



Community Health Needs Assessment

June 2016

**Department of
Community Health & Preventive Medicine**

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I. St. Luke's Allentown Campus Community Health Needs Assessment

A. Background

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 remain a tax-exempt organization under section 501(c)(3) of the Internal Revenue Code. The goal of the assessment is to identify critical health disparities faced amongst residents within the community. The needs assessment must state every health priority addressed by community stakeholders, hospital professionals, or public health experts. Additionally, campus specific implementation plans will be crafted for each of the St. Luke's University Health Network (SLUHN) campuses in order to determine how resources will be allocated to address the specified health needs.

B. Summary of the Needs Assessment Methodology

Our CHNA is comprised of both primary and secondary data. The primary data was collected through our community health surveys, where approximately 3,000 surveys were conducted in our seven campus geographic region. Primary data was also collected through campus specific key stakeholder focus groups, where the main priority health needs were identified for each entity. Secondary data included the use of hospital network, county, state and national level obtained via the U.S. Census, the Robert Wood Johnson Foundation, Vital Statistics, Community Commons, the American Community Survey, U.S. Department of Labor, the Behavioral Risk Factor Surveillance System as well as other data sources. The needs identified in the focus groups were supplemented by the survey data and secondary data to provide us with a more comprehensive picture of the needs in the community and what factors are affecting these health issues.

C. About St. Luke's University Health Network Allentown Campus

St. Luke's University Health Network's (SLUHN's) Allentown campus was first founded in 1945. In 2003, sweeping renovations were completed with a five-story addition, which consisted of a new annex to the Emergency Department, five high tech operating suites, and an Intensive Care Unit. From 2008-2010, St. Luke's Allentown underwent another huge change, doubling its size and adding cardiac catheterization laboratories, an open heart operating room suite, a birthing center, and a wound management center. This campus is located at 1736 Hamilton Street Allentown, PA. St. Luke's Allentown has many top tier services such as a bariatric surgery department, women's imaging and health services, neurology and sleep disorder services, as well as a heart and vascular program. St. Luke's Allentown's main hospital also works very closely with the outpatient clinics that serve our community, such as the Cancer Center, Kids Care, the

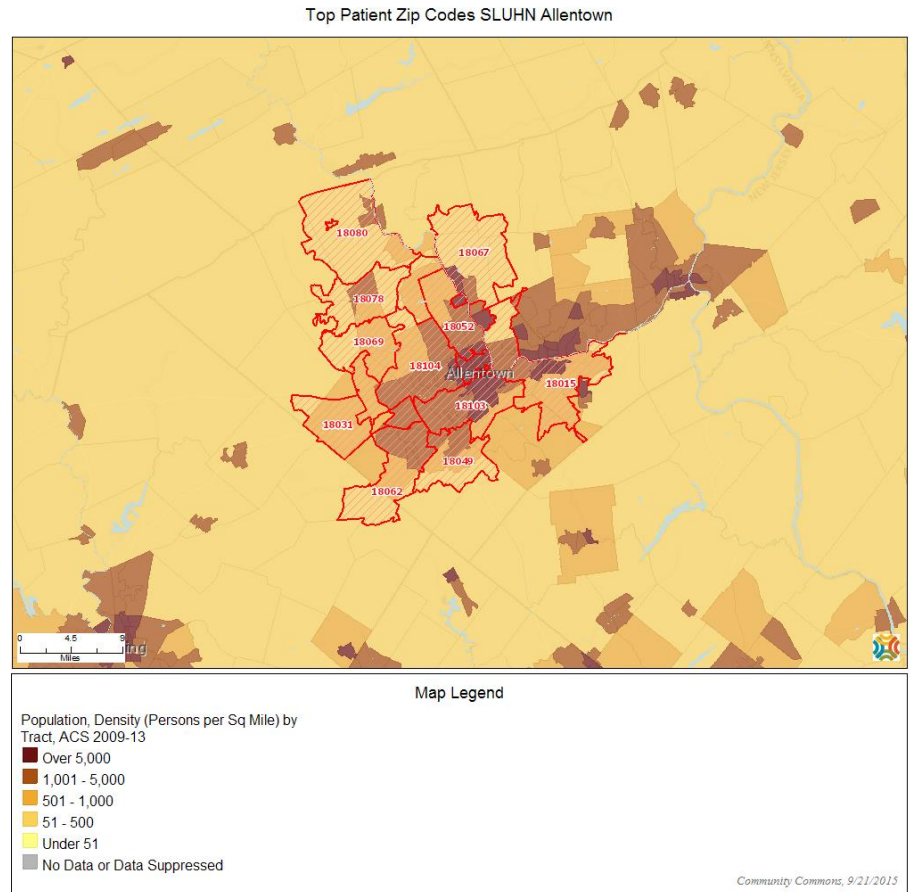
Perinatal Center, and the Women's Imaging Center. St. Luke's Allentown has always put the health priorities of the community first, and over the years has formed a close relationship with its patients and its employees.

D. Geographic Description of Medical Service Area & Community Served

A total of 328,577 people live in the 213.54 square mile report area defined for this assessment according to the U.S. Census Bureau American Community Survey (2009-2013) 5-year estimates. The population density for this area, estimated at 1,538.72 persons per square mile, is greater than the national average population density of 88.23 persons per square mile.

We defined our service area by determining the top patient zip codes of our residents who receive any services from St. Luke's Allentown. We defined the top zip codes as those that make up 80% of the population served by this hospital. This report will refer to this area as the "St. Luke's

Allentown service area". The top counties served by St. Luke's Allentown include Lehigh, Berks, and Northampton counties in Pennsylvania. There are a total of 16 zip codes included that constitute 80% of the population served at St. Luke's Allentown. The map displays the top zip codes where our patients are from. The chart on the following page lists the zip codes as well as the percentage for which each zip code constitutes within St. Luke's Allentown as well as within the entire network.



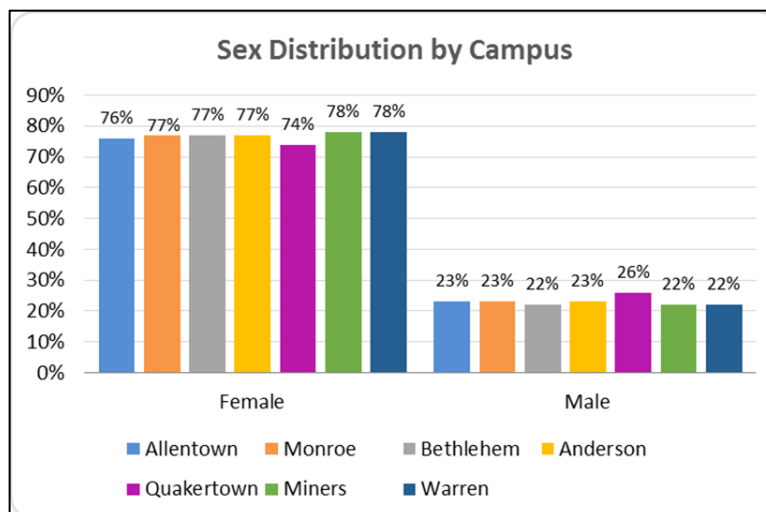
Analysis of Top Patient ZIP Codes, All Patients St. Luke's Allentown, 2014				
Facility	ZIP	Encounters	% Facility	% SLUHN
Allentown	18102	40,192	22.20%	4.07%
Allentown	18103	29,200	16.13%	2.96%
Allentown	18104	22,077	12.19%	2.24%
Allentown	18052	9,103	5.03%	0.92%
Allentown	18109	7,813	4.32%	0.79%
Allentown	18062	7,419	4.10%	0.75%
Allentown	18049	6,604	3.65%	0.67%
Allentown	18080	3,269	1.81%	0.33%
Allentown	18031	2,821	1.56%	0.29%
Allentown	18101	2,788	1.54%	0.28%
Allentown	18069	2,690	1.49%	0.27%
Allentown	18106	2,658	1.47%	0.27%
Allentown	18067	2,507	1.38%	0.25%
Allentown	18078	2,189	1.21%	0.22%
Allentown	18015	2,095	1.16%	0.21%
Allentown	18037	2,084	1.15%	0.21%
Grand Total		145,509	80.37%	14.74%

E. Demographic Profile of Community Served

The following sections give a brief overview of the population we serve. Having a sense of what the community looks like will be helpful when reviewing the five priority health categories later in the report.

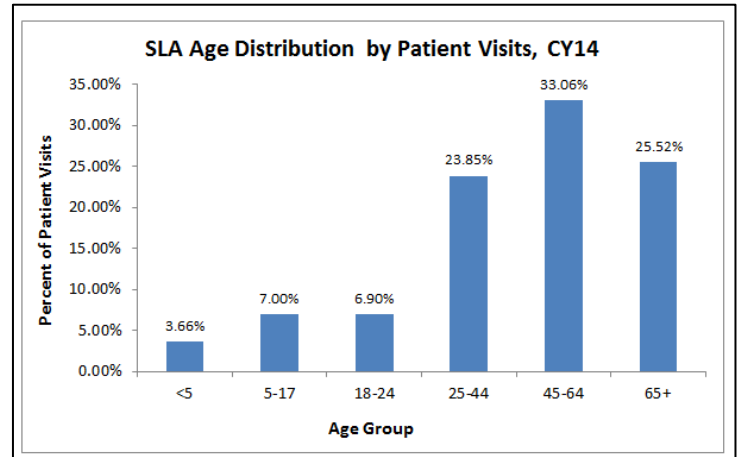
i. Gender

According to the U.S. Census Bureau American Community Survey (ACS 2009-13) 5-year estimates, between 50.91% (Berks County) and 51.41% (Lehigh County) of the population are females in the St. Luke's Allentown service area. The male population ranges from 48.93% (Northampton County) to 49.09% (Berks County). In our 2016 community survey, the majority of our respondents from all of the SLUHN campuses were female. In the St. Luke's Allentown service area, 76% of respondents were female and 23% were male.

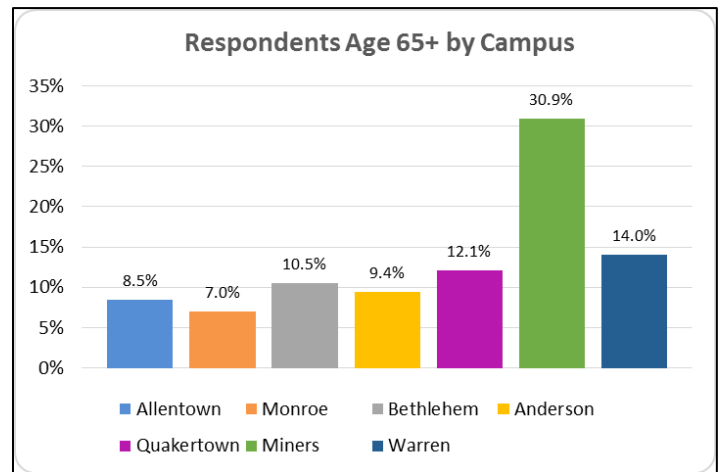


ii. Age

Data from the ACS (2009-13) tell us that 23.35% of the population in the St. Luke's Allentown service area is under the age of 18, and 14.49% of the population is over the age of 65, leaving 62.15% of the population in the 18-64 age range. The graph on the right is from St. Luke's internal data, and shows that a high proportion of the patients seen at St. Luke's Allentown fall in the 45-64 and 65+ and older age ranges. (SLA on the graph refers to St. Luke's Allentown campus). This age distribution graph covers all types of medical care, i.e. inpatient, outpatient, ER, primary care.

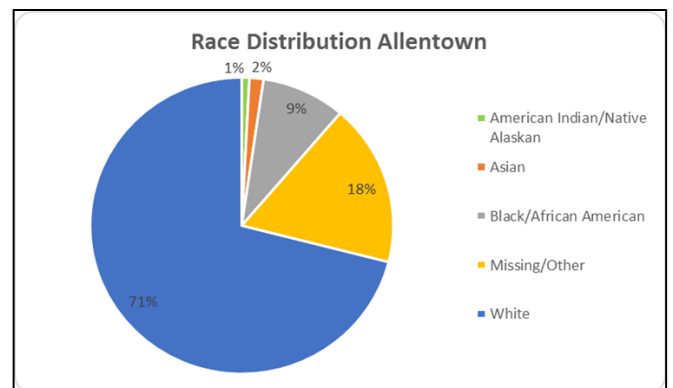
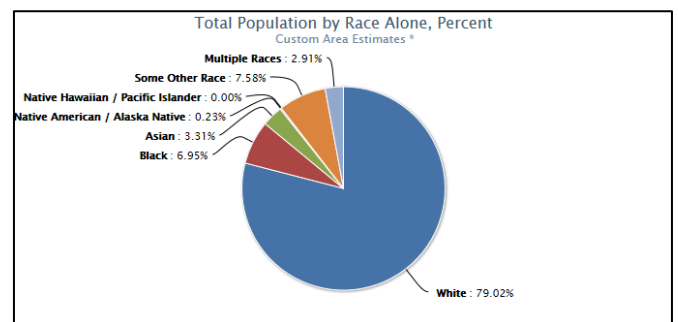


The age distribution of those who took the community survey yielded interesting results. Although the 65 and older population constitutes 25.52% of the patients seen in the past year at St. Luke's Allentown, only 8.5% of respondents who completed the survey were in this age bracket. One potential reason for such a low response rate from the post-retirement age population may be that the majority of surveys were conducted via iPad or on a computer, which could be prohibitive for people who are unfamiliar with how to use such technology as the elderly population often is.



iii. Race

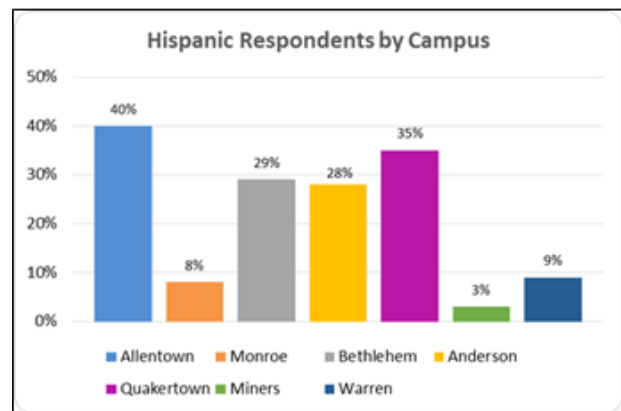
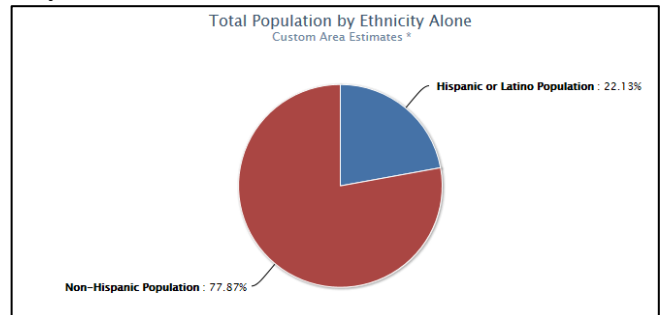
As evidenced by the top pie chart, the majority of the population in the St. Luke's Allentown service area identify as White, constituting 79.02% of the population. The next largest race group is those who identify as some other race (7.58%), and those who identify as Black (6.95%). Allentown is a racially diverse area, and from our language data (which will be presented on the following page) it is likely that there may be a significant group of individuals who identify as Hispanic/Latino or Middle Eastern (ACS 2009-13). The bottom pie chart displays our 2016 survey results where 71%



of the respondents identified as White and 9% identified as Black/African American, which is similar to the ACS findings for race. 18% of respondents identified their race as Other, which may be higher than the Some Other race category for the total service area population because people in our service area who are Hispanic/Latino may not consider themselves to fall into the White race category.

