St Luke's
UNIVERSITY HEALTH NETWORK

Network & Seven Campus
Community Health Needs Assessment
Survey Findings
2016

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Community Health Needs Assessment Survey Findings

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Project Overview:

St. Luke's University Health Network (SLUHN) is a nationally recognized non-profit health network that is composed of six hospital campuses and over 200 outpatient facilities serving counties in both Pennsylvania (Lehigh, Northampton, Carbon, Schuylkill, Bucks, Montgomery, Berks, Monroe) and New Jersey (Warren). A seventh hospital is slated to open in Monroe County in the fall of 2016. This needs assessment included data for the Monroe campus.

As part of the Patient Protection and Affordable Care Act, all non-profit hospitals are required to conduct a Community Health Needs Assessment (CHNA) every three years. In order to accomplish our goals, St. Luke's conducted surveys to identify health needs within the community.

This network wide survey aids to further inform us of the existing needs within our communities. The survey findings are integrated throughout the St. Luke's campus specific Community Health Needs Assessment reports, which incorporate primary and secondary data to produce a single cohesive document.

The 2016 Community Health Needs Assessment survey was conducted between May 2015 and October 2015 in all SLUHN network service areas. It was funded and conducted by the Department of Community Health and Preventive Medicine at St. Luke's University Health Network. Student interns: Marissa Galante (2014, 2015), Amanda Donahue (2016) and Megan Bellinger (2018) from Lehigh University assisted with the process.

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http://www.sluhn.org

Methodology & Sample:

This survey was conducted to answer the following questions:
1. What are the health needs within our seven campus SLUHN community?
2. What are the health disparities that need to be addressed?

The Community Health Needs Assessment survey was designed using many of the same questions from the 2012 survey, where possible, in order to study trends in the data. SLUHN contracted with the Lehigh Valley Research Consortium (LVRC) to conduct the 2012 survey. However, it is important to recognize that the LVRC survey from 2012 utilized a random sample, and the data was weighted for analysis. This 2016 Community Health Needs Assessment survey utilized a snowball sample and the data was not weighted. However, we made comparisons to our network populations in the demographics section of the findings to determine the similarities between our network population and survey respondents. This was an anonymous survey, where all respondents had to be 18 years or older to complete the survey.

Surveys were conducted by staff, volunteers and community partners to ensure we reached vulnerable populations who might have otherwise been missed. We approached respondents through the local health bureaus, a variety of community organizations, community functions, SLUHN clinics and medical facility waiting rooms. IPads with wireless connectivity were used to administer the survey across the network; however, surveys were also made available through email links, social media, web advertising and paper copies.

We had a total of 3,214 respondents, 3,055 surveys were completed in English and 159 surveys were completed in Spanish. Spanish surveys were predominantly from Northampton (66%) and Lehigh (29%) counties. However, when checked for survey completion, only 2,757 surveys were ultimately used for data analysis. We had occasional issues with our wireless connection, especially in our rural locations. Additionally, it took some respondents longer to complete the survey, or they were unfamiliar with how to use an iPad, and that posed further challenges. In the last month of the survey, we printed paper copies of the survey that were completed in our rural areas in order to achieve greater completion rates.

Service areas for network populations were defined by determining the top patient zip codes for those who received services from SLUHN in 2014. We defined the top zip codes as those that make up 80% of the population served by each campus.

The following are the zip codes used to describe each campus population.

Table 1

St. Luke's University Health Network Campus	Survey Sample Size (# of Surveys completed in the Top 80% of Zip Codes of Patient Encounters)	Zip Codes
Bethlehem	1460	18015, 18017, 18018, 18042, 18064, 18020, 18103, 18055, 18045, 18102, 18014, 18067, 18109, 18052, 18104, 18036, 18013, 18040, 18229
Allentown	731	18102, 18103, 18104, 18052, 18109, 18062, 18049, 18080, 18031, 18101, 18069, 18106, 18067, 18078, 18015, 18037
Anderson	1128	18042, 18045, 18064, 18020, 18360, 18013, 18017, 18301, 18353, 18091, 18040, 18072, 18302, 18014, 18330, 18018, 18015
Miners	281	18252, 18232, 18218, 18240, 18235, 18250, 18229, 18237, 17960, 18214
Quakertown	464	18951, 18036, 18073, 18041, 18944, 18076, 18960, 18034, 18955, 18054, 18015, 18930, 18969, 18972, 18074, 18942, 19504
Monroe	288	18360, 18301, 18302, 18353, 18324, 18091, 18330, 18013, 18072, 18064, 18058, 18322, 18326, 18466, 18372, 18321
Warren	491	08865, 07882, 07823, 08886, 18042, 18040, 18045, 07863, 08848, 08804

Executive Summary:

St. Luke's University Health Network (SLUHN) is a nationally recognized non-profit health network that is composed of six hospitals (Bethlehem, Allentown, Quakertown, Anderson, Miners and Warren) and over 200 outpatient facilities serving counties in both Pennsylvania (Lehigh, Northampton, Carbon, Schuylkill, Bucks, Montgomery, Berks) and New Jersey (Warren). Additionally, we have a seventh campus in Monroe County where construction is underway; it will open in fall 2016. We included the Monroe campus in our survey findings in order to assess and better plan for the needs of the community we will be serving.

A total of 839,522 people live in the 1,113.34 square mile report area defined for this network wide campus assessment, according to the U.S. Census Bureau American Community Survey (ACS) (2009-13) 5-year estimates. The population density of this area, estimated at 754.06 persons per square mile, is greater than the national average population density of 88.23 persons per square mile. For our assessment, we focused on our top patient zip codes to determine where 80% of our patients reside for each hospital campus (45 zip codes total).

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 survey findings will serve as one of the primary data sources.

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. We have many 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 to address the current concerns. Using our primary data (focus group data with community stakeholders and public health professionals, as well as our community wide survey) in addition to our secondary data, allowed us 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 and reducing health disparities
- Promoting healthy lifestyles and preventing chronic disease
- Improving mental/behavioral health
- Improving child and adolescent health
- Improving elder health

In order to gain a deeper understanding of these health needs and what can be done to address them, we have created campus specific CHNA reports.

In summary, this Community Health Needs Assessment survey found that the social determinants of health play a vital role in the health and wellness of our communities. The vast majority of our survey respondents were white, Non-Hispanic females between the ages of 40 and 64 years old. We found that most survey respondents were employed, owned their homes, were educated beyond high school, had an annual household income between $60,000 and $99,999, and considered their community to be a safe place to live. However, in the vulnerable populations we surveyed these trends did not necessarily hold. When looking at health behaviors, we found that smoking rates were all below the Pennsylvania level, but were still well above the Healthy People 2020 target, indicating a need for improvement. Furthermore, the majority of survey respondents were insufficiently physically active and did not have adequate fruit and vegetable consumption. Approximately one-third of survey respondents reported having a healthy weight, while the remaining two-thirds reported being overweight or obese, following national trends; meanwhile, high rates of chronic health conditions were of concern, especially for high blood pressure, high blood cholesterol, arthritis, mental health, and diabetes. Survey responses showed that social determinants of health such as insurance type, education, and income levels all had noticeable impact on the clinical care that survey respondents received.

1. Demographics

A. AGE

There was a relatively even age distribution among survey respondents. Approximately 43% of respondents fell in the 45-64 age range. The 65 years and older group (12.70%) had the highest percentage of respondents, and the lowest percentage of survey respondents was from the 25-29 age range (8.20%).

Figure 1

Survey Respondent Age Distribution

Age Group	Percentage
18-24	8.7%
25-29	8.2%
30-34	9.8%
35-39	8.8%
40-44	8.7%
45-49	10.0%
50-54	11.0%
55-59	12.1%
60-64	9.9%
65+	12.7%
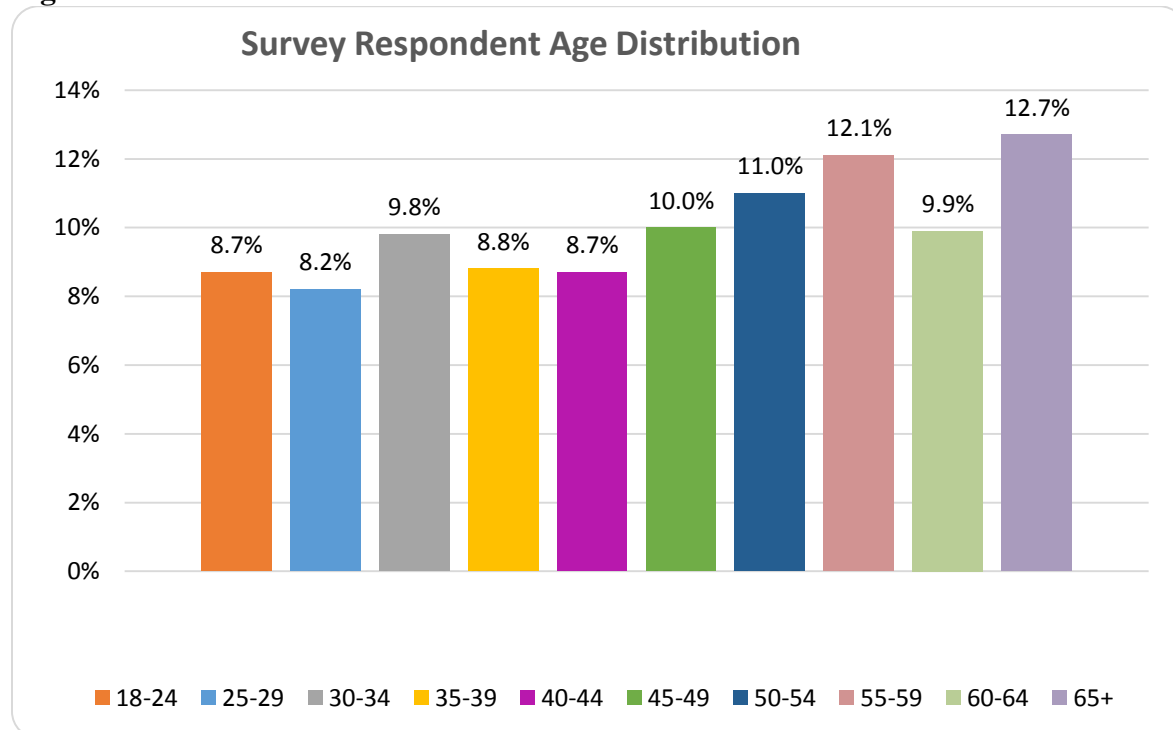
The percentage of survey respondents over the age of 65 was lower than the actual percentage of patients serviced at SLUHN who are over the age of 65 (31.59%) in 2014, however, it was closer to the Census levels for the 65 and over population in our service area. A potential reason for such a low response 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. However, the 65 and above age range did have the highest percentage of respondents throughout the age groups, which was likely because the elderly represent a vulnerable population that tends to utilize health services since that age range has a higher prevalence of chronic disease.

In regard to the elder population, it is important to note that SLUHN used supplementary data from the United Way and LVRC's geriatric surveys for the community health needs assessments, in order to more effectively improve the health of the elder community.

Figure 2

Respondents Age 18-24 by Campus

Allentown 10.4%, Monroe 15.0%, Bethlehem 9.6%, Anderson 11.9%, Quakertown 11.7%, Miners 4.0%, Warren 4.7%

Legend: Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren

Figure 3

Respondents Age 25-44 by Campus

Allentown 41.9%, Monroe 38.8%, Bethlehem 39.3%, Anderson 39.7%, Quakertown 31.0%, Miners 24.6%, Warren 32.8%

Legend: Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren

Figure 4

Respondents Age 45-64 by Campus

Allentown 39.3%, Monroe 39.1%, Bethlehem 40.6%, Anderson 39.1%, Quakertown 45.0%, Miners 40.7%, Warren 48.5%

Legend: Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren

Figure 5

Respondents Age 65+ by Campus

Allentown 8.5%, Monroe 7.0%, Bethlehem 10.5%, Anderson 9.4%, Quakertown 12.1%, Miners 30.9%, Warren 14.0%

Legend: Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren

Allentown campus had the largest percentage of respondents in the 25 to 44 age range at 41.9%, and Miners campus had the lowest at 24.6%. Warren campus had the highest percentage of respondents between the ages of 45-64 at 48.5%, and Anderson campus and Monroe campus had the lowest percentages, both at 39.1%. Miners campus had the highest percentage of respondents over 65 years of age at 30.9%, and Monroe campus had the smallest at 7.0%.

B. RACE

Although considering race by itself is not always the most informative way to describe a population, comparing the race distribution of respondents among different SLUHN campuses did provide some interesting information.

Allentown (29%) and Bethlehem (23%) campuses had the highest percentage of respondents who identify as Non-White (American Indian/Native Alaskan, Asian, Black/African American or Other/Missing), whereas Miners campus (4%) had the smallest percentage of respondents who identify as Non-White. Roughly 8% of respondents were Black/African American across campuses, except for Miners campus which was at 1%.

Figure 6

Race Distribution

- American Indian/ Native Alaskan
- Asian
- Black/African American
- Missing/Other
- White

1% 1%
6%
9%
83%

Figure 7

Race Distribution by Campus

Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren
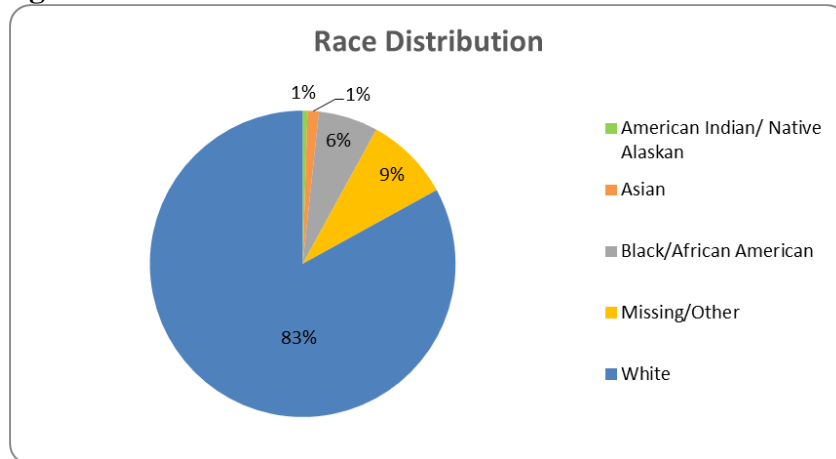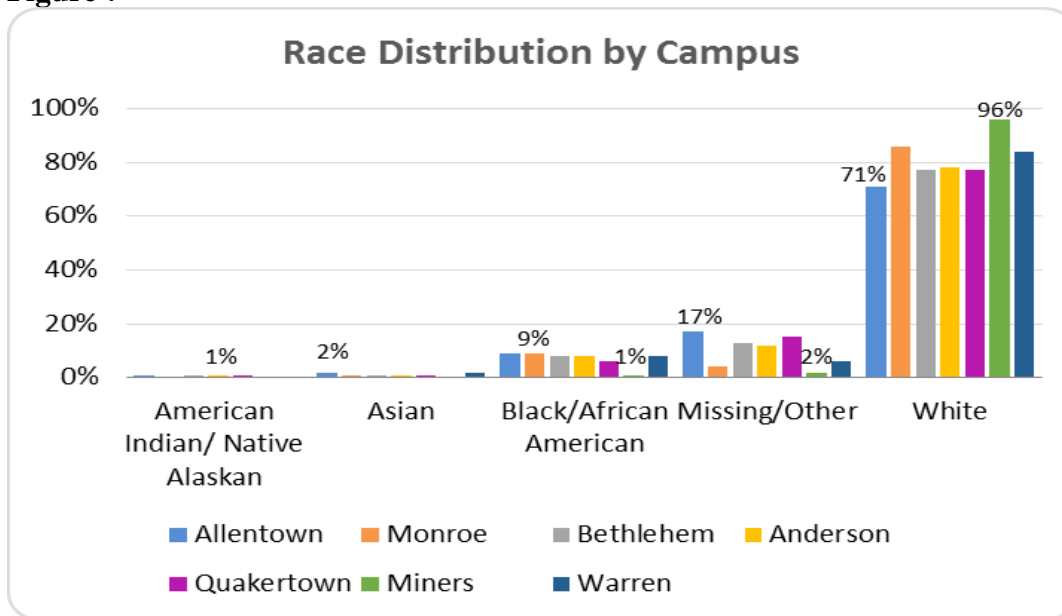
C. ETHNICITY

Our overall survey data was comprised of 18.4% Hispanic respondents, 77.9% Non-Hispanic respondents, and 3.7% of respondents who declined to state their ethnicity. This falls fairly closely in line with the estimates of ethnicity breakdowns for the St. Luke's service area as a network, and indicates that our data will be fairly representative when assessing health in terms of ethnicity, especially for the Allentown and Bethlehem campuses. When ethnicity information is compared among St. Luke's campuses it becomes immediately apparent that there is a large difference in the percentage of the population who identify as Hispanic in different regions of our network.

Figure 8

Ethicity Distribution
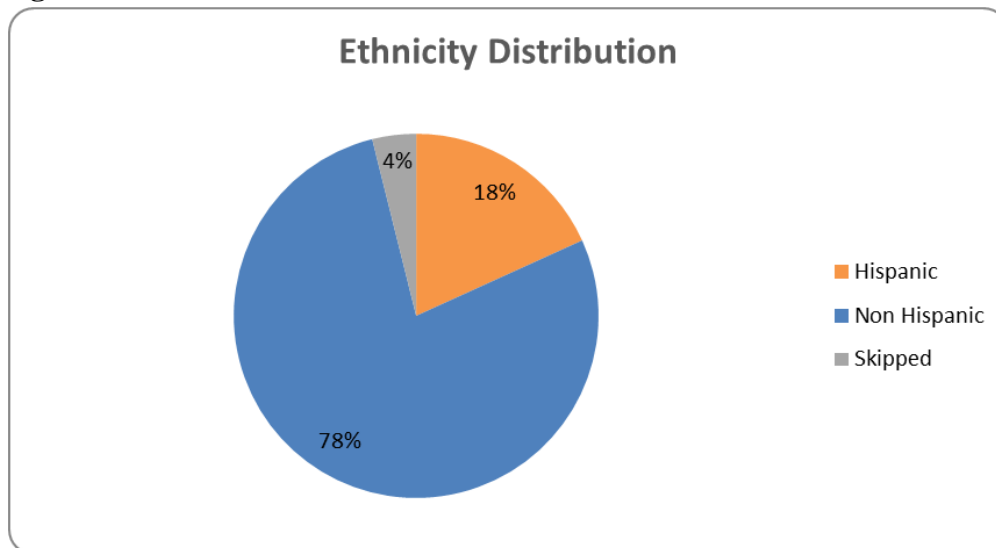
Figure 9
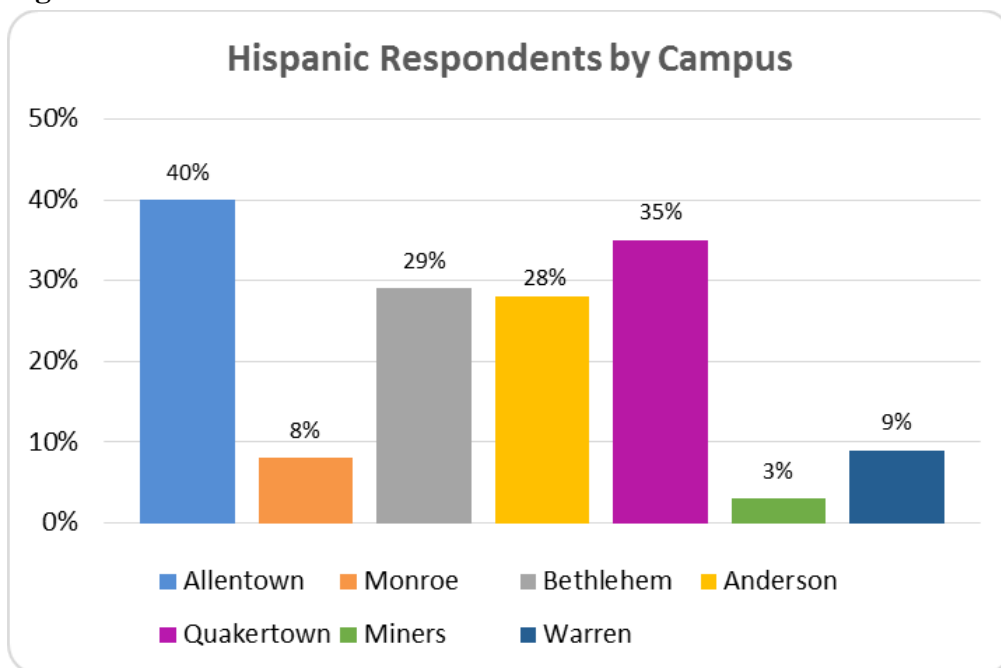
It is worth noting that the St. Luke's campuses in more rural areas had generally lower percentages of their populations identifying as Hispanic, whereas the more urban areas (such as Allentown) had much higher Hispanic populations. The average percentage of respondents identifying as Hispanic across our more urban campuses (Allentown, Bethlehem, Anderson, Quakertown and Warren) was 28.2%, whereas the average for our more rural campuses (Miners and Monroe) was 5.5%.

D. SEX

75.9% of survey respondents were female and 23.2% of survey respondents were male.

