2019.²⁰⁰ It is also reported that the age-adjusted rate of drug overdose deaths involving psychostimulants, which include drugs such as methamphetamine and methylphenidate, increased from 0.2 per 100,000 population in 1999 to 5.0 in 2019. Stimulants are dangerous and easily abused because they increase alertness, attention and energy. An overdose of stimulants can result in symptoms including rapid breathing, aggression, hallucinations, overactive reflexes, and more.²⁰¹ The 2019 Annual Surveillance Report of Drug-Related Risks and Outcomes from the CDC,²⁰² reported that in 2018, an estimated 5,529,000, or 2.0% of people 12 years and older, reported cocaine use in the past year. This is highest among people 26–29 years (6%) and people 18-25 years (5.8%). In 2018, an estimated 1,867,000, or 0.7% of people 12 years and older, reported methamphetamine use in the past year. This is highest among people 30–34 years (1.6%), and people 26-29 years (1.2%), and 35-39 years (1.1%). In 2018, an estimated 5,109,000, or 1.9% of people 12 years and older, reported misuse of prescription stimulants in the past year. This is highest among people 18-25 years (6.5%), followed by 26-29 years (4.4%) and 30-34 years (3.4%). Most recently according to the CDC health alert, overdose deaths involving cocaine increased by 26.5% from the 12-months ending in June 2019 to the 12-months ending in May 2020.²⁰³

There are an average about 510 new methamphetamine users a day 12 years and older, 70 new users a day 12 to 17 years old, 170 new users a day 18 to 25 years old, and 260 new users a day 26 years and older. Using data from 2018 and 2019, SAMHSA reports that 75,000 people 18 years and older in Pennsylvania used methamphetamines in the past year.²⁰⁴

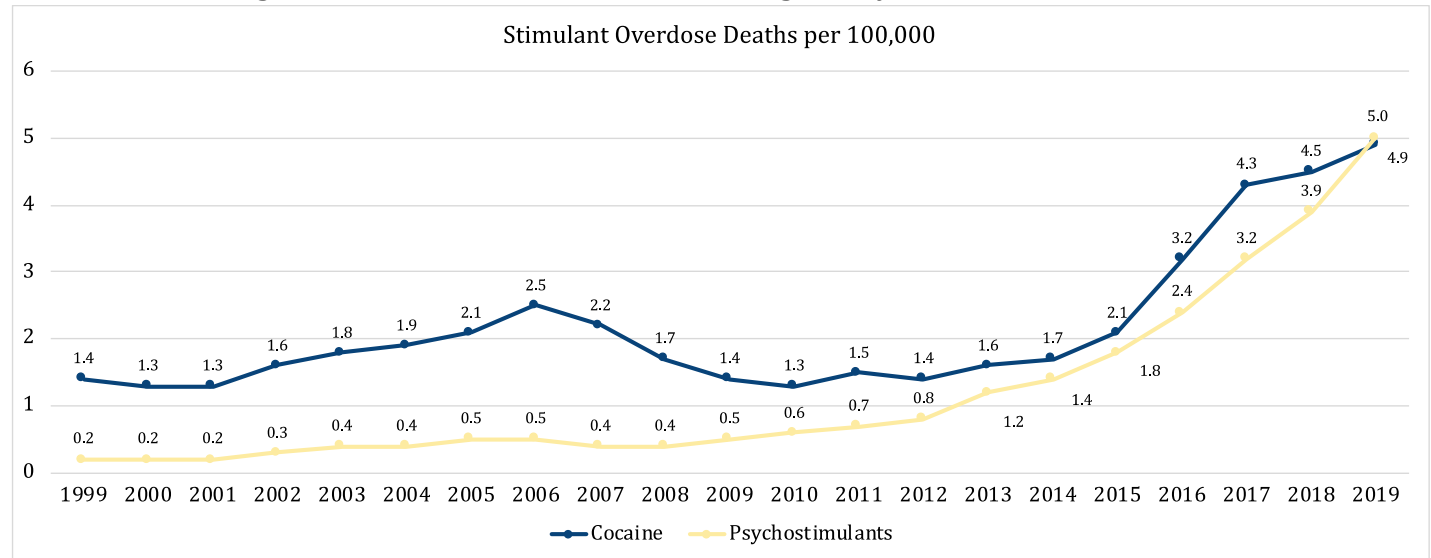


Figure 58

²⁰⁰ <https://www.cdc.gov/nchs/data/databriefs/db394-H.pdf>

²⁰¹ <https://www.drugabuse.gov/publications/drugfacts/prescription-stimulants>

²⁰² <https://www.cdc.gov/drugoverdose/pubs/related-publications.html>

²⁰³ <https://emergency.cdc.gov/han/2020/han00438.asp>

²⁰⁴ <https://www.samhsa.gov/data/sites/default/files/reports/rpt32879/NSDUHsaeTotal2019/2019NSDUHsaeTotal.pdf>

..... Tobacco

The 2019 CDC Health Report indicated that in 2018, 21.5% of the population 12 years and older used any type of tobacco product.²⁰⁵ The CDC and National Health Interview Survey of 2019 reported that 14.2% of adults 18 years and older currently smoke cigarettes²⁰⁶ and 8.1% of adolescents grades 9-12 smoked cigarettes in the past 30 days.²⁰⁷ The Robert Wood Johnson 2021 County Health Rankings report on adult smoking using data from 2018. Cigarette smoking is an important data point to capture because it has been an identified cause of various cancers, cardiovascular disease and other adverse health outcomes.²⁰⁸ Measuring tobacco use can help St. Luke's and other health networks to identify needs for smoking cessation and other smoking reduction programs.

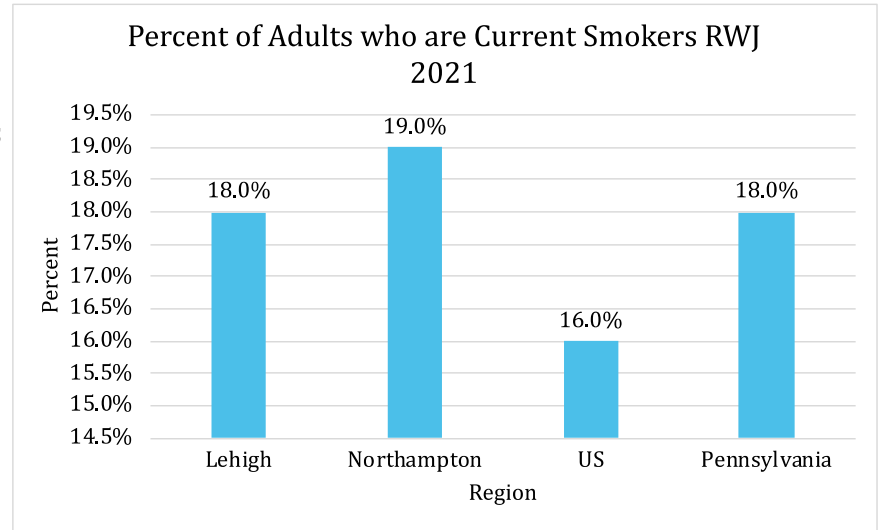


Figure 59

Adult smoking is measured as the percent of the adult population that report currently smoking every day or most days and have smoked at least 100 cigarettes in their lifetime.²⁰⁹ In Pennsylvania, 18% of adults smoke every day or have smoked at least 100 cigarettes in their lifetime, along with 18% of adults in Lehigh county and 19% of adults in Northampton county. Additionally, the CDC National Center for Health Statistics (NCHS) released a secondhand smoke exposure report among

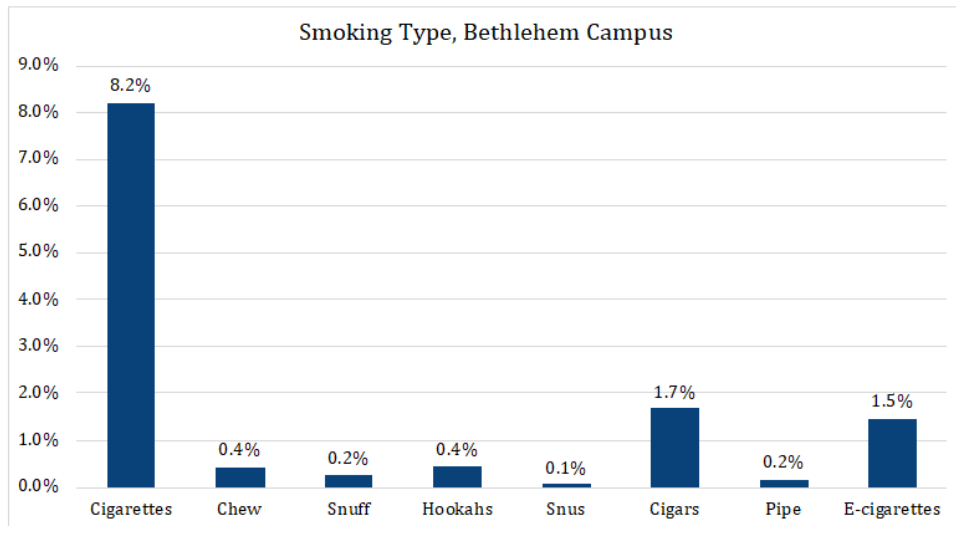


Figure 60


²⁰⁵ <https://www.cdc.gov/nchs/data/hus/2019/020-508.pdf>
²⁰⁶ <https://www.cdc.gov/nchs/data/nhis/earlyrelease/EarlyRelease202009-508.pdf>
²⁰⁷ <https://www.cdc.gov/nchs/data/hus/19-508.pdf#fig09>
²⁰⁸ <https://www.countyhealthrankings.org/>
²⁰⁹ <https://www.countyhealthrankings.org/>

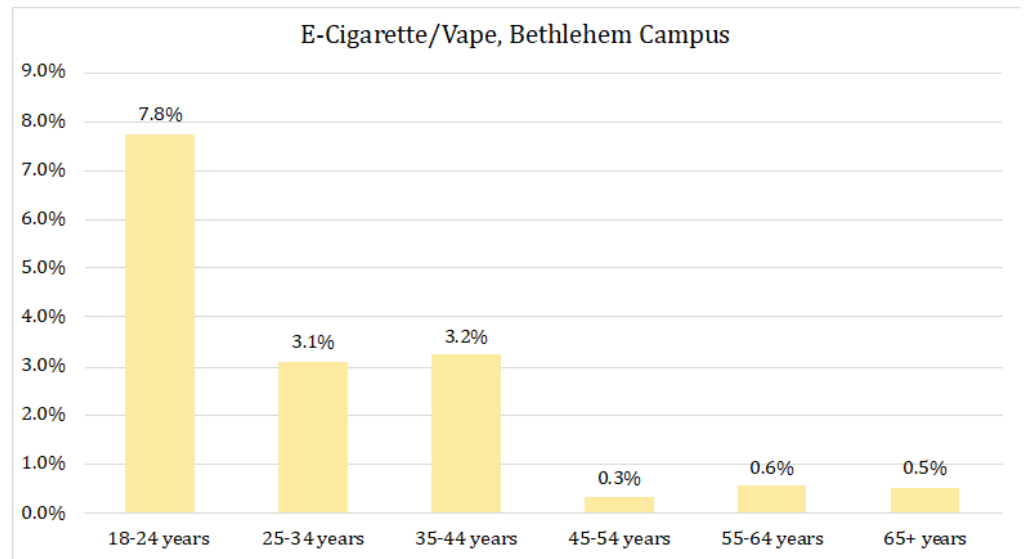
nonsmoking adults in February 2021. Using data from 2015-2018, the report indicated that 20.8% of nonsmoking U.S. adults 18 and over were exposed to secondhand smoke, which was measured by cotinine, a metabolite of nicotine, in their blood.²¹⁰ Some negative effects of secondhand smoke exposure include acute respiratory effects, coronary heart disease, stroke, lung cancer, and premature death. The prevalence of secondhand exposure was highest for adults 18-39 (25.6%) than for adults 40-59 (19.1%) and adults 60 and over (17.6%). The highest secondhand exposure for adults by race and ethnicity were for non-Hispanic Black adults (39.7%) and lowest for Hispanic/Latino adults (17.2%). A promising finding from the report is that the prevalence of secondhand exposure declined from 27.7% in 2009 to 20.8% in 2018.

When asked if CHNA survey respondents smoke, 9.4% of respondents from the Bethlehem campus and Star Community Health service area responded yes. Of those who do smoke, cigarettes are the most common form of tobacco (8.2%), followed by cigars (1.7%), and e-cigarettes (1.5%). Additionally, 0.4% of respondents use chew, 0.3% use hookahs, 0.2% use snuff, 0.2% use pipe, and 0.1% use snus.

..... Vape

Vaping is another form of smoking nicotine, a highly addictive substance that is especially harmful to children and adolescents. Vapes, also known as e-cigarettes or electronic cigarettes, are “electronic devices that heat a liquid and produce an aerosol or mix of small particles in the air.”²¹¹ The CDC and National Health Interview Survey in 2019 found that 4.4% of adults 18 years and older use e-cigarettes²¹² and 20.8% of adolescents grades 9-12 have used e-cigarettes in the past 30 days.²¹³ Electronic cigarettes were introduced in the United States around 2007 and the highest percentage of use is seen in adolescents.²¹⁴ Nicotine is most harmful for children and adolescents because the substance hinders brain

 *Figure 61*



²¹⁰ <https://www.cdc.gov/nchs/data/databriefs/db396-H.pdf>

²¹¹ https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html

²¹² <https://www.cdc.gov/nchs/data/nhis/earlyrelease/EarlyRelease202009-508.pdf>

²¹³ <https://www.cdc.gov/nchs/data/hus/hus19-508.pdf#fig09>

²¹⁴ <https://www.cdc.gov/nchs/data/nhis/earlyrelease/EarlyRelease202009-508.pdf>

development, which occurs until around age 25. Particularly, nicotine impacts attention, learning, mood, and impulse control, all of which are built and refined through childhood.²¹⁵ An e-cigarette study among middle and high school students in the United States was performed in accordance with the CDC in 2020. Results from this study found that 19.6% of high school students and 4.7% of middle school students reported current e-cigarette use.²¹⁶ Of the current users, 82.9% used flavored e-cigarettes, including 84.7% of high school users and 73.9% of middle school users. The introduction of flavors such as fruit, candy, and mint has increased youth initiation into the use of tobacco products.²¹⁷ Another CDC study found that 23.6% of high school students and 6.7% of middle school students reported 30-day use of any tobacco product.²¹⁸

According to PAYS data, 19% of students in Pennsylvania used an e-cigarette within the last 30 days.²¹⁹ Similar to other findings, the CHNA survey indicated the age group that uses e-cigarettes/vape most frequently are 18-24 year old (7.8%), 3.1% of respondents 25-34 years old use vapes, followed by 3.2% 35-44 years old, 0.3% 45-54 years old, 0.6% 55-64 years old, and 0.5% 65 years and older.