iv. Ethnicity

As seen in the pie chart, when breaking down the St. Luke's Allentown service area population by ethnicity, there is still a majority of the population that is non-Hispanic, but the 22.13% of the population that is Hispanic or Latino is large, especially compared to the other hospital campuses within the network (ACS 2009-13). Our 2016 survey was able to capture this vulnerable population in our data due to the larger proportion of Hispanic respondents than is seen in the total population. This is evidenced by the bar graph to the right, where 40% of the respondents from the St. Luke's Allentown service area identified as Hispanic.



v. Language

ZIP	% Facility	% Spanish Speaking in zip code	% of zip code who speaking Spanish but speak English less than "very well"	Next Frequent Language
18102	22.20%	46.21% (19,756 people)	19.85% (8,485 people)	Arabic (2.4% - 1,030 people)
18103	16.13%	24.41% (11,002 people)	10.78% (4,858 people)	Vietnamese (1.4% - 611 people)
18104	12.19%	6.34% (2,623 people)	2.69% (1,113 people)	Arabic (1.47% - 606 people)
18052	5.03%	10.23% (2,658 people)	3.97% (1,030 people)	Arabic (4.02% - 1,043 people)
18109	4.32%	28.47% (4,307 people)	10.14% (1,534 people)	Arabic (5.57% - 843 people)
18062	4.10%	3.24% (744 people)	0.84% (193 people)	Chinese (1.81% - 415 people)
18049	3.65%	2.60% (424 people)	0.68% (111 people)	Gujarati (0.51% - 83 people)
18080	1.81%	2.20% (246 people)	0.93% (104 people)	Arabic (0.87% - 97 people)

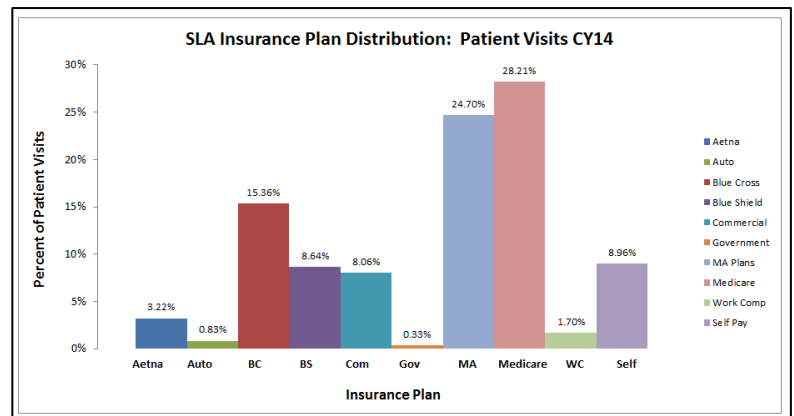
Community members in the St. Luke's Allentown service area speak a variety of different languages, which may be indicative of the diversity of the population. The variety of languages present may also be indicative of the movement of people into the Lehigh Valley area.

Translators/interpreters are required in locations where either over 5% of the community speaks a different language or over 1,000 community members mainly speak that language. In 18102 almost half (46.21%) of the population in that zip code speaks Spanish. In the zip codes 18102, 18103, and 18109, the percentages of the population that speak English less than very well are relatively high, with 19.85%, 10.78% , and 10.14% respectively not speaking English very well (U.S. Census Bureau). There are also four zip codes (three of which require translators) where Arabic constitutes the next most frequently spoken language within the specific zip code. This information about the languages spoken in the St. Luke's Allentown service area is important to remember because language barriers to care constitute an enormous issue for those who do not speak English very well or English is not their first language.

vi. Health Insurance Plans

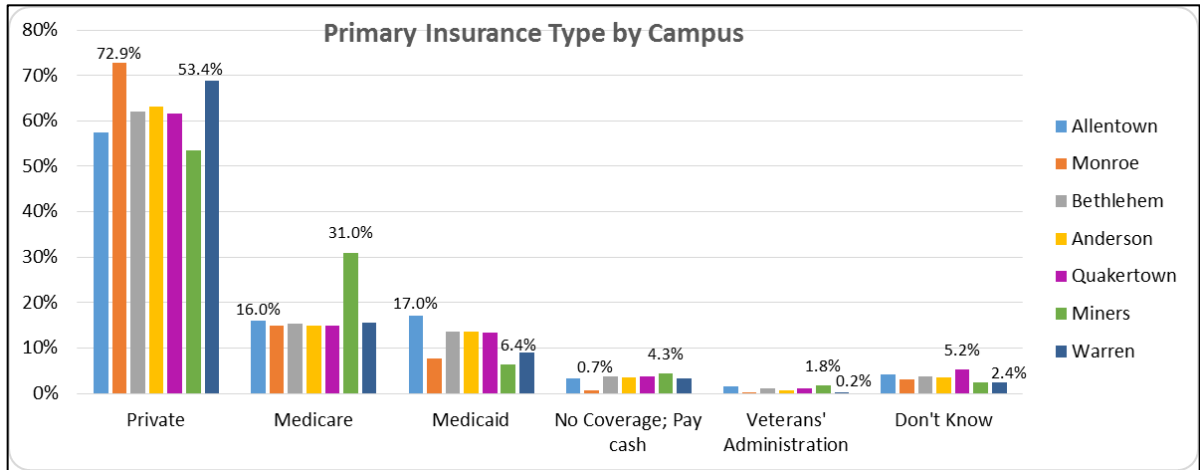
As evidenced by the bar graph below, our patients use a variety of different methods of payment to cover their healthcare needs. This insurance distribution graph covers all types of medical care, i.e. inpatient, outpatient, ER, primary care. In the St. Luke's Allentown service area, the largest percentage of patients utilize Medicare (28.21%), some type of medical assistance plan (24.70%), or Blue Cross (15.36%). This high prevalence of Medicare mirrors the high

percentage of our population that is over the age of 65. People who use Medicare may be covered because they are over the age of 65 or because of a disability, which we will discuss in more detail later in this report. 8.96% of the St. Luke's Allentown service area population falls under the self-pay category, which includes St. Luke's charity care (free care covered by the network). This distribution of most



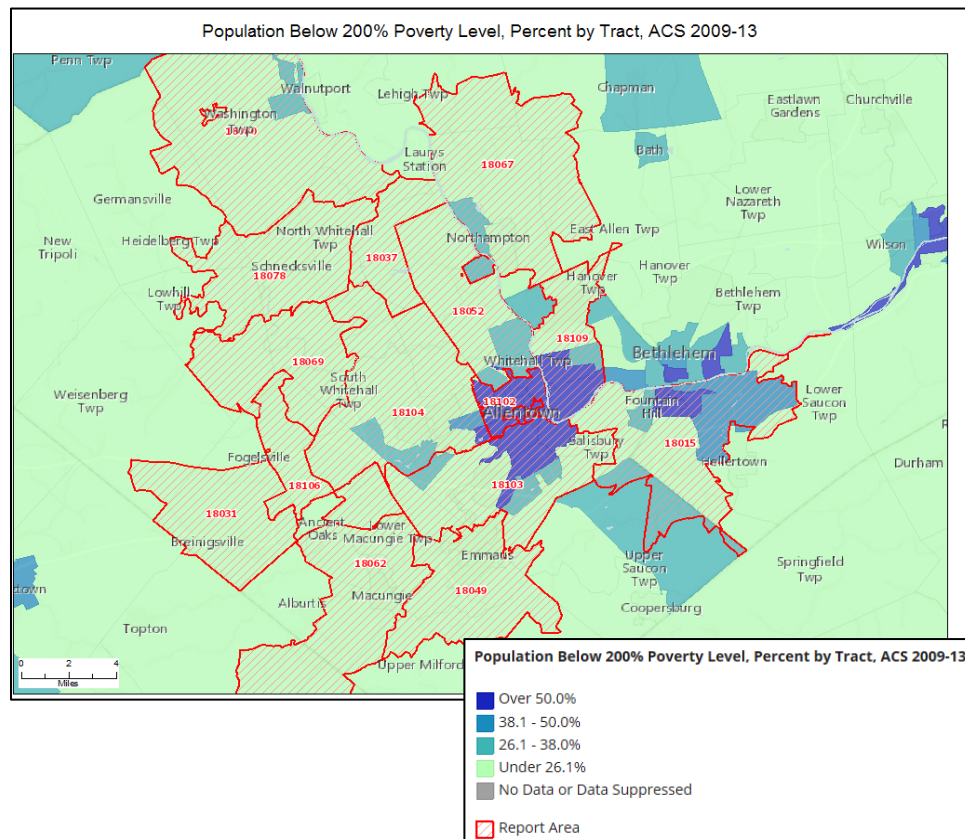
utilized insurance plans for St. Luke's Allentown is similar to the pattern seen for St. Luke's as a network, with medical assistance, Medicare, and Blue Cross also being the three most popular forms of coverage used. Throughout St. Luke's University Health Network as a whole, the total cost of healthcare provided to uninsured and vulnerable populations in 2014 was \$48,796,104.

The bar graph shows the breakdown of primary insurance types by SLUHN campus from our 2016 community survey data, in which we found that 57.5% of respondents from the St. Luke's Allentown service area used private insurance, and 17% were using Medicaid to cover their health insurance costs.



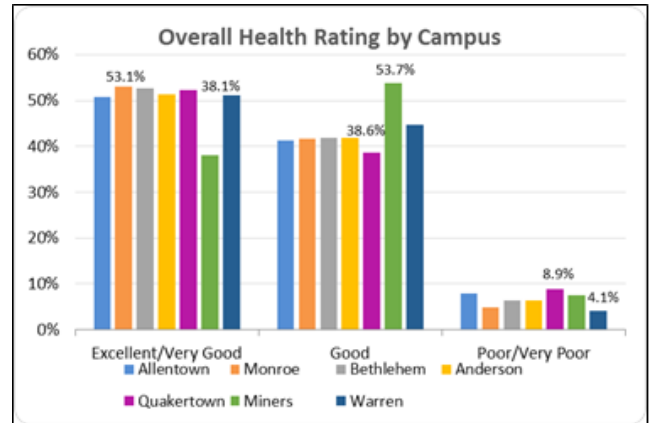
vii. Poverty

According to the ACS (2009-13), 33.89% of the population in the St. Luke's Allentown service area are living with incomes at or below 200% of the Federal Poverty Level (FPL), this is similar to the national average of 34.23%, but is slightly higher than the Pennsylvania average of 30.51%. Referring to the map below, there are large sections of Allentown zip codes such as 18102, 18103, and 18109 that have over 50% of their population living at 200% of the FPL. We will detail the relationship of poverty to access to care and other health disparities later in this report.

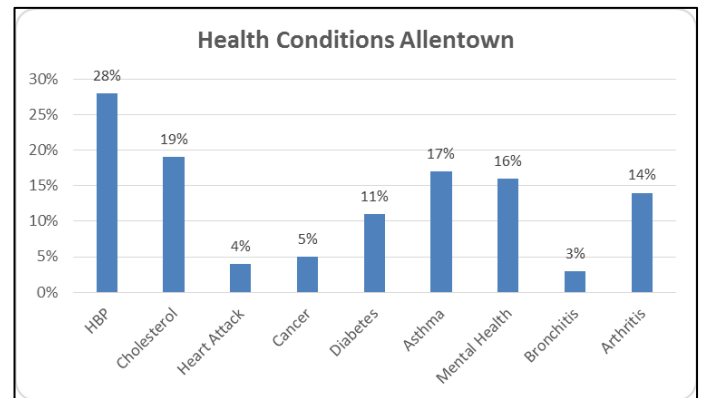


viii. Overall Health and Health Conditions

According to our 2016 community survey, most people in the St. Luke's Allentown service area reported excellent or very good health, followed by good health and then poor or very poor health, which is similar to the pattern seen in other campuses. For the network as a whole, 93.4% of respondents rated their health as good or better. However, respondents from the St. Luke's Allentown service area did have a slightly higher percentage of respondents reporting poor or very poor health than many of the other SLUHN campuses (7.8%)



After examining people's perceptions of their own health, it is important to look at the prevalence of specific health conditions reported by the respondents in order to assess the health status and needs of the community. According to our 2016 survey results, the highest percentage of patients in the St. Luke's Allentown service area reported having high blood pressure (28%), high cholesterol (19%), and asthma (17%).



ix. Top Reasons for Hospitalization

This chart displays the top 10 reasons for inpatient hospitalization in the St. Luke's Allentown service area for 2014. Examining these reasons for hospitalization will help us to understand the priority health areas that will be discussed in the next section. The top two causes, obstetrics and cardiovascular, vastly outnumber the rest of the causes, according to the number of encounters at the St. Luke's

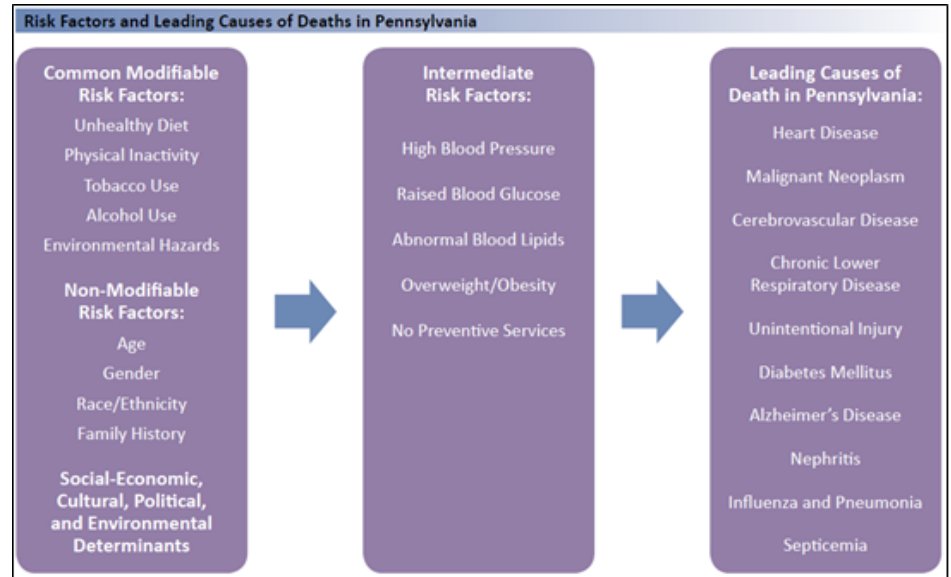
Top 10 Reasons for Hospitalization by Service Line, Inpatients St. Luke's Allentown, 2014		
Service Line	Encounters	Rank
Obstetrics - Delivery	1,324	1
Cardiovascular	1,076	2
Normal Newborns	966	3
Pulmonary Medicine	731	4
General Medicine	719	5
Gastroenterology	592	6
Ortho - Major Joints	457	7
Bariatric	422	8
Infectious Disease	396	9
Neonatal	391	10

Allentown campus. Interestingly, the highest percentage of respondents from our 2016 community survey in the St. Luke's Allentown service area reported high blood pressure and

high cholesterol as conditions they had been diagnosed with, which are both risk factors for cardiovascular disease, one of our top reasons for inpatient hospitalization.

x. Leading Causes of Death

This flow chart shows the risk factors that contribute to the leading causes of death in Pennsylvania. The top three leading causes of death in Pennsylvania are heart disease, cancer, and cerebrovascular disease. These modifiable and intermediate risk factors as well as the leading causes of death will be interesting to keep in mind when reviewing the priority health categories below (Pennsylvania Department of Health- Bureau of Health Promotion and Risk Reduction, 2011).