Figure 10
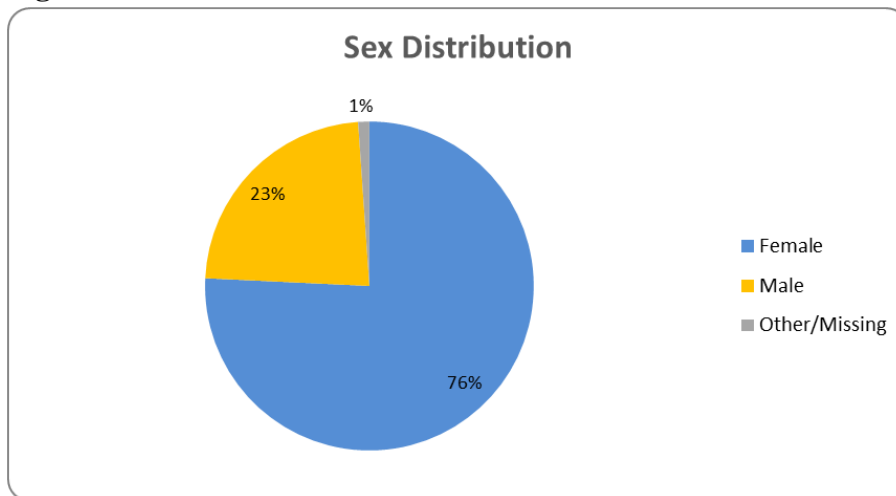
Figure 11
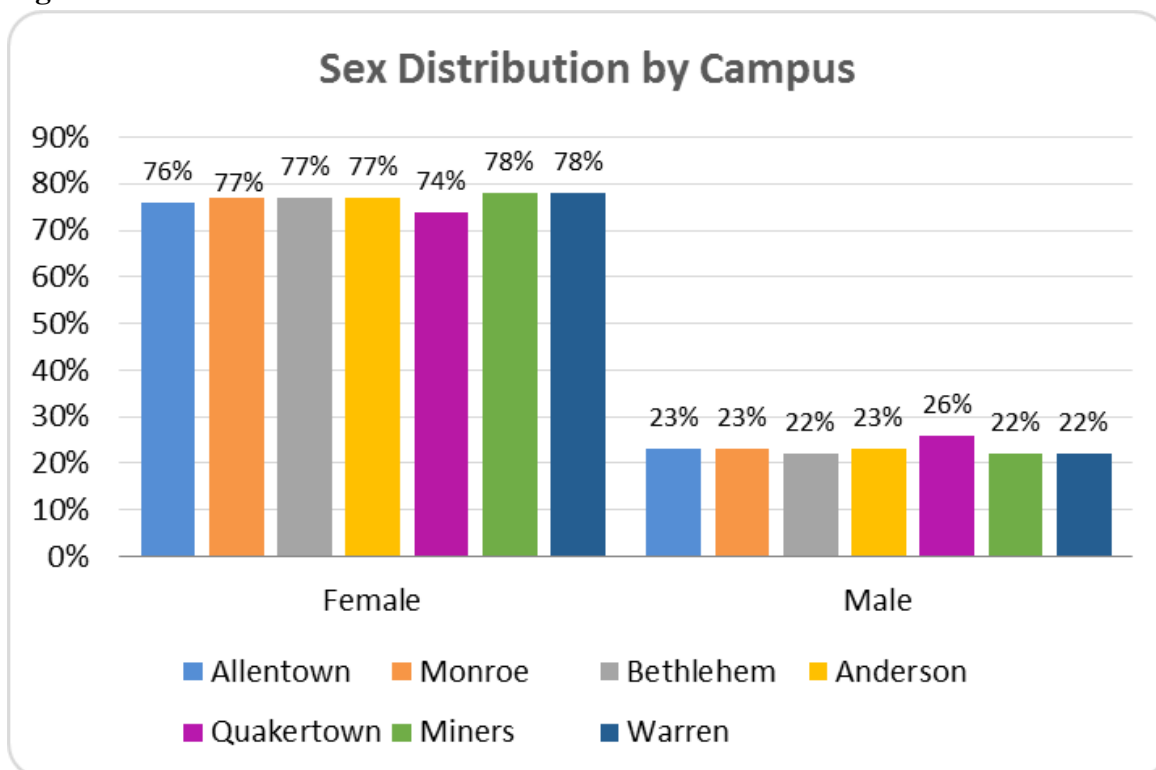
2. Social & Economic Factors

A. EMPLOYMENT STATUS

The current survey results showed that a greater number of respondents were employed (63.6%) when compared to 2012 (46.9%). Additionally, the 2016 survey (12.4%) captured results from fewer retired individuals than the 2012 survey (30.8%). Figure 12 shows the employment status distributions in 2012 and 2016. Missing data represents 1%.

Figure 12
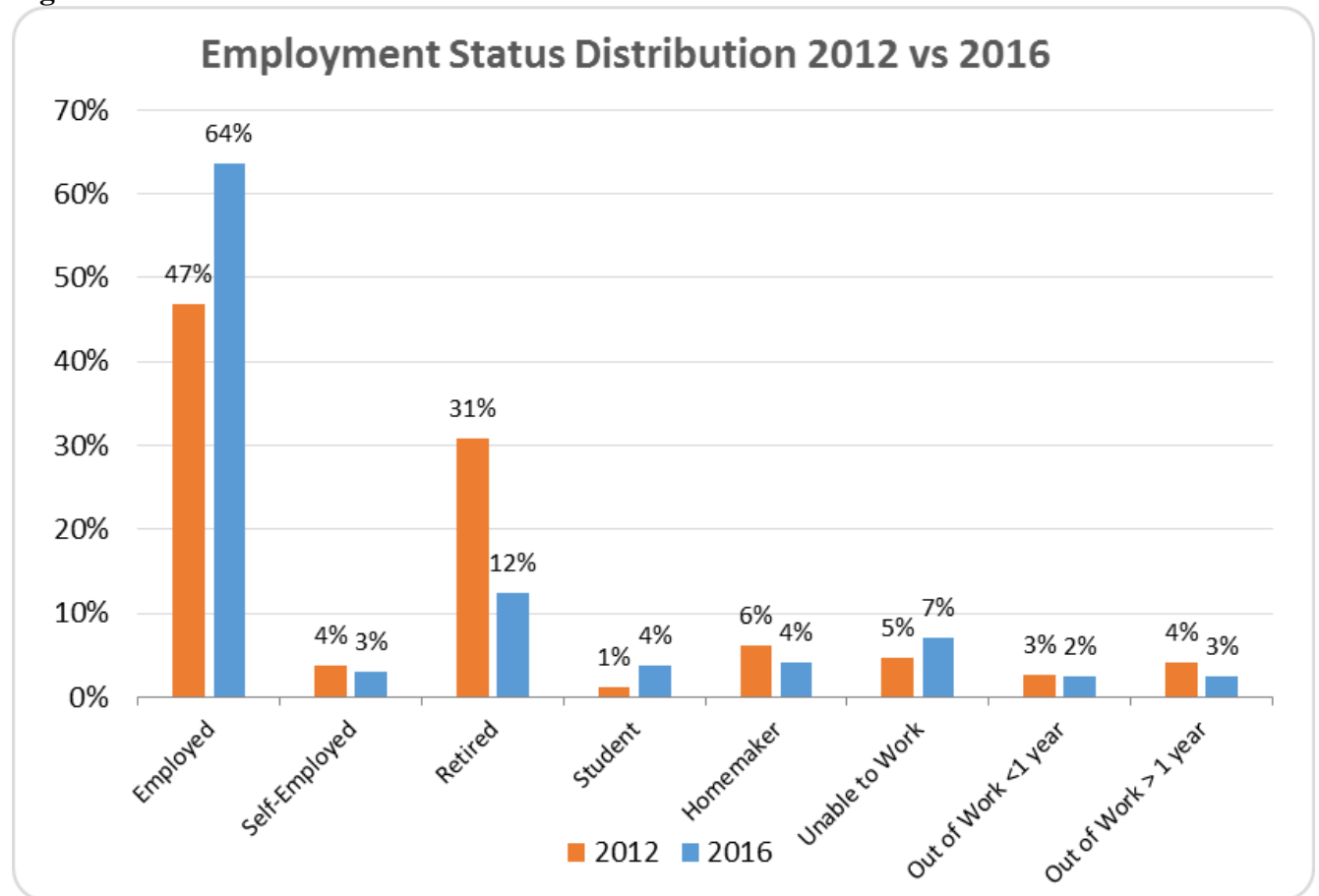
Monroe campus (71%) had the highest percentage of employed ('employed' or 'self-employed' categories) respondents and Miners campus (47%) had the lowest percentage of employed individuals. Allentown (17%) reported the highest percentage of unemployed individuals ('out of work' or 'unable to work' categories). Miners campus (31%) had the highest percentage of retired individuals, and Allentown and Monroe campus (7%) had the lowest.

Figure 13

Employment Distribution by Campus
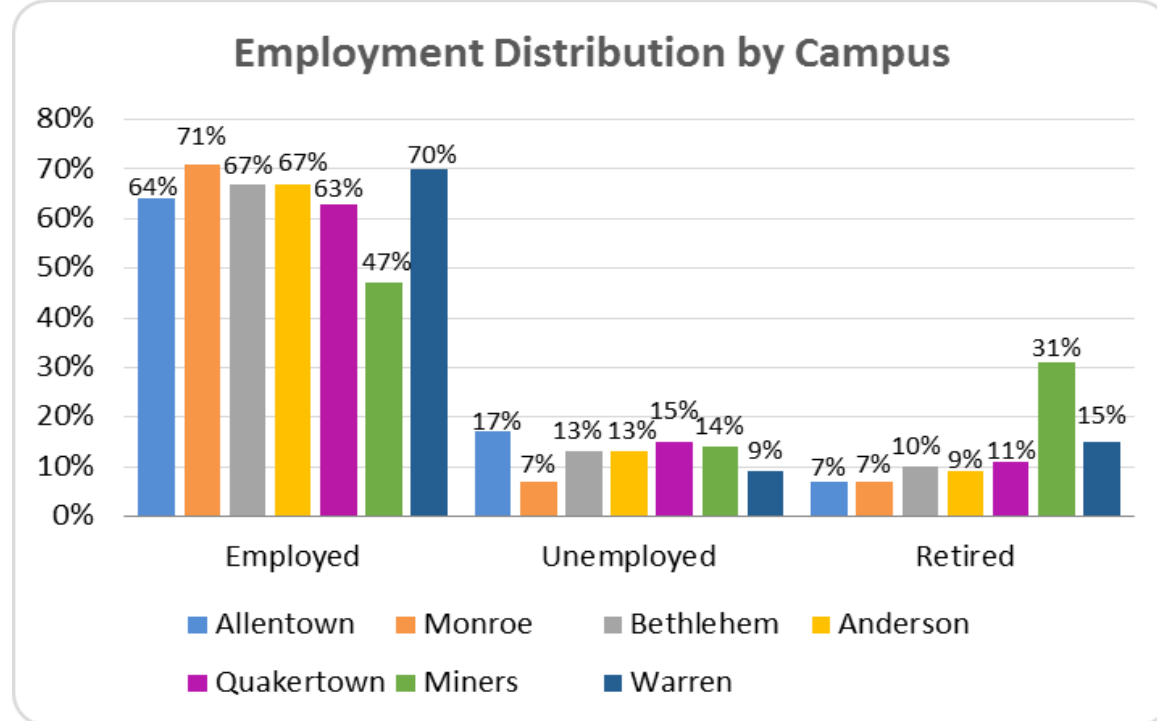
B. OWNING VS. RENTING HOMES

The survey asked respondents whether they rent or own their homes. Eight (0.3%) respondents listed their living situation after choosing the 'other' category. One respondent reported being homeless, one respondent lived with his/her daughter and the remaining six respondents lived in public housing. Missing data represents 3.1%.

Figure 14

Home Ownership 2012 vs 2016
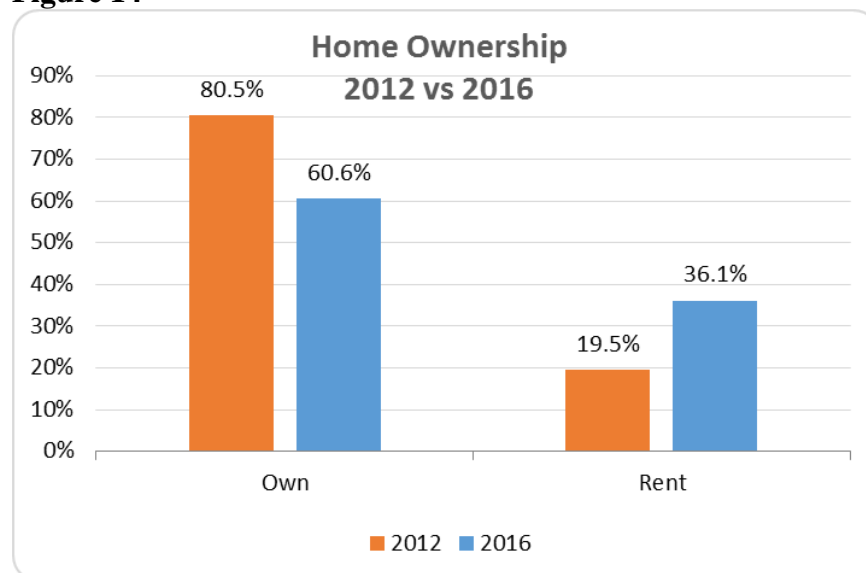
Fewer people reported owning a home in the 2016 survey (60.6%) when compared to the 2012 survey (80.5%).

Miners campus reported the highest percentage of home ownership at 68.7%. With the exception of Allentown, all campuses had higher percentages of home owners than home renters, whereas Allentown had 45.8% home owners versus 49.8% renters.

Figure 15

Home Ownership by Campus
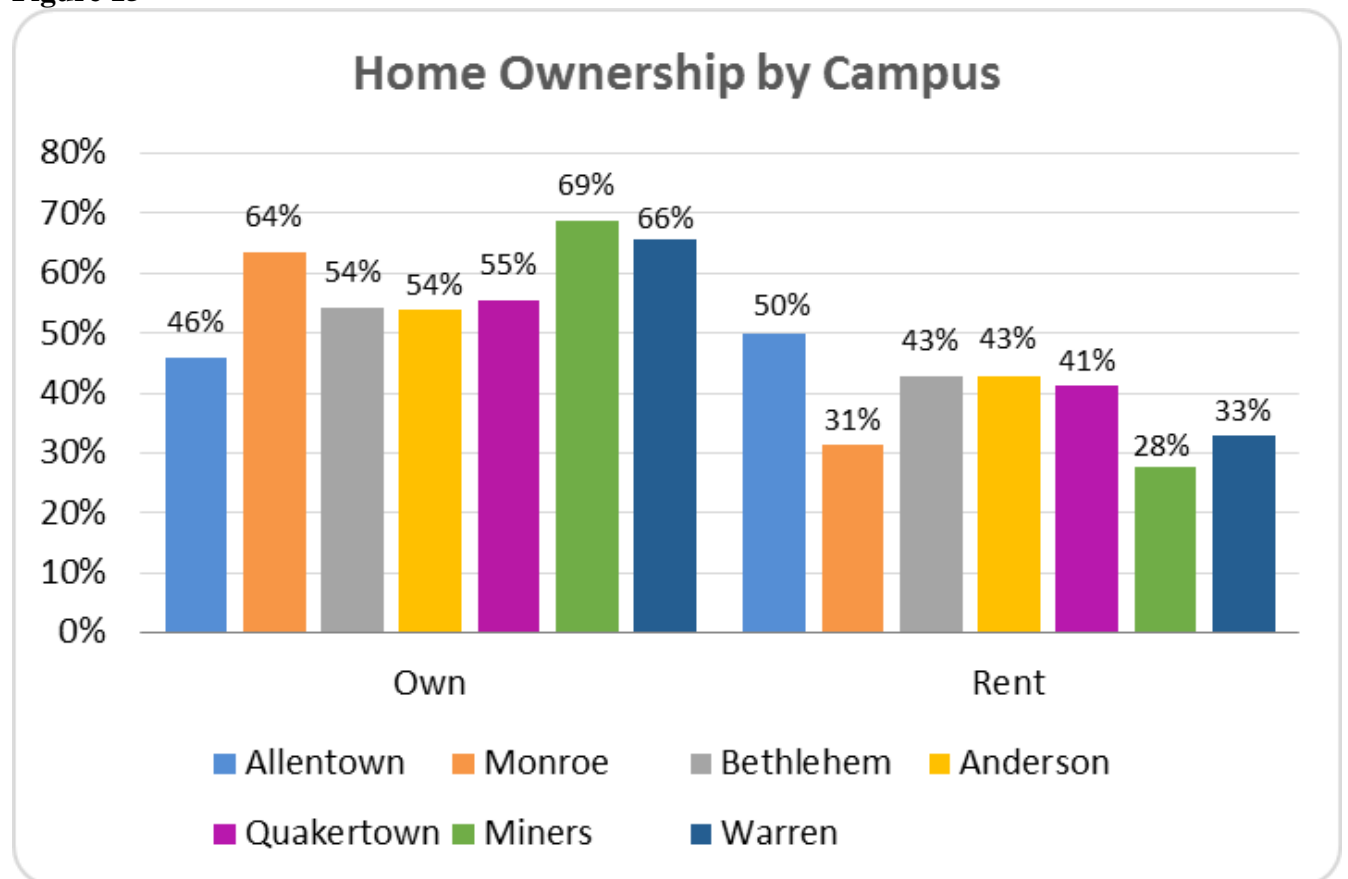
C. EDUCATION LEVELS

Education level is a social determinant of health, as it is an important factor for health behaviors and outcomes. While fewer people reported that they only have a high school diploma (32.9% in 2012 versus 21.7% in 2016), the percentage of people who reported being educated beyond high school increased (55.4% in 2012 versus 69.7% in 2016). Missing data for figure 16 represents 1.2%.

Figure 16

Education Level Distribution 2012 vs 2016

Figure 17

Education Level by Campus
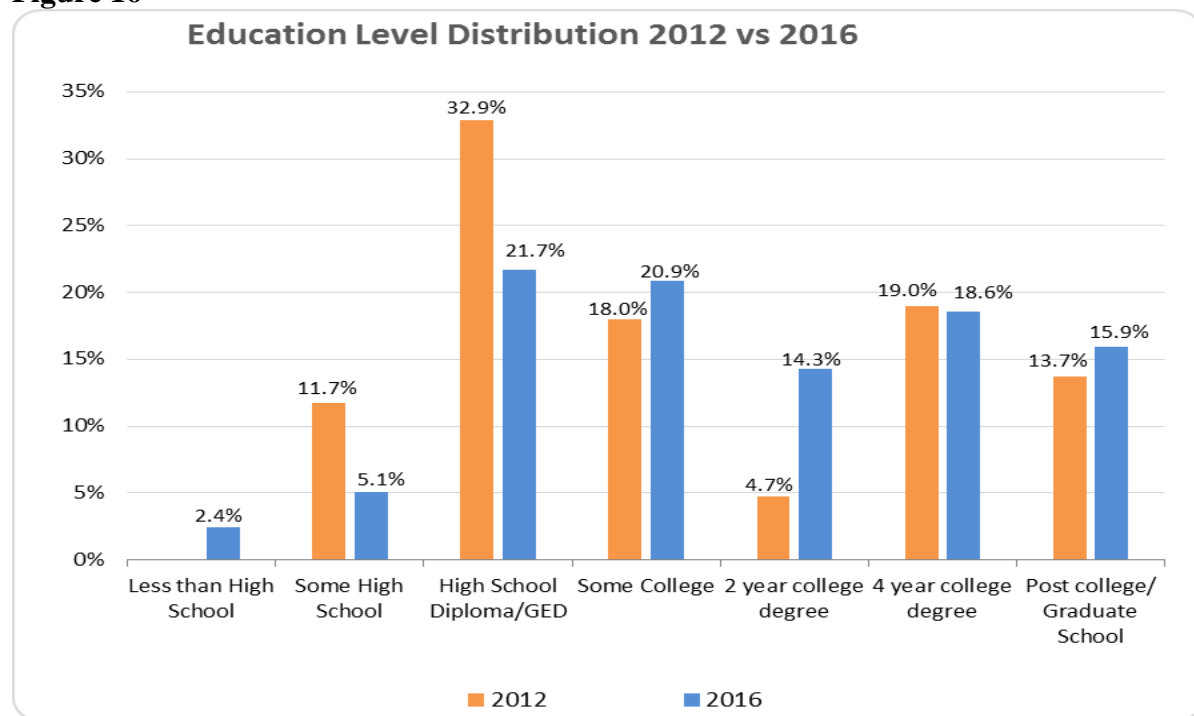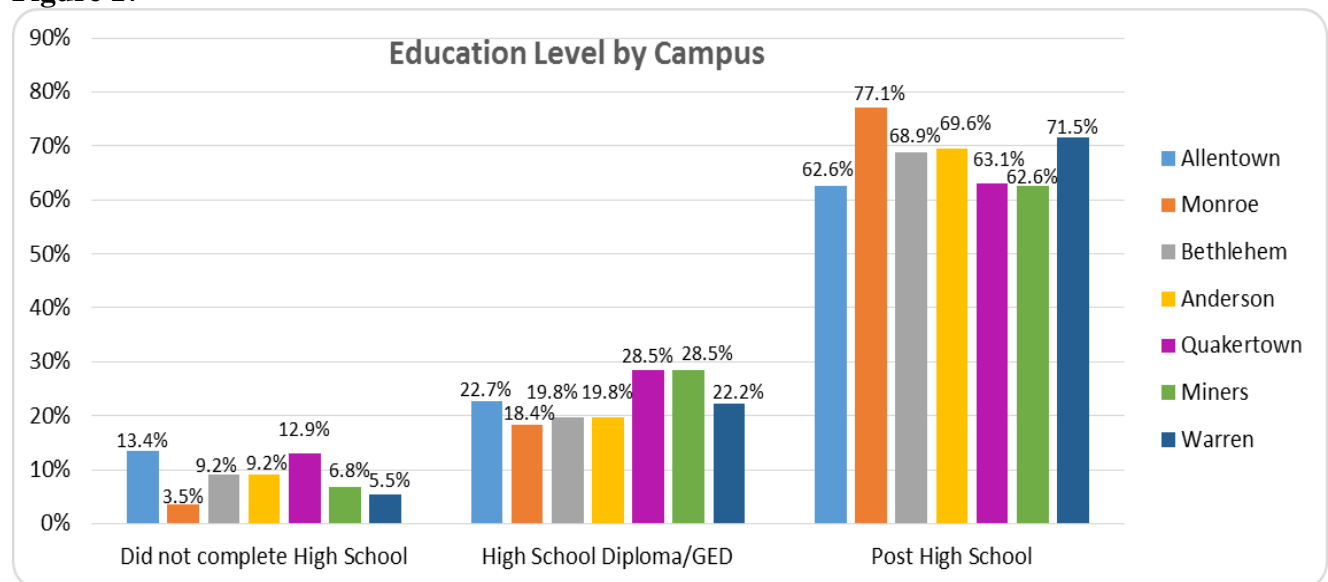
Monroe campus had the highest percentage of respondents who reported education beyond high school at 77.1%. Warren campus was the next highest campus at 71.5%, and Allentown campus had the lowest percentage at 62.6%. Conversely, Allentown campus had the highest percentage of respondents who reported that they did not have a high school diploma or GED at 13.4%,

whereas Monroe campus had the lowest percentage at 3.5%, and Warren campus was the next lowest at 5.5%.