..... Marijuana

Marijuana is a psychotropic drug that is commonly used throughout the United States. In the short-term, marijuana can alter senses, change mood, impair memory, and impair body movement. In the long-term, marijuana can affect thinking, memory, and learning functions crucial to brain development.²²⁰ Marijuana can also have physical effects which result in breathing problems and increased heart rate. The CDC 2019 U.S. Health Report indicated that 10.1% of people 12 and older used marijuana in the past 12 months during 2018.²²¹ However, the 2019 Annual Surveillance Report of Drug-Related Risks and Outcomes reported that 15.9% of people in the U.S. during 2018 who are 12 years and older used marijuana in the past 12

Marijuana Use, Bethlehem Campus

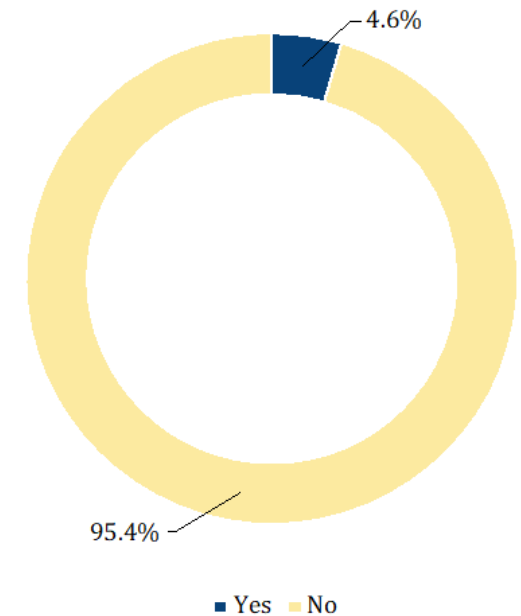


Figure 62

²¹⁵ https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html

²¹⁶ https://www.cdc.gov/mmwr/volumes/69/wr/mm6937e1.htm?s_cid=mm6937e1_w%20

²¹⁷ <https://www.cdc.gov/mmwr/volumes/69/wr/mm6950a1.htm>

²¹⁸ <https://www.cdc.gov/mmwr/volumes/69/wr/mm6950a1.htm>

²¹⁹ [https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-\(PAYS\).aspx](https://www.pccd.pa.gov/Juvenile-Justice/Pages/Pennsylvania-Youth-Survey-(PAYS).aspx)

²²⁰ <https://www.drugabuse.gov/publications/drugfacts/marijuana>

²²¹ <https://www.cdc.gov/nchs/data/hus/2019/020-508.pdf>

months.²²² This usage was highest among people 18-25 (34.8%) and people 26-34 (29.6%). Of CHNA survey respondents, 4.6% from the Bethlehem campus and Star Community Health service area indicate use of marijuana.

..... Opioids

The CDC reports that the opioid epidemic has occurred in three phases.²²³ First, prescription opioids increased in the 1990s with overdose deaths continually increasing since 1999. The second phase began around 2010 with increased overdoses involving heroin. Heroin is an alternative to prescription opioids due to its similar effect on the body. The third phase began in 2013 with the introduction of synthetic opioids, like illicitly manufactured fentanyl. The CDC provides descriptions on the most commonly used opioids: prescription opioids, fentanyl, and heroin. Prescription opioids can be used to treat pain and are often prescribed following surgery, an injury, or to manage a disease like cancer. However, there has been a dramatic increase in the prescription of opioids for chronic pain such as back pain or osteoarthritis, “despite serious risks and the lack of evidence about their long-term effectiveness.”²²⁴ Prescription opioids are highly addictive, and once addicted it is incredibly difficult to stop using. As many as one in four patients receiving long-term opioid therapy in a primary care setting struggle with an opioid addiction.²²⁵ Common prescription opioids are Methadone, Oxycodone (OxyContin), Hydrocodone (Vicodin), and Benzodiazepines such as alprazolam (Xanax) and diazepam (Valium).

Fentanyl produced pharmaceutically is a synthetic opioid used to treat severe pain. It is 50 to 100 times more potent than morphine. However, the increase in overdose has been linked to illegally made fentanyl which has a heroin-like effect.²²⁶ The CDC reports that rates of overdose deaths involving synthetic opioids other than methadone, which includes fentanyl and fentanyl analogs, increased over 16% from 2018 to 2019. Overdose deaths involving synthetic opioids were nearly 12 times higher in 2019 than in 2013.”²²⁷ Heroin is an illegal and highly addictive drug that is typically injected, and heroin use increases the risk of serious infections like HIV, Hepatitis C, Hepatitis B, and bacterial infections. Heroin use has increased by 5 times from 2010 to 2018.²²⁸ This is problematic because heroin is typically used with other substances, which can increase the risk of an overdose.

²²² <https://www.cdc.gov/drugoverdose/pubs/related-publications.html>

²²³ <https://www.cdc.gov/drugoverdose/epidemic/index.html>

²²⁴ <https://www.cdc.gov/drugoverdose/opioids/prescribed.html>

²²⁵ <https://www.cdc.gov/drugoverdose/opioids/prescribed.html>

²²⁶ <https://www.cdc.gov/drugoverdose/opioids/fentanyl.html>

²²⁷ <https://www.cdc.gov/drugoverdose/opioids/fentanyl.html>

²²⁸ <https://www.cdc.gov/drugoverdose/opioids/heroin.html>

The CDC released a report (2020) on drug overdose in the United States from 1999-2019.²²⁹ The age-adjusted rate of drug overdose deaths involving synthetic opioids increased from 1.0 per 100,000 population in 2013 to 11.4 in 2019. The average annual increase rate was lower from 2017-2019 (9% per year) than 2013-2017 (75% per year). The age-adjusted rate of drug overdose deaths involving natural and semisynthetic opioids, like oxycodone and hydrocodone, increased from 1.0 per 100,000 population in 1999 to 2.7 in 2011, then increasing again to 4.4 in 2016 and 2017. The rates in 2018 (3.8) and 2019 (3.6) were lower than 2017.²³⁰

The Pennsylvania Health Care Cost Containment Council (PHC4) collects data for each calendar year (CY) on opioid overdose hospital admissions and opioid use disorder (OUD) hospital admissions. In CY 2019, there were 23.2 hospital admissions for an opioid overdose per 100,000 people and 293.2 hospital admissions with opioid use disorder per 100,000 people in Pennsylvania.²³¹ Lehigh county had a rate of 24.6 opioid overdose hospital admissions per 100,000 people and a rate of 336.9 hospital admissions with OUD per 100,000 people. In Northampton county, there was a rate of 24.2 opioid overdose hospital admissions per 100,000 people and a rate of 380.8 hospital admissions with OUD per 100,000 people.

Opioid use while pregnant can have severe negative outcomes for the child, potentially resulting in Neonatal Abstinence Syndrome (NAS). NAS births occur “in a newborn who was exposed to addictive substances while in the mother’s womb. The most common opiate drugs that are associated with NAS are heroin, codeine, oxycodone (oxycontin), methadone and buprenorphine.”²³² The effects of NAS usually occur within 48-72 hours of birth, suffering from withdrawal, low birth weight, tremors, vomiting, fever and more. In Pennsylvania, there have been 5,596 NAS births from January 1, 2018 to March 6, 2021.²³³ In 2018, Lehigh county had 13.8 NAS births per 1,000 births, 56 NAS births in total.²³⁴ Northampton county had 11.9 NAS births per 1,000 births, 36 NAS births in total.²³⁵

As a result of the COVID-19 pandemic, the CDC issued a health alert on December 17, 2020 indicating an increase in fatal drug overdoses across the United States driven by synthetic opioids before and during the pandemic. The purpose of the report was to alert public health departments, healthcare professionals, medical examiners, and coroners of substance use increase and drug overdoses across the U.S. with “a concerning acceleration of the increase in drug overdose deaths, with the largest increase recorded from March 2020 to May 2020, coinciding with the implementation of widespread mitigation measures for the COVID-19 pandemic.”²³⁶ The alert indicated that overdose deaths increased 18.2% from the 12-month period between June 30, 2019 and May 31, 2020. Overdose deaths went from 74,185 in

²²⁹ <https://www.cdc.gov/nchs/data/databriefs/db394-H.pdf>

²³⁰ <https://www.cdc.gov/nchs/data/databriefs/db394-H.pdf>

²³¹ [Phc4.org/m/Opioids/](https://phc4.org/m/Opioids/)

²³² https://nj.gov/health/populationhealth/opioid/opioid_nas.shtml

²³³ <https://data.pa.gov/stories/s/9q45-nckt/>

²³⁴ <https://data.pa.gov/Opioid-Related/Annual-Rate-of-Neonatal-Hospital-Stays-with-Withdr/drhe-nauc>

²³⁵ <https://data.pa.gov/Opioid-Related/Annual-Rate-of-Neonatal-Hospital-Stays-with-Withdr/drhe-nauc>

²³⁶ <https://emergency.cdc.gov/han/2020/han00438.asp>

February 2020 to 75,696 deaths in March 2020 to 77,842 deaths in April 2020, which is the largest monthly increases documented since January 2015 when monthly provisional estimates began.²³⁷ The report also claims that synthetic opioids are the primary driver of the increases in overdose deaths; “the 12-month count of synthetic opioid deaths increased 38.4% from the 12-months ending in June 2019 compared with the 12-months ending in May 2020.”²³⁸ Of the 38 jurisdictions in the U.S. with available synthetic opioid data, 37 jurisdictions reported increases in synthetic opioid overdose deaths, and 18 of the jurisdictions reported increases greater than 50%. Provisional state data is available based on records that meet certain data quality criteria. They should not be considered comparable with the final data and are subject to change. The 12 month-ending provisional counts of drug overdose deaths ending August 2020 for Pennsylvania is 5,008.²³⁹ These numbers are underreported due to incomplete data and should not be assumed to be final. To prevent against the increase in overdose deaths, the CDC recommends states expand the use of naloxone with overdose prevention education; expand access to treatment for substance use disorders; intervene early with individuals at high risk for overdose; improve detection of overdose outbreaks.

..... Overdose

Overdose has been discussed previously, as it is a growing concern with prevalence rates increasing, especially during the pandemic.²⁴⁰ Drug overdose deaths are the leading contributor to premature death and are largely preventable.²⁴¹ Since 2000, the rate of drug overdose deaths has increased by 137% across the county, which can be largely attributed to opioids, as there has been a 200% increase in opioid overdose deaths since 2000.²⁴² The NORC, National Opinion Research Center, reports on drug overdose deaths in the United States.

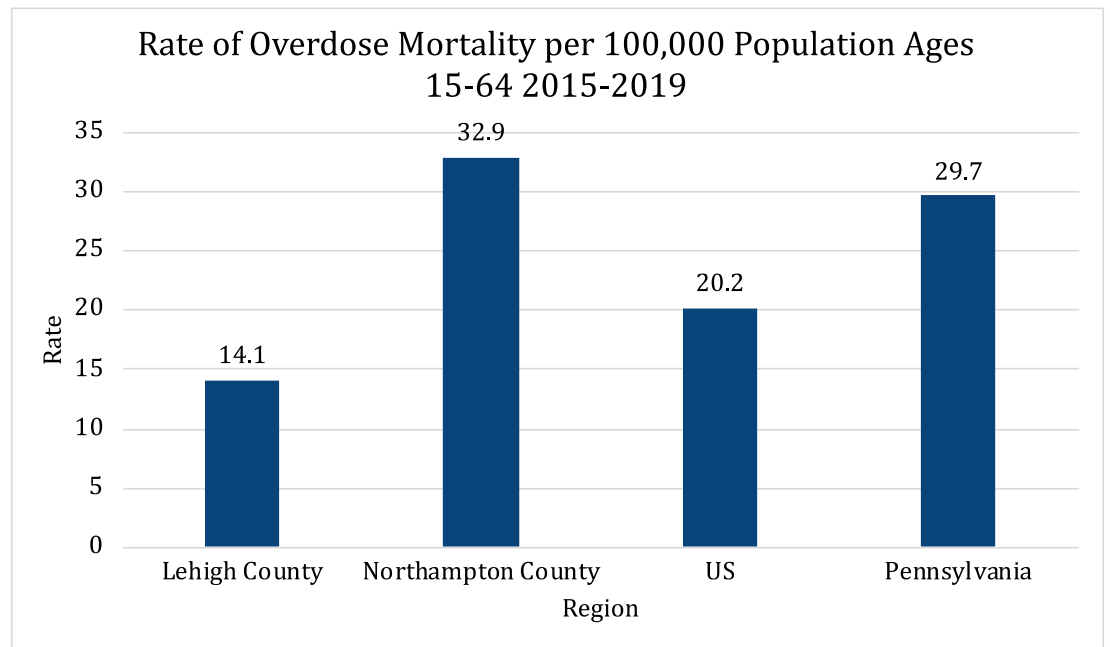


Figure 63

²³⁷ <https://emergency.cdc.gov/han/2020/han00438.asp>
²³⁸ <https://emergency.cdc.gov/han/2020/han00438.asp>
²³⁹ <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm>
²⁴⁰ <https://emergency.cdc.gov/han/2020/han00438.asp>
²⁴¹ <https://www.countyhealthrankings.org/>
²⁴² <https://www.countyhealthrankings.org/>

From 2015-2019, there has been a rate of 28.7 drug overdose deaths per 100,000 people in the U.S. aged 15-64 years old.²⁴³ In Pennsylvania, the rate is 53.3 per 100,000 population. In Lehigh county, the rate is 39.4 overdose deaths per 100,000 people and 32.9 overdoses per 100,000 people in Northampton county. The CDC also published a drug overdose death report for 1999-2019 in December 2020. They report that the age adjusted rate of drug overdose deaths in 2019 was 21.6 per 100,000, which is higher than in 2018, 20.7 per 100,000.²⁴⁴ Adults 35-44 had the highest rate of drug overdose deaths of any age group in 2019, which was 40.5 per 100,000 population. Increasing from 2012, drug overdose deaths involving cocaine increased from 1.4 to 4.9 per 100,000 population in 2019 and those deaths involving psychostimulants with abuse potential, such as amphetamine and methamphetamine, increased from 0.8 to 5.0 per 100,000 population, more than 6-fold.²⁴⁵ As of 2018, Pennsylvania ranks 4 overall for age-adjusted drug overdose deaths in the United States.²⁴⁶ During this time, Pennsylvania had 4,415 drug overdose deaths. Of the total drug overdose deaths in Pennsylvania, 65% of which involved opioids (2,866 deaths).²⁴⁷

..... Stigma

Stigma is another important component to substance use disorder regarding usage and receiving or accessing help. Stigma is defined as “a strong feeling of disapproval that most people in a society have about something.”²⁴⁸ Stigma may be a barrier to seeking help for someone suffering from substance use due to fear of disapproval toward the substance use from family or friends. St. Luke's has worked with our own staff and other community organizations to inform people about stigma and how it can be minimized to help the most amount of people.