In Lehigh County specifically, accidents and suicide were the leading causes of death in 2012 for people ages 5-24 and 25-44. Cancer was the leading cause of death for people ages 45-64 and some type of heart disease was the leading cause of death for people ages 65 and older. These leading causes of death for the two older groups follow what is seen in Pennsylvania, where cancer and heart disease are the top two leading causes of death. The other leading causes of death for each age bracket in Lehigh County are listed in the chart below (Pennsylvania Department of Health- Division of Health Informatics, 2014).

Selected Leading Causes of Death, Number by Age Group (2012)									
Under 5 Years of Age		5-24 Years of Age		25-44 Years of Age		45-64 Years of Age		65 Years and Older	
Perinatal Conditions	17	Accidents	13	Accidents	47	Cancer	189	Diseases of Heart	612
Birth Defects	2	Suicide	7	Suicide	19	Diseases of Heart	96	Cancer	566
		Assault (Homicide)	6	Diseases of Heart	18	Accidents	33	Stroke	154
		Cancer	5	Cancer	13	Suicide	27	C.L.R.D.**	133
		Diseases of Heart	2	Assault (Homicide)	7	Liver Dis./Cirrhosis	18	Alzheimer's Disease	89
TOTAL	29	TOTAL	36	TOTAL	134	TOTAL	524	TOTAL	2,652

*In situ, benign, and uncertain neoplasms

Note: Total includes all other causes.

xi. Promise Neighborhood

A nine block radius of the Old Allentown Historic District is designated as a Promise Neighborhood in the Lehigh Valley. The goal of Promise Neighborhoods is to provide “cradle-to-career” services in order to create a safe and inspirational environment where children can grow and learn. The neighborhoods

focus on utilizing key stakeholders, current program, policies, community members, and school districts to improve educational and health outcomes for children. According to the U.S. Department of Education, planning and implementation grants are awarded to underprivileged communities to help them accomplish the aforementioned goals. The Promise Neighborhoods of the Lehigh Valley (PNLV) just recently gained



501(c)(3) status. PNLV does not have an official federal designation. In order to receive the designation organizations must be representative of the community that they are intending to serve (meaning that some members of the advisory board live in the community being served and members in the community who are low income are involved in decisions being made), that they have in place at least one of the solutions to a community problem that was mentioned in their project proposal, and they intend to collaborate with a public school to implement the project specified in the grant application. In the Allentown area, the school district is working with organizations to put over \$2 million into improving the community so that children can grow and learn in a safe space. According to the Health Care Council of the Lehigh Valley (HCCLV) focus group, schools were recognized as one of the few places where people feel safe and free from judgment. The HCCLV focus group members reported that schools should be utilized to share information and provide services for people of all ages. Specifically, they mentioned having forums for parents to learn from one another, and more after school program options for children.

F. Prioritized Health Categories

There are various socioeconomic, cultural, and environmental factors that constitute the social determinants of health, and they undoubtedly influence the health and well-being of our population, as can be seen from the previous discussion of the demographics of the community that St. Luke's Allentown serves. We can see that we live in an area where poverty is a prevalent issue, there are language barriers to care, and a large percentage of our patients utilize medical assistance. During the 2013-2016 CHNA cycle we focused on improving access to care,

identifying social determinants of health and reducing health disparities, promoting healthy lifestyles and behaviors, and enhancing the collection and dissemination of health information. Through reviewing our primary data, including input from community stakeholders and public health professionals and our community wide survey, as well as our secondary data analyses; we were able to categorize the identified health needs into five major categories for the 2016-2019 CHNA cycle. These priority health categories include improving access to care/reducing health disparities, promoting healthy lifestyles and preventing chronic disease, improving mental/behavioral health, improving child and adolescent health and improving elder health. We will expand upon the health needs within each priority health category individually. The focus group summary and list of participants can be found in appendix A and B respectively. Implementation plan strategies will be written for the 2016-2019 timeframe with attention to the specific priority categories reviewed.

II. Health Category Profiles

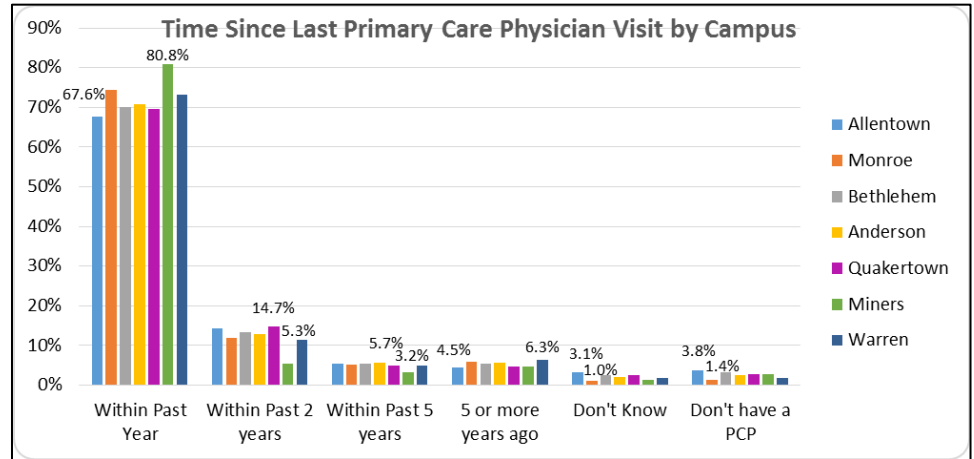
1. Improving Access to Care and Reducing Health Disparities

This section will discuss issues related to improving access to care and reducing health disparities in our service area. While this category title is specific, we are actually examining the broader category of the social determinants of health. Social determinants of health include economic, environmental and social conditions in which people live that influence their access to basic needs, healthcare services, education, health behaviors, amongst other factors that shape a person's health status (Healthy People 2020, 2014). When reading this section, please take into consideration this more comprehensive idea of addressing the social determinants of health, which have an enormous influence on issues related to accessing healthcare and disparities seen in health outcomes.



Access to primary care doctors is important because these doctors are usually the first point of contact for a person who is entering the healthcare system. Additionally, they may be the doctors who diagnose the first signs of a chronic disease or mental illness, as well as provide preventative care. This measure from the Area Health Resource File (2012) is represented by the number of primary care physicians per 100,000 population. Doctors classified as "primary care physicians" (PCP's) by the American Medical Association include: General Family Medicine MDs and DOs, General Practice MDs and DOs, General Internal Medicine MDs and General Pediatrics MDs. In the St. Luke's Allentown service area there are 93.38 PCP's per 100,000 population, which is better than the rates seen in Pennsylvania (80 per 100,000) and nationally (74.5 per 100,000 population). This high rate may be due to the presence of multiple health systems in the Allentown area.

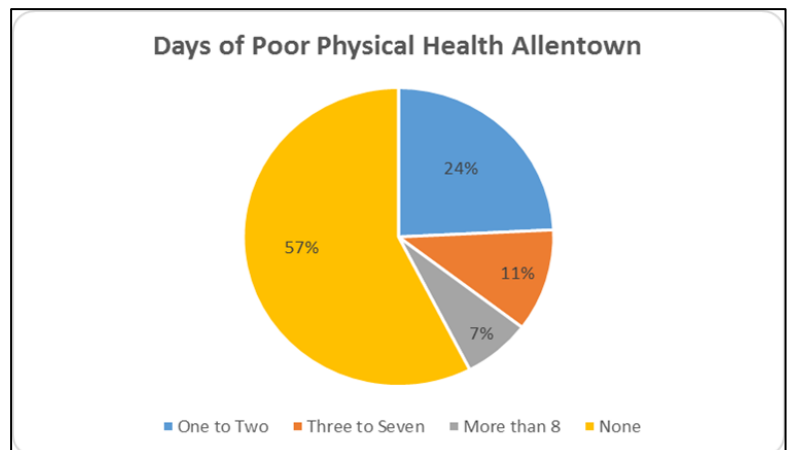
Even though there are high rates of PCP's available in our service area, this does not necessarily mean people are going in for routine check-ups. The social determinants of health such as poverty, education, and unemployment may all be reasons why people are not accessing care, even if it is available. From our 2016 community survey we found that most respondents, 67.6%, in the St. Luke's Allentown service area had visited their PCP within the past year, which was the lowest amongst all of the SLUHN campuses.



Our 2016 survey data showed interesting relationships between the type of insurance the respondent had and the last time they visited their PCP. For SLUHN as a whole, we found that 69.2% of respondents with private insurance saw their PCP within the past year compared to 41.1% with no insurance coverage. However, 80.9% of the people with Medicaid saw their PCP in the past year along with 83.5% of respondents with Medicare. Additionally, 14.4% of people with no insurance coverage did not have a primary care doctor compared to 1.7% of those with private insurance and 2.1 % of those with Medicaid.

The stakeholder campus focus group identified schools as a main access point for providing care to all community members. The focus group members said that taking advantage of the community schools to provide care to families after hours would be advantageous to the health of the community, because many times children or their parents are not able to go to the doctor because the parents are working during the hours that physician offices operate.

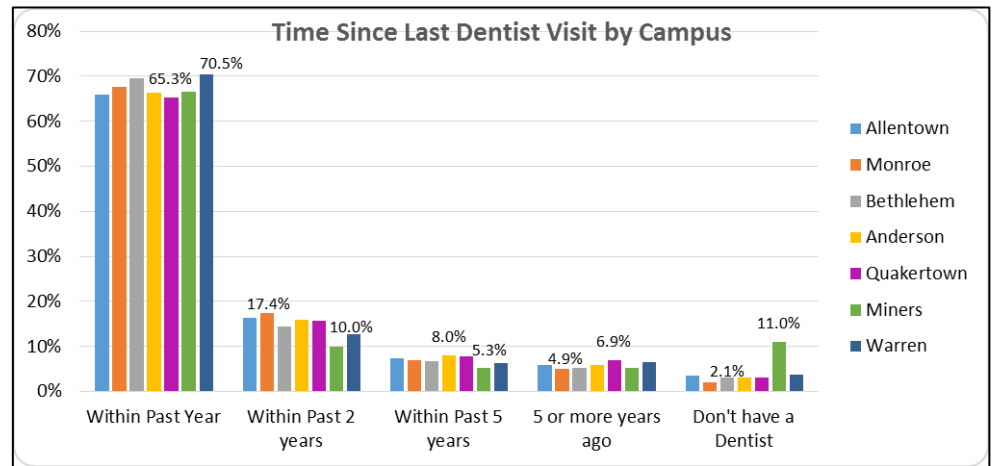
If an individual has not visited their primary care physician for a routine checkup within the past year, this could be impacting their overall health status due to conditions not being treated or conditions progressing. We can examine a piece of health status by examining the number of days the respondent could not perform daily functions due to physical health issues in the St. Luke's Allentown service area. From our 2016 community survey, we found that 42% of respondents reported one or more days of normal activity in the



past month due to poor physical health.

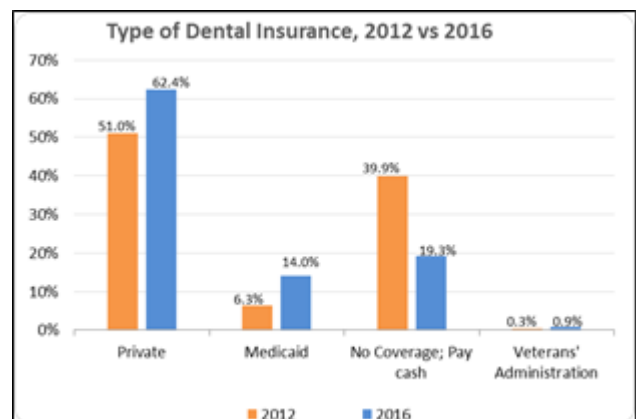
Another barrier to accessing care is access to dentists. Measuring access to dentists is one way to examine the ability for people to receive dental care. Lack of preventive and restorative dental services can result in higher chance for heart disease or stroke, gum disease, tooth decay, diabetes, and some types of cancer. One particular issue related to dental health is that dental care is generally not covered by Medicare and is not always covered by other medical assistance programs. This is

problematic since a large portion of our population uses Medicare to cover their health costs. In the St. Luke's Allentown service area, the rate of dentists per 100,000 population is 77.46, which is higher than both the Pennsylvania rate (62.5) and the U.S. rate (63.2) (Area Health Resource File, 2013).



Since it seems that access to dentists may be limited due to availability and insurance coverage, in our 2016 community survey we examined when was the last time respondents visited the dentist, as well as the type of dental insurance that they used. As evidenced by the bar graph above, we can see that the majority of respondents across all of the SLUHN campuses reported seeing their dentist within the past year.

For SLUHN as a whole, we found a pattern between income and time since last dentist visit. Our 2016 survey results showed us that 51.3% of respondents who reported making less than \$24,999 saw a dentist in the past year as compared to 82.3% of respondents who reported making over \$60,000. Additionally, 8.0% of those making less than \$24,999 do not have a dentist compared to 1.0% of those making more than \$60,000. We also examined type of dental insurance respondents used in the network as a whole, comparing data from our community survey in 2012 to our present survey from 2016. The percentage of respondents throughout the network using private insurance to cover their dental care increased to 62.4%, the percentage using Medicaid more than doubled (from 6.3% -



14%), and the percentage of those who had no coverage or paid cash greatly decreased (from 39.9%-19.3%). This is a great improvement because the data suggest that more people have become insured and less people are uninsured or having to pay with cash, which ultimately should help boost access to dental care. Although these results are promising, we found interesting disparities when examining type of dental insurance used in relation to income. 22.9% of respondents who reported making less than \$24,999 used private insurance to pay for dental care as compared to 86.8% of respondents who reported making more than \$60,000. Additionally, 30.7% of respondents who reported making less than \$24,999 did not have a dentist as compared to 10.5% respondents who reported making more than \$60,000.