Educational bias for Monroe campus might be explained by our partnership with East Stroudsburg University and Northampton Community College – Monroe Campus for surveying in that area, where higher numbers of college educated individuals may have been sampled. Since our facility will first open in fall 2016, we relied on existing community partners for data gathering.

When reviewing education in relation to ethnicity, 24.7% of Hispanic survey respondents reported having an education of less than high school, compared to 3.7% of Non-Hispanic respondents. 30.4% of Hispanic survey respondents reported having a high school degree, compared to 19.3% of Non-Hispanic respondents. However, the largest difference can be seen in the percentage of respondents with beyond a high school education when considering ethnicity. 43.2% of Hispanic survey respondents reported having an education beyond high school, compared to 76.4% of Non-Hispanic respondents.

D. HOUSEHOLD INCOME

The overall survey data showed the distribution of family (household) income before taxes in 2014. For the SLUHN service area, the frequencies of household incomes are listed in the graph below. Missing data makes up 5.3% of the data. According to the US Census Bureau's 2014 American Community Survey, the estimated median income for Pennsylvania residents was $53,115 and is depicted in the graph below.

Figure 18
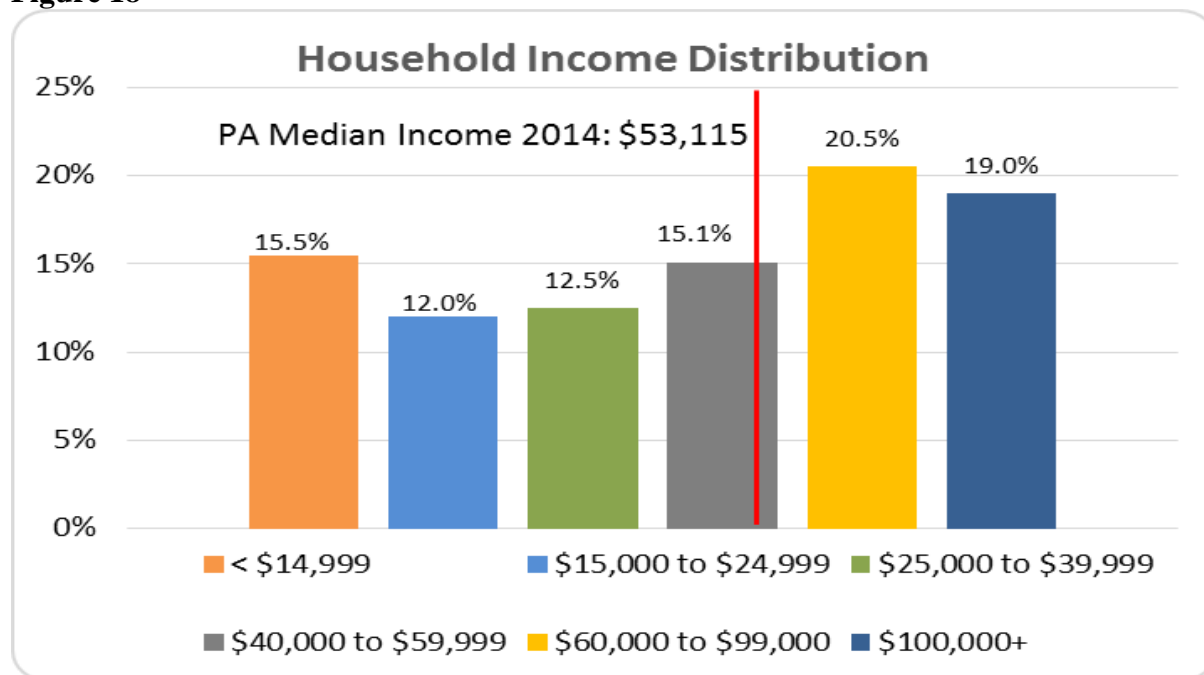
It is important to note that 15.5% of respondents fell into the less than $14,999 category, which would be considered below the poverty line for a family of four, according to the Department of Health and Human Services as of January 2015.

Figure 19

Income Distribution Allentown vs SLUHN

Figure 20

Income Distribution Bethlehem vs SLUHN

Figure 21

Income Distribution Anderson vs SLUHN

Figure 22

Income Distribution Quakertown vs SLUHN

Figure 23

Income Distribution Miners vs SLUHN

Figure 24

Income Distribution Monroe vs SLUHN

Figure 25

Income Distribution Warren vs SLUHN
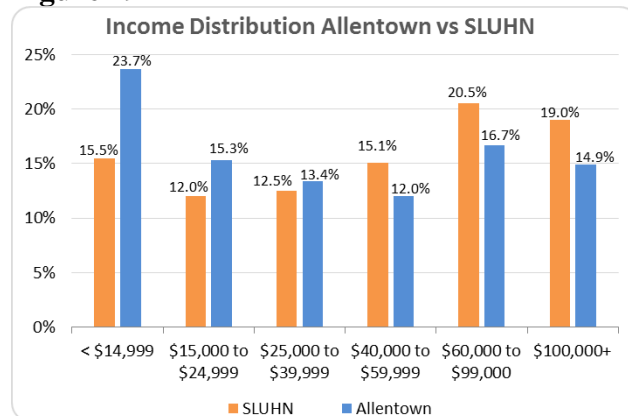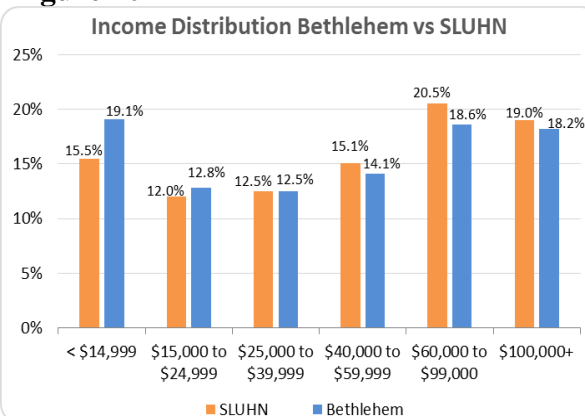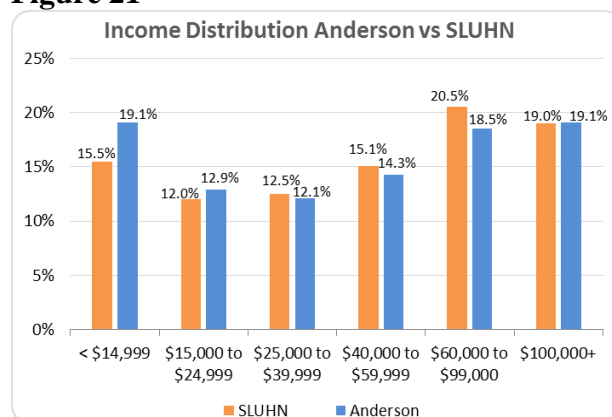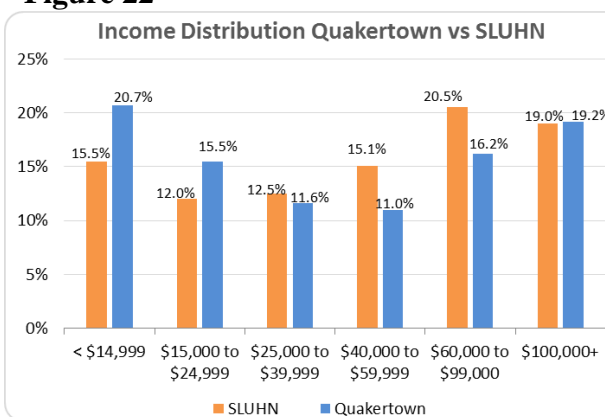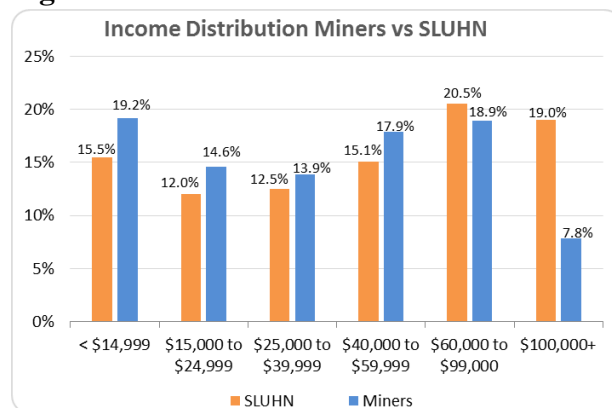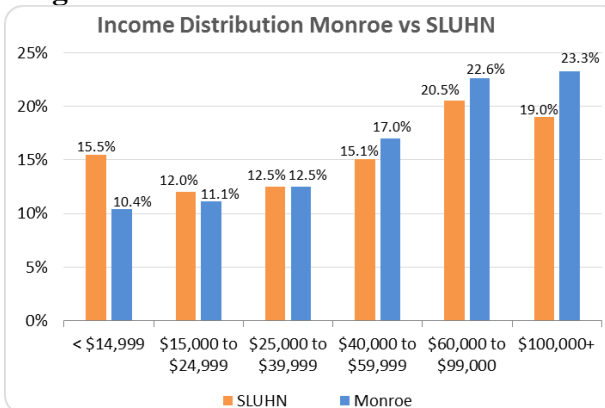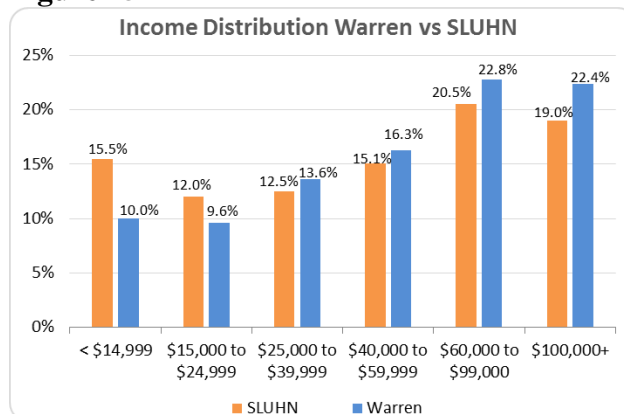
Allentown campus (23.7%) had the highest percentage of respondents who made less than $14,999 annually. Monroe (10.4%) and Warren (10.0%) campuses were the only two whose averages were lower than the SLUHN average (15.5%) in the income greater less than $14,999.

Additionally, Allentown campus had the lowest percentage of respondents in the highest three income brackets (over $40,000) at 43.6%. Alternatively, Warren (61.5%) and Monroe (62.9%) campuses had the highest percentages in the upper three income brackets. They also were the only campuses to have higher percentages in the upper three brackets when compared to the SLUHN averages.

Since income is a social determinant of health, this data is important to consider when thinking about health behaviors and outcomes.

When considering income in relation to ethnicity, 62.6% of Hispanic survey respondents reported having an income less than $24,999, as compared to 19.2% of Non-Hispanic respondents. Conversely, only 10.2% of Hispanic survey respondents reported having an income above $60,000, as compared to 46.9% of Non-Hispanic respondents.

When income is considered in relation to education, 71.5% of survey respondents who completed less than high school made less than $24,999, compared to 51.1% of those with a high school diploma or a GED, and 15.6% of those who reported education past high school. However, 51.5% of those with an education beyond high school made $60,000 or more, compared to 14.7% of those with a high school degree, and 4.8% of those who did not complete high school.

3. Physical Environment

A. LIVING IN A SAFE COMMUNITY

The majority of survey respondents agreed or strongly agreed with the statement that their *community is a safe place to live.* Anderson campus respondents had the highest percentage (87.1%) of respondents who agreed or strongly agreed with the statement that their *community is a safe place to live*. However, 26.7% of Miners campus survey respondents and 18.9% of Allentown campus respondents either strongly disagreed, disagreed, or neither agreed or disagreed with the statement that their *community is a safe place to live*. Missing data represents 0.4%.

Figure 26
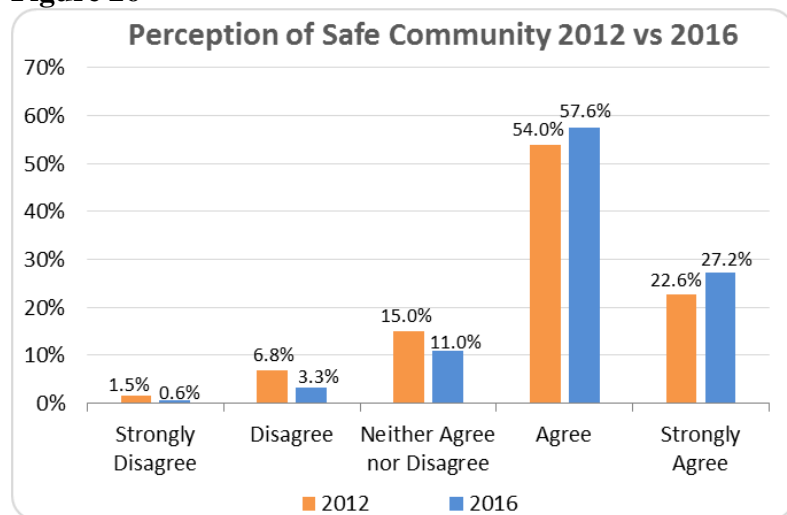
Figure 27
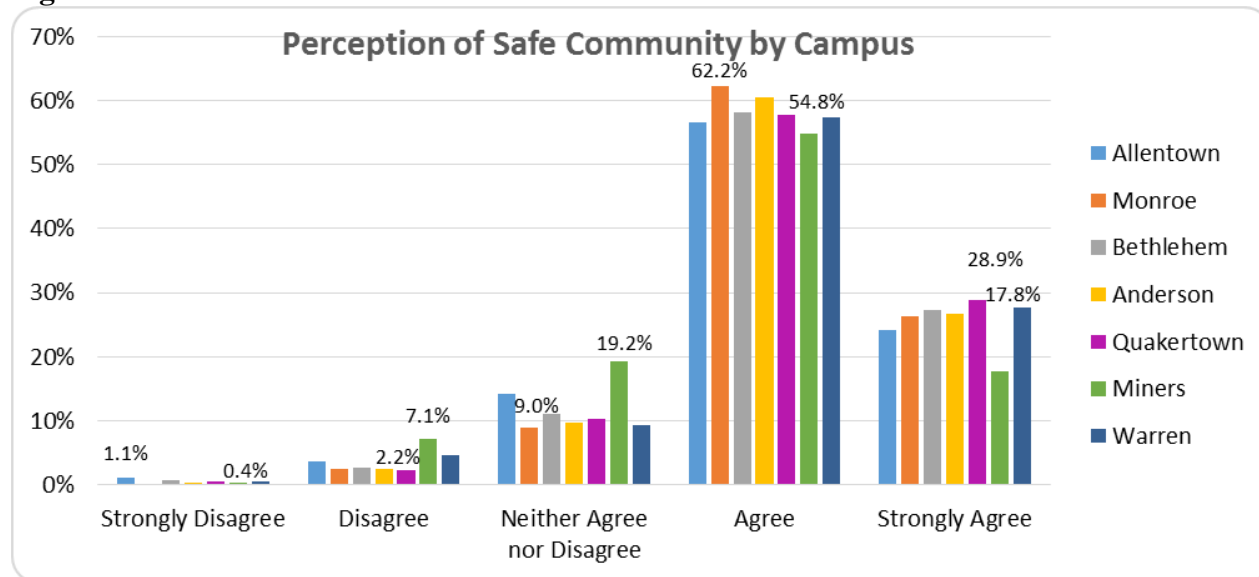
4. Health Behaviors:

A. PHYSICAL ACTIVITY

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; however, only 16% of SLUHN survey respondents reported exercising at least five times per week. Additionally, 24% reported not exercising at all. The graph below depicts the breakdown of exercise among survey respondents. Missing data makes up 0.8%.

Figure 28
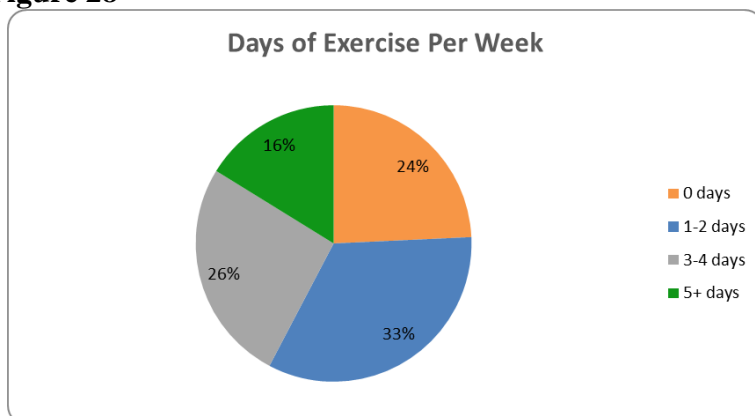
There has been little improvement in the last three years in quantity of physical activity, as data from the 2012 survey reported that 40.8% of respondents were exercising three or more times per week and the 2016 data showed that 42.0% were exercising three or more times week.

Figure 29
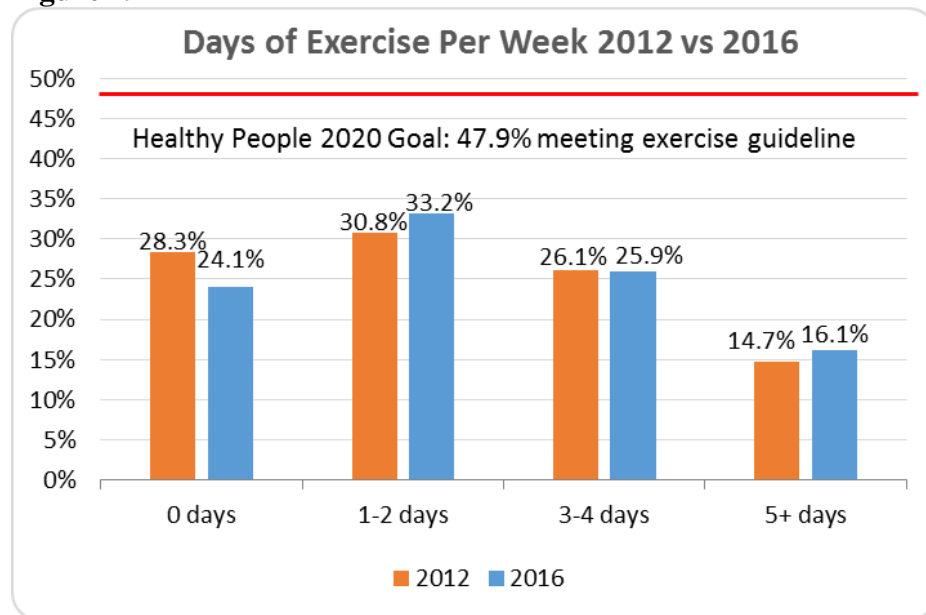
Figure 30
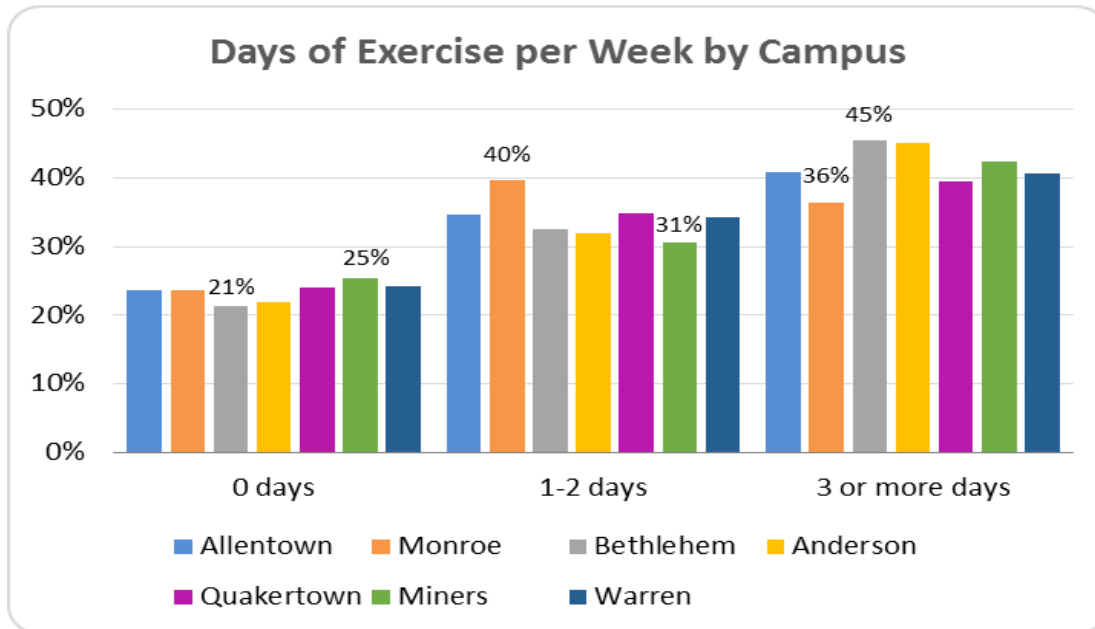
Bethlehem campus (45.4%) had the highest percentage of respondents exercising three or more times a week, while Monroe campus (36.4%) had the lowest percentage.

B. **FRUIT AND VEGETABLE CONSUMPTION**

The Food & Drug Administration (FDA) recommends that people eat five or more servings of fruits and vegetables per day. Only 11% of the survey respondents reported eating at least the five daily recommended servings of fruits and vegetables, and 47% reported consuming three or more servings daily. Missing data makes up 0.7%.

Figure 31
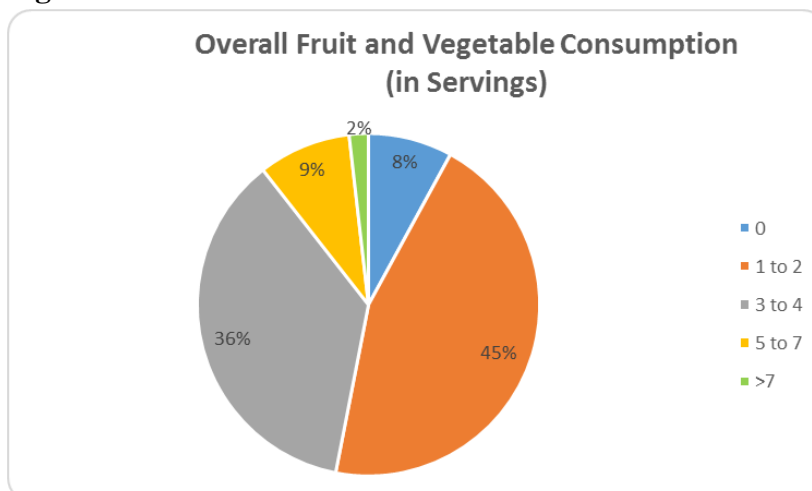
It is important to note that these surveys were conducted during the summer and fall months, when local produce is readily available.