In the Fall of 2019, a stigma reduction survey was sent to all the campuses whose employees are directly related to substance use disorders (SUD) as part of the Opioid Stewardship Program, and 2,898 of 4,500 inpatient and outpatient network providers, nurses, and support staff received and completed the confidential stigma survey and education. Stigma campaigns are being piloted with phase two involving the entire network.

Beginning in the Fall of 2020, St. Luke's Rural Community Opioid Response committee partnered to develop Community Stigma Presentations. With the presentations, we have been able to reach 286 people as of Spring 2021. The stigma education included partners such as child development organizations, business organizations, churches, first responders, and mental health service organizations.

²⁴³ <https://opioidmisusetool.norc.org/>

²⁴⁴ <https://www.cdc.gov/nchs/data/databriefs/db394-H.pdf>

²⁴⁵ <https://www.cdc.gov/nchs/data/databriefs/db394-H.pdf>

²⁴⁶ <https://www.cdc.gov/drugoverdose/data/statedeaths/drug-overdose-death-2018.html>

²⁴⁷ <https://www.drugabuse.gov/drug-topics/opioids/opioid-summaries-by-state>

²⁴⁸ <https://dictionary.cambridge.org/us/dictionary/english/stigma>

..... Naloxone

Naloxone is a drug that can quickly reduce the effects of an opioid overdose. The National Institute of Drug Abuse defines naloxone as “an opioid antagonist—meaning that it binds to opioid receptors and can reverse and block the effects of other opioids. It can very quickly restore normal respiration to a person whose breathing has slowed or stopped as a result of overdosing with heroin or prescription opioid pain medications.”²⁴⁹ Naloxone is safe and can be administered in three ways: injected, auto injected, or as a nasal spray. It is important for a variety of people to understand how to administer naloxone as it can quickly save someone’s life. In response to opioid use and substance use, St. Luke’s was awarded a Health Resource Service Administration (HRSA) Rural Community Opioid Response Planning (RCORP) grant in 2018 to work within a consortium to improve OUD prevention, treatment, and recovery response. With the grant, along with funding from Lehigh County Authority on Drugs and Alcohol to fund our Sacred Heart Initiative, St. Luke’s ran an urban (St. Luke’s Sacred Heart) and rural (St. Luke’s Miners Campus) pilot, which has educated and distributed naloxone to 730 and 255 people, respectively.

..... Warm Hand Off

A warm hand off is a process that has been implemented in St. Luke’s and defined as “a transfer of care between two members of the health care team, where the handoff occurs in front of the patient and family. This transparent handoff of care allows patients and families to hear what is said and engages patients and families in communication, giving them the opportunity to clarify or correct information or ask questions about their care.”²⁵⁰ Screening, Brief Intervention, and Referral to Treatment (SBIRT) is another approach adopted in St. Luke’s care. SBIRT is used for early intervention in substance use disorders to quickly assess the severity of substance use and identify the appropriate level of care.²⁵¹ During CY 2021, a total of 2,637 patients have received full SBIRT at 11 of St. Luke’s campuses. Of those SBIRT patients, 56% have been referred with warm hand off and 32% have entered substance use treatment.

..... Opioid Encounters

While opioid use and overdoses have been increasing, especially in relation to the COVID-19 pandemic, St. Luke’s has been rising to meet the needs of the community with support services including: Stigma training, naloxone education and distribution, SBIRT, and warm hand offs. From July 2019 to January 2021, St. Luke’s has encountered 6,319 opioid use disorder cases and 2,097 overdose encounters. Encounters have fluctuated each month for both Opioid Use Disorder (OUD) and overdose, with no significant changes.

²⁴⁹ <https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-reversal-naloxone-narcan-evzio>

²⁵⁰ <https://www.ahrq.gov/patient-safety/reports/engage/interventions/warmhandoff.html>

²⁵¹ <https://www.samhsa.gov/sbirt>

SUD Response at St. Luke's Monroe, St. Luke's Lehigh, St. Luke's Miners, and Geisinger St. Luke's is sponsored in part by the Pocono Mountains United Way and the All One Foundation as well as the Health Resource and Service Administration (HRSA)* Rural Community Opioid Response Program.

*This program was sponsored in part and supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$1,000,000 (implementation grant) with approximately 50% financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.

Health Outcomes

In the 2021 Robert Wood Johnson Foundation County Health Rankings, Lehigh county ranks 13 overall and Northampton county ranks 11 overall in Pennsylvania for health outcomes. Both counties are ranked among the healthiest counties in Pennsylvania in the 75-100th percentile. America's Health Ranking ranks Pennsylvania 34 out of 50 for health outcomes. For both organizations, a ranking closest to 1 indicates healthier outcomes.

..... Morbidity, Mortality, and Life Expectancy

Morbidity, mortality, and life expectancy are key health outcomes that help us to determine the overall health of the populations we serve. 2021 Robert Wood Johnson Foundation County Health Rankings data reports a premature death health outcome, which measures the age-adjusted years of potential life lost before age 75 per 100,000 population. Years of potential life lost rate in Lehigh county is 6,400 deaths per 100,000 and Northampton county is 6,000 deaths per 100,000, both of which are better than Pennsylvania overall (7,500) but worse than U.S. top performers (5,400), indicating there is room for improvement in mortality outcomes among residents surrounding St. Luke's Bethlehem campus and Star Community Health. Lehigh county is, however, improving in the trend of premature death over the last two decades.²⁵²

According to the CDC, the average life expectancy from birth in the U.S. is 78.8 years.²⁵³ The Robert Wood Johnson County Healthy Rankings measures life expectancy as an age-adjusted, average number of years a person can expect to live.²⁵⁴ In Pennsylvania, the life expectancy is

²⁵² <https://www.countyhealthrankings.org/>

²⁵³ <https://www.cdc.gov/nchs/fastats/life-expectancy.htm>

²⁵⁴ <https://www.countyhealthrankings.org/>

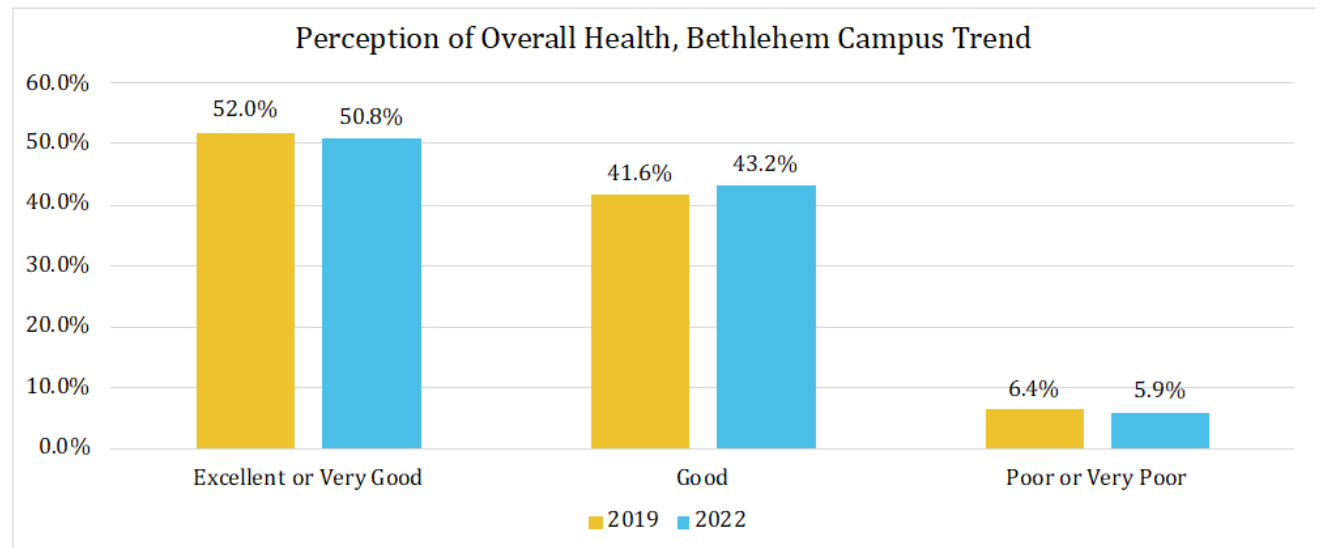
78.4 and the range of life expectancy in the counties of Pennsylvania is 74.9-83. Life expectancy in Lehigh county is 79.6 and 80.1 in Northampton county.


Finally, low birthweight is another health outcome that can contribute to life expectancy. Low birthweight is measured by the percentage of live births who are under 2,500 grams (5 pounds, 8 ounces), which can be an indicator for future health problems such as growth problems, cardiovascular disease, respiratory conditions, and visual, auditory, and intellectual impairments.²⁵⁵ The overall low birthweight percentage is 8% in Pennsylvania and 6% for U.S. top performers. The low birthweight percentage is 8% in both Lehigh and Northampton county.

COVID-19 has also impacted mortality rates around the world. While we have yet to understand the impact the premature death rate due to pandemic, as of the end of December 2021 there were more than 57 million confirmed cases in the United States and more than 800,000 deaths, a mortality rate of 1.4%.²⁵⁶ In Pennsylvania, there were 2,147,482 cases reported (16,774.6 per 100,000), 37,111 deaths, and a mortality rate of 1.7%.²⁵⁷ In Lehigh county, there were 68,397 cases (18,581.1 per 100,000), 1,055 deaths, and a mortality rate of 1.5%. In Northampton county, there were 62,242 cases (20,420.1 per 100,000), 890 deaths, and a mortality rate of 1.4%.

..... Perceptions of Health

It is important to assess a community's perceived sense of health status to interpret their overall well-being, as well as highlight areas where health education would benefit the community. According to the 2022 CHNA survey, most individuals in the service area reported excellent or very good health (50.8%), followed by good (43.2%), and poor or very poor (5.9%).



 *Figure 64*

²⁵⁵ <https://www.countyhealthrankings.org/>

²⁵⁶ <https://coronavirus.jhu.edu/map.html>

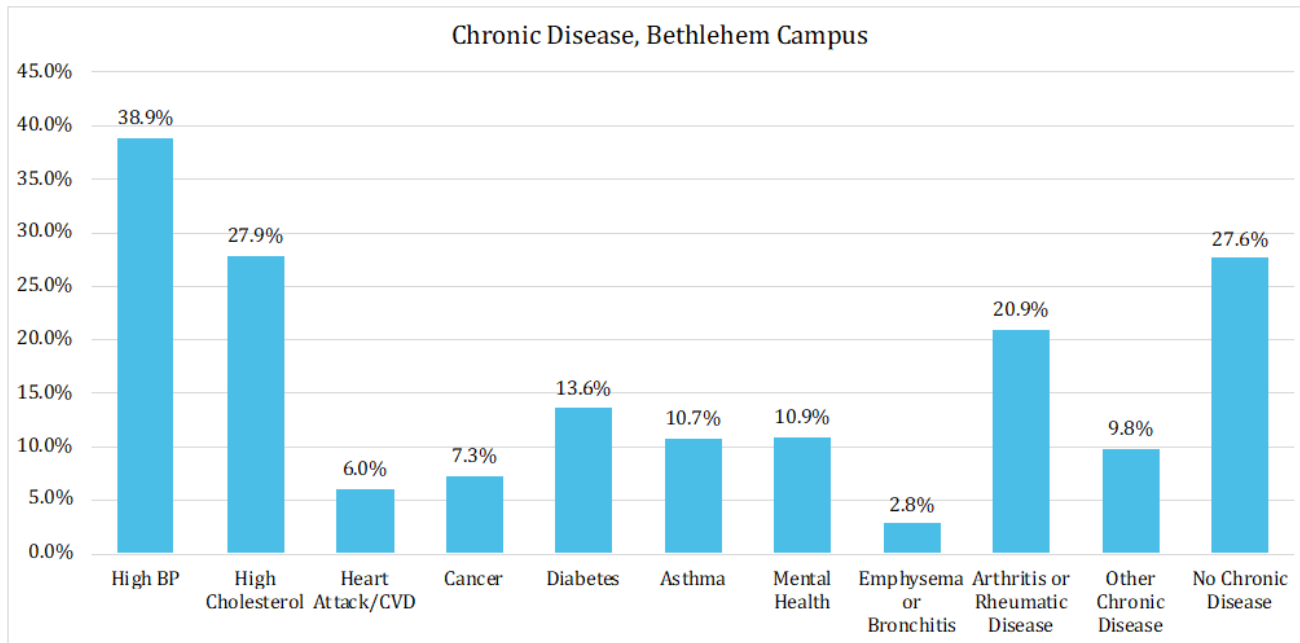
²⁵⁷ <https://www.health.pa.gov/topics/disease/coronavirus/Pages/Cases.aspx>


..... Chronic Disease

A 2020 study analyzing data from the 2018 National Health Interview Survey (NHIS) concluded that more than half of all U.S. adults have at least one chronic disease, and more than 1 in 4 have multiple chronic conditions.²⁵⁸ Among the most common chronic conditions, diabetes, hypertension and hyperlipidemia frequently plague U.S. adults leading to a myriad of health complications and a heavy cost to the healthcare system. The 2022 CHNA survey results conveyed that the highest percentage of Bethlehem campus and Star Community Health service area respondents have high blood pressure (38.9%), followed by high cholesterol (27.9%), and arthritis or a rheumatic disease (20.9%). While 27.6% of respondents indicated not to have a chronic disease, only 20% of respondents over 45 years of age reported not having a chronic disease of any kind.