Lack of insurance is another major barrier to accessing healthcare. If people are not covered by health insurance they may either have to pay out of pocket or forgo receiving care because it is too expensive. Either way, individuals who are not covered by insurance suffer financial and physical burdens. Approximately 11.69% of the St. Luke's Allentown population is uninsured, compared to 9.81% of the Pennsylvania population and 14.87% of the total U.S. population (Small Area Health Insurance Estimates, 2013). Stakeholder focus group members applauded the St. Luke's mobile health vans that visit the schools and provide physical checkups, dental care, and vision care that is free or subsidized as a way to provide care to students who are not covered by insurance. The stakeholders discussed the pressing need to help the uninsured gain access to care and increase overall enrollment rates in our area. It is particularly concerning to look at the breakdown of those who are uninsured by ethnicity. There is a consistent pattern in which Hispanic/Latino individuals are more than twice as likely to be uninsured than non-Hispanic/Latino individuals in both Pennsylvania and the U.S. as a whole (ACS, 2009-13). This pattern also follows for Berks, Lehigh and Northampton counties. Since we have a large percentage of our population that is Hispanic or Latino, it will be important to especially focus on enrollment rates for these individuals.

**Uninsured Population by
Ethnicity Alone**

Report Area	Percent Hispanic Latino	Percent Not Hispanic or Latino
Berks County	20.39%	8.20%
Lehigh County	21.35%	8.54%
Northampton County	16.61%	7.80%
Pennsylvania	20.55%	9.14%
United States	29.62%	11.92%

Looking at the percentage of the population who are enrolled in Medicaid or other types of public health insurance is also important because Medicaid enrollees are a vulnerable population of individuals, since they are likely to have lower incomes and may have more barriers to

receiving care. The percent of the insured population receiving Medicaid in the St. Luke's Allentown service area is 21.48%, which is higher than the Pennsylvania percentage of 18.24% and the national percentage of 20.21% (ACS, 2009-13). Although Northampton County and Lehigh County have higher rates of PCP's per population, many of these providers do not accept Medicaid, which a large percentage of our patients utilize to cover the costs of their care. Within 10 miles of Allentown, there are 585 primary care providers who accept Medicare (Centers for Medicare and Medicaid Services- Physician Compare). There is a great need for more primary care physicians who accept both Medicare and Medicaid in the St. Luke's Allentown service area.

Our 2016 community survey also showed that when asked to choose the reasons why the respondent postponed seeking medical care, many respondents chose responses that revolved around insurance. In terms of the St. Luke's Allentown service area, 11.2% of the responses for postponing medical care were because the respondent did not have insurance, 10.8% said their share of the cost was too high, and 9.4% responded that insurance did not cover what was needed. This shows how lack of insurance or coverage for certain services poses a significant challenge to receiving care.

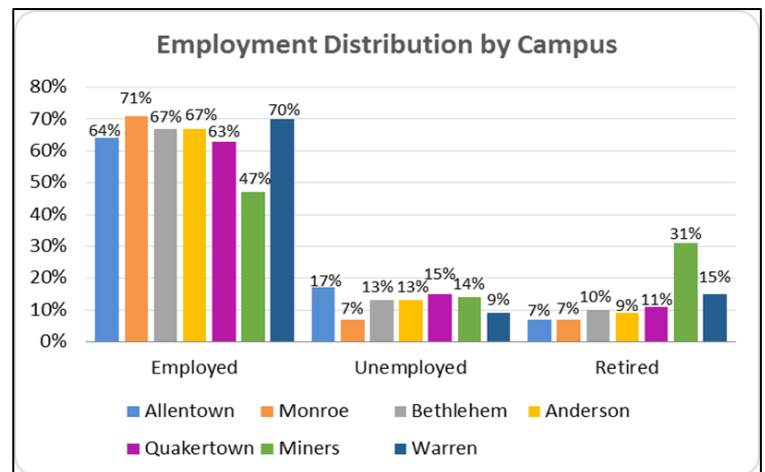
Top Five reasons for Postponement of Care at St. Luke's Allentown

Reason for Postponement of Medical Care at Allentown	Percentage of Responses
Didn't have health insurance	11.2%
Didn't think problem was serious	11.2%
My share of the cost was too high (deductible/copay)	10.8%
Couldn't get time off from work	9.6%
Insurance didn't cover what I needed	9.4%

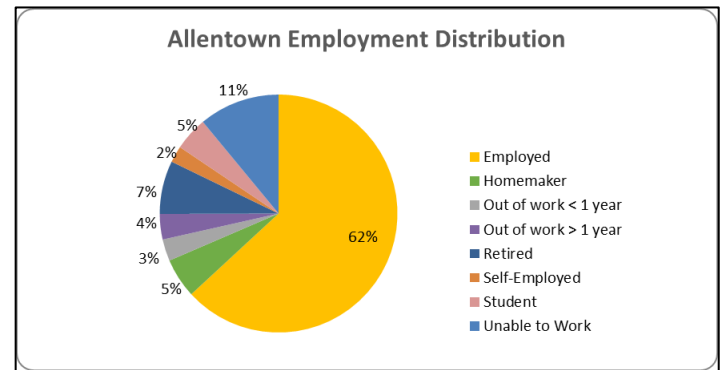
Besides some of the more visible barriers to care such as lack of PCP's or health insurance, unemployment and poverty are two additional important indicators of access to care. They are vital to examine because not having a job may mean people do not have access to healthcare (due to lack of insurance or lack of income to pay out of pocket).

Additionally, unemployment puts strains on the individual and their family, which may contribute to additional physical or mental

health issues. According to the Bureau of Labor Statistics (August 2015), 6.3% of the non-institutionalized population over the age of 16 in the St. Luke's Allentown service area were unemployed. This percentage is the same that is seen for the national unemployment rate, and is slightly higher than the unemployment rate in Pennsylvania (6.1%). Job insecurity was discussed



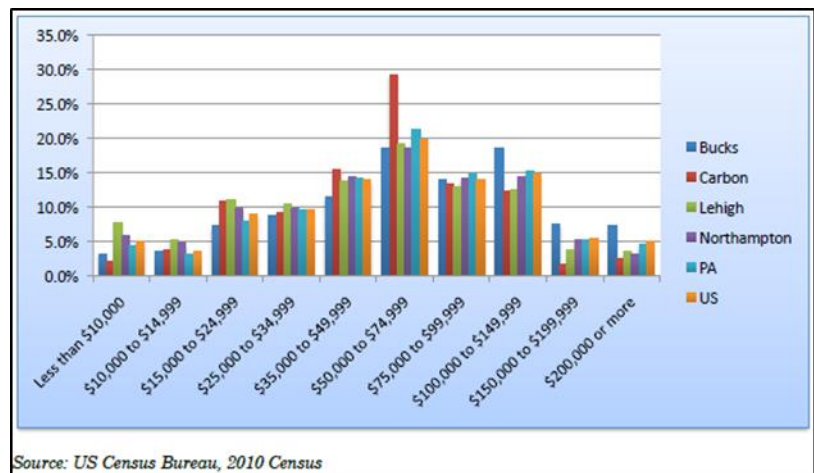
in the focus group as a major barrier in eliminating healthcare disparities, because if parents lose their jobs they may be unable to provide a safe and stable living environment for their children. This pie chart from our 2016 community survey revealed that 17% of respondents are unemployed, which is much higher than the unemployment rate for the St.



Luke's Allentown service area as a whole (6.3%). Although the majority of respondents are currently employed or self-employed (64%), this distribution shows that respondents from the St. Luke's Allentown service area had the highest unemployment rate across the SLUHN campuses.

Poverty is linked to unemployment because if a person does not have a job they likely have limited income, which means they may not be able to pay for out of pocket healthcare services or have insurance. As discussed previously, the St. Luke's Allentown service area has a large percentage of individuals who are living at 200% of the FPL (33.89%),

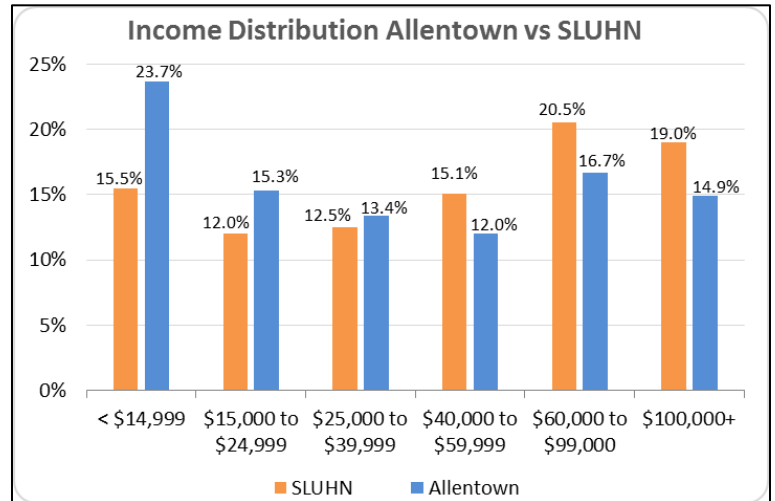
and poverty is one of the most important social determinants of health. We can also examine per capita income and household income to better understand what poverty looks like in our service area. The per capita income for the St. Luke's Allentown area is \$26,534 (ACS 2009-13). This includes all reported income from



wages and salaries as well as income from self-employment, interest or dividends, public assistance, retirement, and other sources. This per capita income is lower than both the Pennsylvania per capita income (\$28,502) and the average U.S. per capita income (\$28,154) by approximately \$2,000. The lower average per capita income along with the large population of individuals living in poverty suggests that people may be less likely to afford care that may not be covered by insurance (i.e. dental care) and may have difficulty paying out of pocket for care if they are uninsured. The bar graph above is from the Lehigh Valley Research Consortium (LVRC) analysis of secondary data sources, which shows the household income per county for the year 2010.

The bar graph on the following page refers to our 2016 community survey data, where we compared the income distribution within the St. Luke's Allentown service area to the income distribution of SLUHN as a whole. There were much higher percentages of respondents in the St. Luke's Allentown service area who reported income levels below \$14,999 (23.7%) as compared

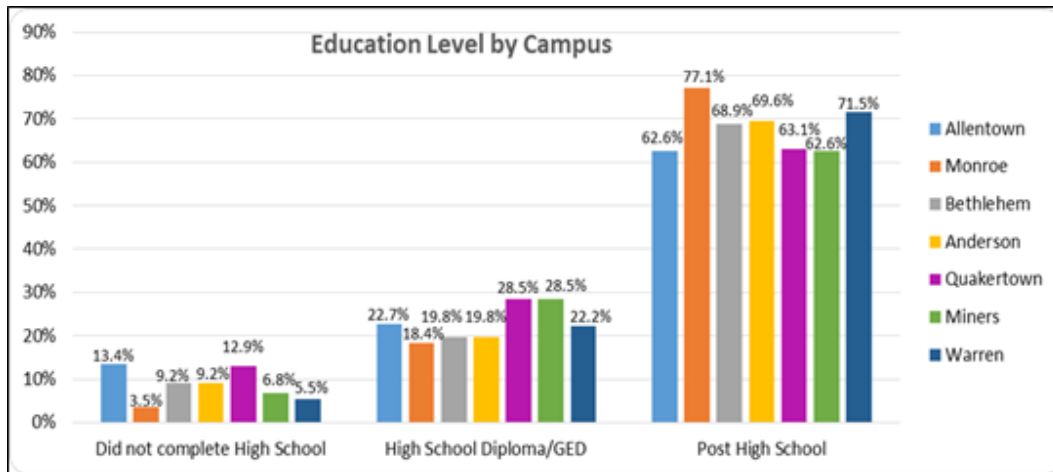
to the network as a whole (15.5%). In 2015, the federal poverty level for a family of four was \$ 24,250 (U.S. Department of Health and Human Services, 2015). There were also higher percentages of those in the \$15,000-\$24,999 range in the St. Luke's Allentown service area (15.3%) than was seen for the network as a whole (12%). Conversely, the percentages for the upper income brackets were lower for St. Luke's Allentown than what was seen for the network. The percentage of respondents in the St. Luke's Allentown service area with a household income over \$60,000 made up 31.6% of the distribution, and respondents making under \$39,999 made up 52.4% of the distribution. This pattern affirms the income inequality that is seen in the St. Luke's Allentown service area.



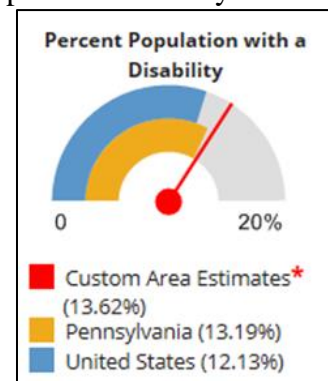
The stakeholder focus group identified housing and food insecurity, as well as unemployment as factors related to poverty that must be addressed to understand how these social determinants of health are impacting the people who live in our area. The focus group members recommended utilizing the community schools and mobile health vans, but the crux of the issue lies in determining how to reduce poverty, and then these preventative and curative programs can be applied more effectively. From these two sections about unemployment and poverty, we can see that poverty and unemployment are both social determinants of health that are important to understand when addressing the health status of our community.

Education is another vital social determinant of health that must be addressed in order to reduce health disparities. As the Allentown Promise Neighborhood of the Lehigh Valley states on their website, if children are not healthy they are more likely to miss school, feel less motivated to succeed, and may have an inhibited ability to learn. Higher education has been tied to reduced risky health behaviors and better health status, and the ultimate goal of the Allentown Promise Neighborhood's 9 promises is that students graduate high school and are adequately prepared to go on to college or pursue a career. According to the ACS (2009-13), 35.15% of the population in the St. Luke's Allentown service area over the age of 35 have an Associate's degree or higher, which is similar to the percentages seen in Pennsylvania (35.14%) and nationally (36.65%). Unfortunately, the percentage of the population over 25 with no high school diploma in our service area (14.53%) is higher than the percent population who do not have a high school diploma in Pennsylvania (11.34%) and nationally (13.98%) (ACS 2009-13). Our 2016 community survey data revealed that the highest percentage of respondents in the St. Luke's Allentown service area either reported having education beyond high school (62.6%) or a high school diploma/GED (22.7%). The percentage of respondents that reported not completing high school was highest in the St. Luke's Allentown service area (13.4%), compared to the other

campuses. As evidenced by the distribution below, we can see that there is considerable variation in educational attainment that within the St. Luke's Allentown service area. This is important to attend to when addressing the health needs of our service area, since education has been noted to influence health behaviors and health status.



Disability was a significant barrier to accessing care that was discussed in the stakeholder focus group. Disability includes not just the elderly, but also working age adults who are no longer able to participate in the workforce due to some medical condition. The ACS (2009-13) reports that 13.62% of the non-institutionalized population in the St. Luke's Allentown service area (including those with mental and cognitive disabilities) is recognized as having any disability, which is higher than the percentages seen in Pennsylvania (13.19%) and nationally (12.13%). Although the 65 and over age range has the highest percentage of the population with any disability in our counties served (between 33.36%-35.08%), there is still a large percentage of adults in the 18-64 age range (between 9.35%-11.34%) of the population recognized as having any disability. This suggests that there are probably adults with disabilities who have families and other people to care for. The members of the stakeholder focus group suggested that there be focus put on improving access to care for people with disabilities, such as boosting insurance enrollment, aiding in transportation issues, and spreading knowledge about services available for people who have a disability.