Figure 32
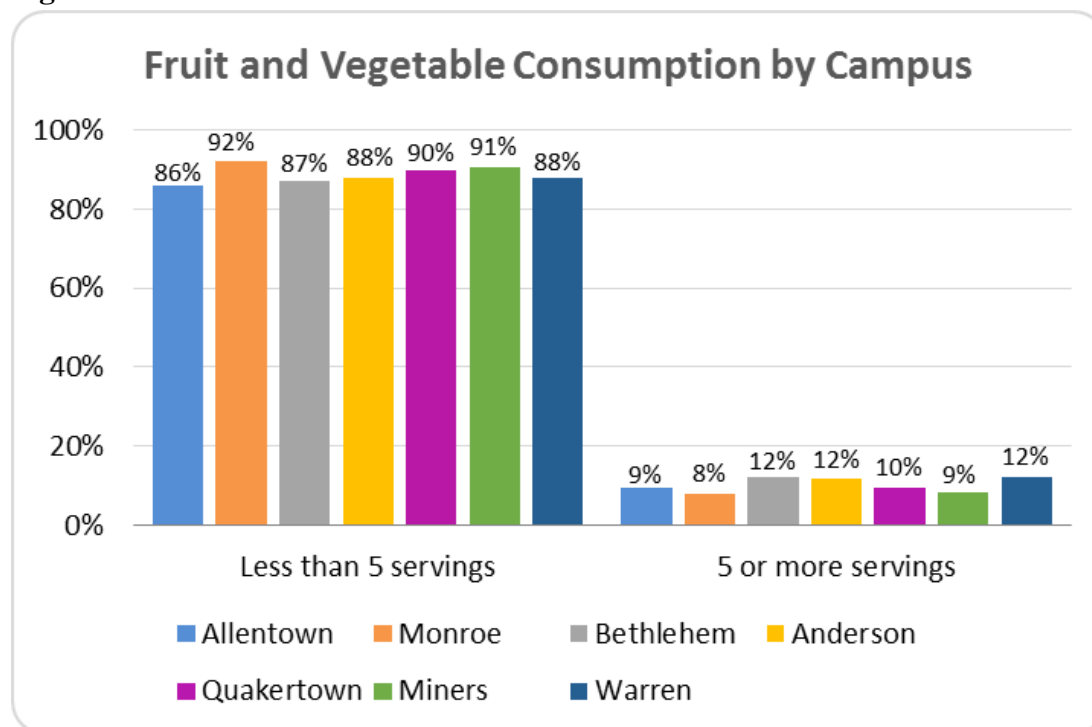
Warren (12.2%), Bethlehem (12.1%), and Anderson (11.6%) campuses performed the best in terms of percentage of respondents hitting FDA targets. All campuses except Anderson campus have CSA (Community Supported Agriculture) farm shares offered to employees. Anderson campus is the home of the St. Luke's Rodale Institute Organic Farm, where produce is grown for cafeterias across the SLUHN network, in addition to being sold to employees. Monroe (8.0%) and Miners (8.5%) campuses had the lowest percentage of respondents meeting the FDA five a day guideline.

This is a concern across the network, as roughly only one in ten people are meeting the FDA recommendations for fruit and vegetable consumption.

The 2012 survey measured fruit and vegetable consumption, and only 9% of people were consuming five or more servings of fruits and vegetables compared to 11% in 2016 (when asked for fruit and vegetable consumption during the previous day). However, the percentage of people consuming zero servings also increased by 2%.

Figure 33
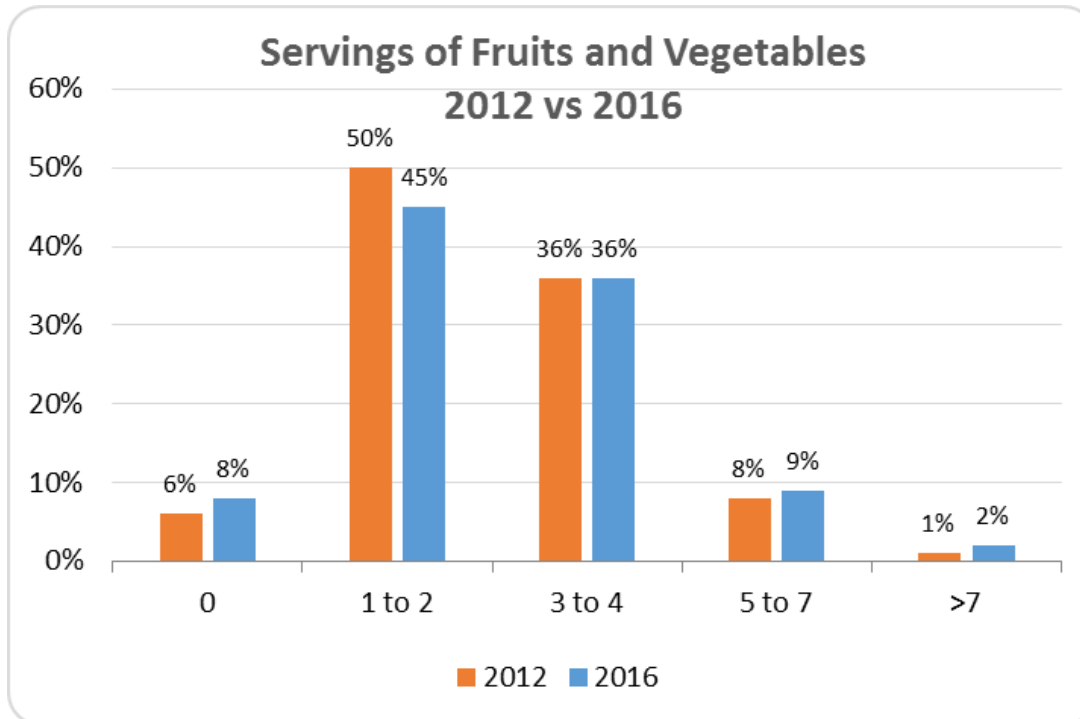
C. ALCOHOL CONSUMPTION

We asked participants how many episodes of binge drinking they had in the past month, which was defined as having five or more drinks on one occasion. 28% of respondents reported at least one binge drinking episode in the past month. Moreover, 17% of respondents reported having two or more episodes of binge drinking. Missing data makes up 0.7%.

Figure 34

Figure 35
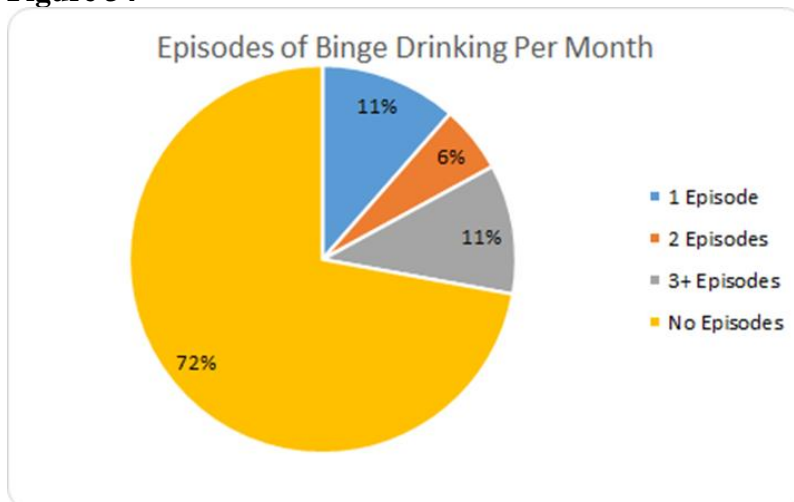
Binge Drinking 2012 vs 2016
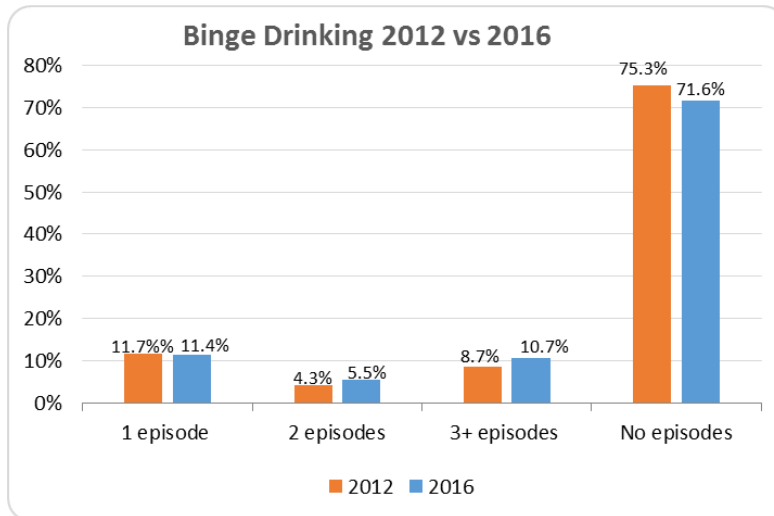
When the 2012 data is compared with the 2016 data, it becomes apparent that more people reported 2 or more episodes of binge drinking (13% and 16% respectively).

More males reported binge drinking than females, which is interesting given the high female response rate for this survey. Among those who reported no episodes of binge drinking, 74.4% were female and 63.2% were male.

Upon comparison of episodes of binge drinking to age of respondent, it becomes apparent that high levels of drinking often correspond with younger ages. The highest percentage of respondents who reported any episodes of bring drinking fell into the 18-24 age category at 43.3%. The 65 and older population reported the lowest percentage of binge drinking episodes (14.5%).

Figure 36

Binge Drinking by Campus
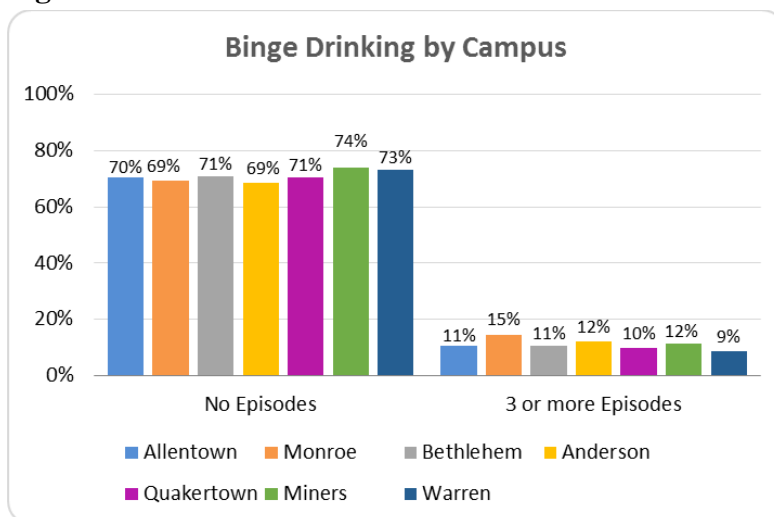
Anderson campus had the lowest percentage of respondents reporting no binge drinking at 68.5% and Miners campus had the highest percentage of respondents who reported no binge drinking at 74.0%. Monroe campus had the highest percentage of respondents reporting three or more episodes of binge drinking at 14.6% and Warren campus had the lowest at 8.8%.

D. SMOKING

83.3% of respondents reported being non-smokers, and 15.2% reported that they currently smoke. The Healthy People 2020 target is for only 12% of adults over 18 years of age to smoke. The percentage of smokers has increased from 13.4% in 2012 to 15.2% in 2016. Missing data makes up 1.5%.

Figure 37
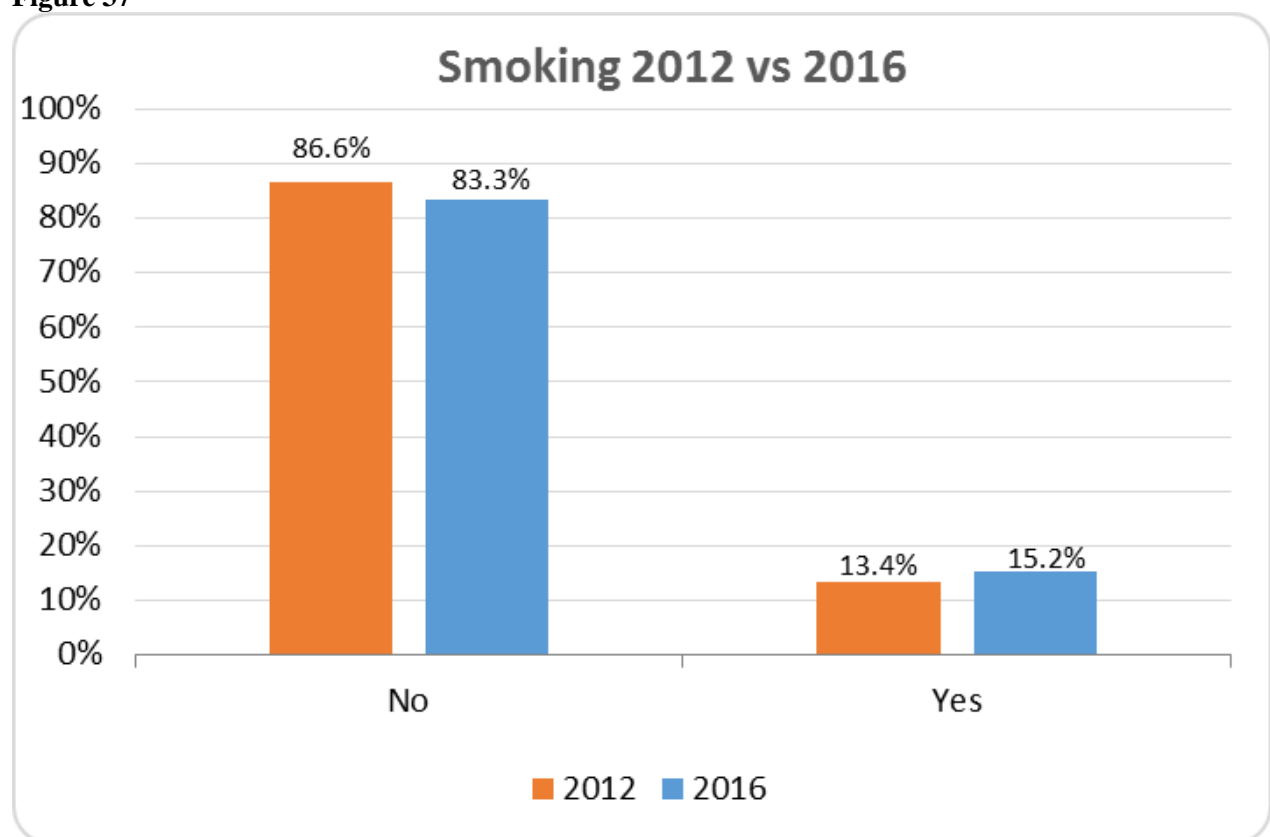
When smoking status and gender of respondents were compared, 20.4% of males smoked, as opposed to only 13.6% of females. Additionally, when smoking status was compared to annual income ranges of the respondents, direct trends were observed. There was a distinct inverse relationship between income and percentage of respondents who smoked. Within those making less than $14,999 annually, 31.4% reported smoking as compared to only 5.9% among those making more than $100,000 annually. This trend was seen among all income ranges with percentage of those smoking dropping as income increased.

Figure 38

Smoking by Household Income

Healthy People 2020 Target: 12% of adults smoking

- < $14,999: 31%
- $15,000 - $24,999: 22%
- $25,000 - $39,999: 16%
- $40,000 - $59,999: 14%
- $60,000 - $99,999: 10%
- $100,000+: 6%
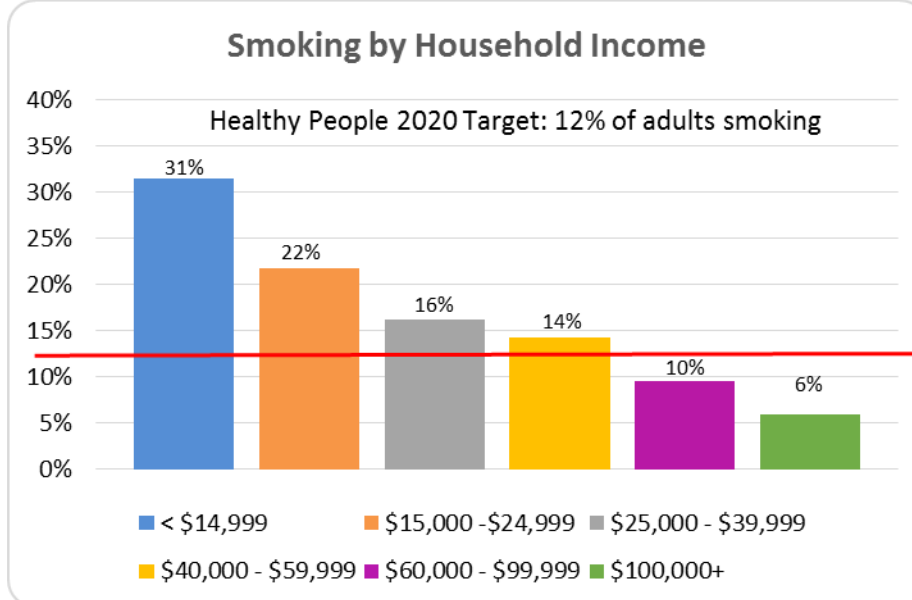
Excessive alcohol consumption and smoking are both behaviors that are associated with poor health, so it was valuable to compare the two in terms of each other. 85.6% of those who experienced no alcohol binges also did not smoke. Among those who reported smoking, 37.5% had at least one binge drinking episode, compared to 25.9% of nonsmokers.

Figure 39

Smoking by Campus

Healthy People 2020 Target: 12% of adults smoking

- Allentown: 17.2%
- Monroe: 11.8%
- Bethlehem: 14.5%
- Anderson: 14.5%
- Quakertown: 15.3%
- Miners: 15.3%
- Warren: 16.3%
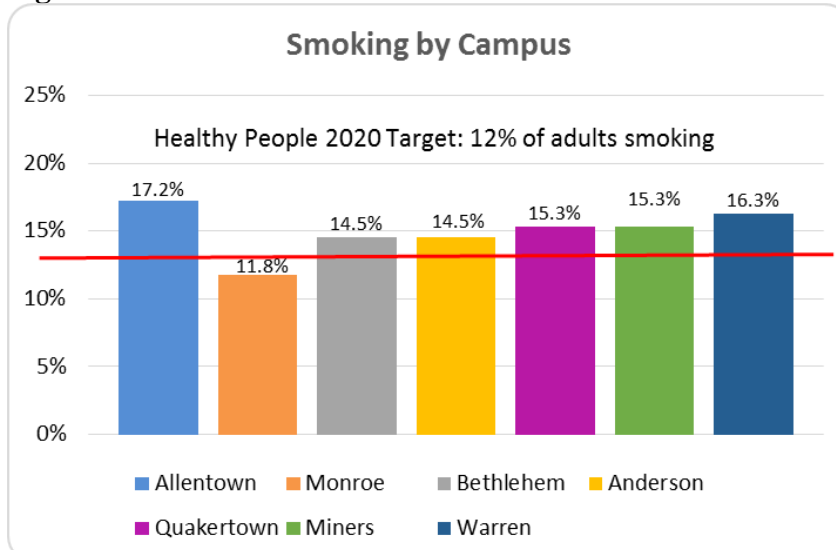
Allentown campus respondents reported the highest percentage of smokers at 17.2%, and Monroe campus reported the lowest at 11.8%.

Figure 40

Smoking and Tobacco Product Usage
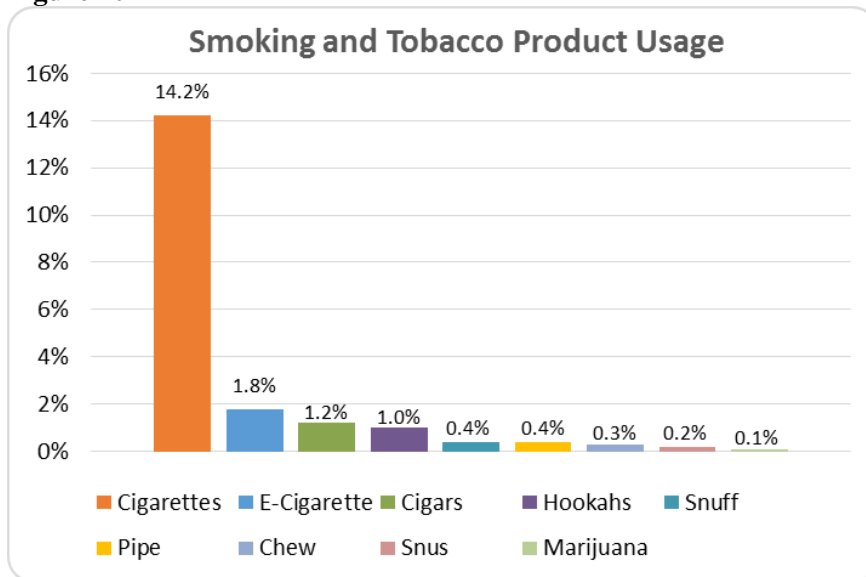
When data regarding usage of tobacco products was split up by type of product, it became apparent that cigarettes were the predominant tobacco product of choice among all respondents. However, given current popular trends towards E-Cigarettes, it is interesting to note that 55% of people (n=49) who reported using E-Cigarettes classified themselves as non-smokers.

E. SLEEP

This survey also asked respondents to estimate the amount of sleep they get on a daily basis. The amount of sleep can be used as an indicator of general health including mental health, and conditions such as anxiety and depression, which can manifest themselves in an inability to sleep.