“It always rises to the top as far as obesity, heart disease, and diabetes. We are on par with what is occurring nationally. I feel like the trends are not moving in the right direction.”



 *Figure 65*

²⁵⁸ https://www.cdc.gov/pcd/issues/2020/20_0130.htm

..... **Diabetes**

According to the 2020 CDC National Diabetes Statistics Report, an estimated 34.2 million Americans (13% of all U.S. adults) have diabetes; 90 to 95% of all diabetes is type 2 and 21.4% of adults with diabetes were not aware they had diabetes and thus it went undiagnosed. According to the 2017 Behavioral Risk Factor Surveillance System (BRFSS), a national, health related survey, 11.1% of adults in Lehigh county and 10.9% of adults in Northampton county aged 18 years and older have been diagnosed with diabetes.²⁵⁹ See Figure 66, which compares Lehigh and Northampton county diabetes diagnosis rates to other service area counties and the U.S. overall.

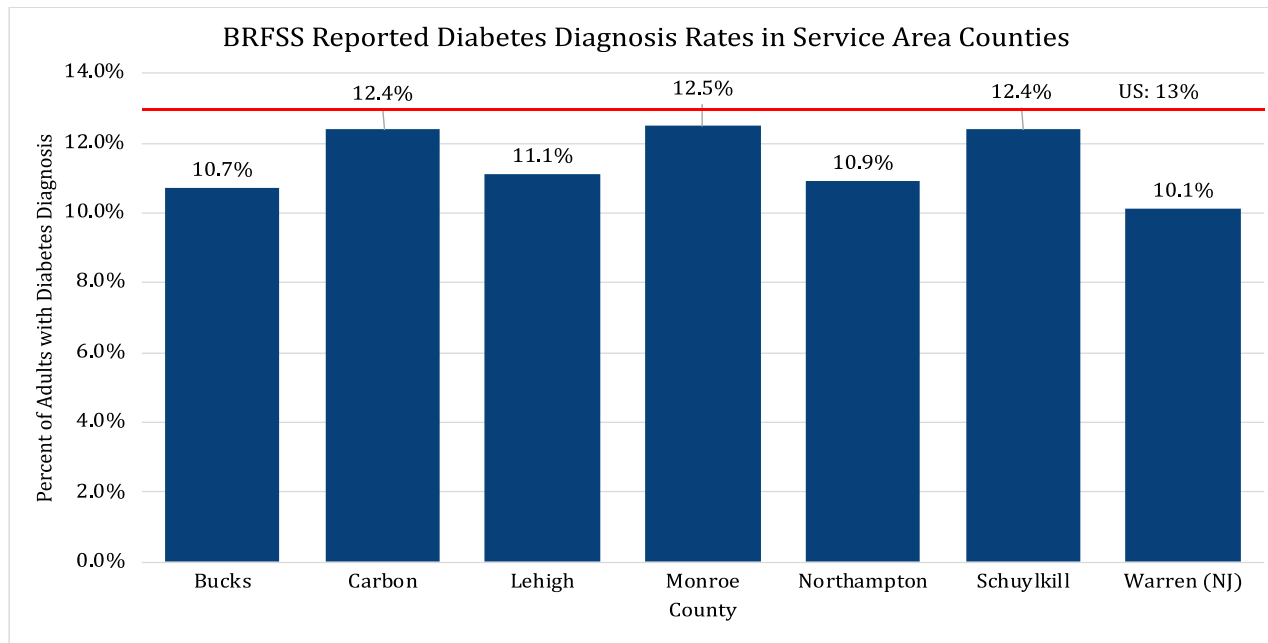
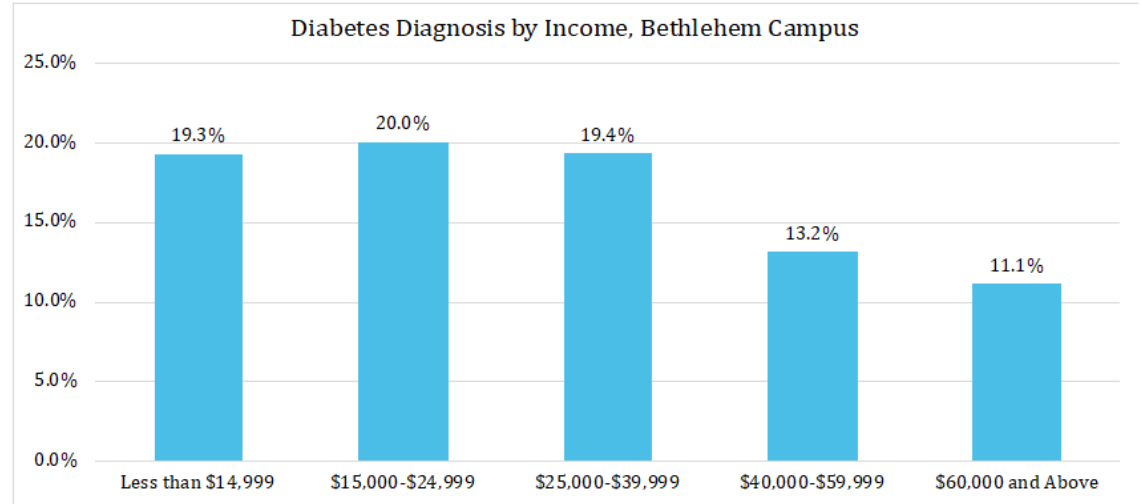



Figure 66

²⁵⁹ <https://chronicdata.cdc.gov/500-Cities-Places/PLACES-Local-Data-for-Better-Health-County-Data-20/swc5-untb/data>

Of all CHNA survey respondents from the Bethlehem campus and Star Community Health service area, 13.6% have diabetes. When broken down by income, respondents whose household income is \$15,000-\$24,999 have the highest rates of diabetes (20%) and respondents whose household income is \$60,000 and above have the lowest rates (11.1%). Respondents who make less than \$40,000 have the highest rates of diabetes, all around 20%.



 *Figure 67*

..... **Hypertension**

Hypertension is defined as having a blood pressure that is at or above a systolic value of 130 mm Hg, which measures the pressure in your arteries when your heart beats,²⁶⁰ and a diastolic value of 80 mm Hg, which measures the pressure in your arteries when your heart rests between beats. In comparison, a normal blood pressure is less than 120/80 mmHg. Data regarding hypertension also includes individuals who are taking medications for hypertension that would otherwise be uncontrolled. According to the CDC 2019 report, the crude prevalence of hypertension in U.S. adults aged 20 and over is 49.6%. According to the 2017 Behavioral Risk Factor Surveillance System (BRFSS), a national, health related survey, 31.2% of adults in Lehigh county and 33.2% of adults in

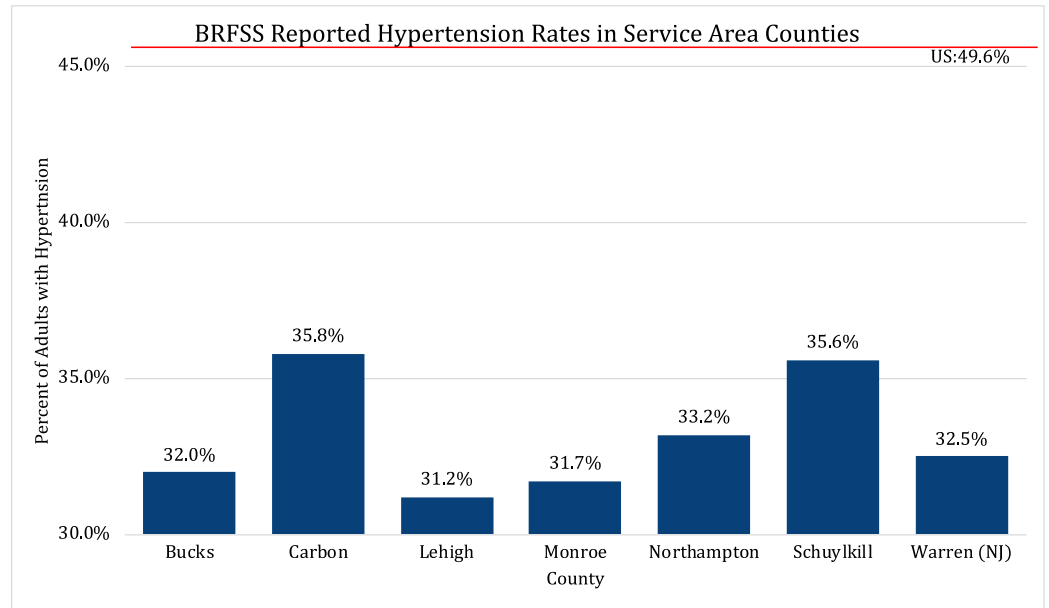
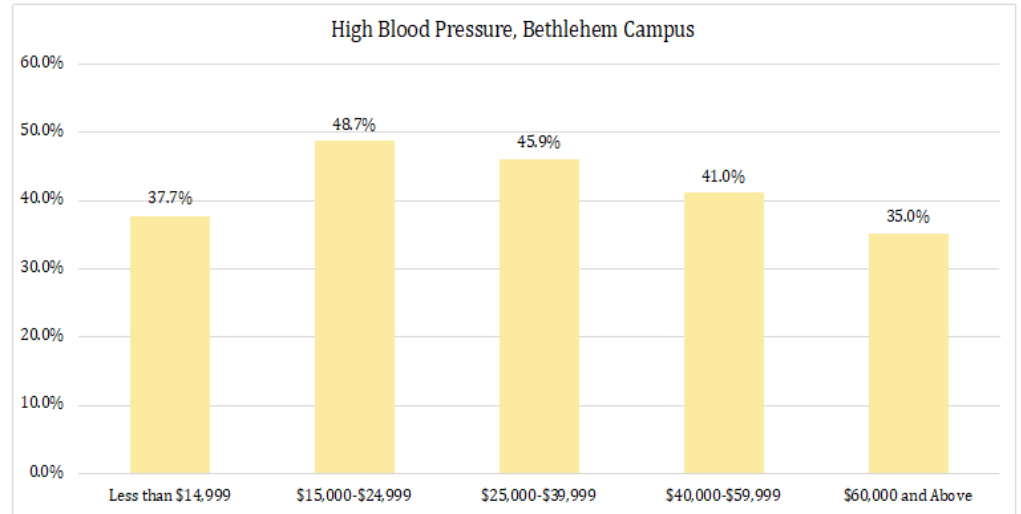



Figure 68

²⁶⁰ <https://www.cdc.gov/bloodpressure/about.htm>

Northampton county aged 18 years and older have been diagnosed with high blood pressure.²⁶¹ See Figure 68, which compares hypertension diagnosis rates across service area counties and the U.S. overall.

Of all Bethlehem campus and Star Community Health service area CHNA survey respondents, 38.9% have high blood pressure. When broken down by income, respondents whose household income is \$15,000-\$24,999 have the highest rates of high blood pressure (48.7%) while respondents whose household income is \$60,000 and above have the lowest rates (35%). It is important to note that all of these rates are relatively high, regardless of income.



 *Figure 69*

..... **Hyperlipidemia**

Hyperlipidemia, or high cholesterol, is defined as a total serum cholesterol at or above 240 mg/dL, which stands for milligrams per deciliter and is a unit of measure that shows the concentration of a substance in a fluid. Data regarding hyperlipidemia also includes individuals who are taking medications to control their high cholesterol. According to the 2019 CDC report, 26.7% of U.S. adults aged 20 and over have been diagnosed with hyperlipidemia; that is more than 1 in 4 U.S. adults. According to the 2017 BRFSS, 33.5% of adults in Lehigh county and 33.3% of adults in Northampton county aged 18 years and older, who have been screened in the past 5 years have been diagnosed with high cholesterol.²⁶² See Figure

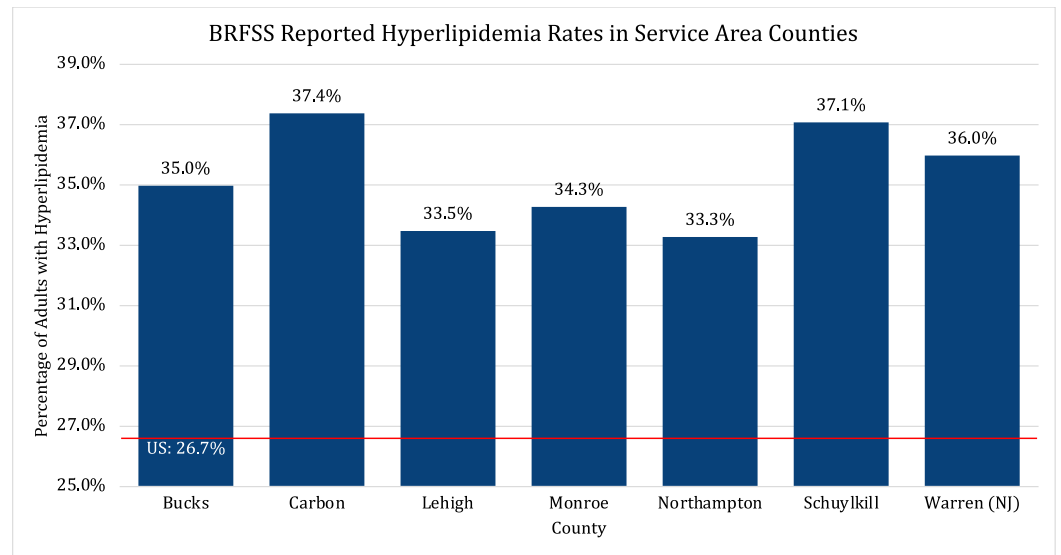



Figure 70

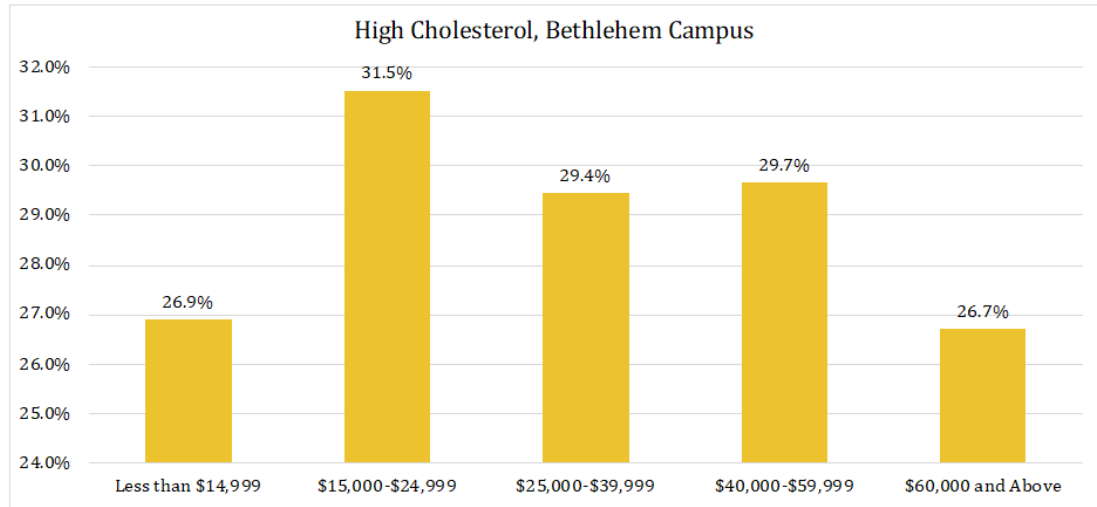
²⁶¹ <https://chronicdata.cdc.gov/500-Cities-Places/PLACES-Local-Data-for-Better-Health-County-Data-20/swc5-untb/data>

²⁶² <https://chronicdata.cdc.gov/500-Cities-Places/PLACES-Local-Data-for-Better-Health-County-Data-20/swc5-untb/data>

70, which compares hyperlipidemia diagnosis rates across service area counties and the U.S. overall.