Language barriers were identified by the St. Luke's Allentown stakeholder focus group as a prevalent barrier to receiving care, therefore Limited English Proficiency can be an indicator of health disparities. Limited English Proficiency (LEP) is defined as people who mainly speak a language other than English at home and speak English less than "very well". This indicator looks at the percentage of the population aged 5 and older who have Limited English Proficiency. According to the ACS (2009-13), 9.58% of the population in the St. Luke's Allentown service area have LEP, as compared to the percentage of the total population with

LEP in Pennsylvania (3.92%) and in the U.S. as a whole (8.63%). Additionally, the language data presented in the demographics section show that since we have such a diverse community, translators are required at many of our medical service locations. The stakeholders discussed that there are 50-60 different dialects are spoken in the Allentown School district, which has implications for confusion in the healthcare setting as well as the educational setting.

Transiency within the community was identified as a major contributor to health disparities. When families move around they have to switch healthcare providers, which results in lack of continuity in care as well as gaps in receiving care. The population geographic mobility indicator measures the influx of individuals to a particular region from a different prior location (this does not include people who moved out of the area). The percent population in-migration for the St. Luke's Allentown area is 6.42%, which is similar to the national percentage of 6.01% and is higher than the Pennsylvania percentage of 4.8%. According to the Pennsylvania Youth Survey (PAYS) 2013 data, 18.6% of students in Lehigh County have moved one or two times in 2013, whereas 1.6% reported moving at least five different locations over a three year period. Large amounts of people moving into the community strains the healthcare system and adds stress for individual families who may face discontinuity of care if they are unable to find a provider.

Affordable housing was also recognized as a major issue by focus group members and was reiterated within the 2015 Health Care Council of the Lehigh Valley (HCCLV) focus groups. It was discussed as an issue related to health disparities because a link has been identified between housing insecurity and health, where health is negatively impacted by constant location changes. High housing costs also mean that the person has less income to spend on other needs, such as healthcare and buying healthy foods. In the St. Luke's Allentown service area, the housing cost burden in our counties ranges from 34.66% (Northampton County) to 36.84% (Lehigh County). Our service area counties have higher percentage of people living in burdened households than in Pennsylvania (31.89%) (ACS, 2009-13).

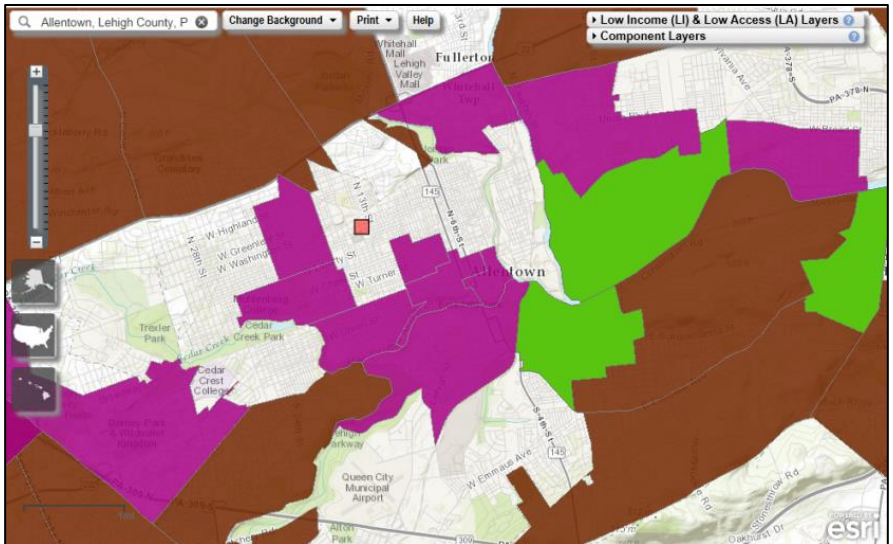
In the stakeholder focus group, enhancing the collection and dissemination of health information was seen as an important facet of reducing health disparities. Focus group members believed that the residents in the St. Luke's Allentown service area are not aware of all of the programs and opportunities available to help improve their health. Connecting community members to services was discussed as a priority for the future. Additionally, organizations and stakeholders in the community must collaborate more in order to best serve the St. Luke's Allentown population. All of the organizations have different data, experts and strength areas that should be shared amongst these groups in order to more efficiently help as many people as possible. Overall, the focus group members said that there is currently a movement for a collective impact strategy, where organizations unite to jointly address important issues in the community such as poverty, housing insecurity, and health disparities. This unification of organizations would help address the most important social determinants of health and eventually help reduce disparities in care.

2. Promoting Healthy Lifestyles and Preventing Chronic Disease

Access to grocery stores is vital in promoting healthy lifestyles and healthy behaviors because eating healthy foods contributes to overall positive physical health. According to the U.S. Census Bureau's County Business Patterns (2013), there are 22.54 grocery store establishments per 100,000 population in the St. Luke's Allentown service area, which is slightly better than rate of establishments per population in Pennsylvania (21.4) and in the U.S. (21.2). Although we may have a higher rate of grocery stores per population, access to and knowledge about healthy foods was recognized by focus group members as an issue in promoting healthy lifestyles. The newly formed Food Policy Council was discussed as an asset to help improve access to healthy foods such as fruits and vegetables, and schools were mentioned as an asset to implement healthy eating programs within the curriculum.

In addition to access to grocery stores, it is also important to examine the presence of food deserts in our service area. According to the United States Department of Agriculture (USDA), a food desert is a place in which people do not have easy access to fresh and healthy food, so much of their food ends up coming from fast food restaurants and convenience stores. This food desert map shows the city of Allentown, because the map generator does not allow us to put in all of the specific zip codes for the St. Luke's Allentown service area. The green areas show the low income census tracts where a large portion of the residents live 1 mile away (for urban areas) or

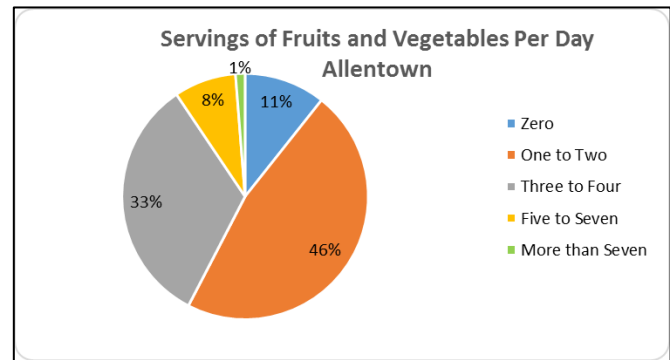
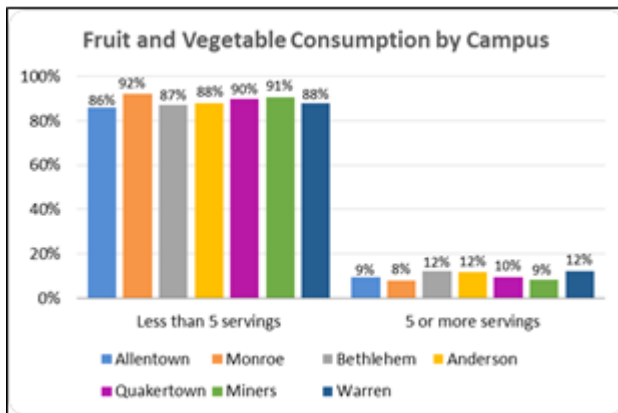
10 miles away (for rural areas) from a grocery store. The purple represents areas where a significant number of families do not have a car and live more than half of a mile from the closest grocery store. The brown shows areas where at least 1/3 of the population lives greater than 1 mile (for urban areas) or 20 miles (for rural areas) from the closest grocery store. The map



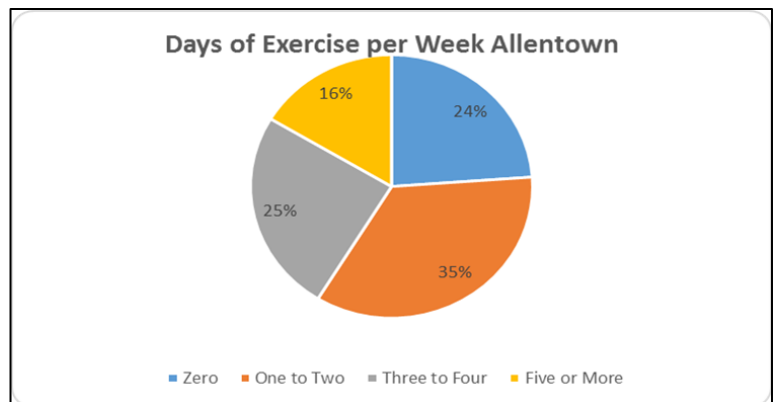
generated shows that there are large areas in the city of Allentown that have low food access at 1 and 20 miles, as well as many areas surrounding these designated areas that are food deserts or have low vehicle access. This means that there is a sizeable population of individuals who do not have cars, and live in areas with low food access, causing it to be nearly impossible to obtain healthy food. We can also examine food insecurity, which reports people's ability to access food and to be able to live a healthy lifestyle. Food insecurity may also represent an inability to provide all necessities for one's family, therefore they may have to result to buying fast food instead of healthy food like fruits and vegetables. In Lehigh County 11.8% of the population is

food insecure and in Northampton County 11.4% of the population is food insecure (Feeding America, 2013).

After examining access to grocery stores, food deserts, and food insecurity, it is important to look at fruit and vegetable consumption in our service area, since the previously mentioned factors may be limiting people's ability to meet the FDA recommendations for fruit and vegetable consumption. The bar graph below comes from our 2016 survey data and shows the breakdown by each SLUHN campus in regards to the service areas meeting the FDA recommended consumption of fruits and vegetables (five or more servings per day). In terms of the St. Luke's Allentown service area, only 9% of respondents are meeting the FDA recommendation of consuming five or more servings of fruit and vegetables per day. The bar graph shows that 86% of respondents reported consuming less than five servings of fruits and vegetables per day, and the pie chart shows that the largest percentage of people reported consuming one to two servings per day (46%). The low percentage of respondents meeting the FDA recommendations in the St. Luke's Allentown service area could be attributed to the lack of grocery stores or the presence of food deserts, which were previously discussed.



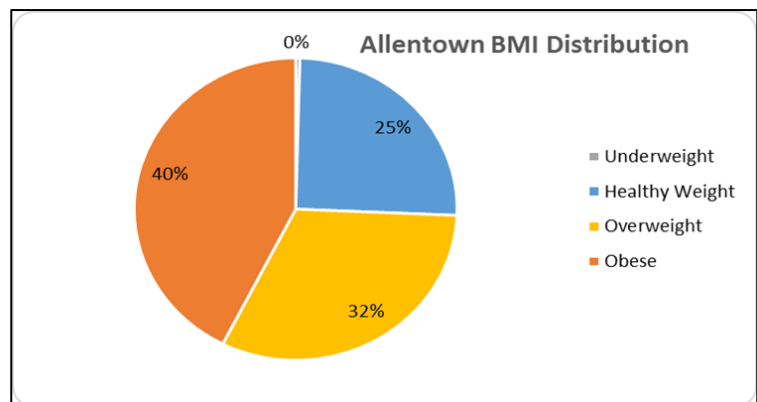
Lack of physical activity among community members is a major barrier in promoting healthy lifestyles and preventing chronic disease. Consistent exercise has been shown to improve physical and mental health, and is important in decreasing rates of obesity and cardiovascular problems. In the St. Luke's Allentown service area, 21.4% and 24.6% (Lehigh County and Northampton County respectively) of the population over the age of 20 reported that they spent no time taking part in physical activity. This percentage is very similar to the percentage of the population in Pennsylvania (22.9%) and the U.S. (22.6%) that reported no physical activity in the past month (National Center for Chronic Disease Prevention and Health Promotion, 2012). Our 2016 community survey showed similar results, where 24% of respondents in the St. Luke's Allentown



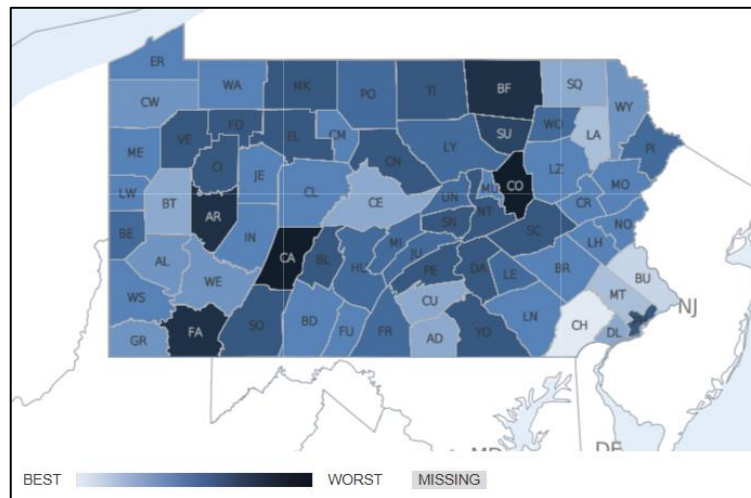
service area reported no exercise per week, which was similar to what was seen for the network as a whole. Approximately 41% of respondents in this service area reported exercising more than three days per week (including three to four days and more than five days), but we can also see that there are people who are not participating in enough physical activity to stay healthy. The Healthy People 2020 target recommends that adults should be exercising 150 minutes per week, an average of 30 minutes per day for five days a week. The target for 2020 is that 47.9% of adults reach this benchmark and currently, only 16% of survey respondents in the whole SLUHN service area are exercising at least five times per week.

To gain a better sense of what physical activity looks like in our region, we can examine the Robert Wood Johnson 2015 County Health Rankings, which has an access to exercise opportunities indicator. This indicator measures the percentage of individuals in a county who live reasonably close to a location for physical activity. Locations for physical activity include parks or recreational facilities. 85% of people in Pennsylvania live close to a location for physical activity, which is slightly worse than the percentages in our counties, where 87% of the population in Northampton County and 88% of the population in Lehigh County live in close proximity to an area for exercise. The stakeholder focus group emphasized the great parks system in Allentown, which should be utilized in conjunction with community youth organizations and other non-profits to promote exercise.

Another important topic in the category of preventing chronic disease and promoting healthy lifestyles is obesity. Obesity is a very prevalent health issue in our community, and according to the State of Obesity (a project of the Trust for America's Health and the Robert Wood Johnson Foundation), rates in Pennsylvania are on the rise. Pennsylvania is ranked as the 20th amongst the 50 states (where 1 is the most obese state and 50 is the least obese state). Due to the limited access to grocery stores that serve healthy foods and the poverty levels, which restrict families to buying cheap fast food, obesity is growing quickly. Obesity is a risk factor for type 2 diabetes, coronary heart disease, stroke, high blood pressure and some breathing conditions. Obesity is determined by Body Mass Index (BMI), which is an indirect measure of an individual's body fat. For a person who has a normal weight the BMI range is from 18.5-24.9, for someone who is overweight the range is 25-29.9, and for someone who is obese the BMI is 30.0 or more (CDC, 2015). According to the National Center for Chronic Disease Prevention and Health Promotion (2012), 28.1% and 27.6% of the population (Lehigh and Northampton, respectively) over the age of 20 reported that they have a BMI greater than 30. Our population fares similarly to the population in Pennsylvania where 28.4% of the adult population is considered obese and

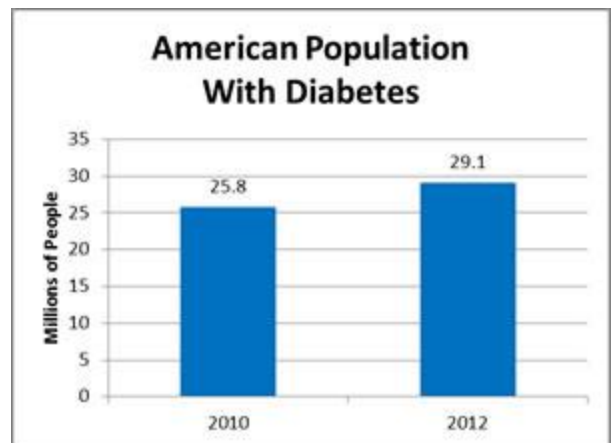


better than the U.S. as a whole where 27.1% of the adult population is considered obese. According to our 2016 community survey, 40% of respondents in the St. Luke's Allentown service area were obese and 32% were overweight (BMI was calculated using respondent's weight and height). The map below is of the state of Pennsylvania, where the percentage of the population that is obese within each of the counties is represented by white/light blue (lower percentages) and dark blue (higher percentages). To address the issues of obesity, the stakeholders recommended more youth involvement in non-profit agencies that help promote exercising in the area will help improve health and reduce obesity, such as the Boys and Girls Club, The YMCA, Community Bike Works, and the Lehigh Valley Road Runners.