Figure 41

Average Hours of Sleep Per Night
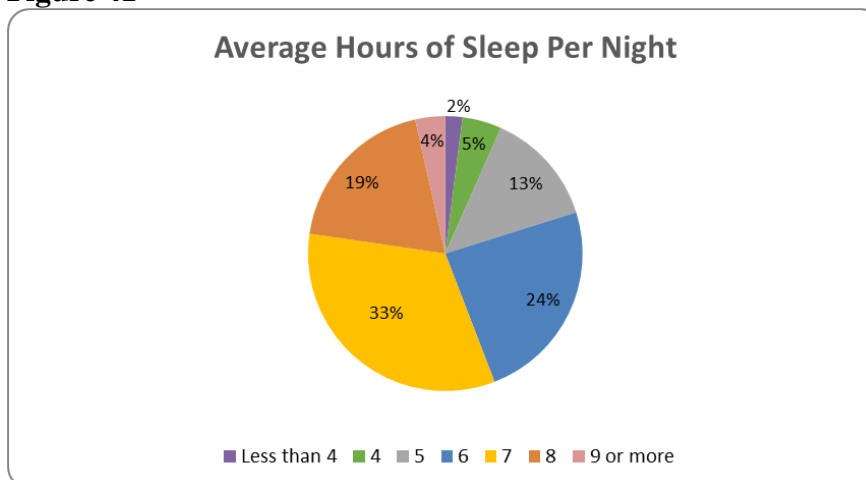
The CDC recommends that adults average 7 to 8 hours of sleep per night, and according to the 2016 data, 55% of respondents reported getting at least 7 hours of sleep the previous night. Survey respondents for Monroe campus reported the highest percentage attaining the recommended hours of sleep at 56.3%, whereas Miners campus reported the lowest percentage at 40.9%. Miners campus had a noticeably higher percentage of respondents sleeping only 5 hours (29.2%), compared to all the other campuses' average at 11.5%. Allentown and Miners campuses reported the highest percentage of respondents getting 4 or less hours of sleep at 8.5%, and Monroe campus had the lowest percentage at 4.2%.

Figure 42
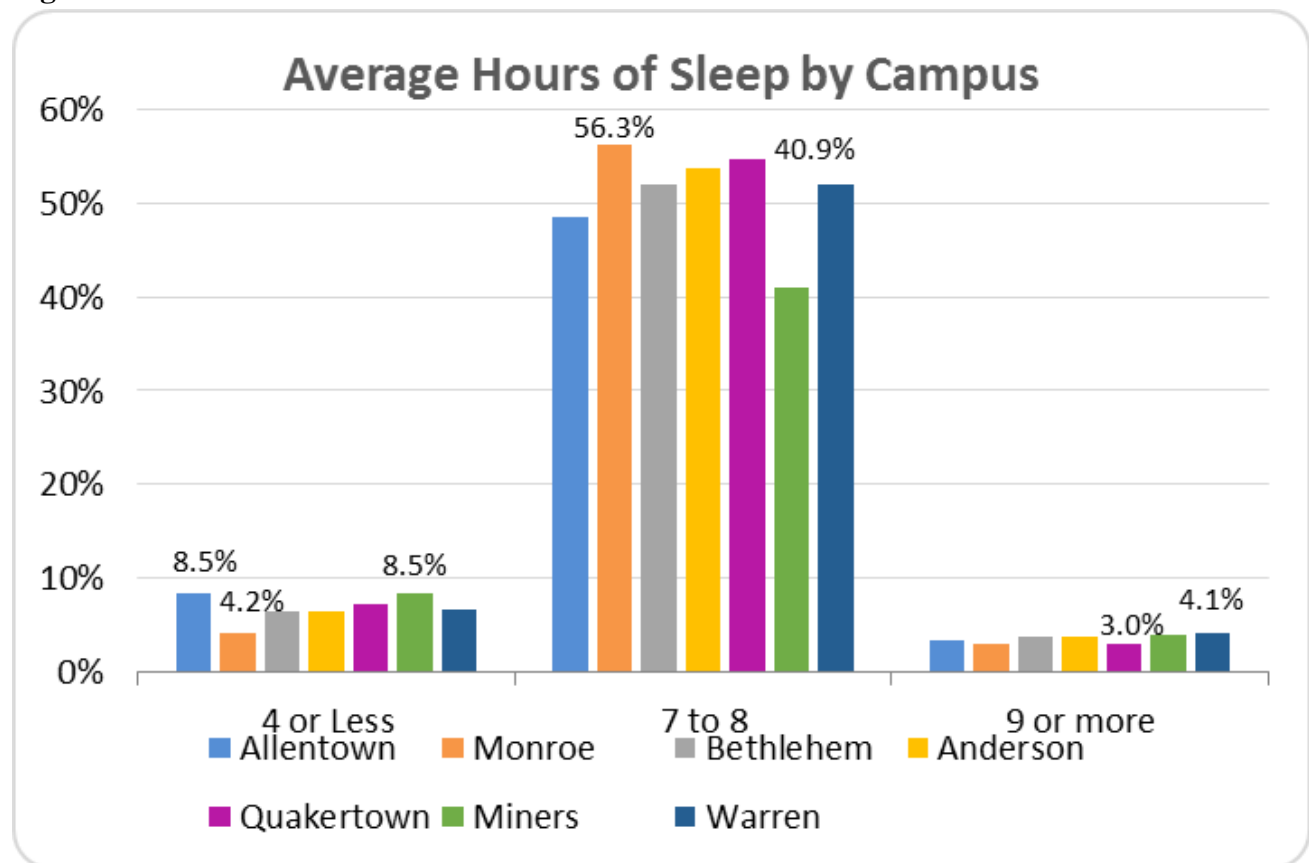
4. Health Outcomes:

A. OVERALL HEALTH RATING

93.4% of people rated their overall health as "good" or better.

Figure 43
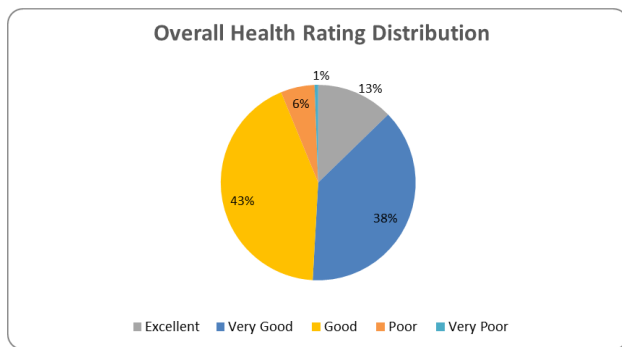
Figure 44
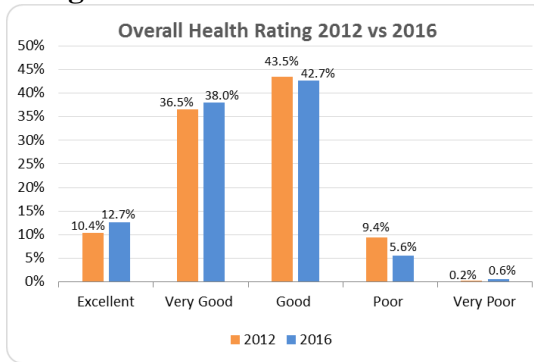
These results are similar to those collected by the 2012 survey, which had 90.4% of people ranking their overall health as 'good' or better. Because this question is quite subjective, it is difficult to use it on its own to assess health outcomes for the community, however, it can be used in conjunction with more specific data to obtain a more accurate image of health in the SLUHN service area.

Figure 45
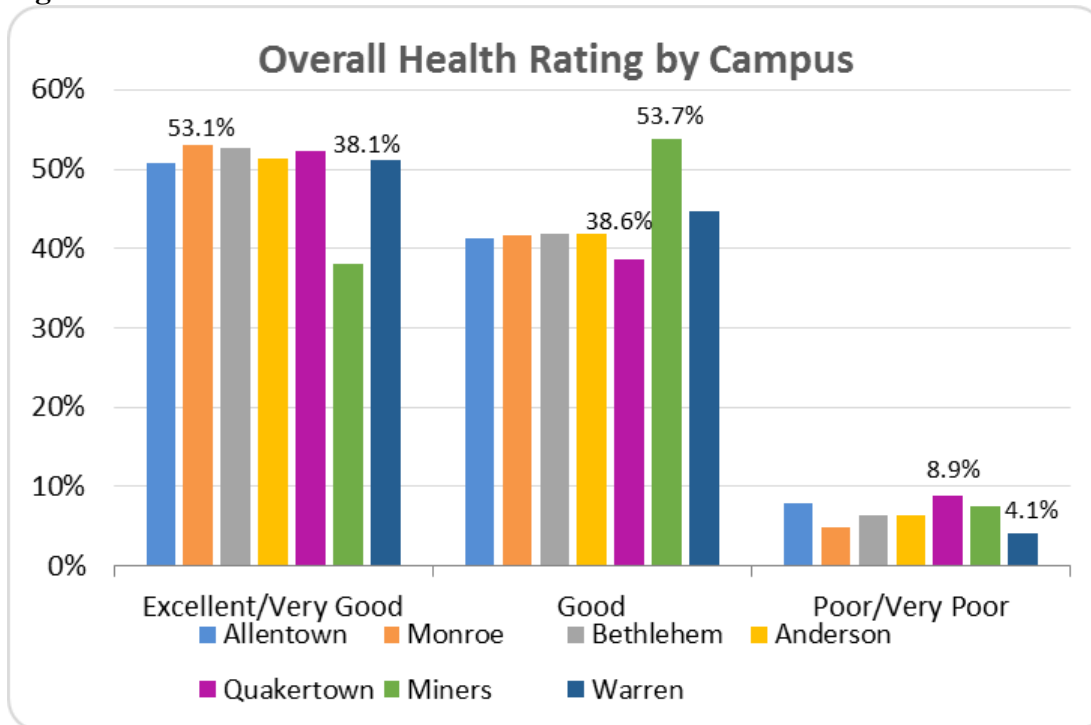
B. OBESITY

The survey asked respondents for their height and weight. The Body Mass Index (BMI) was calculated using these parameters. Obesity is determined by BMI, which is an indirect measure of an individual's body fat. For a person who has a healthy weight, the BMI range is from18.5-24.9, for someone who is overweight the range is 25-29.9, and for someone who is obese the BMI is 30.0 or more. The BMI distribution of the survey population is represented below.

Figure 46
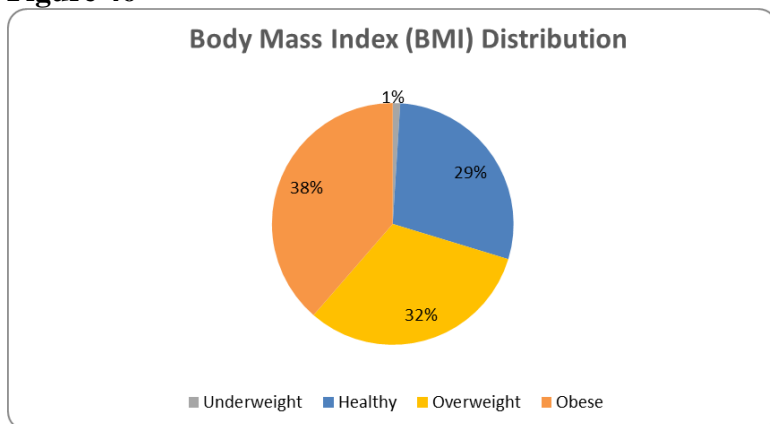
Based on standardized BMI calculations, 71% of the survey respondents fell into the "overweight or obese" category. This number represents a continuation in the area's trend towards obesity, which is mirrored in the United States as a whole. According to the CDC, 28.3% of the adult population in the U.S. was obese in 2013, with 30% of adults in Pennsylvania and 26.3% of adults in New Jersey being classified as obese. In 2014, the CDC reported that no state had an obesity rate below 20%; furthermore, 19 states had rates between 30% - 35%. Obesity can be further broken down into the following categories: obese (BMI ranges of 30 - 34.9), severely obese (BMI ranges of 35 – 39.9), and morbidly obese (BMI of 40 or greater).

Figure 47
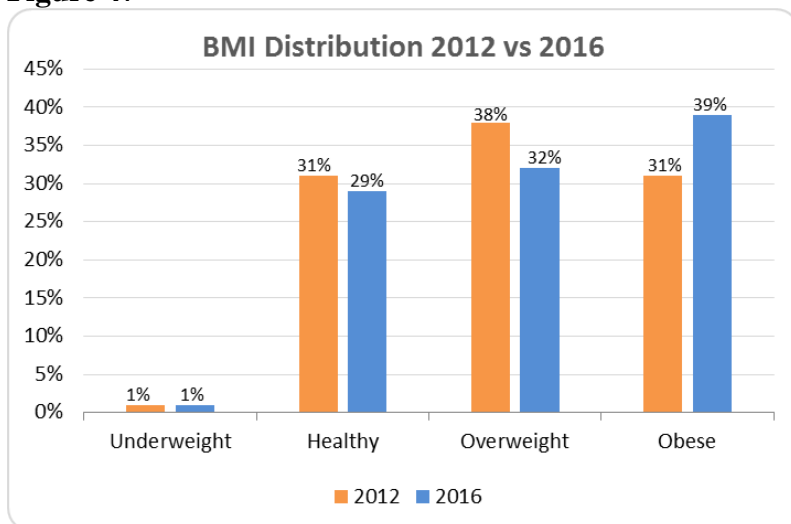
In comparing the 2012 and 2016 data, we saw a decrease in the percentage of respondents in the healthy weight category and an increase in the percentage in the obese category. Any decrease in percentage of respondents at healthy or overweight seems to have been translated to an increase in the percentage of respondents in the obese category. This might indicate that those who are already overweight are likely to slip into obesity as time passes.

Figure 48
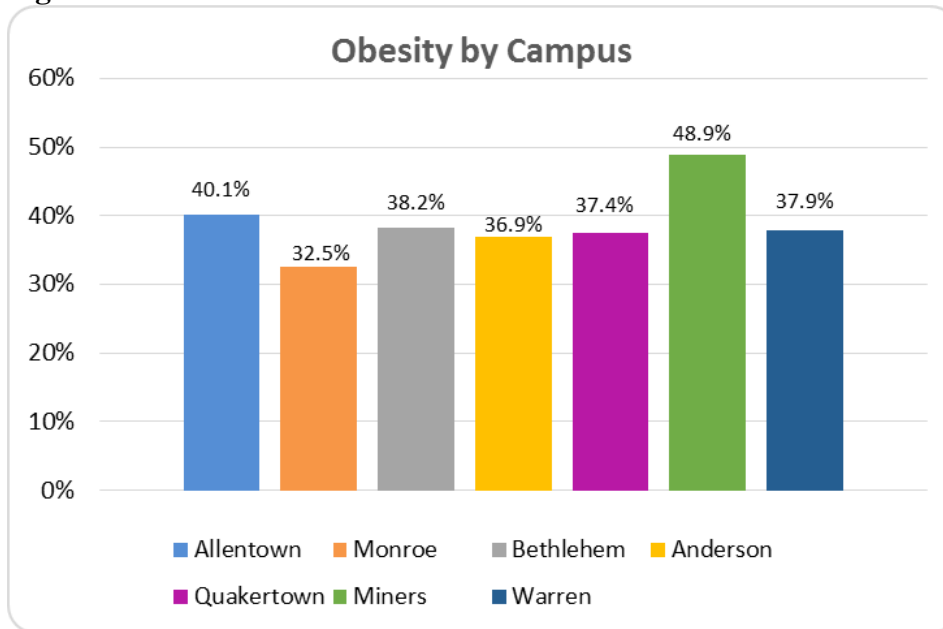
Figure 49
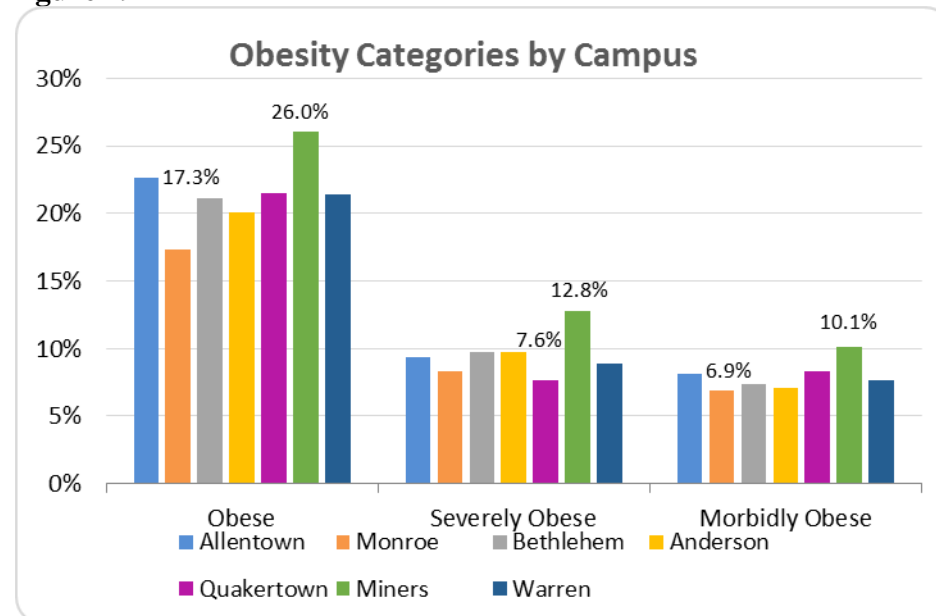
When information about BMI is broken up by campus, it becomes apparent that all campuses reported obesity rates that are higher than national (28.3%) and state (30.0%) levels. Monroe campus reported the lowest percentage of obese respondents at 32.5%. Miners campus had the highest percentage of obese adults at 49.5%, with 20.6% of those obese individuals falling into the morbidly obese category. Of the respondents identified as obese, Quakertown campus had the highest percentage of morbidly obese people at 22.2%, and Anderson campus had the lowest at 19.3%.

Figure 50
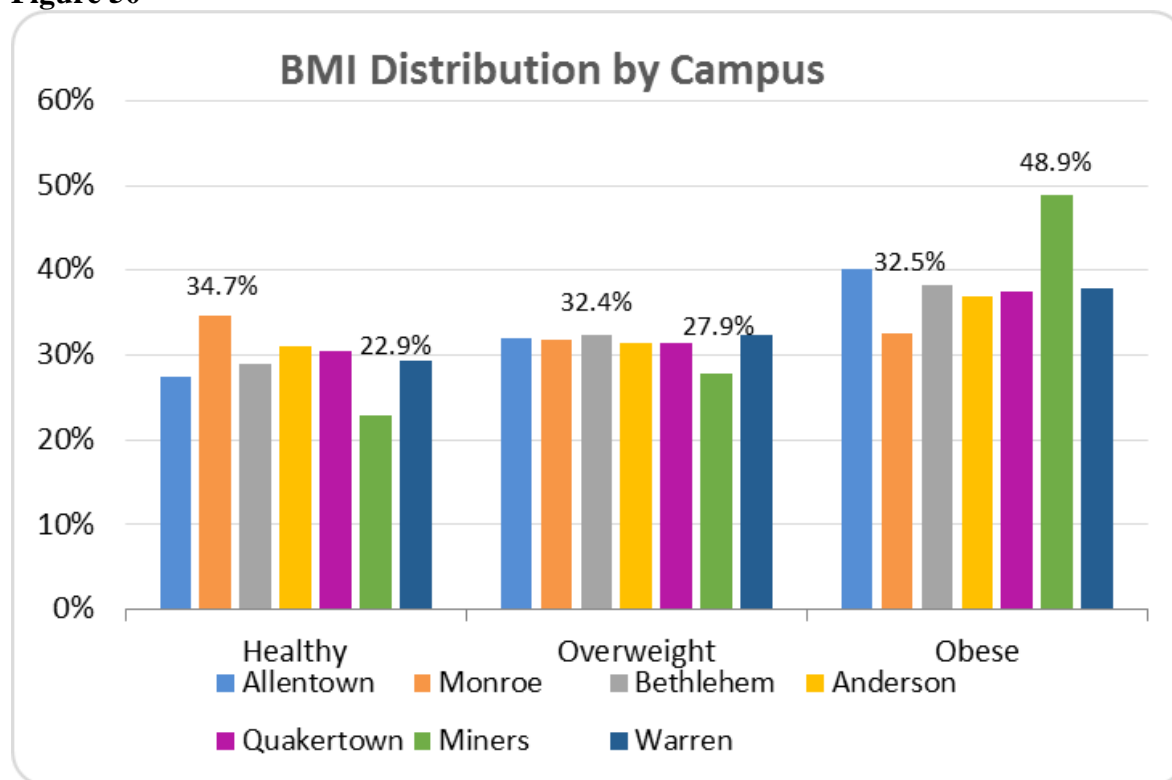
Figure 50 shows the BMI distribution across campuses.

The percentage of women falling into the healthy BMI category (31.1%) outweighed the percentage of men in that category (23.0%). 29.6% of women and 40.5% of men fell into the overweight category. For all categories of obesity, 38.7% of women and 36.3% of men fell into the obese category.

Among those in the healthy BMI category, the greatest percentage of respondents reported exercising 3-4 days per week, at 31.3%. When considering the respondents that fell into the overweight category, 33.9% reported exercising 1-2 days per week, followed by 27.6% reporting 3-4 days per week of exercise. The greatest percentages of obese and severely obese respondents reported 1-2 days of exercise (35.5% and 35.8% respectively), followed by 0 days of exercise (29.3% and 32.7% respectively). Among the morbidly obese population, however, 41.1% of

respondents reported no days of exercise per week, followed by 38% who exercised for 1-2 days per week. BMI ranges were inversely proportionate to the exercise levels reported. 56% of respondents in the healthy weight category reported exercising 3 or more days a week, compared to 20.9% in the morbidly obese category.