Of all CHNA survey respondents from the Bethlehem campus and Star Community Health service area, 27.9% have high cholesterol. When broken down by income, respondents whose household income is \$15,000-\$24,999 have the highest rates of high cholesterol (31.5%) and respondents whose household income is \$60,000 and above have the lowest rates (26.7%).

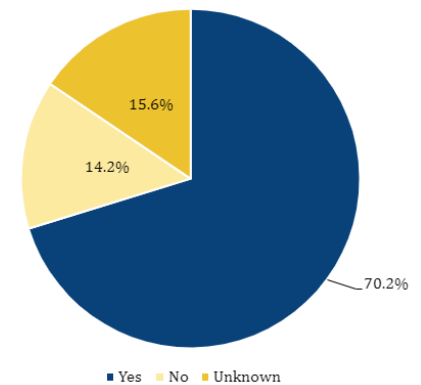
 *Figure 71*




..... Cancer

In the U.S., 1.7 million people are diagnosed with cancer each year and comes with an estimated healthcare cost of \$174 billion.²⁶³ Cancer is the 2nd leading cause of death nationally with over half a million deaths each year.²⁶⁴ According to the National Cancer Institute, cancer incidence in the U.S. is 448.7 per 100,000.²⁶⁵ Pennsylvania has a cancer incidence of 484.6 per 100,000, which falls higher than the U.S. overall. Lehigh county has a cancer incidence of 509.9 per 100,000 and Northampton county has an incidence rate of 523 per 100,000, both of which are significantly higher than Pennsylvania's cancer incidence. Northampton county has the highest incident rate in all service area counties and Lehigh county has the second highest. There are certain risk factors that increase one's chance of getting cancer.

Colorectal Cancer Screening, Bethlehem Campus



 *Figure 72*

²⁶³ <https://www.cdc.gov/chronicdisease/about/costs/index.htm>

²⁶⁴ <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/cancer.htm>

²⁶⁵ National Cancer Institute's State Cancer Profiles, 2013-2017

Among them, include being overweight or obese, smoking and secondhand smoke exposure, exposure to sun and tanning beds, excessive alcohol use and some infectious diseases. These health behaviors have been discussed in earlier sections of this document and are also discussed in detail, as they related to cancer, in the St. Luke’s Cancer Needs Assessment (CNA). The CNA helps set the strategy around cancer outreach and education in our communities.

In order to be considered up to date with screenings for this analysis, CHNA survey respondents must have had a screening date fall in the recommended time frame for their screening type (figure 73). If a respondent was missing an answer to one of the questions, their screening status was marked “Unknown.” Our survey asked respondents ages 50-74 to indicate their most recent colon cancer screening. Of all Bethlehem campus and Star Community Health service area respondents, 70.2% have been screened, 14.2% have never been screened, and 15.6% are unknown. The CHNA survey also assesses colon cancer screening by insurance type to uncover any disparities and perhaps see if insurance is a barrier to cancer screenings. A large percentage (58%) of respondents ages 50-74 who do not have insurance have never been screened for colon cancer. Since colon cancer can be prevented or caught early with screenings, this is a large gap in care. Additionally, 27% of respondents who use Medicaid have never been screened. Network data is used due to small sample size by campus.

Time Frame for Colorectal Screening based on Screening Type	
Colonoscopy	Within 10 years
Sigmoidoscopy	Within 5 years
Stool Blood Test (i.e.: FIT/FOBT)	Within 1 year

Figure 73

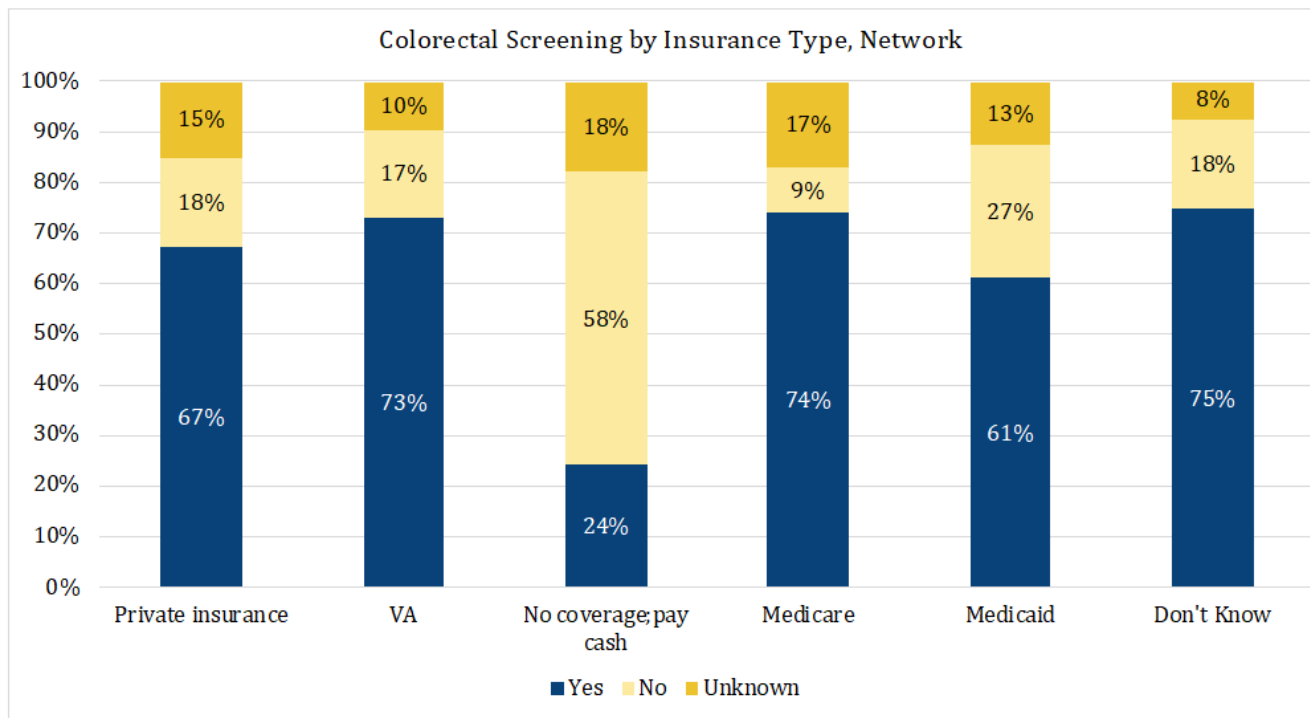


Figure 74

2022 St. Luke's University Health Network Bethlehem campus and Star Community Health Community Health Needs Assessment

Respondents were also asked about breast cancer screening and we compared breast cancer screening rates to insurance. Of all Bethlehem campus and Star Community Health service area respondents ages 40-74 years old, 80.5% had a mammogram, 18.2% have not, 0.4% do not know, and 0.9% was not applicable. When looking at breast cancer screening by insurance, only 26.4% of respondents who do not have insurance have gotten a mammogram, which is drastically lower than any other type of insurance. The network data is used for insurance due to small sample size.

Breast Cancer Screening, Bethlehem Campus

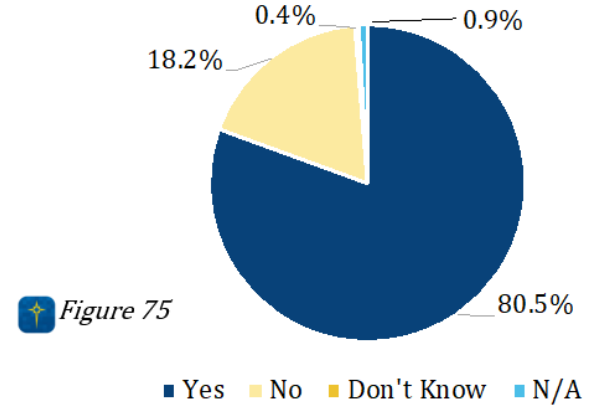


Figure 75

Breast Cancer Screening by Insurance Type, Network

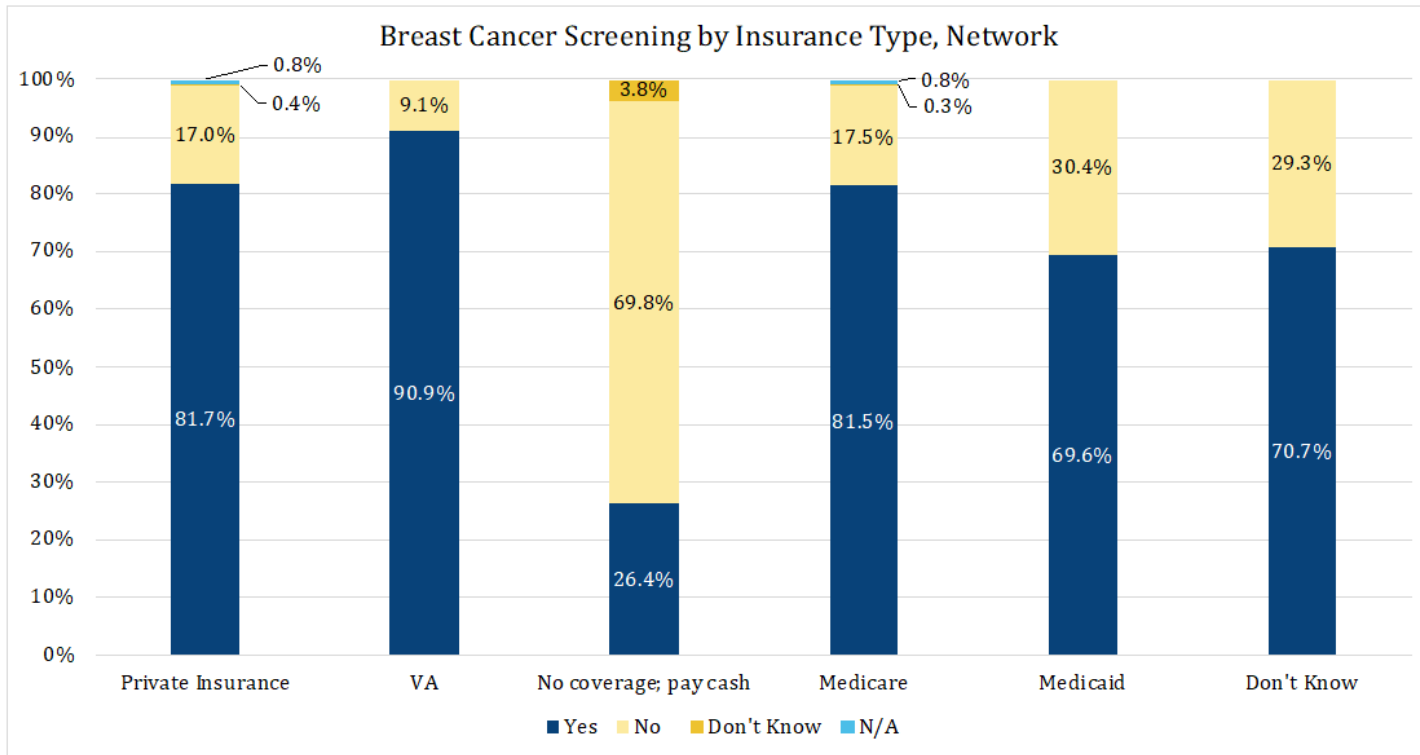
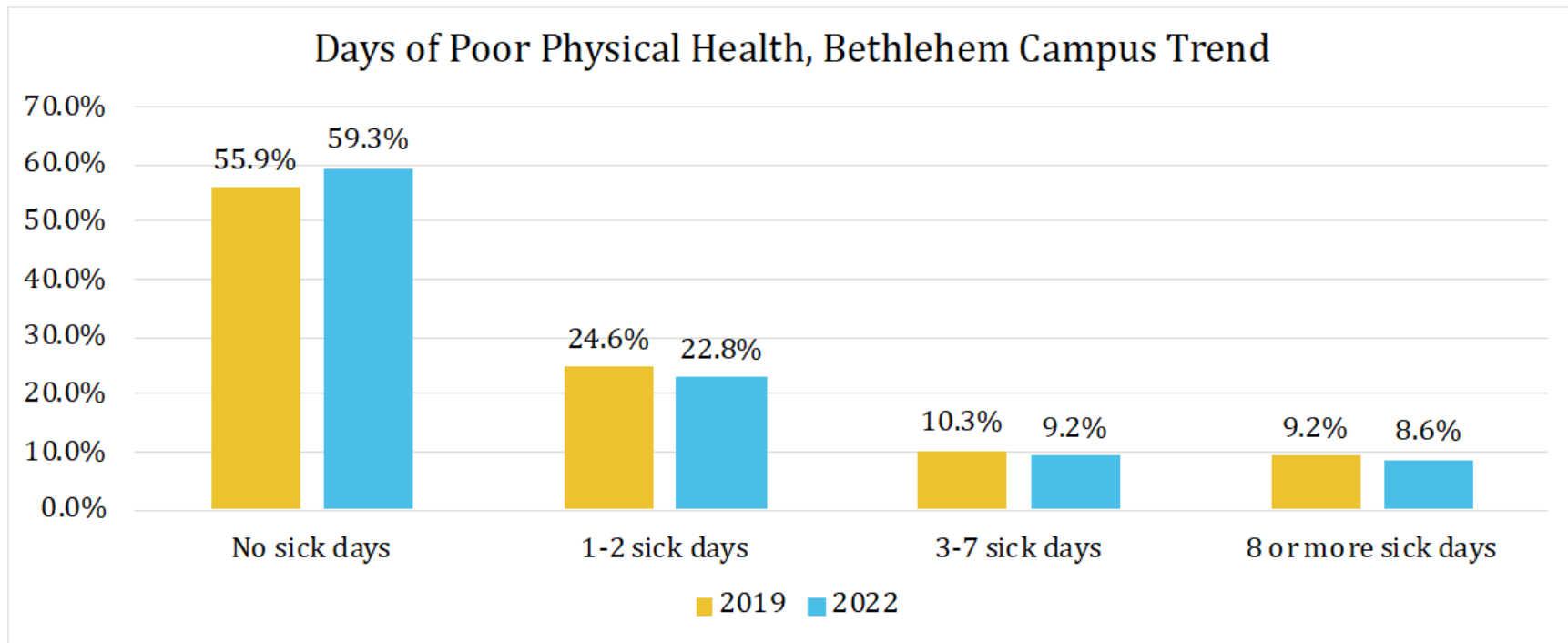