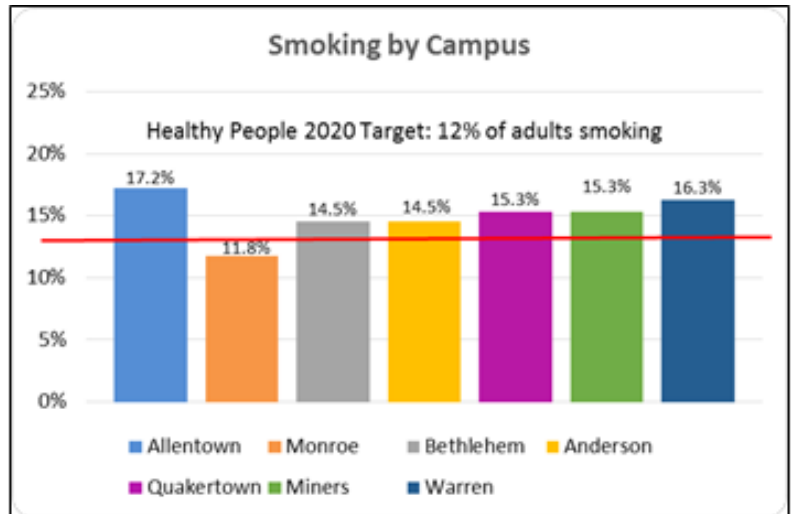
While focusing on programming is important in reducing levels of obesity, results from our 2016 community survey identified several demographic characteristics that were linked with a respondent's BMI. For SLUHN as a whole, amongst all respondents with a morbidly obese BMI, the largest percentage was evident among those earning less than \$14,999 per year (19.8%). Conversely, only 8.9% of the morbidly obese respondents reported making more than \$100,000 per year. The income range with the highest percentage obesity was \$15,000 - \$24,999 at 44.3%, while the lowest percentage of obesity was in the \$100,000 or more range at 31.0%. This is interesting because it shows us that there is an association between level of income and BMI, which reaffirms that the social determinants of health (such as income) must be taken into consideration when determining how to improve the health of our community. We also examined education, where 45.9% of those who did not receive a high school degree reported BMIs in the obese category and 41.7% of those who attained a high school diploma or GED reported BMIs in the obese category. 36.5% of those who completed education beyond high school fell into the obese category. This shows us that lower levels of educational attainment may be related to obesity. Making connections to the social determinants of health related to obesity is important so that a multifaceted approach can be taken to reduce rates of obesity in our service area.

Diabetes is a prevalent chronic health condition strongly tied to obesity, so it is important to examine it in more detail. Diabetes is a disease where a person's blood glucose levels are too high. Type I diabetes is generally found in children under the age of 20, where the pancreas does not produce enough insulin. Type II diabetes is of great concern in our community served, because type II can be caused by being overweight or obese. Diabetes can also cause other health issues such as blindness, kidney disease, foot problems, and heart disease. There are treatments for type II diabetes including medications, better diet, and exercise, but some people with type II diabetes have it for life. The percent of adults with diabetes ranges from 8.8% (Northampton County) to 9.4% (Lehigh County) in the St. Luke's Allentown service area (National Center for Chronic Disease Prevention and Health Promotion, 2012). According to the National Diabetes Statistics Report (2014), diabetes was the 7th leading cause of death in the United States in 2010, but it is likely that many more deaths resulted from diabetes but were not reported as such. This happens because of the various co-morbid conditions associated with diabetes. From 2010 to 2012, the rate of diabetes in the United States rose from 25.8 million to 29.1 million people, this latest percentage represents 9.3% of the U.S. population. The number of people in the U.S. over the age of 20 who were pre-diabetic also increased from 2010 to 2012, from 79 to 86 million people (National Diabetes Statistics Report, 2014).



Poor air quality was another issue identified by the stakeholder focus group relating to chronic disease. Lehigh County was given a rating of D for high ozone days (with A being the best rating and F being the worst rating) by the American Lung Association's State of the Air 2015 analysis. Northampton County received a C for high ozone days, an F for particulate pollution in a 24 hour period, and failed the annual particulate pollution measure. High ozone pollution and high particulate pollution both contribute to asthma, chronic obstructive pulmonary disease (COPD), and other cardiovascular and pulmonary issues. According to the Robert Wood Johnson County Health Rankings 2015, the particulate matter (which measures density of particulate matter that can come from power plants, industry or cars) is leveling out for Lehigh County and may be on the road to improvement. The average particulate matter for Lehigh County is slightly better than seen in Pennsylvania, but worse than seen in the U.S. as a whole. The stakeholders said that there has been increased usage of the Emergency Department for asthma related issues. So it will be important to determine how to improve our air quality to better community members' health as well as decrease preventable emergency room admissions.

Tobacco usage is an important indicator of health to take into consideration when examining how to enhance healthy lifestyles and prevent chronic disease, because smoking contributes to illnesses such as cardiovascular disease, cancers, and asthma. In order to promote healthy living, cutting down on tobacco usage within the community is a necessity. In Lehigh County 20.3% and in Northampton County 18.1% of the population over the age of 18 self-report smoking cigarettes some days or every day, these percentages are both lower than the Pennsylvania average (20.8%). (BRFSS 06-12). According to the PAYS survey data, 21.8% of the 12th grade students in Lehigh County reported smoking cigarettes. Referring to our 2016 survey results in the bar graph, 17.2% of respondents in the St. Luke's Allentown service area report that they currently smoke (the question asked about smoking generally- but the majority of those who said they smoked also responded that they smoke cigarettes specifically). This percentage is higher than the Healthy People 2020 goal of having only 12% of adults smoking, which means there are improvements to be made in terms of reducing smoking in our service area.

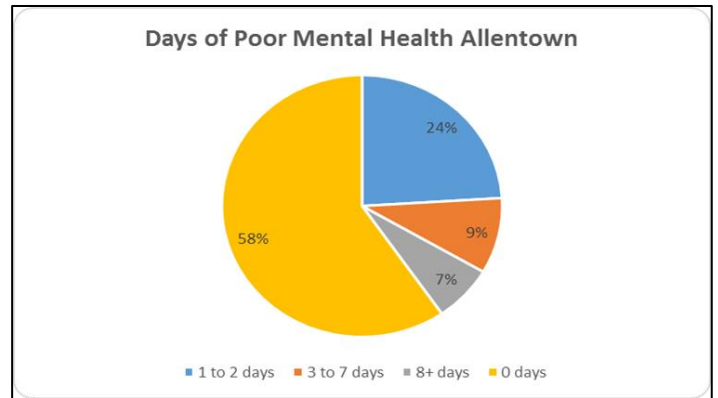


3. Improving Mental/ Behavioral Health

In 2008, 13.4% of adults in the U.S. received care to treat a mental health issue (National Institute of Mental Health). This percentage was higher than in past years, but it still means that not all adults who have a mental health issue are receiving treatment for it. Additionally, greater than half of those who have problems with drugs and one third of those with a substance abuse problem have some sort of mental health problem (National Alliance on Mental Illness- Dual Diagnoses). In the section below, we will talk about mental health as well as substance abuse individually, and we will also discuss the ways in which they are connected

By first examining the number of days of poor mental health people report, we can begin to assess the mental health status of the St. Luke's Allentown service area. According to our 2016 community survey, 40% in the St. Luke's Allentown service area of respondents reported missing one or more days of normal activity in the past month due to poor mental health. Those who are missing days of normal activity due to poor mental health may not be receiving any type of treatment for their condition, which is important to take into consideration when reading the rest of this section about the other issues related to mental health within our service area.

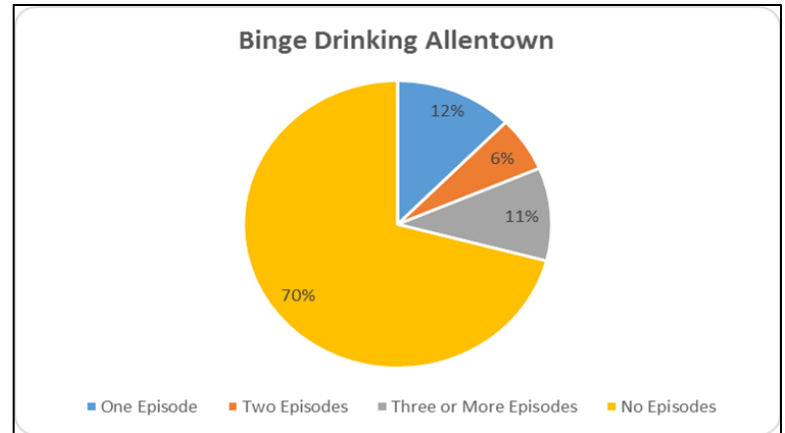
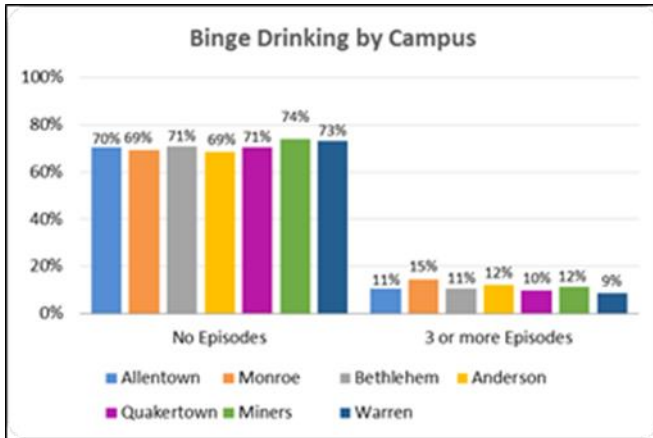
Lack of mental health professionals is one significant barrier to providing mental health services to community members. According to the Robert Wood Johnson 2015 County Health Rankings, the ratio of population to mental health providers for the top performing counties in the U.S. is 386:1, and in Pennsylvania the ratio is 623:1. Only Northampton County (592:1) fares better than Pennsylvania. Lehigh County (647:1) and Berks County (913:1) fare worse than both the top performing U.S. county ratio and the Pennsylvania state ratio. The availability of mental health providers is important because if people do not have access to a mental health provider their condition may worsen or go undetected.



As discussed earlier, unemployment and poverty are two important indicators of access to care, but they are also important to take into consideration when examining issues of mental health, because not having a stable job and the stress of providing for oneself and one's family are risk factors for poor mental health. As mentioned previously, the unemployment rate in the St. Luke's Allentown service area is 6.3% of the non-institutionalized population (Bureau of Labor Statistics, August, 2015). Additionally, 33.89% of the population in this service area is living at or below 200% of the FPL (ACS, 2009-13).

It is important for community members to have social or emotional support in order to feel confident getting through everyday problems; more importantly, social and emotional support is vital to maintaining positive mental health. In the St. Luke's Allentown service area, the percent of adults who reported inadequate social or emotional support ranges from 17.9% (Lehigh County) to 21.9% (Northampton County). These percentages are similar to the percent of adults reporting inadequate social support in Pennsylvania (20.9%) and in the U.S. (20.7%) (BRFSS 2006-12).

Excessive alcohol consumption could be an indicator of a substance abuse problem, and may be contributing to or worsening an individual's mental health condition. 18% of the adult population in Lehigh County and 17% of the adult population in Northampton County reported excessive consumption of alcohol (Robert Wood Johnson County Health Rankings, 2015). The percentage in Pennsylvania is 17%, and the percentage in the top performing counties in the U.S. is 10%. According to our 2016 community survey, 29% of respondents in the St. Luke's Allentown service area reported having one or more episodes of binge drinking in the past month.



4. Improving Child and Adolescent Health

Childhood and adolescence are vulnerable times for growing children, where they must be nurtured and cared for, so if a family is in poverty this puts great strain on providing the youth with the basic necessities. In the St. Luke's Allentown service area, 25.16% of children are living in households with incomes at or below 100% of the Federal Poverty Level (FPL), as compared to 18.76% of the child population in Pennsylvania and 21.58% of the child population in the U.S. as a whole (ACS 2009-13).

If children are living in poverty it is likely that they are not covered by private insurance. Children who have government insurance or are uninsured are likely to have restricted access to healthcare, therefore contributing to poorer health status. According to the Small Area Health Insurance Estimates (2013), 5.72% of children living in the St. Luke's Allentown service area are uninsured, which is lower than the national percentage (7.51%), but is slightly higher than the Pennsylvania percentage (5.55%).

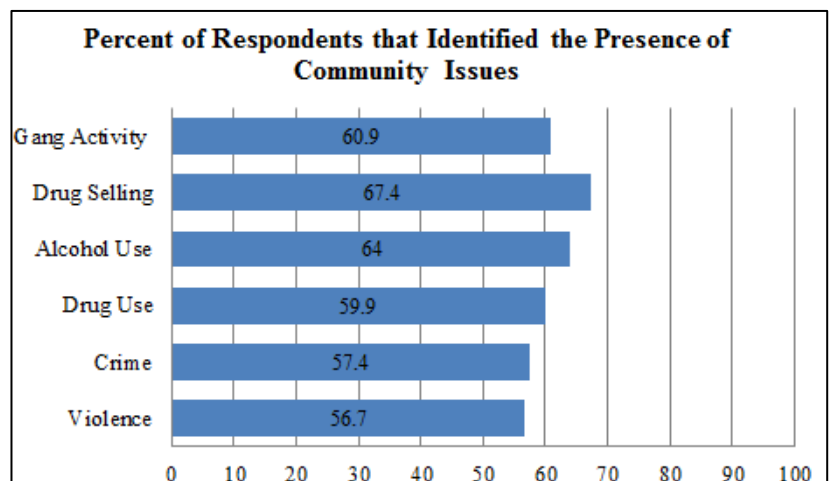
Free or reduced lunch eligibility is determined based on income eligibility guidelines set forth by the USDA. If children are eligible for free or reduced lunch this means their family income is sufficiently low, which may mean there may not be enough income to buy enough food at home or to pay for other things such as healthcare. 49.71% of students in the St. Luke's Allentown service area are eligible for free or reduced lunch, as compared to 43.58% in Pennsylvania and 52.35% in the U.S. (NCES- Common Core of Data 2013-14). According to the Allentown School District website, 86.8% of students in this district are receiving free and reduced lunch.