Figure 51
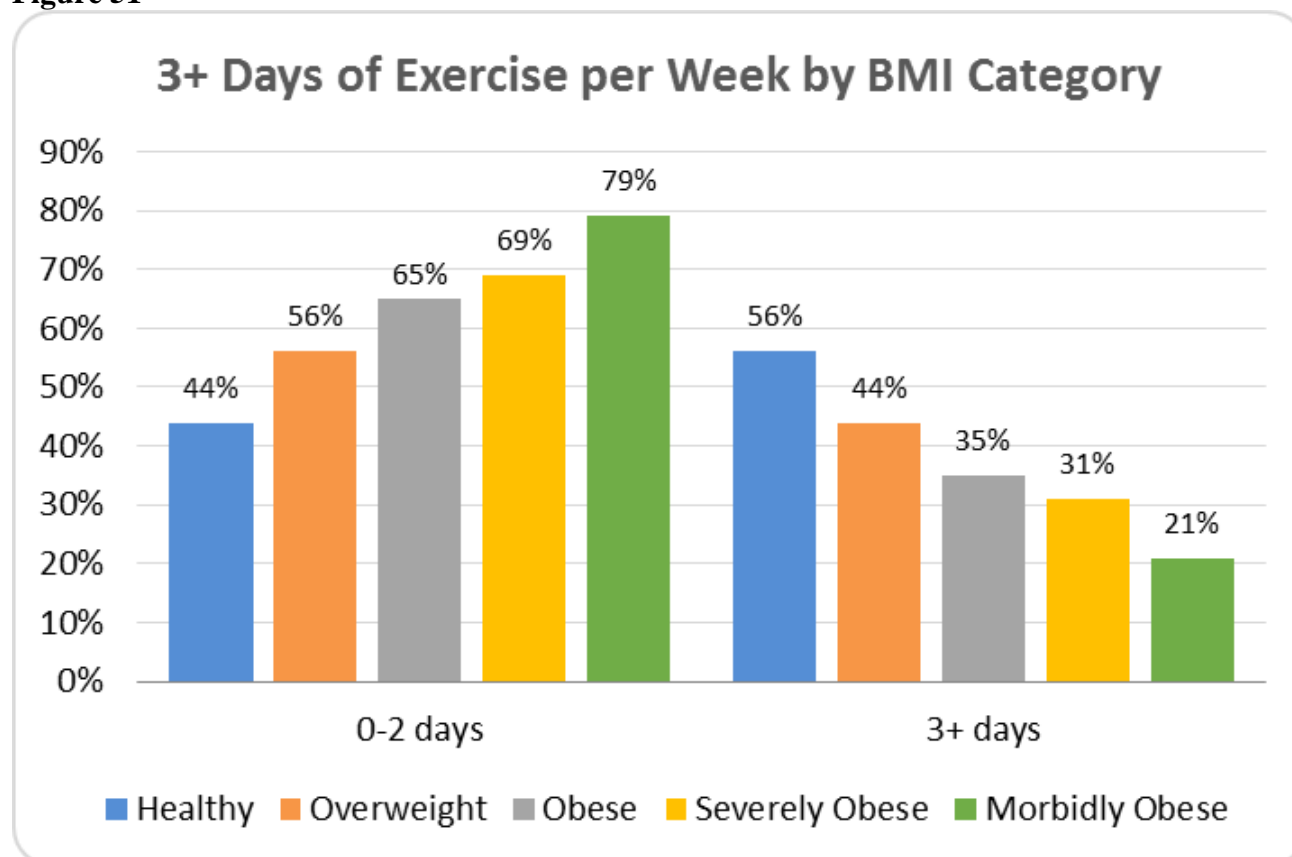
As BMI can have an impact on a person's ability to work, it is important to consider BMI in light of employment status. Nearly 50% of those who reported that they are unable to work fall into the obese category, as did 48.5% of those who reported that they were out of work for more than one year, whereas only 16.9% of respondents who identified as students were classified as obese.

Education levels can also provide interesting information when correlated with BMI ranges, as education levels are often connected to employment status. Amongst those who did not receive a high school degree, 45.9% were classified as obese. Meanwhile, 41.7% of respondents who attained a high school diploma or GED and 36.5% of those educated beyond high school were classified as obese.

Income is an additional socioeconomic factor that can have an influence on BMI. 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, 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%.

Based on the education and income data it is evident that social determinants of health play a vital role in the rising obesity rates we are witnessing across our service area.

C. DISEASE RATES

Figure 52

Health Problems and Conditions Distribution
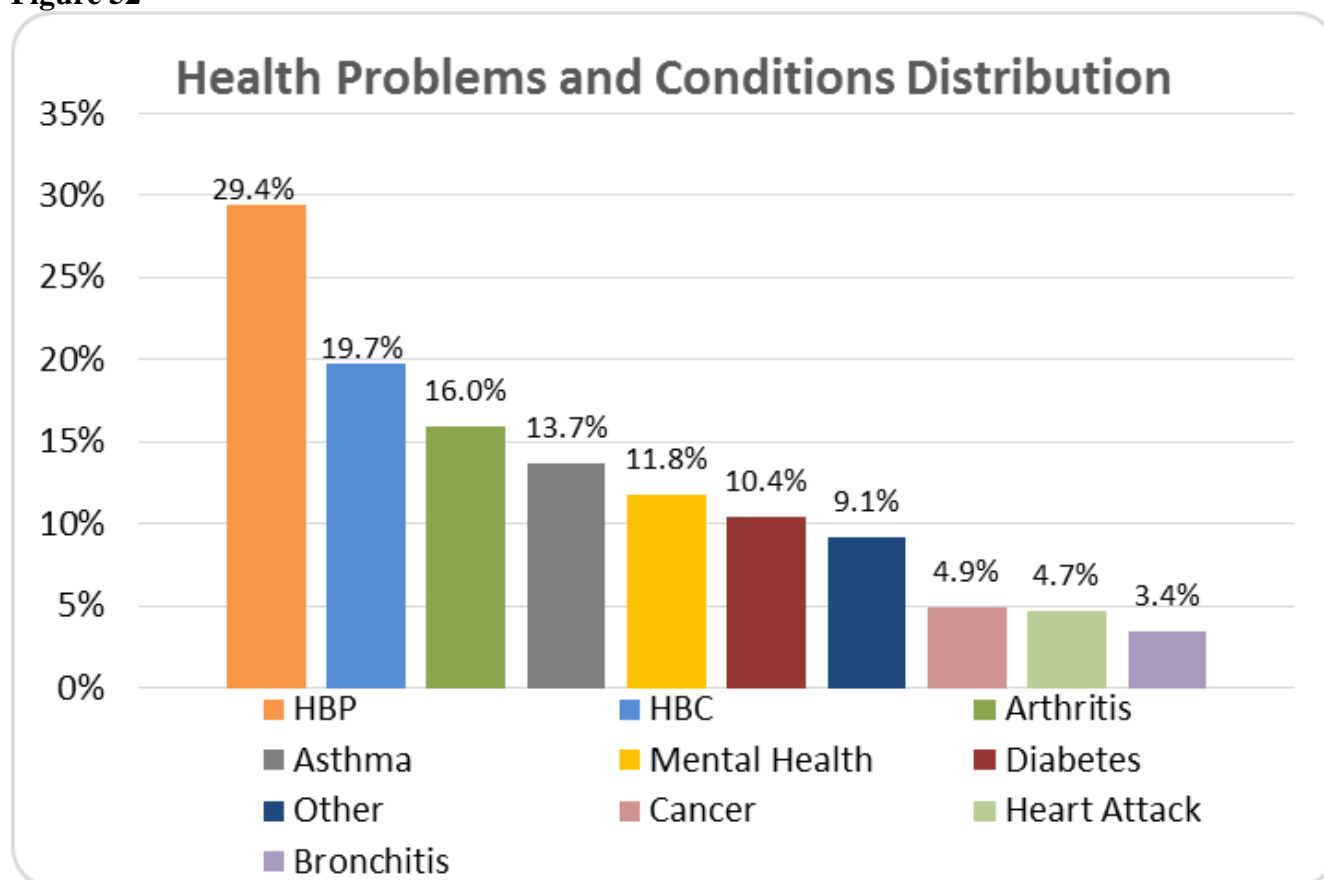
Overall, 56.4% of survey respondents reported having a chronic disease. High blood pressure (HBP) is definitively the most common condition for respondents to have, and it is generally considered to be a precursor or indicator for many other chronic diseases and health conditions, such as stroke, heart attacks, and heart disease.

Data collected for the 2012 survey broke up responses into 'currently', 'in the past' and 'never'. We used the 'currently' category for comparison. Additionally it is important to note that the 2012 survey had a higher number of respondents over the age of 65 – this might explain why some of the 2012 percentages seem higher than 2016 percentages. There was no option for 'none' in 2012, so Figure 53 only shows this option for 2016.

Figure 53

Chronic Health Conditions 2012 vs 2016
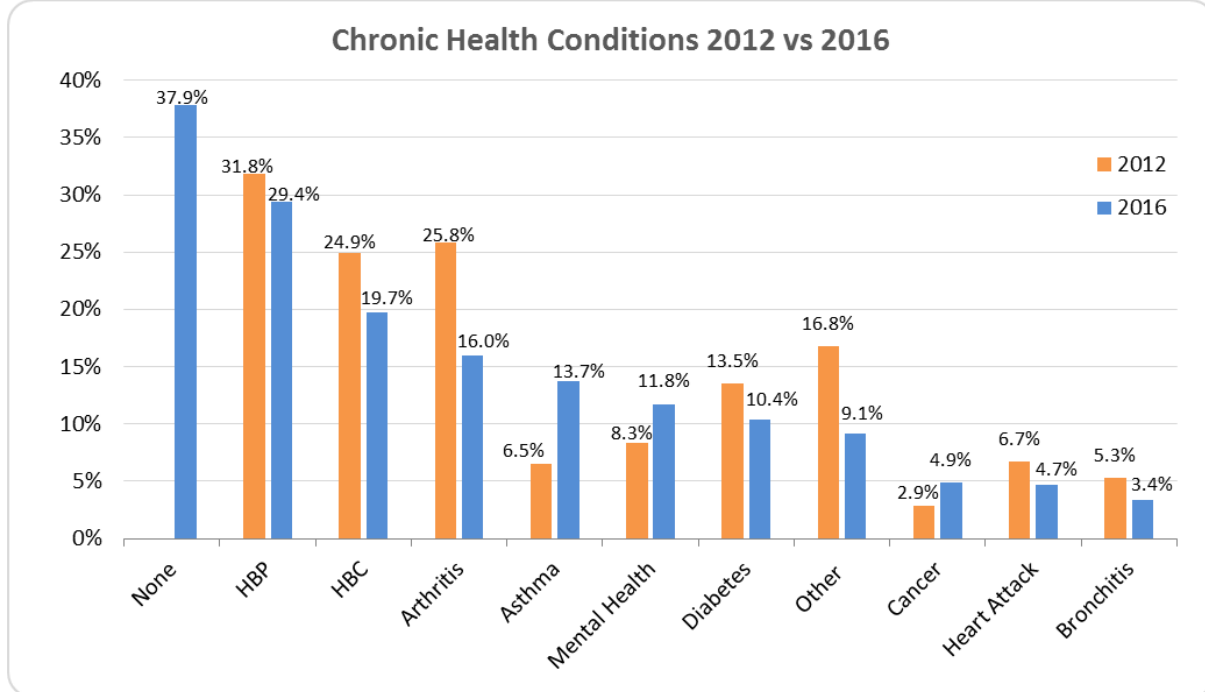
38% of respondents for Allentown campus reported having no chronic health conditions.

Figure 54

Health Conditions Allentown
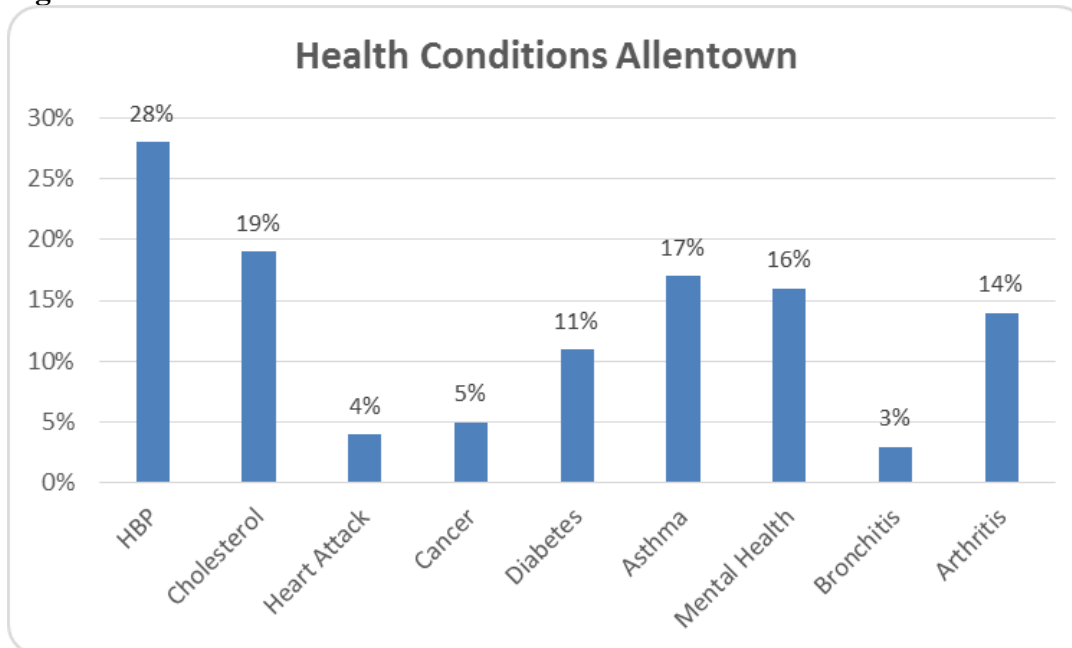
39% of respondents for Bethlehem campus reported having no chronic health conditions.

Figure 55

Health Conditions Bethlehem
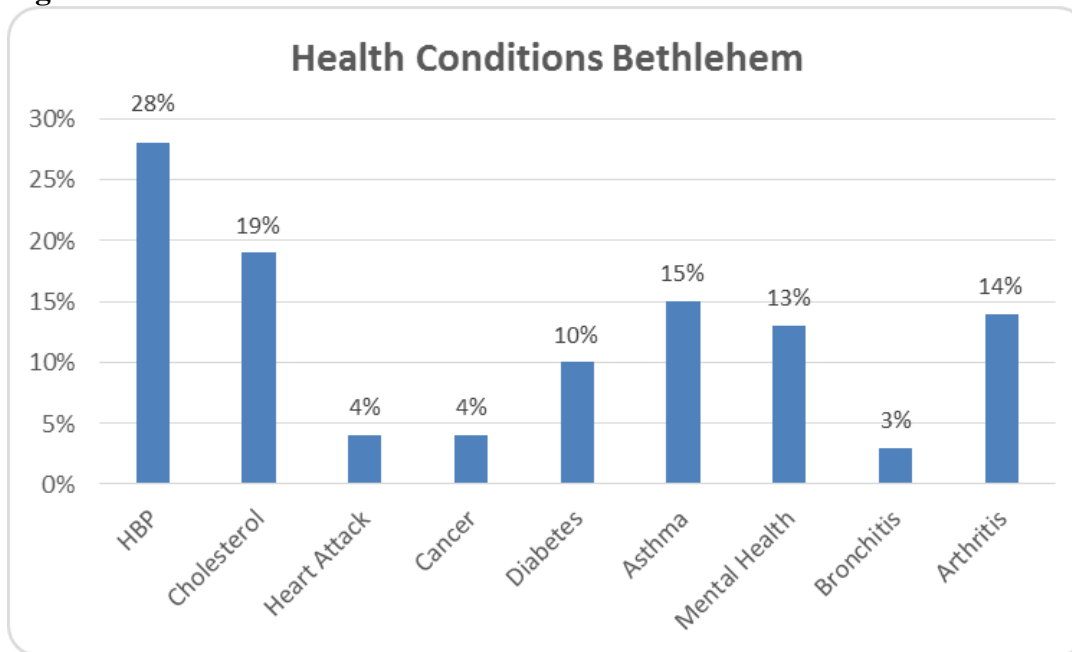
42% of respondents for Anderson campus reported having no chronic health conditions.

Figure 56

Health Conditions Anderson
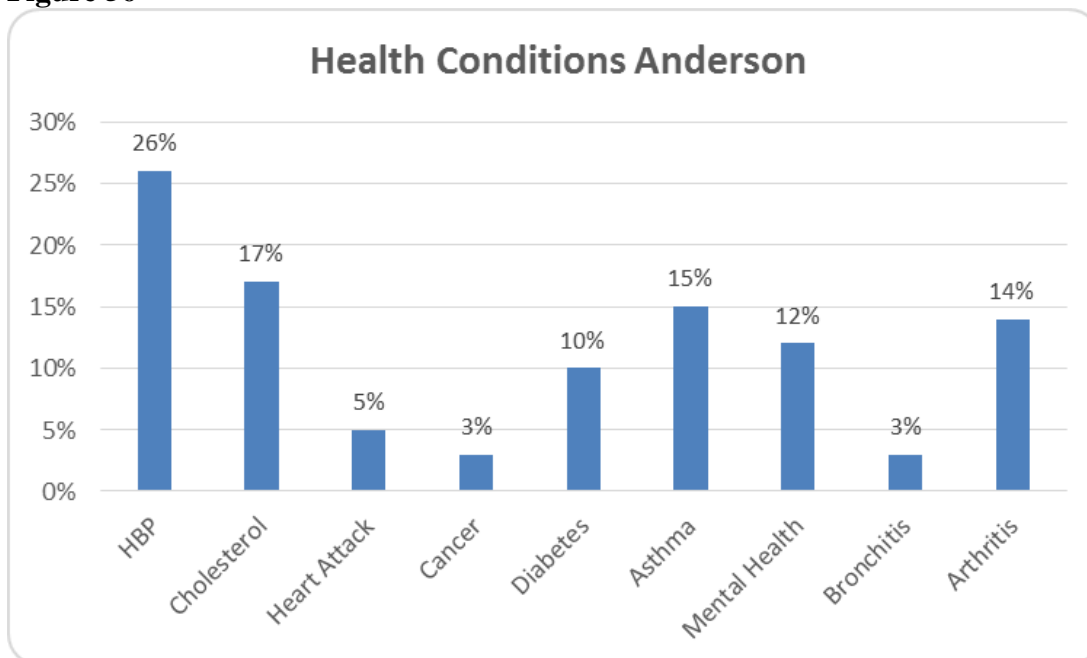
40% of respondents for Quakertown campus reported having no chronic health conditions.

Figure 57

Health Conditions Quakertown
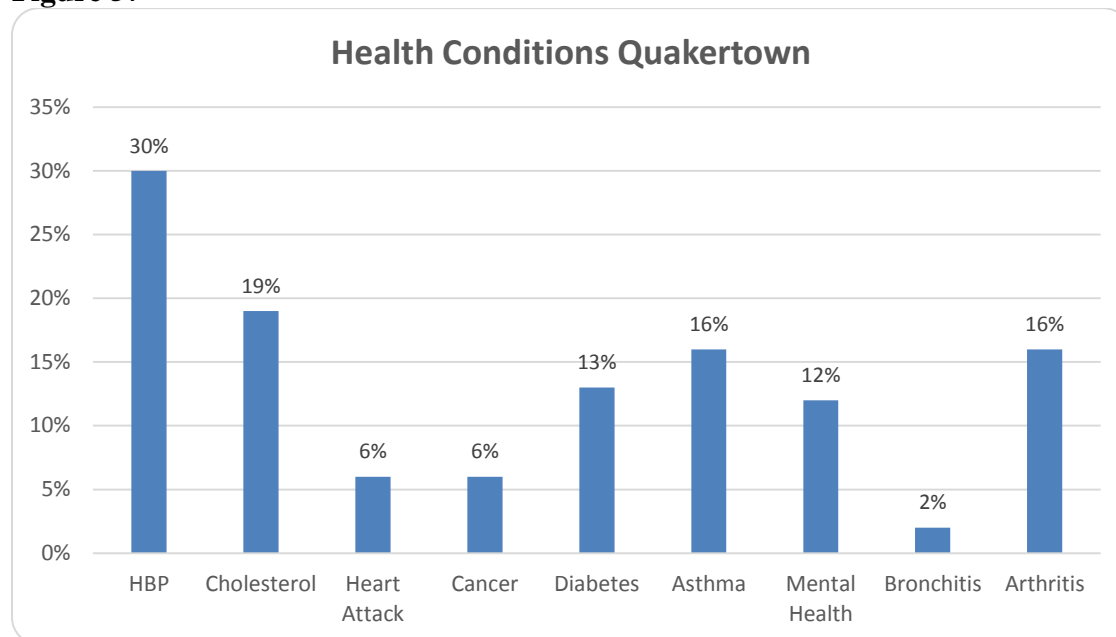
25% of respondents for Miners campus reported having no chronic health conditions.

Figure 58
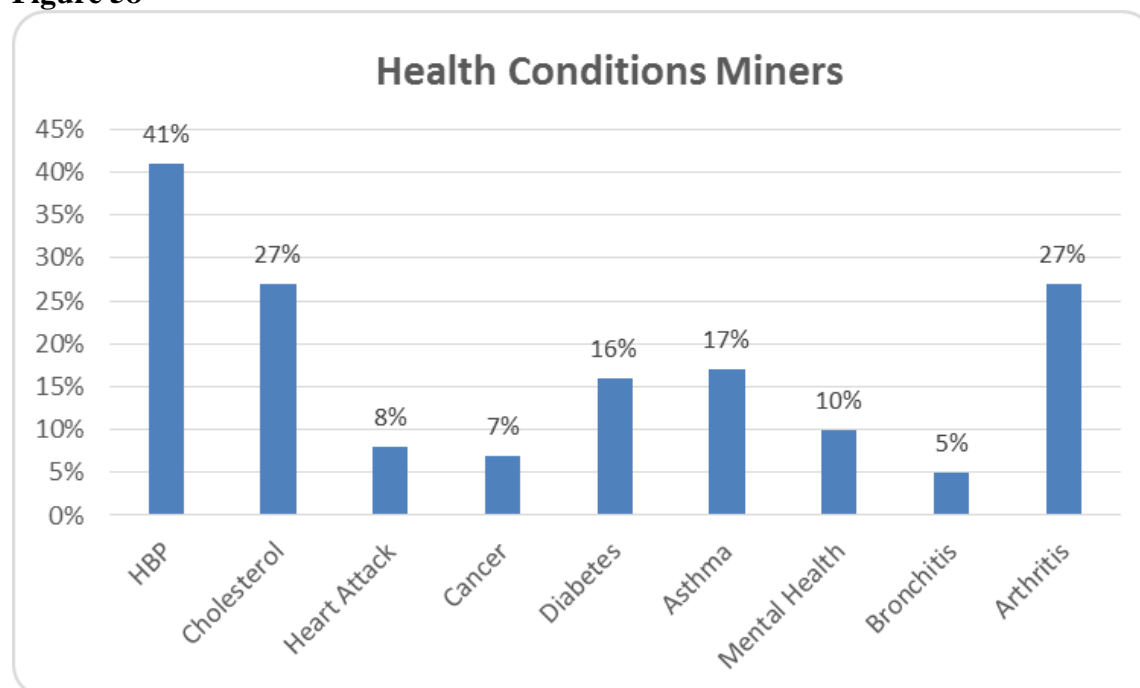
Health Conditions Miners

44% of respondents for Monroe campus reported having no chronic health conditions.