Figure 76

Days of Poor Physical Health

According to Healthy People 2030, daily physical activity can prevent disease, disability, injury, and premature death.²⁶⁶ Robert Wood Johnson County Health Rankings assesses the number of poor physical health days people have because it can be a predictor for negative outcomes associated with health like unemployment, poverty, and mortality. The poor physical health days question is measured by the average number of physical unhealthy days in the past 30 days. In Pennsylvania, the average is 4.0 unhealthy days, with Lehigh county at 4.1 unhealthy days and Northampton county at 4.0 unhealthy days. The majority of respondents indicated no physically unhealthy days in the past 30 days (59.3%), 22.8% indicated 1-2 sick days, 9.2% indicated 3-7 sick days, and 8.6% indicated 8 or more sick days in the past 30 days.



 *Figure 77*

²⁶⁶ <https://health.gov/healthypeople/objectives-and-data/browse-objectives/physical-activity>

..... Days of Poor Mental Health

Poor mental health days is important to assess because it can be a good indicator for overall well-being. The Robert Wood Johnson County Health Rankings assess poor mental health days by the average number of mentally unhealthy days in the past 30 days.²⁶⁷ The poor mental health days question is measured by the average number of mentally unhealthy days in the past 30 days. In Pennsylvania, the overall average is 4.7 unhealthy days, with both Lehigh county and Northampton county at 4.7 unhealthy days. The majority of CHNA survey respondents indicated no mentally unhealthy days in the past 30 days (61.9%), 20.8% of respondents indicated 1-2 sick days, 9.9% indicated 3-7 sick days, and 7.3% indicated 8 or more sick days in the past 30 days.

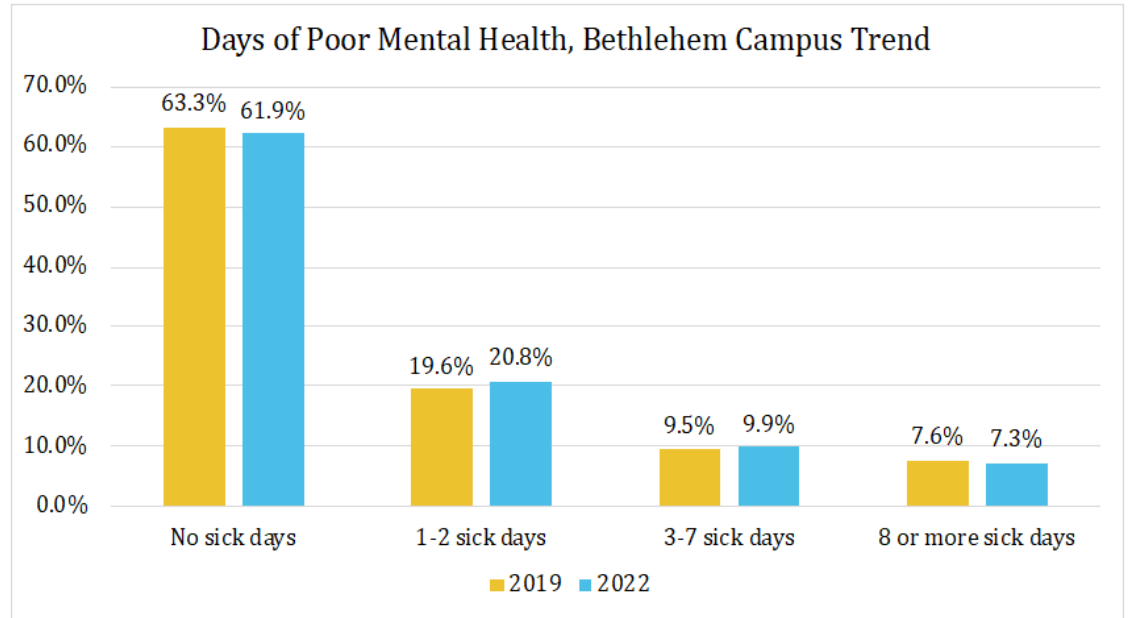


Figure 78

..... Unintentional Injury

In 2019, the United States had 52.7 unintentional injury deaths per 100,000 population, which was the third ranked cause of death.²⁶⁸ In 2018, there were 24.5 million visits to the emergency room for unintentional injuries and in 2016, there were 39.5 million visits to physician offices for unintentional injuries.²⁶⁹ Unintentional injuries are unplanned and preventable when using proper safety precautions; they are also a substantial contributor to premature death. When broken down further for the United States, there were 12 per 100,000 population unintentional fall deaths, 11.5 per 100,000 population motor vehicle traffic deaths, and 20 per 100,000 population unintentional poisoning

²⁶⁷ <https://www.countyhealthrankings.org/>

²⁶⁸ [Wonder.cdc.gov](https://www.cdc.gov/)

²⁶⁹ <https://www.cdc.gov/nchs/fastats/accidental-injury.htm>

deaths.²⁷⁰ In Pennsylvania, the unintentional injury death rate was 67.1 per 100,000 population, along with 65.5 in Lehigh county and 56 in Northampton county.²⁷¹ Healthy People 2030 has set objectives for injury deaths because unintentional injury deaths are so prominent. Some of which are to reduce unintentional injury deaths, reduce deaths involving opioids, and to reduce emergency department visits for nonfatal injuries and unintentional injuries.

COVID-19 Impact

..... COVID-19

In December 2019, the SARS-CoV-2 virus (i.e., COVID-19), was discovered in Wuhan, China and quickly spread across the world. COVID-19 spreads when an infected person breathes out droplets that contain the virus, which can then be breathed in by other people or land on their eyes, nose, and mouth, resulting in quick transmission from person to person. On March 11, 2020, the World Health Organization declared COVID-19 a pandemic, resulting in worldwide shutdowns of workplaces, schools, and stores. To stop the transmission of the virus, the CDC recommended wearing a mask indoors, social distancing at least 6 feet away from other people, and to get vaccinated.²⁷² Many pharmaceutical companies worked on vaccines to fight the virus and multiple vaccines were approved by the Food and Drug Administration (FDA) across all age groups and were readily available to everyone in the United States. On July 27, 2021, the CDC recommended stricter guidelines in response to the Delta variant, which showed to be more contagious and caused more severe illness compared to other COVID-19 variants. In late 2021, the Omicron variant emerged, proving to be more contagious than other COVID-19 variants, but not necessarily more deadly.²⁷³ The most common symptoms of COVID-19 include fever or chills, cough, shortness of breath, headache, and new loss of taste or smell.

Lehigh county was one of the worst hit counties during both waves of the COVID-19 pandemic. During the first wave of the pandemic, the highest number of new cases in one day was 220. During the Fall 2020 wave, the highest number of new cases in one day was 202. The city of Bethlehem is one of the most densely populated areas in the Lehigh Valley, and as such, Lehigh county has consistently led other counties in new cases, topping 500 new cases per 100,000 in the last 14 days during the second wave. Figure 79 highlights daily COVID-19 case

²⁷⁰ [Wonder.cdc.gov](https://www.cdc.gov/wonder)

²⁷¹ <https://www.cdc.gov/injury/wisqars/index.html>

²⁷² <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>

²⁷³ <https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html>

trends in Lehigh county. By the beginning of 2022, with the new Omicron variant and high levels of transmission, the highest number of new cases in one day was 1,106 in Lehigh county.

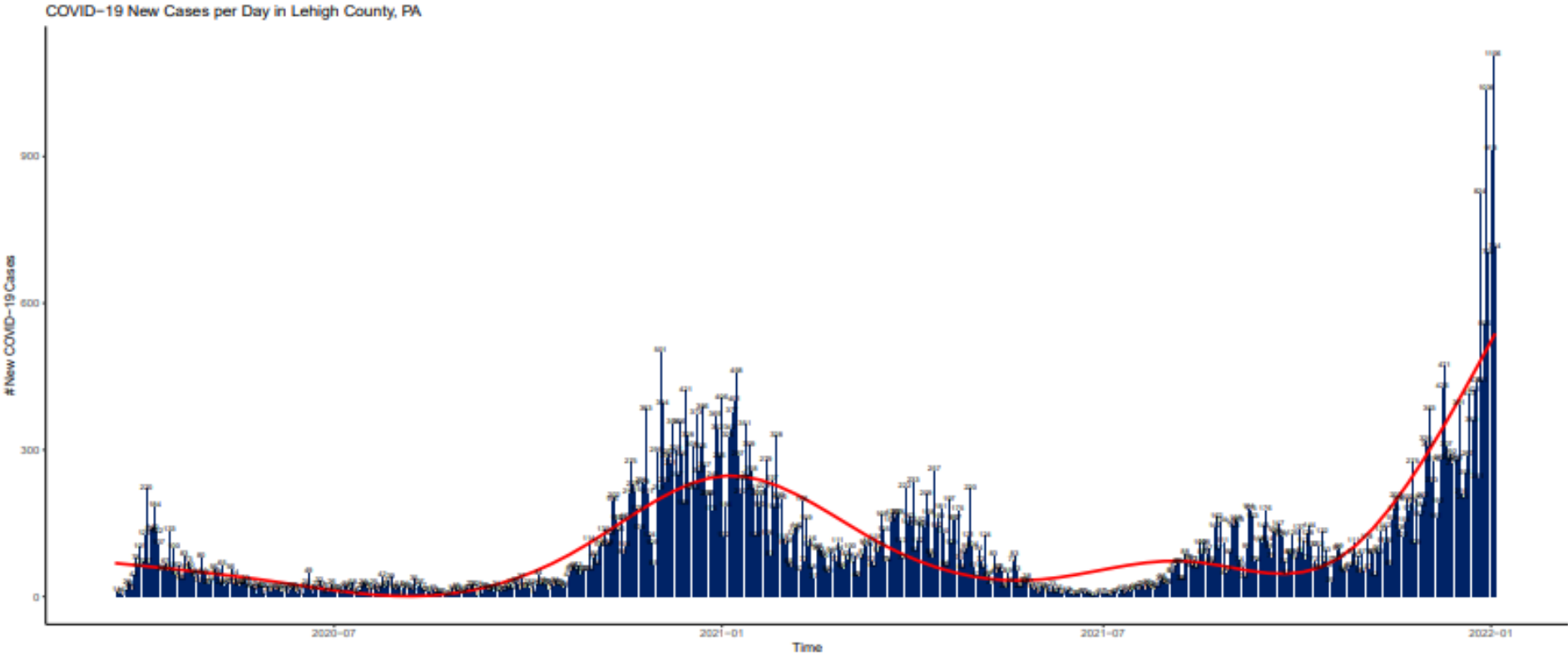


Figure 79

2022 St. Luke's University Health Network Bethlehem campus and Star Community Health Community Health Needs Assessment

Northampton county has experienced substantial community transmission of COVID-19 during both waves of the pandemic. The highest number of new cases recorded in one day was 142 new cases in November 2020. The number of new cases with the new Omicron variant in Northampton county was 1,001.