Education is extremely important in order to teach children about how to live healthy lifestyles and schools should serve as a place where children can feel safe and supported. Allentown has six community schools that serve the children in the area. Community schools offer the unique ability to provide students and their families' with physical and behavioral health services. In our discussion below, we can see how schools will play an important role in helping children adopt healthy lifestyles and behaviors.

In order to promote healthy lifestyles and behaviors it is first important to look at youth behaviors, since habits tend to carryover from childhood and adolescence into adulthood. Additionally, if we can identify what risky health behaviors are occurring among youth, we can target these behaviors and determine how to reduce their prevalence. The Pennsylvania Youth Survey (PAYS) looks at youth's attitudes, knowledge and behavior regarding drugs and alcohol. In 2013, the most used "gateway substance" was alcohol, with 40.8% of students in Lehigh County having consumed alcohol during their life. Binge drinking was reported by 6.8% of the students who live in Lehigh County, which is better than the state average of 9.7%. Marijuana was the second most popular substance used, with 13.7% of students having tried it at some point during their life. In terms of prescription drug use, narcotic prescription drugs (i.e. pain management drugs) were reported as being used by 5.6% of students and prescription stimulants (i.e. medications for ADD/ADHD) were used by 2.9% of students. Amongst students in Lehigh County, a staggering 48.3% of students in 12th grade said they have texted while driving before. In terms of mental health, 31.3% of students in Lehigh County reported feeling "depressed or sad MOST days". Along the same lines, 14.6% of students reported that they strongly debated committing suicide. Overall, the focus group members discussed the issue of easy access to drugs and alcohol. They indicated that the schools should be used as an important asset to teach students about positive health behaviors.

The environment people live in greatly affects their mental and physical health status. If people are living in a community where violent crime is prevalent, parents may be less likely to allow their kids to go out and play because they are concerned about their children's safety. Focus group members recognized gang activity as an issue in the area. Since there are 26 known gangs in the region, parents feel unsafe letting their children walk around or play in the community. It is important to look at rates of violent crime in our community so that we can address these issues and allow people to feel secure. The violent crime rate in the St. Luke's Allentown service area (259.46 per 100,000 population) is substantially better than the rates seen in Pennsylvania (362) and in the U.S. as a whole (395.5) (FBI Uniform Crime Reports, 2010-12). Although the violent crime rate in our area is better than the average rates in Pennsylvania and the U.S., there are still many issues related to safety reported in the St. Luke's Allentown service area. According to the Promise Neighborhoods of the Lehigh Valley 2014 Framework report, in the APN (Allentown Promise

Neighborhood) respondents were asked to choose one or more of the six issues listed and whether or not they thought these issues were present in the community. The bar graph represents their responses, where it is clear that drug selling, alcohol use, and followed by gang



activity were the three most popularly chosen community issues. Another question in the survey addressed whether or not parents would feel safe letting their children walk to school. The APN report showed that more than half of the respondents said they would not feel safe letting their children walk to school. This is problematic because Allentown is a no bussing district, so many children are walking to school, and if their parents work they are likely walking alone or with other students.

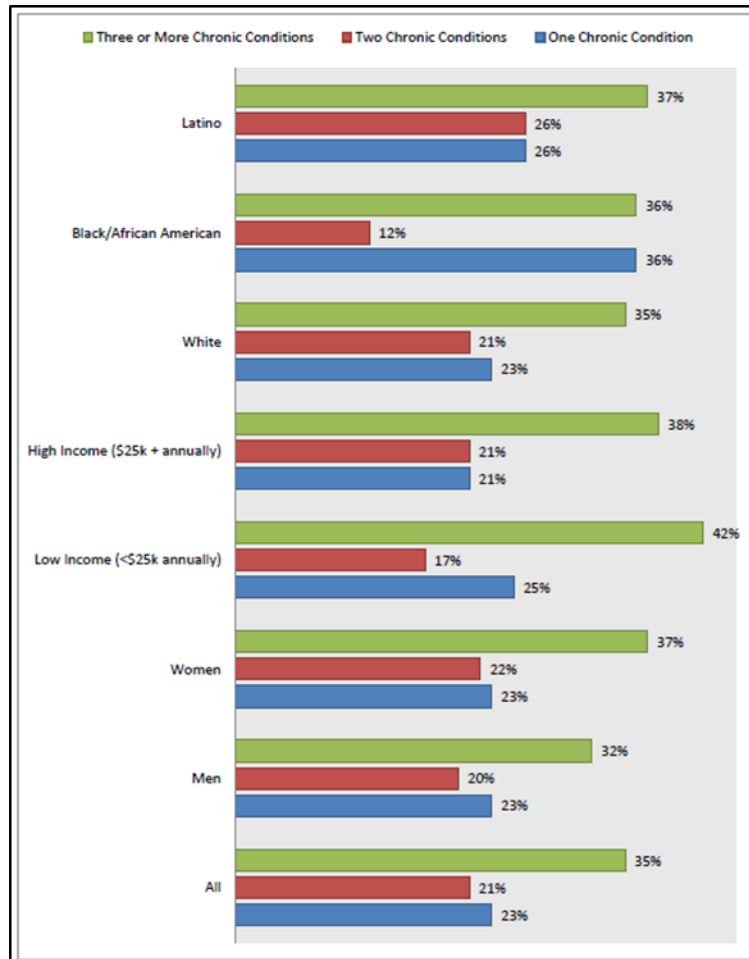
5. Improving Elder Health

Elder health is important to address because the elderly represent a very vulnerable population, who may need help navigating the healthcare system. We can see through America's Health Rankings 2015 that Pennsylvania ranks 25th out of 50 for elderly health, placing it squarely in the middle of all of the states within the U.S. The main challenges that Pennsylvania faces in preserving the health of the elderly are the high prevalence of obesity, the lack of physical activity, and the low prevalence of high quality nursing home beds. There are other demographic and socioeconomic health issues that influence elder health, which will be discussed below.

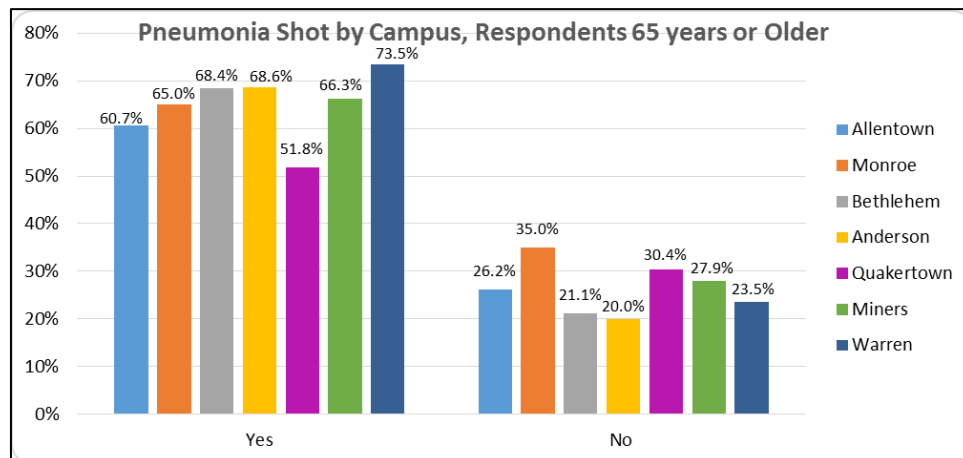
The Lehigh Valley Research Consortium (LVRC) in conjunction with United Way of the Greater Lehigh Valley completed a report in 2012 on the status of the non-institutionalized elderly population for the Lehigh Valley Alliance on Aging. This report is based on surveys from elder adults in Lehigh County, Northampton County, and sections of Montgomery County and Bucks County. According to the report, in the year 2010, approximately 15% of residents in Pennsylvania were over the age of 65. In the past 10 years there has been a growth of 66% in the elderly population over the age of 85 in Pennsylvania. The U.S. Census Bureau Population Estimates and Projections (2014) said the elderly population in the United States could rise to 83.7 million by the year 2050. With an increase in the aging population come specific health needs that must be addressed, such as mental health, accidents, and chronic disease. The focus group participants discussed how there will be a pressing need to increase the number of trained professionals who can help care for the elderly population.

According to the U.S. Census Bureau, elderly who are living to be the oldest tend to face more chronic illnesses. In the LVRC (2012) report this is exemplified by the large percentage of the elderly population who report various chronic conditions. The prevalence of diabetes amongst older adults in the Lehigh Valley is relatively high at 23%, which is greater than the U.S. average of 19% and the Pennsylvania average of 22%. Within the elderly population, many types of chronic diseases were reported. Among the most common, the elderly discussed being diagnosed with arthritis (45% of the population), high blood pressure (50%), and high cholesterol (30%) (LVRC, 2012). The graph on the following page exemplifies breakdown by race, income and gender for elderly who have one or more chronic health conditions (Lehigh Valley Seniors Healthy at Home Survey, 2014). The green bar represents three or more chronic diseases, the red is two or more chronic diseases, and the blue signifies having one chronic disease. In our 2016 community survey we looked at the variety of different health conditions present within each of

the SLUHN hospital campuses, but this was not broken down by age. A high prevalence of elevated blood pressure, high cholesterol, and arthritis were identified in the St. Luke's Allentown service area (for the whole respondent population-not broken down by age), which happens to correspond with the chronic disease conditions listed for the elderly in the Lehigh Valley Seniors Healthy at Home Survey (2014).



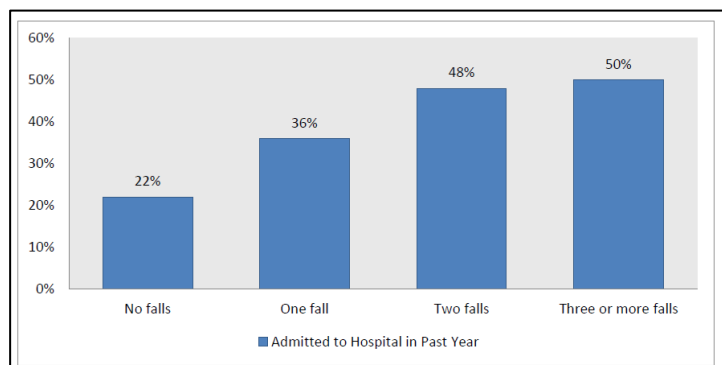
Additionally, in our 2016 community survey, we looked at preventive health services utilized by respondents. In particular for the elderly, we examined whether or not they received their pneumonia shot. The chart shows that 60.7% of respondents over the age of 65 in the St. Luke's Allentown service area reported receiving their pneumonia shot.



Mental health issues facing the elderly community are vast and are many times are overlooked. In the St. Luke's Allentown service area, 18.73% of Medicare beneficiaries have depression, which is higher than the percentages seen in Pennsylvania (16.2%) and in the U.S. as a whole (15.4%) (Centers for Medicare and Medicaid Services, 2012).

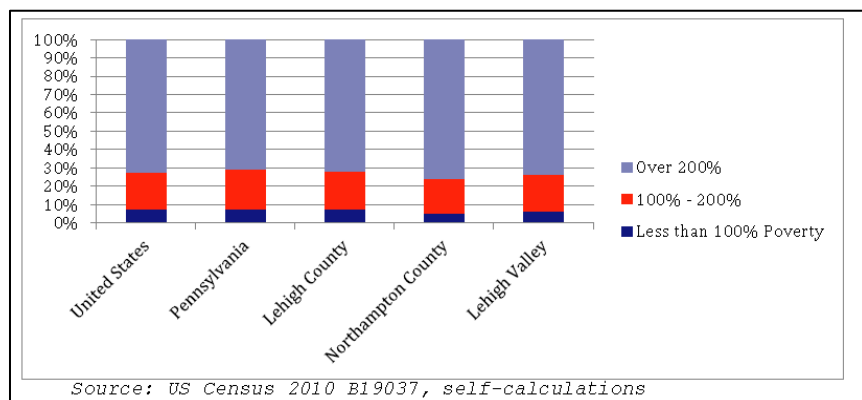
Elderly falls have been identified as an issue throughout the country, where the CDC reported that throughout the year one out of three seniors will experience a fall. In the LVRC (2012) report, surveys informed us that in the Lehigh Valley, approximately 22% of the elderly reported one or more falls in the past three months. The report also found that most of the elderly who needed to be hospitalized for their falls stayed at the hospital for a little over 4 days, and 75% of them required help at home once they were discharged. Falls are not only dangerous for the elderly, since they may cause serious injuries, but they are also costly to the medical system. Each fall patient costs approximately \$234, 423 (LVRC, 2012). As evidenced by the bar graph below from the LVRC (2014) report, a relationship was found between the number of falls the elderly reported and the likelihood of hospital admissions in the past year. For these reasons it would be in the best interests of the community as well as hospitals such as ours to help prevent falls amongst the elderly.

Occurrence of Falls and Admittance to Hospital in Past Year



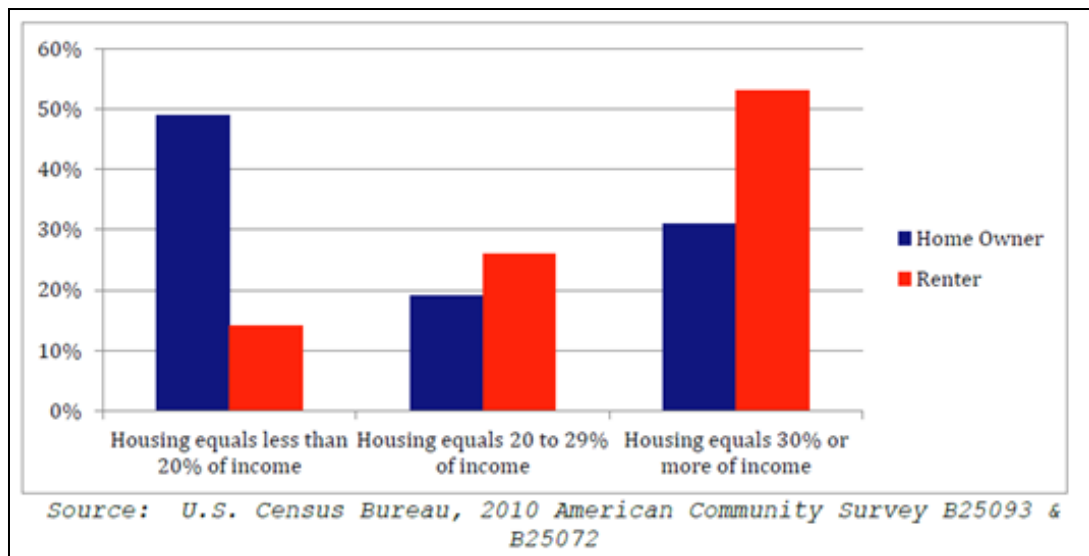
Approximately 6,000 individuals in the elderly population within the Lehigh Valley are living at or below 100% of the FPL. Older adults have to work longer to cover costs of living and to cover medical costs, since more health issues arise as they age. For an elderly individual living alone, 200% of the poverty level is \$21,660. Examining the level of poverty at this level shows us that more than 25% of the elderly living in the Lehigh Valley have extremely low incomes (LVRC, 2012).