Figure 59

Health Conditions Monroe
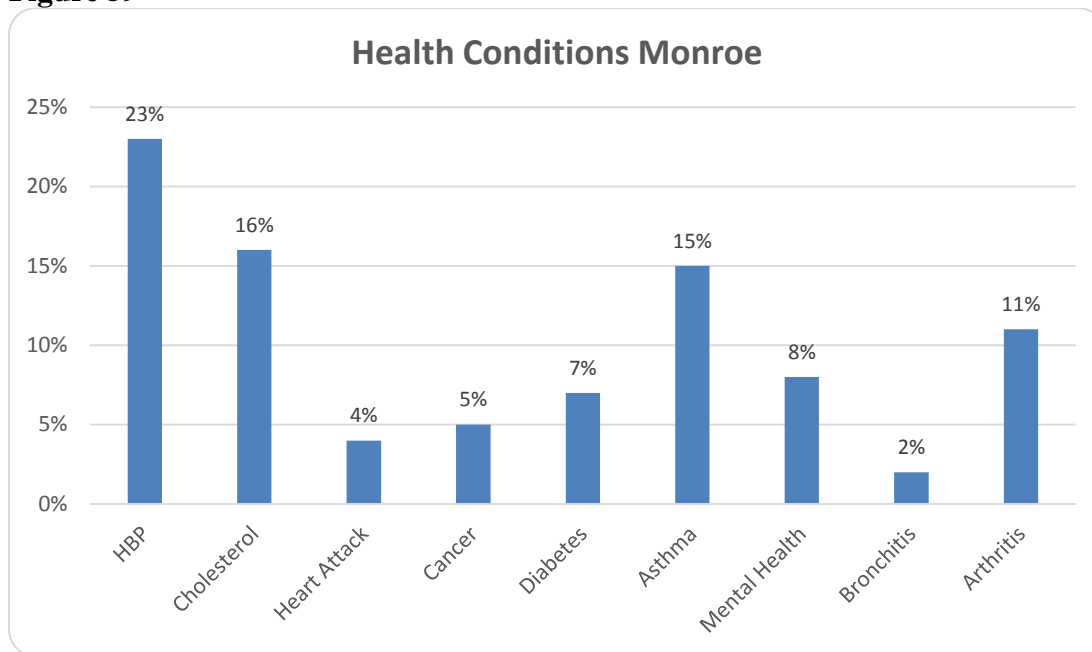
38% of respondents for Warren campus reported having no chronic health conditions.

Figure 60

Health Conditions Warren
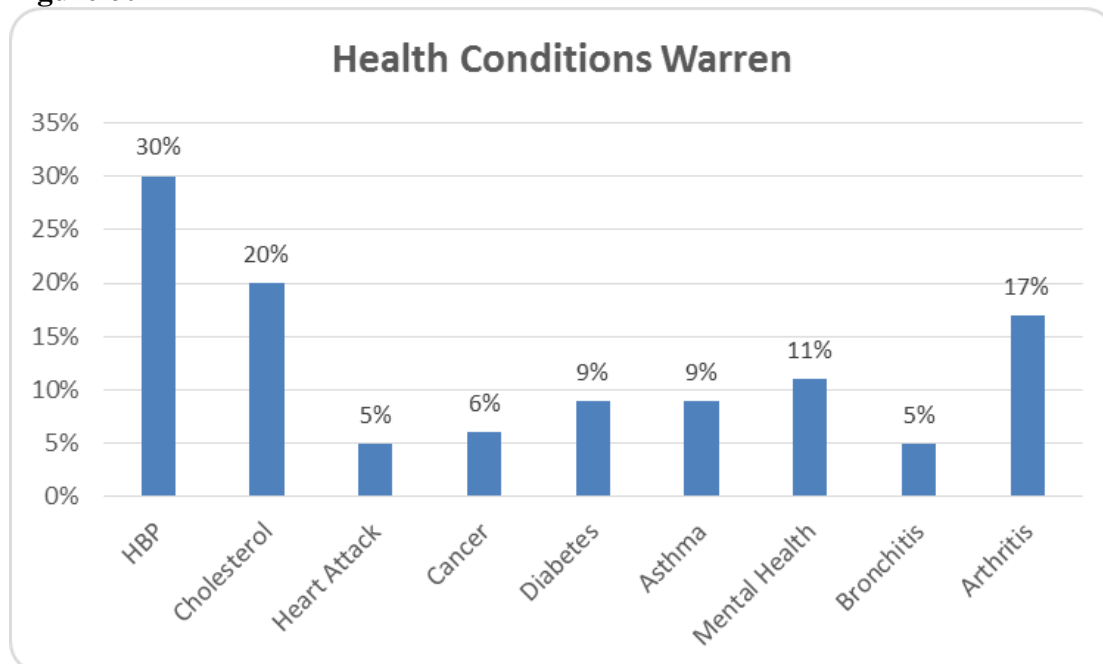
Most prominently, the prevalence of asthma in respondents from Warren campus was only 9%, while at all other campuses it averaged out to be 16%. Additionally, Miners campus had a much higher percentage of respondents with high blood pressure (41%) and cholesterol (27%) when compared to all other campus averages at 28% and 18% respectively.

When considering chronic disease in relationship to insurance, Medicare had the highest percentage of respondents who reported having a chronic disease (76.3%). Private insurance had the lowest percentage of respondents who reported having a chronic disease (51.5%), while 35.6% of uninsured respondents reported having a chronic disease, which may be because they have not gone to a doctor.

An additional measure of health that can be closely linked to chronic disease is BMI. As BMI of respondents increases, so does the prevalence of chronic disease. 40.2% of respondents with a healthy BMI reported having chronic diseases, while 75.5% of morbidly obese respondents reported having a chronic disease.

Figure 61
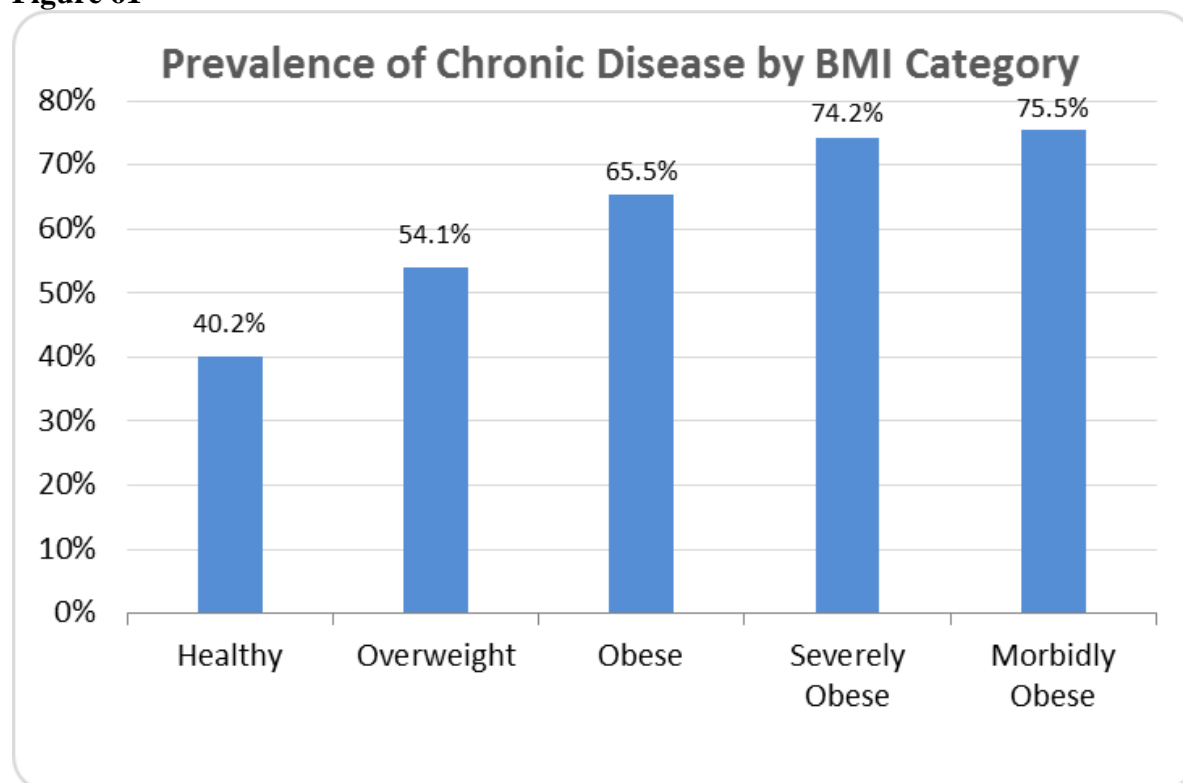
An inversely proportional relationship is observed when consumption of fruits and vegetables is compared to the presence of chronic disease, so as the consumption of fruits and vegetables increases the presence of chronic diseases decreases. 65.4% of respondents who reported having zero servings of fruits and vegetables had a chronic disease, whereas only 40% of those reporting more than 7 servings of fruits and vegetables had a chronic disease.

Figure 62
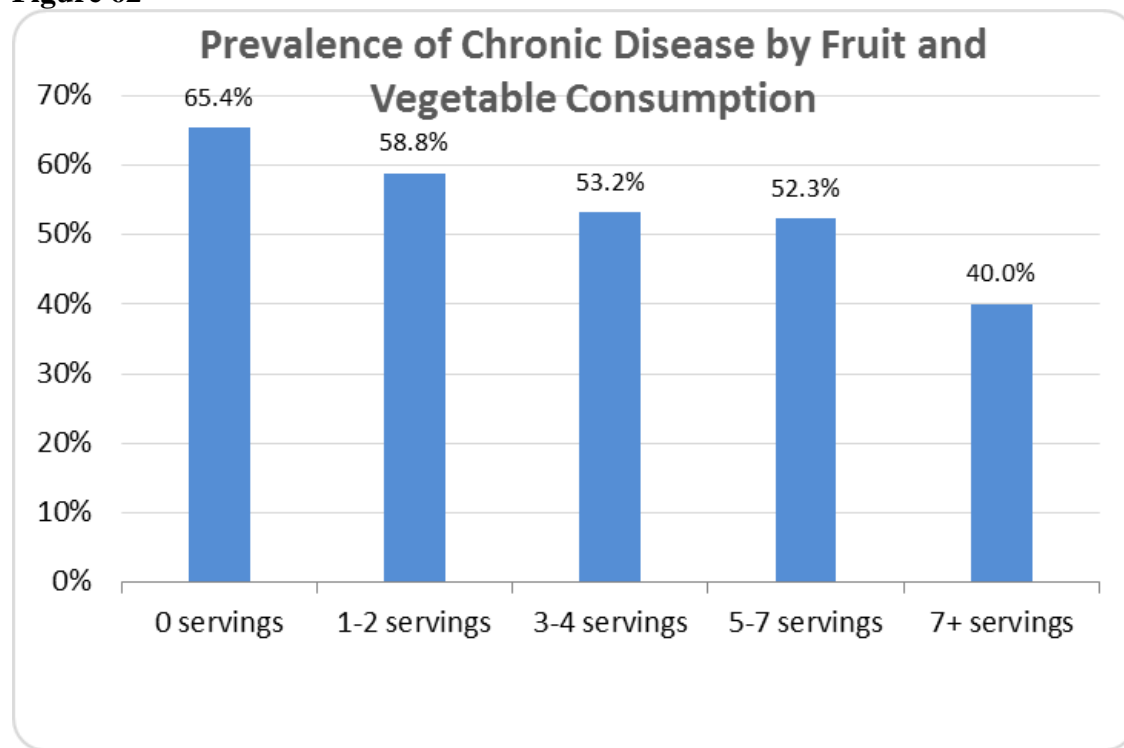
Smoking can lead to numerous chronic health conditions, so it is important to consider the relationship between smoking and the presence of chronic disease. 66% of smokers reported having chronic diseases compared to 55% of non-smokers.

Poor sleep has been increasingly linked to chronic health conditions. 61.7% of respondents who reported sleeping less than 7 hours per night also had a chronic disease while 51.4% of those sleeping 7 – 8 hours reported having a chronic disease diagnosis.

Education is a social determinant of health that influences the presence of chronic disease. 72% of respondents who did not complete high school reported having a chronic disease. 62% of those who have a high school diploma or GED reported having a chronic disease, while 53% of those educated beyond high school reported having a chronic disease.

Additionally, income has also been shown to play a role in the presence of chronic disease. 68% of respondents making less than $14,999 reported having chronic disease, compared to 48% of respondents making more than $100,000.

D. POOR MENTAL HEALTH DAYS
According to survey responses, 36% of the population of the SLUHN service area respondents had at least one day of poor mental health within the last month; this is a slight drop from 41%, which was observed in the 2012 data.

Figure 63

Poor Mental Health Days (Per Month)

63%
21%
9%
6%

■ 0 days ■ 1 to 2 days ■ 3 to 7 days ■ 8+ days

Figure 64

Poor Mental Health Days 2012 vs 2016

59.6% 62.7%
19.4% 20.7%
10.1% 8.8%
11.0% 6.0%

0 days | 1 to 2 days | 3 to 7 days | 8+ days

■ 2012 ■ 2016
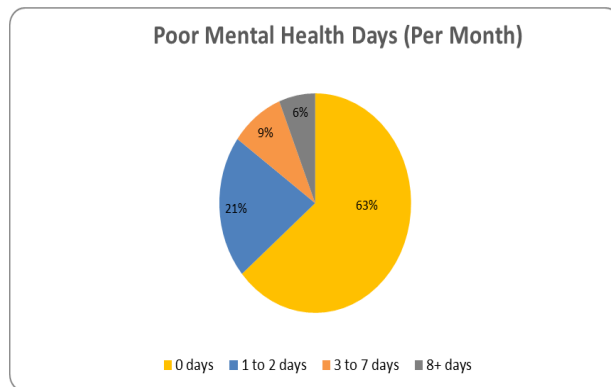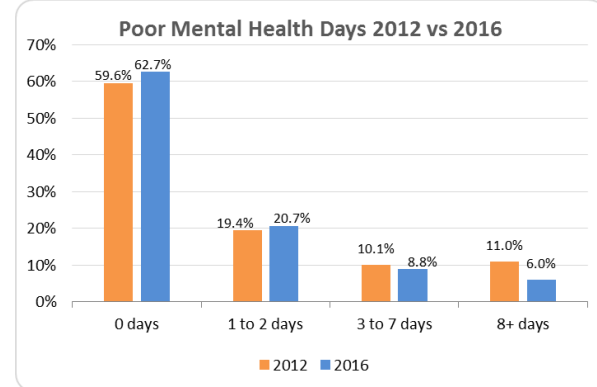
The ethnicity of respondents is an important factor to consider when examining days of poor mental health amongst survey respondents. A higher percentage of Non-Hispanic respondents (65.1%) reported having no days of poor mental health compared to Hispanic respondents (31.5%). Additionally, 9.1% of Hispanic respondents reported having 8 or more poor mental health days, whereas only 5.2% of Non-Hispanic respondents reported this.

When income of respondents was compared to number of days of poor mental health, a few important trends emerged. As income increased, so did the percentage of respondents reporting no poor mental health days. 73.3% of those making more than $100,000 had no poor mental health days compared to 44% of those making less than $14,999. Additionally, for those suffering from more than 8 days of poor mental health, the two largest percentages were among those making between $15,000 and $24,999 (12.3%), and among those making less than $14,999 (10.5%). The lowest percentage of respondents suffering from more than 8 days of poor mental health was in the population making more than $100,000 (2.3%).

Another factor related to mental health of respondents is employment status, which can then be linked back to income. For those suffering no days of poor mental health, the largest percentage was the self-employed population at 70.2%, and the employed at 65.7%. Within the category of those who suffer from more than 8 days of poor mental health per month, those who are unable to work had a noticeably larger percentage (21.9%) when compared to all of the other employment categories (averaged at 4.9%).

Several health behaviors can have an influence on days of poor mental health, including fruit and vegetable consumption, exercise, and smoking.

73.9% of those consuming 5 to 7 servings of fruits and vegetables suffered no days of poor mental health, as compared to only 43.8% of those consuming no servings of fruits and vegetables. 16.1% respondents who had no servings of fruit and vegetable experienced 8 or more sick days compared to an average of 5.4% among those who ate one or more servings.

71% of people exercising five or more days a week had no poor mental health days, compared to 51% of those who did not exercise. 11.6% of those who did not exercise had 8 or more poor mental health days, compared to 4.3% of people who exercised one or more days a week.

66% of non-smokers reported no mental health days, compared to 47% of smokers. Additionally, 12% of smokers had 8 or more sick days, compared to 5% of non-smokers.

Figure 65

Days of Poor Mental Health by Campus
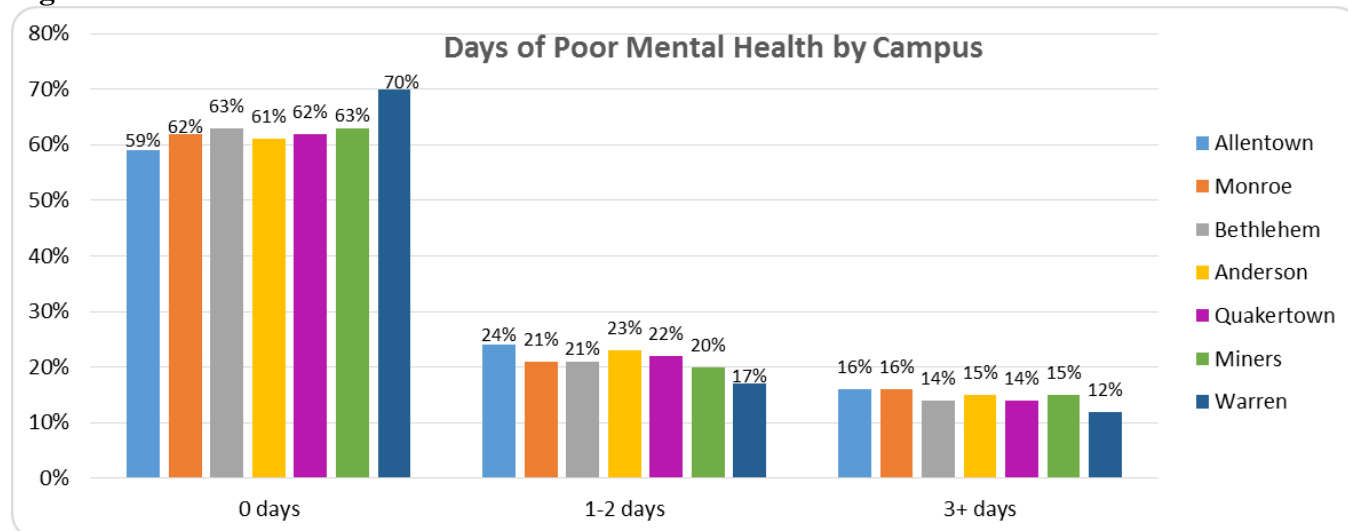
When information regarding days of poor mental health was examined by campus, 70.1% of respondents from Warren campus reported missing no days of work due to poor mental health, compared to the network wide average of 64%. Miners campus had the largest percentage (7.5%) of respondents who chronically missed work – defined as more than 8 days per month due to poor mental health.

E. POOR PHYSICAL HEALTH DAYS

A number of symptoms fall under the umbrella of poor physical health and can lead to missing days of work. In a deviation from the 2012 survey, the 2016 survey asked for the number of days in the past month during which they experienced poor physical health, including days missed from injury or illness. The number of people responding that they had at least one day of poor physical health was higher than the number of people reporting at least one day of poor mental health. 40.3% of respondents reported having at least one sick day in the past month due to poor physical health. This provides an interesting contrast to the earlier question in the CHNA that asked respondents to rate their overall health, where about 90% of respondents rated their health as 'good' or better.

Figure 66

Poor Physical Health Days (Per Month)

Figure 67

Poor Physical Health Days 2012 vs 2016
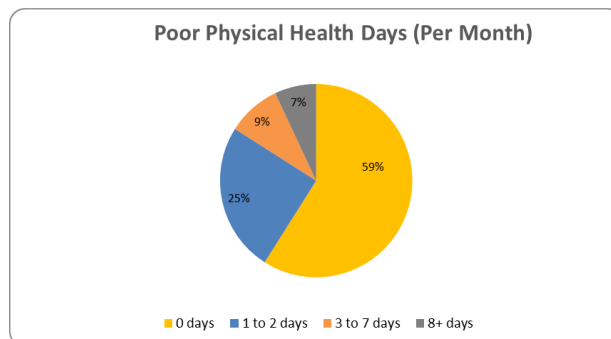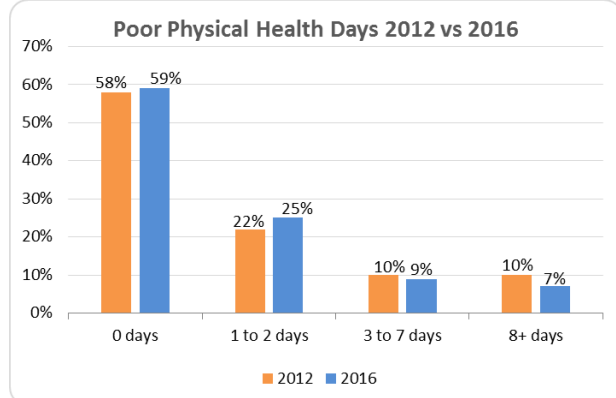
The ethnicity of respondents is an important factor to consider when examining sick days due to poor physical health. Non-Hispanic respondents had a higher percentage of no sick days at 60.5%, compared to the Hispanic respondents at 50%. Additionally, while 9.9% of Hispanic respondents reported having 8 or more poor physical health days, only 5.9% of Non-Hispanic respondents reported this.

When income of respondents was compared to number of days of poor physical health, 69.5% of respondents making more than $100,000 reported having no physical health sick days compared to 43.1% among those making less than $14,999. Additionally, 13.6% of respondents making less than $14,999 and 12.0% of the respondents making $15,000 to $24,999 reported having 8 or more sick days due to poor physical health, as compared to 3.2% among those making more than $100,000.

Employment status is another factor related to physical health, which can be linked back to income. 64.3% of self-employed and 63.3% of employed respondents had no poor physical health days compared to 28.1% of those who were unable to work and 38.6% of those who were out of work for more than one year. 30.2% of those who were unable to work reported having 8 or more sick days as compared to 3.2% among those who were employed.

Several health behaviors can have an influence on sick days due to poor physical health, including fruit and vegetable consumption, exercise, and smoking.