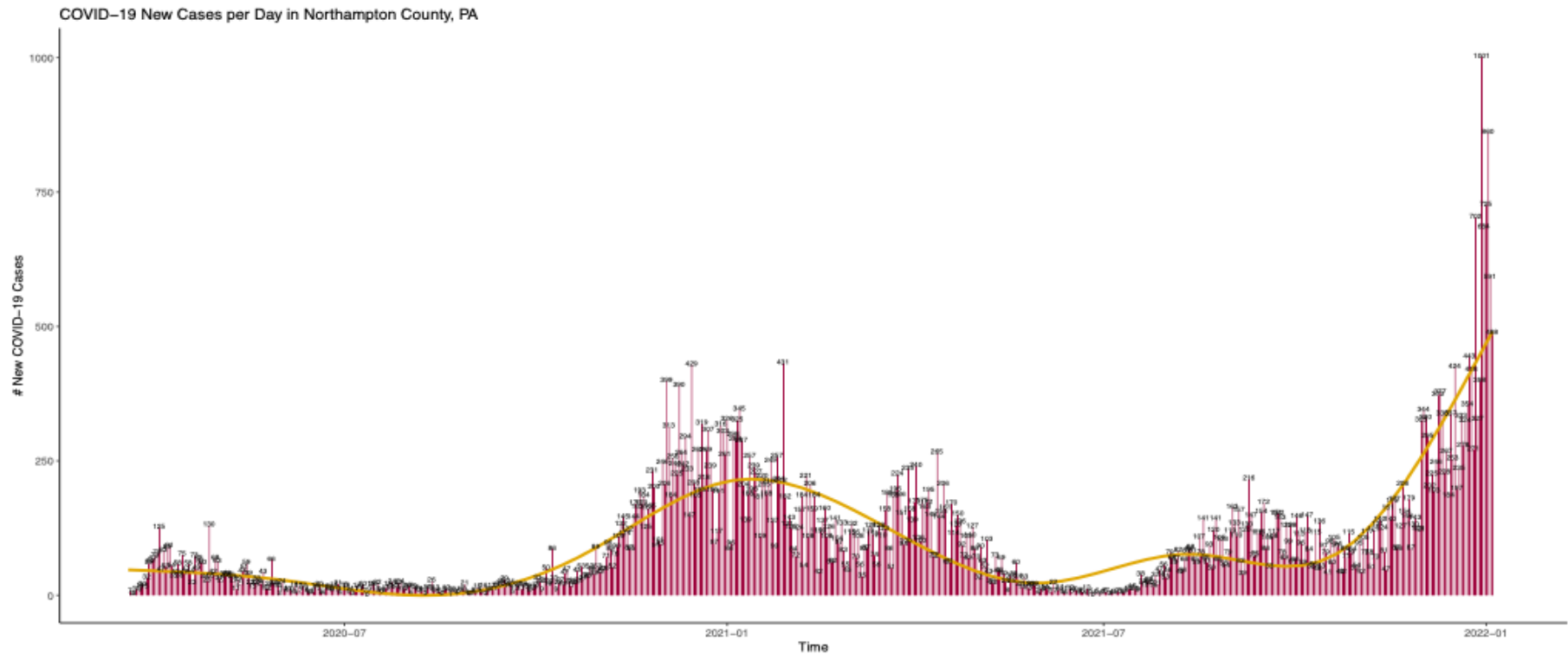
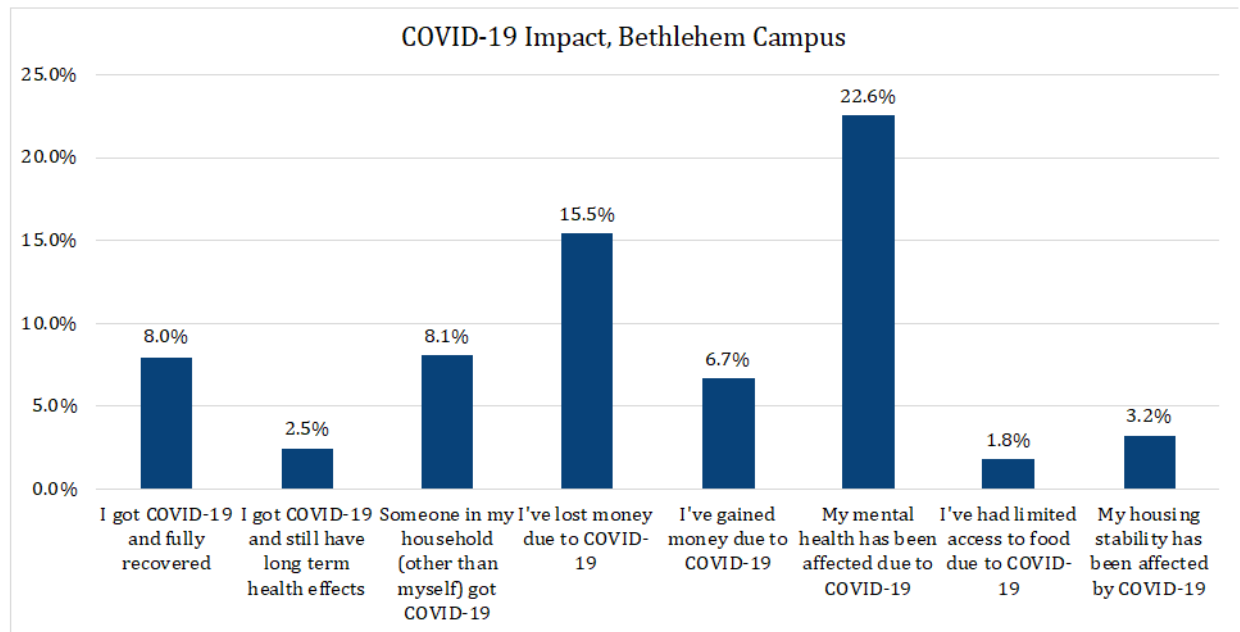



Figure 80

To get an understanding as to how COVID-19 impacted the Bethlehem campus and Star Community Health service area we asked CHNA survey respondents to indicate if any of the categories in Figure 81 applied to them. Of those who indicated they had been impacted by COVID-19, the greatest number of respondents said their mental health was affected (22.6%). Additionally, 15.5% of respondents said they have lost money due COVID-19, 8% said they had COVID-19 and fully recovered while 8.1% said someone else in their household got COVID-19. However, 2.5% said they got COVID-19 and still have long term effects, 1.8% had limited food access, and 3.2% had housing instability due to the pandemic, while 6.7% gained money due to the pandemic.

The COVID-19 pandemic is of universal concern and has far-reaching impacts in our communities. On the surface, it appears as though approximately half of the population (48.7%) in the Bethlehem campus and Star Community Health service area has not been affected by the pandemic. Yet, when we examine these results further, we begin to understand that this is not the case for our vulnerable populations. Results from the CHNA survey in the Bethlehem campus and Star Community Health service area shed light on some key differences among populations and highlight the impact that COVID-19 has on at-risk populations.

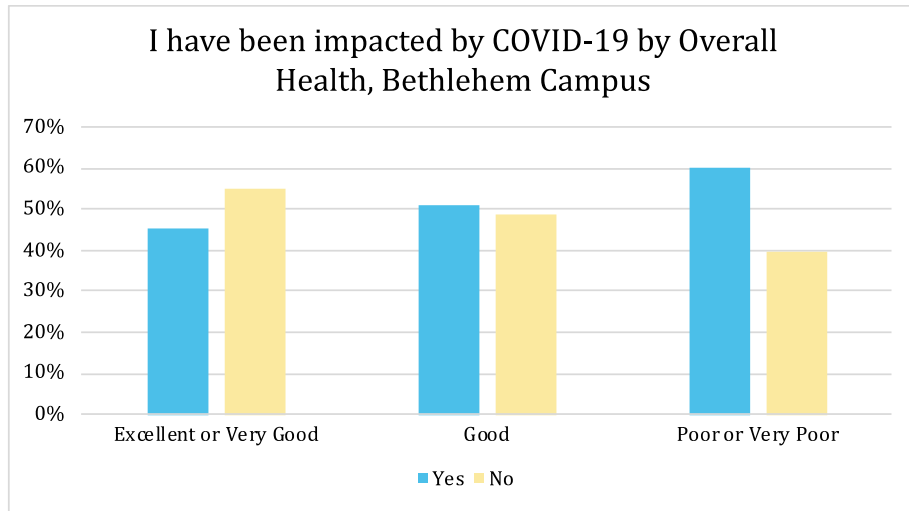



 *Figure 81*

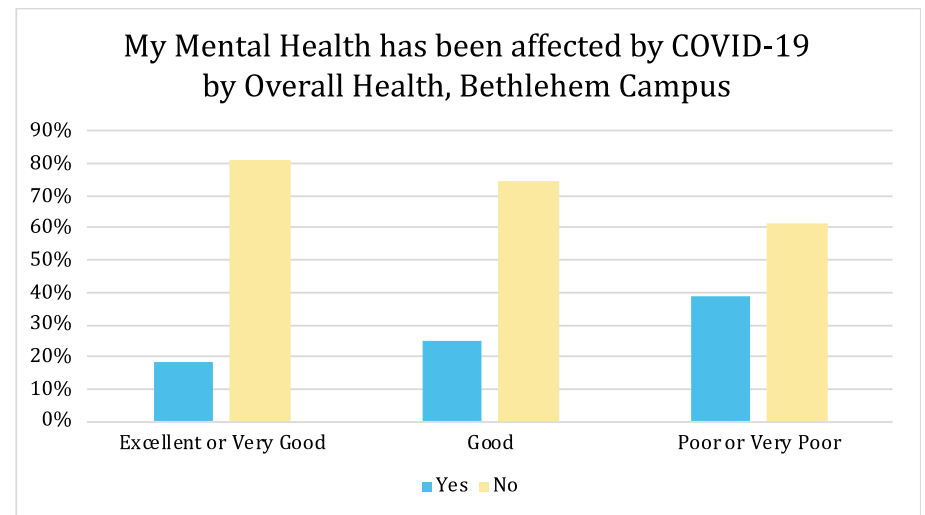
..... **Overall Health and COVID-19**

Overall health status can be an indicator of the ways COVID-19 affects individuals. Poor health, including cancer, illness, and chronic conditions, can make some individuals more susceptible to complications, hospitalization, and death compared to those in overall good health.²⁷⁴ CHNA survey respondents in the Bethlehem campus and Star Community Health service area that reported excellent/very good health were less likely (45%) to report being impacted by COVID-19 compared to respondents reporting good health (51%) or poor/very poor health (60%). This is also the case when reporting the impacts of COVID-19 on mental health, with 19% of respondents in excellent/very good health, 25% in good health, and 39% in poor/very poor health reporting mental health issues due to the pandemic. The relationship between overall perceived health and the impacts of COVID-19 must be considered when analyzing the impact of the pandemic on the health of our already vulnerable populations.

²⁷⁴ <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>



 **Figure 82**



 **Figure 83**

..... Gender and COVID-19

When assessing the impact of COVID-19 based on gender (i.e., sex assigned at birth), national findings indicate that women are more likely than men to worry about COVID-19 (e.g., if someone will get sick, financial burdens, children schooling). Almost 4 in 10 women (compared to 3 in 10 men) reported anxiety and other mental health concerns because of the pandemic.²⁷⁵ Findings from the CHNA survey in the Bethlehem campus and Star Community Health service area reported similar discrepancies between gender, with female respondents more likely to be impacted by COVID-19 (52%) than males (43%). These findings are further supported when looking at the impact of COVID-19 on mental health, with female respondents having their mental health impacted by COVID-19 at higher rates (26%) than males (16%).


..... LGBT and COVID-19

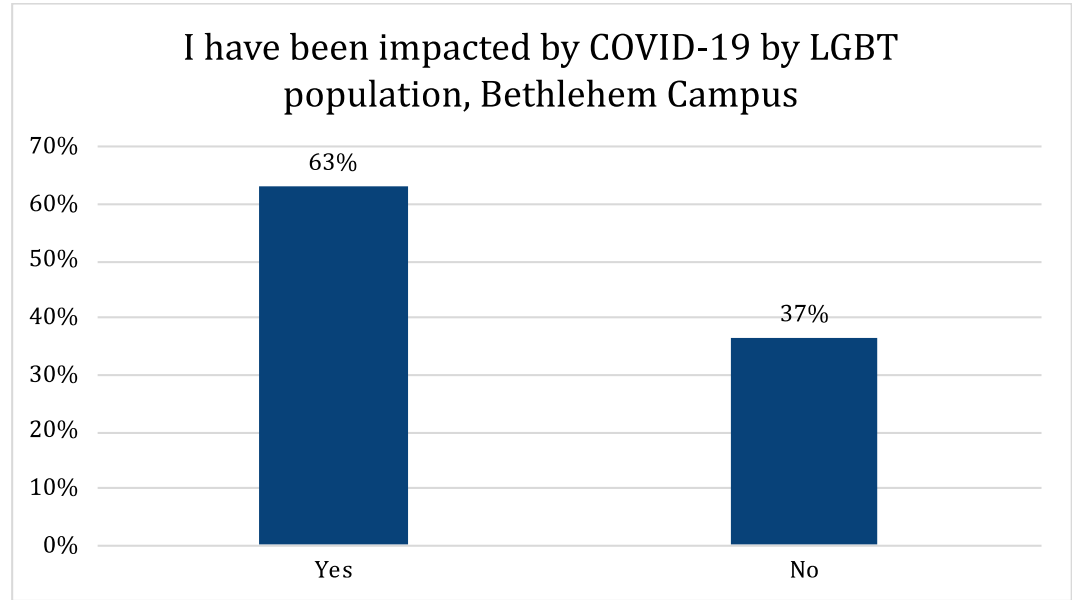
The LGBT population also faces significant challenges related to the COVID-19 pandemic, and nationally the LGBT population faces more economic hardships and mental health issues than their peers.²⁷⁶

²⁷⁵ <https://www.kff.org/coronavirus-covid-19/issue-brief/coronavirus-a-look-at-gender-differences-in-awareness-and-actions>

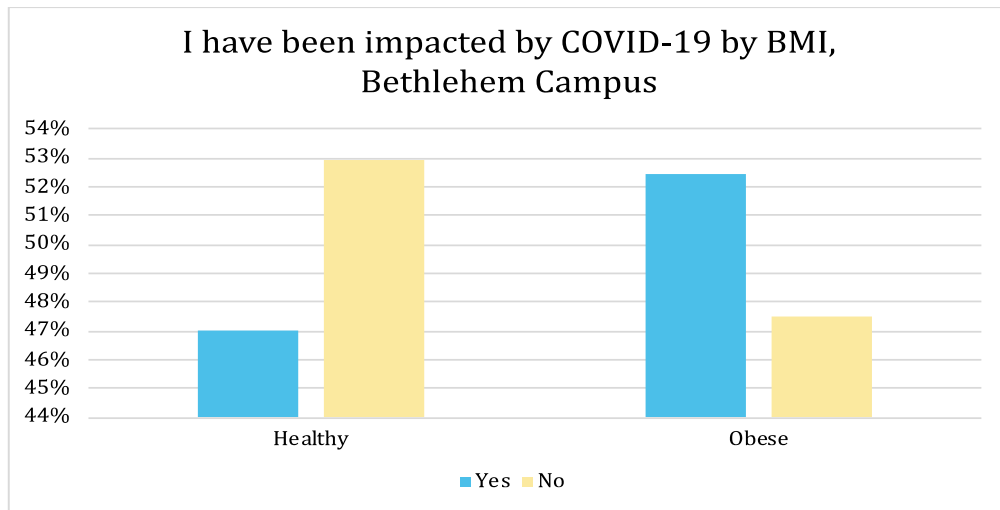
²⁷⁶ <https://www.kff.org/coronavirus-covid-19/poll-finding/the-impact-of-the-covid-19-pandemic-on-lgbt-people/>

CHNA survey results from the Bethlehem campus and Star Community Health also reflect these differences, with more than 63% responding that they had been impacted by the pandemic, compared to 51.3% of non-LGBT respondents in the Allentown and Sacred Heart service area. In addition, 45% of the LGBT respondents said their mental health had been affected by the COVID-19 pandemic, compared to 22.6% of total respondents in the service area.