Percentage of Older Adults Living in Poverty (2000-2010)



Affordable housing is an issue that is prevalent in the elderly population across the country. The elderly population may want to live on their own, or at least choose where they want to reside as they age. The graph below from the LVRC 2012 report shows that amongst those in the elderly population who rent their homes, a little more than half of them have housing costs that are equivalent to 30% or more of their income. Additionally, if housing costs become too high, the elderly may have to depend on their children for help, putting financial and emotional strains on the senior and the family.

**Lehigh Valley Older Adult Householder
Costs as a Percent of Income**



III. Conclusion

Improving access to care/reducing health disparities, promoting healthy lifestyles and preventing chronic disease, improving mental/behavioral health, improving child and adolescent health, and improving elder health are the five main health categories that were identified as areas for improvement through our community survey, our key stakeholder focus groups, and secondary data analyses. We already have many great services available to help improve health in our region, but a concentrated and sustained effort will be necessary amongst all those who contribute to our community's health to create new programs and continue existing programs to try even harder to address the current concerns. The needs discussed within the health categories will serve as our guide in creating a campus specific implementation plan to best address the needs of the St. Luke's Allentown service area.

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Appendix A: Allentown Stakeholder Focus Group Overview

Allentown Campus Priority Areas

1. Improving Access to Care
2. Identifying Social Determinants of Health and Reducing Health Disparities
3. Promoting Healthy Lifestyles and Behaviors
4. Enhancing the Collection and Dissemination of Health Information

I. Priority Area Specific Questions

1) Improve Access to Care

- a. What strengths and resources can be built upon and utilized *to improve access to care*?**

There are multiple resources that can be built upon to improve community access to care. The mobile vans (which include vision and dental vans), local health clinics, and school nurses represent important assets that can be utilized even more to improve access to care.

Expanding the community health workers program is an option to help improve access to care. Currently there are eight community health workers employed by the Allentown Health Bureau in areas of communicable diseases, maternal and child health, chronic diseases, and HIV prevention.

In general, the schools are main access point for providing care to community members. Students and their family members have access to physical and behavioral health services through the schools.

- b. What are the barriers and challenges that our community faces *to improve access to care*?**

Having more people out in the community helping with health insurance enrollment will be important in improving access to care. Currently, the stakeholders believe there are not enough people tackling this issue.

Improving access to care for people with disabilities is also a challenge, which involves issues related to insurance, transportation, and knowledge of health services available.

Many people in the community work long hours, so doctor's hours are not conducive to their schedules. Community members need weekend and night appointments to accommodate their work schedules. Getting an appointment in a timely manner was also cited as a barrier to improving access to care.

Another issue is the delay in expanding Medical Assistance in Pennsylvania. Under the Affordable Care Act, where it was assumed most people would now be insured, there is still a 62% uninsured rate in the community. The stakeholders said the issue of how to help the uninsured gain access and understand the healthcare system is a major issue to overcome.

Lastly, the high price of dental insurance is preventing many people from signing up because it is too costly in addition to purchasing medical insurance. These untreated dental issues may contribute to other chronic diseases and health issues in the future.

2) **Identifying Social Determinants of Health and Reducing Health Disparities**

a. What strengths and resources can be built upon and utilized to *eliminate health disparities and promote good health for all*?

Food and housing insecurity were discussed as important social determinants of health. These two determinants lead to high turnover rate of students in schools, unemployment and the underlying main issue of poverty. To address these issues there have been improvements in accessible and affordable housing, which can be built upon and improved in the coming years.

All of the Allentown schools except for one are eligible to be a part of the Community School Program, where a variety of services related to overall well being are offered to parents and students. Involvement in this program will likely lead to better educational achievements for students.

There is currently a movement for a collective impact strategy, where organizations working with their own resources and programs unite to jointly address important issues in the community such as poverty, housing insecurity, and health disparities.

b. What are the barriers and challenges that our community faces in *eliminating healthcare disparities*?

One major issue is the paucity of well-paying jobs. Parents need well-paying jobs to provide stable and safe living environments for their children. If their job does not pay enough money or if they lose their job, they must move, which interferes with children's school location and attendance. Related to the issue of job security is the challenge of providing affordable housing in the first place. An important link has been identified between housing insecurity and health, where health is negatively impacted by constant location changes.

Poverty is a huge barrier in addressing social determinants of health and health disparities, because it is the underlying cause of many health issues. Stakeholders mentioned that even with the mobile vans and community schools, the real crux of the issue is not being addressed so true progress is not necessarily being made. Next steps should be to identify how to address poverty, and then incorporate these preventative and curative programs.

Another barrier to addressing health disparities is the stigma attached to receiving specific medical services. Some stakeholders suggested it would be ideal to have all services in the same practice as the primary care doctor, so that patients going in for behavioral health services do not feel embarrassed.

Lastly, provider burnout was recognized as a barrier to addressing health disparities. If providers burnout and leave the community, community members then need to build trust and relationship all over again. This is already a precarious process, so it may be that patients may not even want to try building relationships with new doctors.

3) **Promoting Healthy Lifestyles and Behaviors**

a. What strengths and resources can be built upon and utilized to *promote healthy lifestyles and behaviors*?

Healthy lifestyles and behaviors can be improved through the Allentown park programs, which have been rated as one of the best in the country. These parks offer a safe space for children to play and be active.

There are also many youth serving non-profit agencies that help promote healthy lifestyles such as the Boys and Girls Club, The Y, Community Bike Works, and the Lehigh Valley Road Runners. The funding for these non-profit agencies needs to increase in order to build upon these great programs.

Free summer recreation program helps keep kids off the streets and provides them with activities and meals for 5 weeks of the summer.

Additionally, in regards to healthy eating, progress is being made with the Food Policy Council.

b. What are the barriers and challenges that our community faces in achieving success while *promoting healthy lifestyles and behaviors*?

One barrier in promoting healthy lifestyles and behaviors are the safety threats present in the community. There are 26 known gangs in Allentown, which makes it unsafe for children to play on the streets or be physically active in the community without parental supervision.

Although Allentown has great parks programs, there are still schools that are landlocked and covered with blacktop. There are no grassy areas to promote physical activity when students are outdoors.

Another issue is the air quality in the community. The air quality is very poor and this has many negative effects on asthma rates and emergency room usage. To overcome this barrier it will be important to figure out how to better stabilize the situation and utilize resources efficiently in order to improve air quality and decrease asthma rates and emergency room admissions.

Access to affordable and healthy food is another barrier to promoting healthy lifestyles. There should be more education about healthy eating within the school curriculums, as well as coordination with the Food Policy Council.

Lastly, lack of knowledge about services and programs that are free to the community is a barrier to improving healthy lifestyles and behaviors. The community needs to be better informed about these programs so that they can take advantage of these free services. The stakeholders suggested improving capacity to get more people involved in these programs and ensuring programs could handle the influx of new users.

4) **Enhance the Collection and Dissemination of Health Information**

a. **What strengths and resources can be built upon and utilized to *enhance the collection and dissemination of health information*?**

All of the stakeholders but one said that the collection and dissemination of health information is still a priority issue. It was agreed that community agencies do a good job of collecting data and health information, but do not do as good of a job disseminating this information.

b. **What are the barriers and challenges that our community faces in achieving success in *collecting and disseminating health information*?**

One barrier associated with the dissemination of health information is the political strains between agencies, where information is not necessarily readily shared. Another issue is that there is not one coherent organization that collects and organizes all information about health, education, self-sufficiency, and poverty information.

Collecting data about social determinants of health and community needs in specific neighborhoods should be a priority. This way information can be disseminated specifically based on what the needs in this area are.

The use of caseworkers and patient navigators within agencies would be a great way to provide better outreach to community members. There is a need for personal interaction, and it must be genuine so that community members trust these workers. Alongside the issue of personal interaction is ensuring that the health information being transmitted is understandable and clear, so that every person in the community can be reached.

II. Non-Priority Specific Questions

1) **Do you see any additional emerging community health needs especially among underserved populations?**

Additional community health needs that were discussed is listed below:

- Behavioral health needs for younger children
- Prenatal and pediatric healthcare
- Focus on the aging population: illnesses such as Alzheimer's and caregiver stress
- Access to drugs and alcohol
- Funding for outpatient clinics
- Differences between rural and urban population needs
- Support of families: stress children face when families separate and how to provide stability
- Connection of social media to mental health issues amongst children and teens

2) **Do you feel that people in the community are fully aware of the healthcare services/options that are available to them? How do they receive information about healthcare services?**

All of the stakeholders were in agreement that community members are not fully aware of the resources available to them. Community members usually receive information about health services through advertising, friends in the community, their healthcare providers, or a website called Community Services for Children.

3) **Do you have any recommendations to improve communication about healthcare services?**

Instead of spending exorbitant amounts of money for hospital advertising (i.e. billboards and TV commercials), more staff should be hired to go out in the community and help connect people to services.

Additionally, the stakeholders recognized that almost all community members have cell phones, so creating some type of app that could provide health information, help patients schedule appointments, and send them text reminders would be very useful.

4) Are there groups who have been identified as underserved with regard to receiving vital information about healthcare services?

Non-English speaking populations were identified as a group that may not be receiving important information about healthcare services. Currently, resources in their native languages (in the ASD there are 50-60 different languages that community members speak) may not be accessible and there may not always be interpreters available to translate necessary information.

5) What accommodations are available for groups who may not have access to typical avenues of information?

The stakeholders mentioned multiple resources available such as public transportation advertising, religious organizations, senior centers, the public library, and schools. Another good resource is the Federal 211 program, where community members can call and speak to someone who can connect them to the health services they need.

6) What do you think St. Luke's role should be in improving health and quality of life in the community?

St. Luke's should continue to have a positive presence in the community. SLUHN has always focused on improving the neighborhood such as efforts to light the streets around the hospital and making the sidewalks more accessible. SLUHN should continue to provide jobs for community members and be an inclusive part of the community, not just a place for people to receive care. SLUHN should start to focus more on prevention, which would better the overall health of the community.

7) What do you see as the top 3 most important needs within our community? Please rank these in order from most to least important, with 1 being the most important need and 3 being important, but perhaps not quite as critical.

- 1) Improving the education system to improve literacy and reduce school dropout rate
- 2) Affordable and accessible housing
- 3) Improving the cultural competence of professionals

8) What makes a need greater than the others?

Looking at the root cause of the issue makes a need greater than the others.

Appendix B. Stakeholder Focus Group Synopsis**Allentown Campus Community Health Needs Assessment**

Priority Area	Strengths	Challenges	Suggestions
Improving Access to Care	St. Luke's Mobile Youth Van services- dental/vision Health clinics & school nurses Schools- main point of access for providing care Community health workers- currently eight workers	Enrollment in health insurance Access to care for people with disabilities Delay in expanding Medical Assistance- 62% uninsured in the community Timing and availability of appointments High cost of dental insurance	Have people go into the community and help enroll community members Address issues associated with care for people with disabilities- transportation, insurance, knowledge of services available Create weekend/night hours so working individuals can access health services
Identifying Social Determinants of Health and Reducing Health Disparities	Improvements made in accessible and affordable housing Community schools program- all schools qualify except one	Food and housing insecurity- high turnover rate in schools, unemployment Lack of well-paying jobs Poverty- underlies many health issues/disparities Stigma with certain medical services Provider burnout	Addressing issue of poverty in preventative/curative programs Collective impact strategy- organizations combine resources & create joint programs to address community issues Have all health services located in same office as primary doctor (anonymity of which service patient is receiving)
Promoting Healthy Lifestyles and Behaviors	Allentown parks programs Youth serving non-profit agencies: Boys & Girls Club, Community Bike Works, etc. Free summer recreation program Food Policy Council	Safety threats (gangs)- not safe for children to play/exercise outside Landlocked schools- only blacktop Poor air quality Access to affordable and healthy food Unaware of free services and programs offered to promote healthy lifestyles	Increase funding for non-profit agencies Address air quality issues in order to decrease asthma rates & ER admissions Increased healthy eating education Phone app that gives patient health information, allows to make appointments, and sends text reminders
Enhancing the Collection and Dissemination of Health Information	Community agencies do a good job of collecting health data	Good with data collection but not as good with dissemination Not one coherent organization that collects all data about related topics (health, education, poverty) Political issues between agencies & sharing data	Using caseworkers and patient navigators within agencies- forge personal relationships with community members Collecting data about specific communities- tailoring information dissemination Inform community about health resources through schools, public library, Federal 211

**Allentown Focus Group Participant List: Community
Stakeholders and Public Health Professionals
Thursday, April 16, 2015
12:00 – 2:00pm**

	Name	Affiliation/Organization
1.	Layne Turner	Lehigh County Drug/Alcohol Administration
2.	Cynthia Lambert	Good Shepherd Network
3.	Valerie Lewis	LVHN
4.	Cathy Coyne	LVHN- Senior Community Health Scientist
5.	Jessica Adams	LVHN- Community Health
6.	David Hahn	Principal- Union Terrace Elementary
7.	Melissa Craig	Neighborhood Health Center of the Lehigh Valley
8.	Danielle Walters	Health Care Council Consultant
9.	Frank Ford	SLUHN- St. Luke's Allentown President
10.	Mary Ellen Jackson	Center for Humanistic Change
11.	Amanda Raudenbush	Allentown Promise Neighborhood United Way of the Lehigh Valley
12.	Belle Marks	Allentown Health Bureau
13.	Beth Tomlinson	Assistant Director K-12 Education United Way of the Greater Lehigh Valley
14.	Susan Mullen	HCCLV- Kids Peace
15.	Beverly Snyder	SLUHN-St. Luke's Allentown
16.	Jim Owens	SLUHN-St. Luke's Allentown
17.	Dr. Chris Alia	SLUHN-St. Luke's Allentown

Appendix C. Community Resources and Programs

St. Luke's Allentown Campus

The following is a list of community resources, which include current partners as well as potential partners or organizations for our implementation plan:

Allentown Health Bureau
City of Allentown
Allentown School District
United Way of the Greater Lehigh Valley
Lehigh County Government
Muhlenberg College
Penn State Lehigh Valley
Community Initiatives Committee of SLH-A Board of Governors
Friends of St. Luke's Allentown
YMCA/YWCA of Allentown
DeSales University
American Association of Diabetes Educators
American Heart Association
Congregations United for Neighborhood Action
Boys and Girls Club of Allentown
Hispanic American Organization (HAO)
National Association for the Advancement of Colored People (NAACP)
Pinebrook Family Answers
Lehigh County Medical Society
Local Vision Care providers
Local Dentists
Local schools of nursing, public health and medicine
Delaware and Lehigh National Heritage Corridor
Neighborhood Health Centers of the Lehigh Valley
Members of the Lehigh Valley Health Care Council
Cedar Crest College
Lehigh Valley Workforce Investment Board
Promise Neighborhoods of the Lehigh Valley
Pyramid Healthcare
Valley Youth House
Allentown Public Library