 *Figure 84*



..... **Obesity and COVID-19**



Obesity puts people at risk for having serious complications and illness from COVID-19 and triples the risk of hospitalization when infected.²⁷⁷ Obesity is shown to have negative impacts on COVID-19 recovery and outcomes. With a large population of the Bethlehem campus and Star Community Health service area struggling with obesity (41.9%), the CHNA survey results reflect the relationship between obesity and COVID-19, with only 47% of respondents with a healthy weight being impacted compared with 52% of people living with obesity.

 *Figure 85*

²⁷⁷ <https://www.cdc.gov/obesity/data/obesity-and-covid-19.html>

..... **Ethnicity and COVID-19**

The COVID-19 pandemic highlights the systemic issues of inequity in the public health sector, and the rates of illness and death are significantly higher for minority populations. While social determinants of health and health equity historically illustrate the marginalization of minority populations, issues such as discrimination, employment, education, and housing all contribute to the discrepancies in rates of illness and access to care during the pandemic.²⁷⁸ When asked if the COVID-19 pandemic had impacted their lives, 57% of Hispanic respondents in the Bethlehem campus and Star Community Health service area said yes, compared to 47% of non-Hispanic respondents.

..... **Income and COVID-19**

Income is often seen as one of the most significant social determinants of health, as financial status either provides or denies access and opportunity to everything from housing to education to healthcare. Income also correlates with the impact of COVID-19 on individuals, and a recent study in the Journal of the American Medical Association found that income and COVID-19 illness and mortality rates are correlated with income.²⁷⁹ These findings were also seen in the CHNA survey in the Bethlehem campus and Star Community Health service area, with 61% of respondents earning \$14,999 or less responding that they were impacted by COVID-19, compared to 47% of respondents making \$60,000 and above.

..... **Social Vulnerability**

Figure 86 displays the CDC Social Vulnerability Index map, which takes into account factors such as socioeconomic, housing/transportation, language barriers, etc. in determining how vulnerable a population is to an unforeseen disaster, like COVID-19. Social vulnerability is defined by the CDC as “the resilience of communities (the ability to survive and thrive) when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks.”²⁸⁰ Reducing social vulnerability can minimize the impacts of stressors and or disasters, decreasing human suffering and economic loss. The index is scored from 0 (lowest vulnerability) to 1 (highest vulnerability). Lehigh county's overall index is much higher than Northampton's; .64 which indicates a moderate to high vulnerability compared to .29 which indicates a low to moderate vulnerability, respectively.

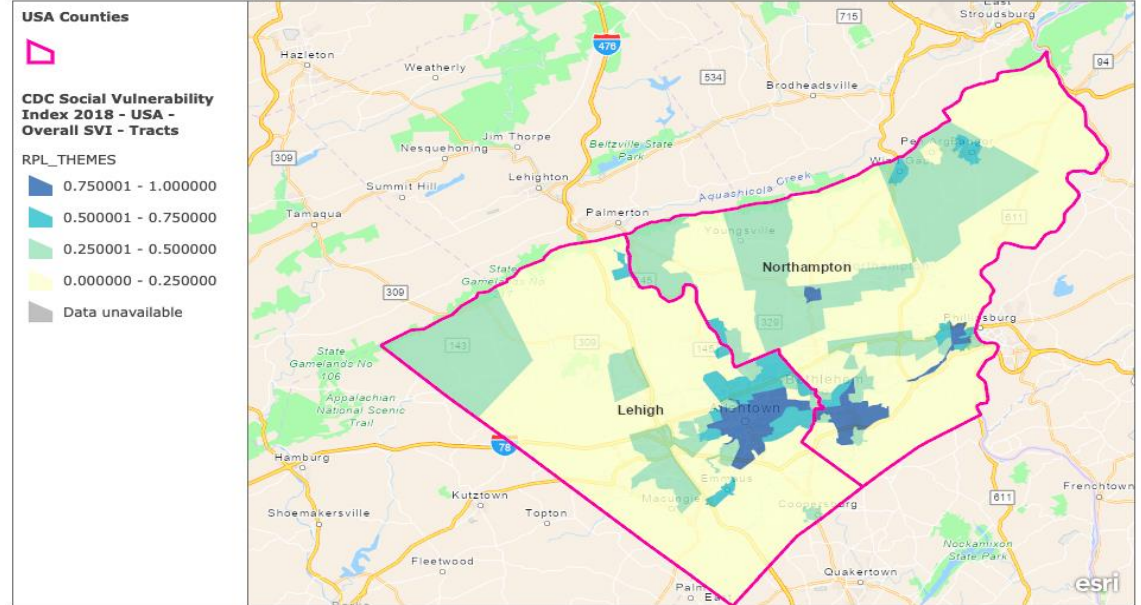
²⁷⁸ <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>

²⁷⁹ <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2779417>

²⁸⁰ https://www.atsdr.cdc.gov/placeandhealth/svi/at-a-glance_svi.html

However, in both counties, minority status is much higher than the other indicators. This means that language and culturally appropriate services are needed in Lehigh and Northampton counties to properly serve and protect everyone. Several of these factors are associated with higher rates of COVID-19 infection.²⁸¹ Some of the most vulnerable populations during the pandemic crisis included the homeless population, who faced challenges being exposed to COVID-19 and not having private shelter to quarantine; school-aged children and their parents who had to undertake the momentous task of virtual learning, most for the very first time; those experiencing mental/behavioral health problems or substance use disorder, as challenging times not only exacerbated these issues but exhausted the amount of resources available to deal with them.

CDC Social Vulnerability Index: Lehigh and Northampton County



Lehigh County PA, data.pa.gov, New Jersey Office of GIS, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Figure 86

Figure 87

Lehigh Social Vulnerability	
Overall	0.64
Socioeconomic	0.4
Household Composition and Disability	0.51
Minority Status and Language	0.87
Housing Type and Transportation	0.72

Northampton Social Vulnerability	
Overall	0.29
Socioeconomic	0.21
Household Composition and Disability	0.13
Minority Status and Language	0.73
Housing Type and Transportation	0.45

Figure 88

²⁸¹ <https://www.sciencedirect.com/science/article/pii/S0749379720302592>

Through key informant interviews, we learned that the COVID-19 pandemic has exacerbated existing public health issues.



“Everything is magnified with COVID and now we are seeing families who are on the edge financially or job wise, those kids are doing the worst on remote days. It all kind of multiplies.”

One Bethlehem key informant went into detail about this topic when talking about mental health:



“[The COVID-19 pandemic] made things worse for people who already had problems and the social isolation for people not used to it has been a concern, especially for the elderly population. There are people who haven't seen loved ones for close to a year. That will weigh heavily on someone. It is making the problem worse for those who have the problem and creating the problem for people who did not have depression prior to the pandemic.”

The COVID-19 pandemic has shed light on vulnerabilities of public health infrastructure within Pennsylvania and the Bethlehem community. One key informant interviewee explained:



“One challenge that became apparent through COVID is the Pennsylvania structure. There are only 10 health departments across the state. Just because we are in Bethlehem, we are seen as a resource for other areas. The school districts did not have local health departments so that impacts our resources. We do not have city and county health departments so that challenges our vaccinations right now. We are also a city in two counties which poses challenges.”

But where there is despair and darkness, there is also a glimmer of hope and light. The COVID-19 pandemic did a great job of bringing people together. One key informant noted about how the community works together:



“We are fortunate that there are enough organizations to offer supports. They work together well. We are large enough to have resources, but we are small enough that everyone knows each other. That is a huge advantage for the community.”

Conclusion

Through this extensive review of the primary and secondary data, it is evident that there are significant needs to address within our communities. For the upcoming three-year (2022-2025) cycle, St. Luke's University Health Network will continue to work toward addressing the health priorities identified network-wide to improve the community's overall health and well-being. The three main priorities identified include: reducing health disparities; preventing chronic disease; and improving mental and behavioral health.

To analyze our findings in these areas, SLUHN has adopted the categorization system from the Robert Wood Johnson Foundation (Figure 89). The social determinants of health shape the status of a person's health and provide guidance for community health priorities. When addressing the priority health needs, it is crucial to consider the social determinants of health and lifestyle behaviors to effectively tackle the service area's health disparities. Some significant survey findings, which are consistent with trends seen widely, are related to health outcomes and income, access to care for minority and marginalized populations, healthy eating (i.e., fruit and vegetable consumption), diabetes and other chronic illnesses, the opioid epidemic, and other substance use.

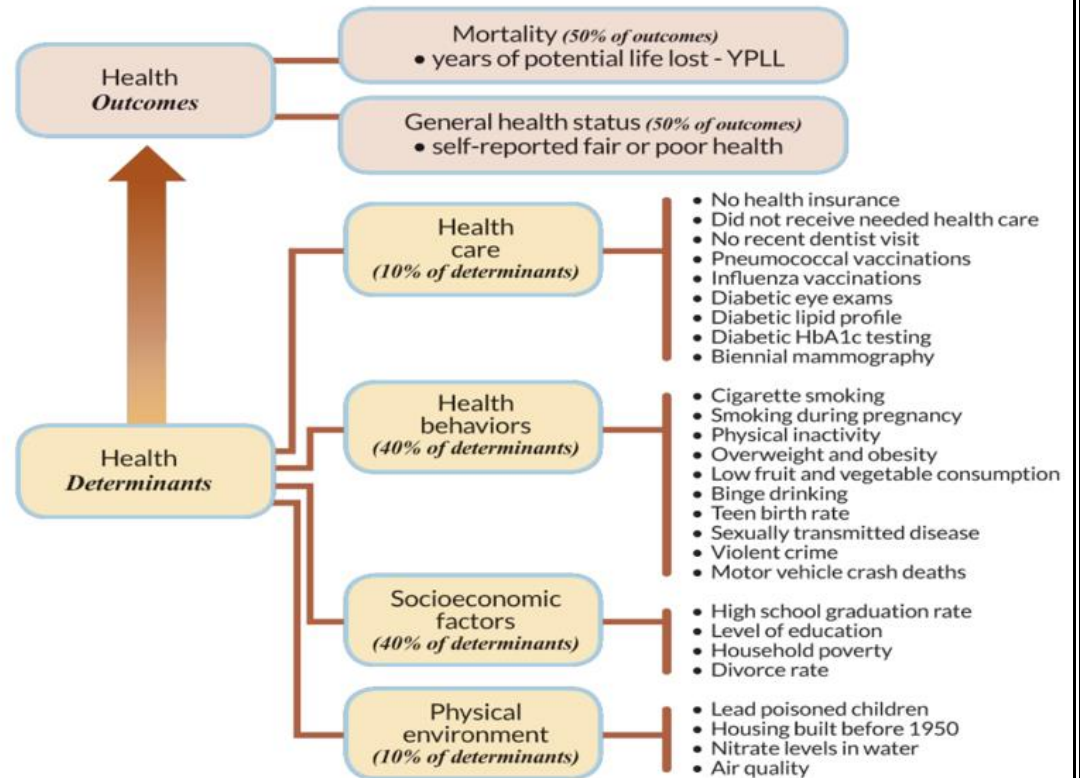


Figure 89

From our analysis of primary and secondary data, as well as the key CHNA informant interviews and work with our community members, we see significant issues facing our communities that impede healthy lifestyles. Our efforts in prevention, care transformation, research, and partnerships help support our work to promote sustainable programs and opportunities for our reach to focus on a wide range of health promotion and quality of life initiatives.

While there are many that need to be addressed, the results from the 2022 CHNA found the most pressing needs to be specifically in areas related to:

- o COVID-19
- o Access to Care
- o Food Insecurity
- o Obesity Reduction
- o Physical Activity Promotion
- o Mental Health
- o Opioids and other Substance Use
- o Housing
- o Transportation

The needs discussed within the health categories outlined in this document will serve as our guide in creating a detailed campus-specific implementation plan to best address the specific needs of the St. Luke's Bethlehem campus and Star Community Health service area using the three pillars of: Wellness and Prevention; Care Transformation; and Research and Partnerships. We will work collaboratively in partnership with our community and network partners to create a more equitable society with better health outcomes, especially among our most vulnerable populations such as our Hispanic communities, seniors, women, and children.

Appendix A

2022 CHNA Key Informant Interview

St. Luke's University Health Network (SLUHN) is a nationally recognized non-profit health network that has facilities serving counties in both Pennsylvania (Lehigh, Northampton, Carbon, Schuylkill, Bucks, Monroe) and New Jersey (Warren). As part of the Patient Protection and Affordable Care Act, all non-profit hospitals are required to conduct a Community Health Needs Assessment (CHNA) every three years. In order to accomplish our goals, St. Luke's is conducting key informant interviews to identify health needs within the community. Since you are a vital member of our community, you are being asked for your feedback to assist us in data collection. Your answers will be compiled by St. Luke's to determine health needs in the community.

Please note that your name will not be associated with your responses. Additionally, please complete your responses in a word document and email responses to the Community Health Needs Assessment Liaison for facilitated follow up during the interview.

1. Name:
2. Title:
3. Organization:

Please answer the following by including pre-covid and current covid impacts

4. How long have you been a part of this community and in what capacities?
5. When thinking about others you interact with here, do you feel a sense of community?
6. How would you describe your community?
7. What are the major needs/challenges within this community?
8. What are some of the challenges specific to your organization?
9. How do you feel this community has been successful in meeting its needs?
10. What improvements in policy and community infrastructure would assist you in meeting community needs?
11. Who are some of the key players in your community and what organization do they belong to?

12. What are some of the strengths and resources of your community?
13. Do you feel these strengths are shared and evenly distributed throughout the community? Please explain.
14. What are some concrete examples of strengths and challenges across the lifespan related to the following topics in your community?
 - a. Health disparities/Access to care
(example: access to medical, mental, dental and vision care)
 - b. Healthy Living (example: diet and physical activity)
 - c. Chronic Disease (example: diabetes, heart disease and cancer)
 - d. Mental/Behavioral Health (example: substance misuse/use disorder, depression and anxiety)
15. What are the **top three issues** that need to be addressed in your community?
16. Any additional comments?

Appendix B

2022 CHNA Community Forum Invited Organizations- Bethlehem campus and Star Community Health

- ArtsQuest
- Bethlehem Area School District
- Bethlehem campus and Star Community Health
- Bethlehem Health Bureau
- CACLV
- Health, Medicine & Society
- Hispanic Center of the Lehigh Valley
- Lehigh County
- Lehigh University
- Liberty High School
- LVACT
- Marvine
- Moravian College
- Neighborhood Health Centers of LV
- New Bethany Ministries
- Northampton County
- Pinebrook Family Answers
- Second Harvest Food Bank
- Senior Care
- United Way of the Greater Lehigh Valley