71.8% of those consuming 5 to 7 servings of fruits and vegetables suffered no sick days due to poor physical health, as compared to only 49.3% of those consuming no servings of fruits and vegetables. 16.1% respondents who had no servings of fruits and vegetables experienced 8 or more sick days compared to an average of 5.7% among those who ate one or more servings.

69.8% of people exercising five or more days a week had no sick days due to poor physical health, compared to 47.7% of those who did not exercise. 12.5% of those who did not exercise had 8 or more poor physical health days, compared to 4.8% of people who exercised one or more days a week.

47

61.0% of non-smokers reported no sick days due to poor physical health, compared to 45.2% of smokers. Additionally, 12.4% of smokers had 8 or more sick days compared to 5.7% of non-smokers.

Figure 68
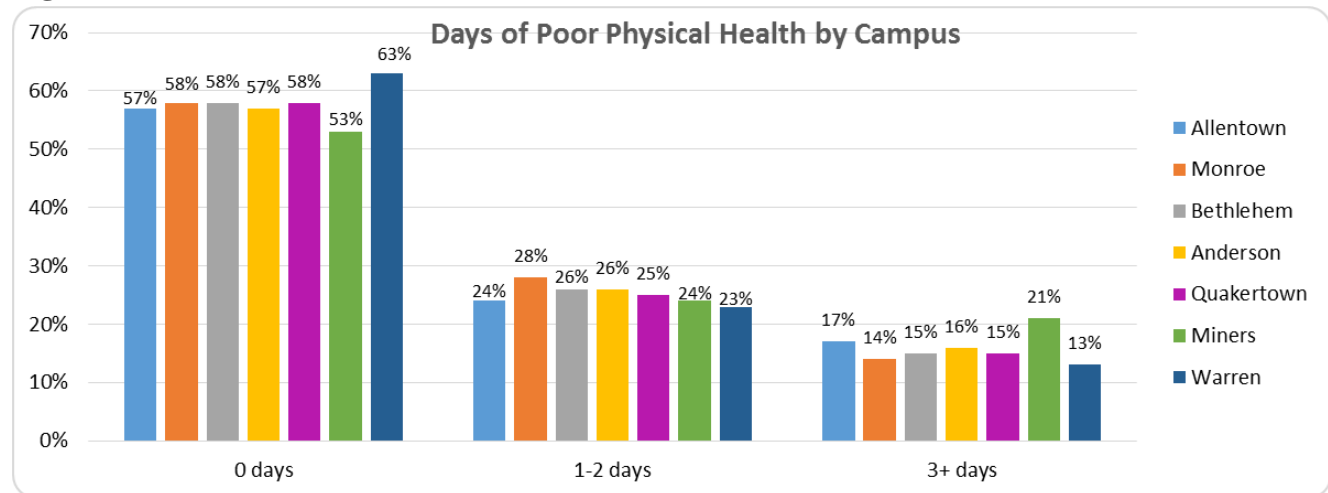
When comparing the 2016 data to the 2012 data, it is relevant to note that although the percentage of respondents with 1 to 2 days of poor physical health has increased, that increase has come from a decrease in the percentage of respondents having three or more days of poor physical health, rather than from a decrease in the percentage of those with no days of poor physical health.

Warren campus (63%) had the greatest percentage of respondents reporting no days of poor physical health, while Miners campus (53%) had the smallest percentage. Conversely, Miners campus (21%) had the greatest percentage of respondents reporting 3 or more days of poor physical health, while Warren campus (13%) had the smallest percentage.

5. Clinical Care:

A. HEALTH INSURANCE

The 2016 survey data found that 65.7% of respondents used private insurance (including Veterans Administration), 10.2% of respondents had Medicaid – a government subsidized insurance and 3.3% of respondents did not have coverage and therefore paid cash. The Medicaid category increased from 2012 to 2016, all other insurance categories dropped. Missing data represents 0.4%.

Figure 69
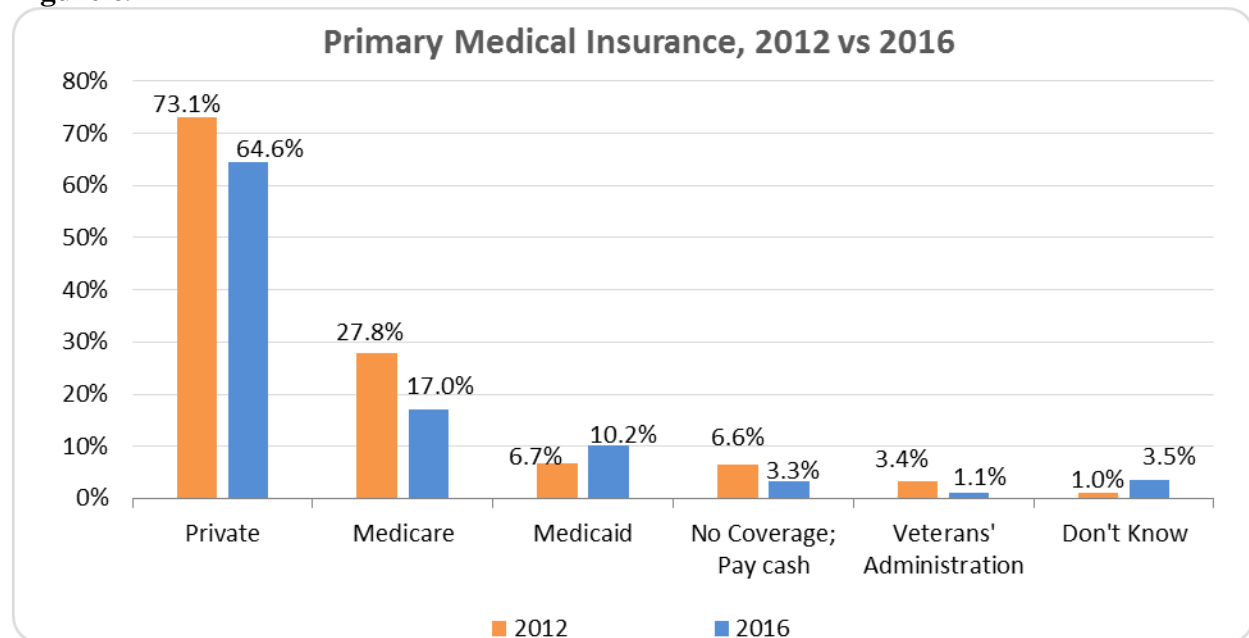
Figure 70
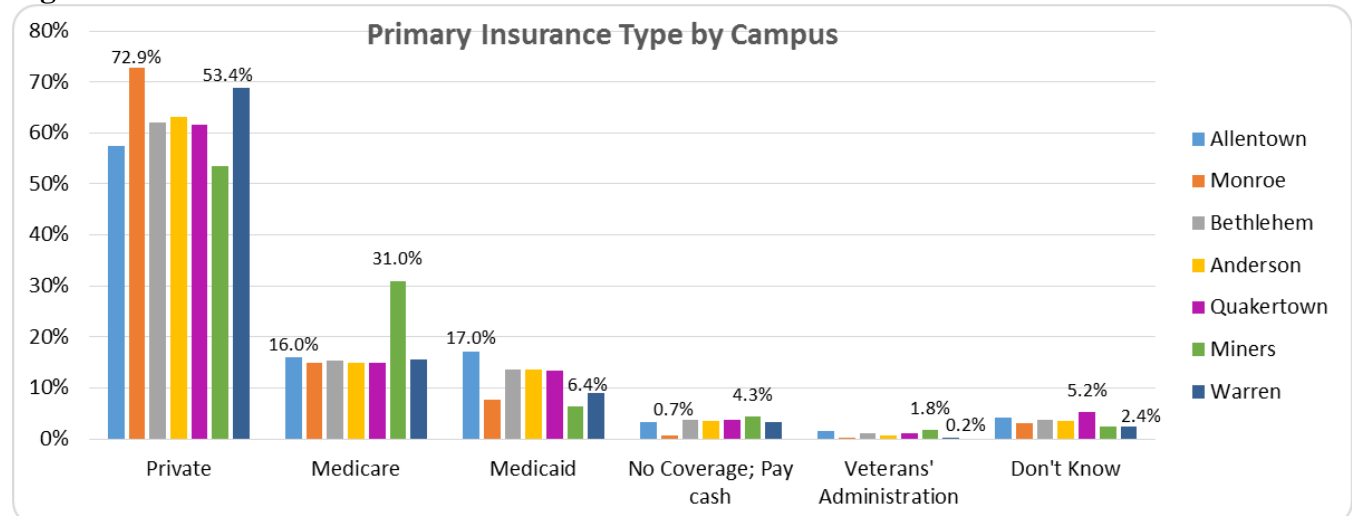
As suspected based on the survey data trends, Miners campus had the largest percentage (31%) of respondents using Medicare, which correlates with Miners campus surveying the largest percentage of respondents over 65. Allentown had the largest percentage of survey respondents using Medicaid at 17% and Miners had the smallest percentage at 6.4%. Interestingly, Miners campus had the largest uninsured population at 4.3%.

The largest percentage of people who responded 'don't know' for insurance was within the lower income ranges, with the largest percentage of people in the less than $14,999 category at 7%, and the smallest percentage of people in the over $100,000 income category at 0.6%. A similar trend was also noticed when looking at uninsured respondents. 8.4% of those making less than $14,999 were uninsured, while only 0.7% of those making $60,000 or more reported being uninsured. 91% of survey respondents making $60,000 or more were privately insured compared to 22% of those making less than $24,999.

Figure 71
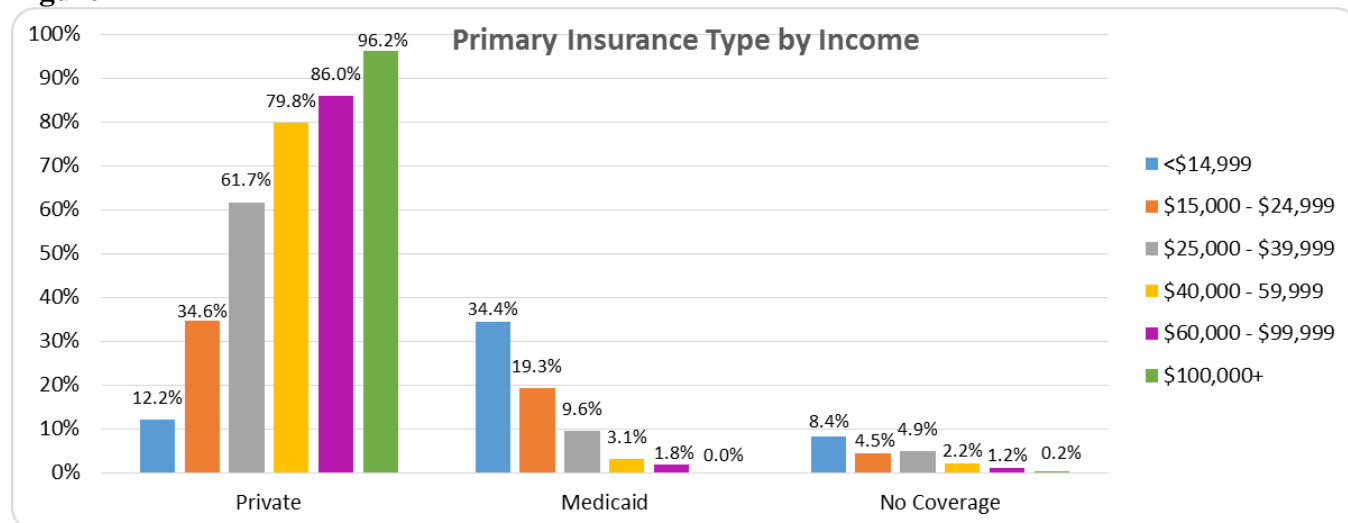
28.5% of Hispanic survey respondents reported that they had Medicaid and 6.1% of Non-Hispanic survey respondents reported that they had Medicaid. Additionally, 6.1% of Hispanic respondents reported that they had no coverage while only 2.4% of Non-Hispanic respondents reported that they had no coverage. Only 33.6% of Hispanic respondents reported having private insurance versus 72.8% of Non-Hispanic respondents.

Figure 72
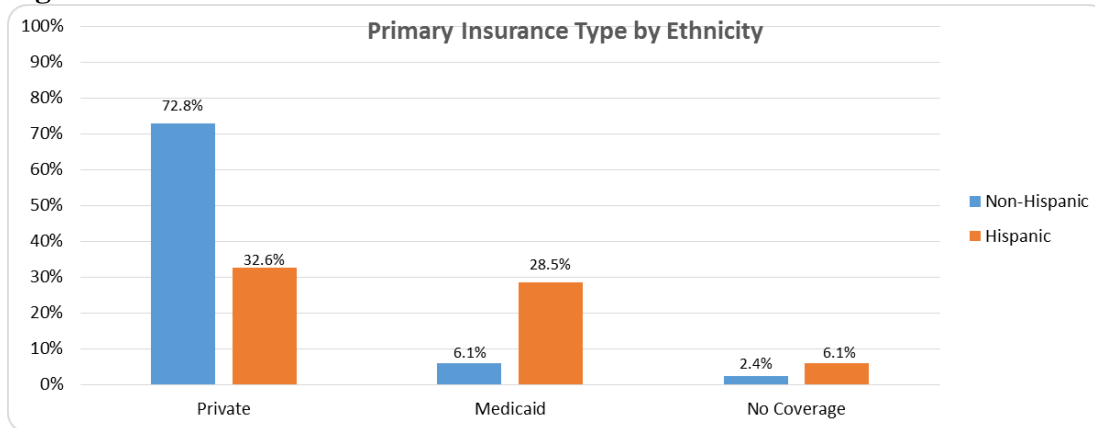
32% of the respondents who had less than a high school education had Medicaid, compared to 17% of high school educated respondents and only 6% of those who had an education beyond high school. Conversely, 78% of those who had an education beyond high school had private insurance, compared to 40% of high school educated respondents and 15% of those who had less than a high school education.

Figure 73
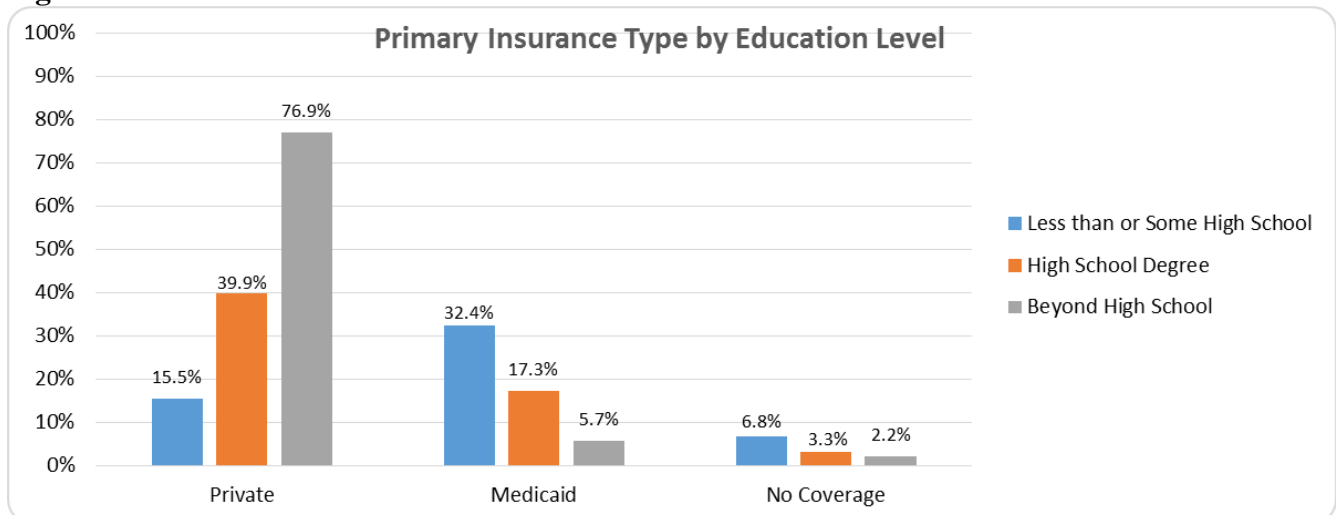
BMI can be an important indicator of the general health of a population. The ability of a population to pay for healthcare, often via insurance, can have a huge impact on the ability of the population to pay for healthcare solutions. When BMI ranges are compared to what insurance providers the population has, several interesting trends emerged. A smaller percentage of severely or morbidly obese respondents utilized private insurance (55.8% and 55.2% respectively) than those in the overweight or healthy weight categories (68.7% and 66.1% respectively). Conversely, a larger percentage of those paying for treatment with Medicare or

Medicaid fell within the severely or morbidly obese categories (16.9% and 17.2% respectively) versus the healthy weight or overweight categories (8.0% and 8.1% respectively).

The way respondents are able to pay for their healthcare can be linked to stress, and therefore the number of days of poor mental health experienced. If people cannot afford insurance, they might also be experiencing other necessities that they have to forgo.

67.4% of people who had private insurance reported no sick days, compared to only 44.3% of people who had Medicaid. 20.7% of those with VA insurance experienced 8 or more mental health days, when compared to 14.2% of the Medicaid population and only 4.0% of the privately insured population.

Beyond simply considering the immediate causes of days of poor physical health, it is also important to consider longer term reasons why people are suffering from days of poor physical health. If people do not have adequate insurance coverage to allow them to get treatment for health conditions, it may lead to them experiencing more days of poor physical health. Upon comparison of insurance coverage with days of poor physical health, multiple correlations became apparent. 63.1% of respondents with private insurance had no sick days due to poor physical health, compared to 40.8% of the respondents with Medicaid. Only 3.8% of respondents with private insurance had 8 or more sick days due to poor physical health, whereas 15.6% of respondents with Medicaid had this experience.

B. EMERGENCY ROOM VISITS

Respondents were asked about the number of times they used the Emergency Room (ER) in the past year. This measure is important to consider as ER utilization is an indicator for how the underinsured and low-income populations access medical care.

When looking at network data, 63.8% of survey respondents did not use the ER at all in the past year, and 27.0% of the respondents used the ER once or twice. This question was not asked on the 2012 Survey, thus Figure 74 represents 2016 survey data only.

Figure 74

Number of Emergency Room Visits in Past Year
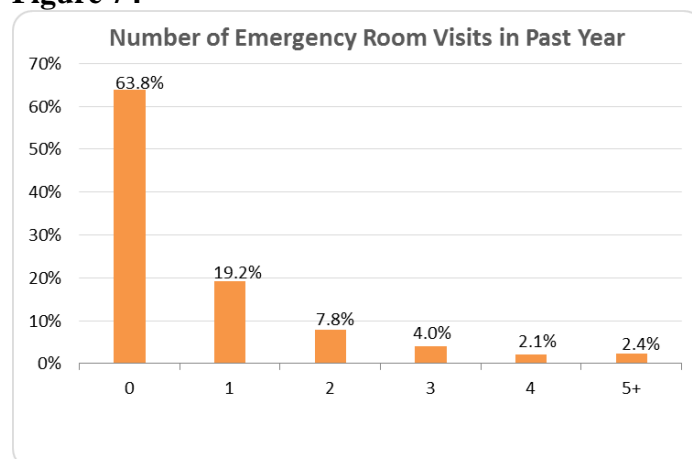
Figure 75
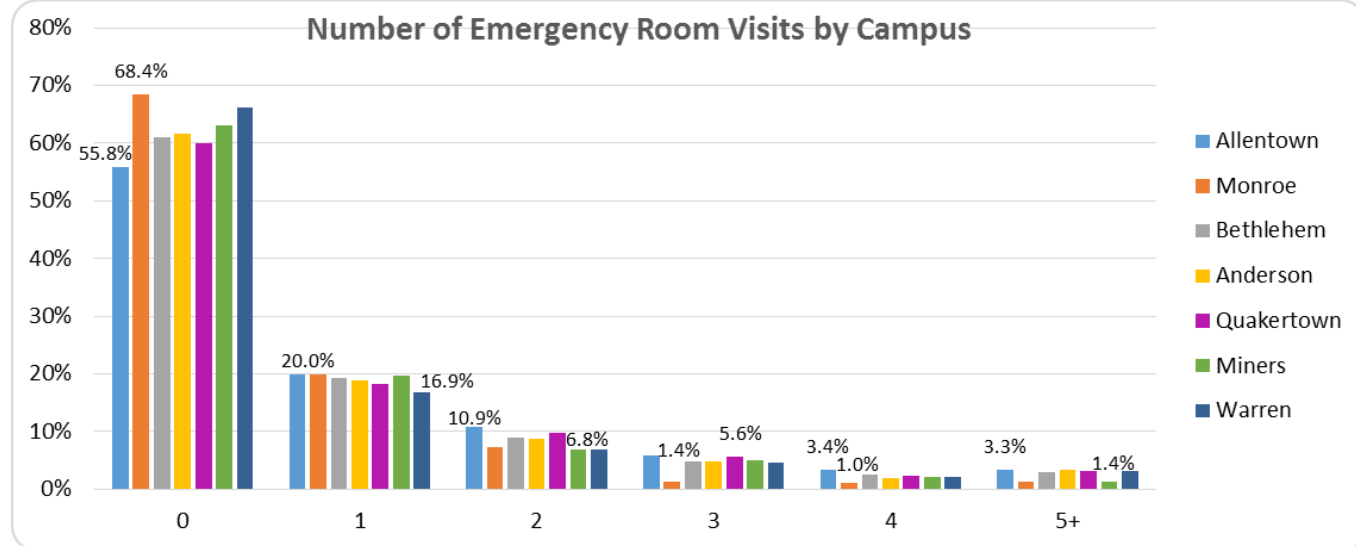
Monroe campus reported the highest percentage of people who did not visit the ER in the past year at 68.4%, and Allentown campus reported the lowest percentage in this category at 55.8%. Allentown and Anderson campuses had the highest percentage of respondents using the ER five or more times at 3.3%, whereas Miners and Monroe campuses had the lowest percentage at 1.4%.

71.9% of respondents with private insurance reported not using the ER in the past year, compared to 34.4% of respondents with Medicaid. Conversely, 9.9% of respondents with Medicaid used the ER five or more times compared to 0.6% with private insurance. 44.2% of respondents with Medicaid used the ER two or more times, compared to 9.1% of those with private insurance.

6.5% of Hispanic respondents used the ER five or more times compared to 1.4% of Non-Hispanic respondents. Conversely, 68.4% of Non-Hispanic respondents did not use the ER in the past year, compared to 43.5% of Hispanic respondents. Interestingly, Hispanic and Non-Hispanic respondents seem to have used the ER once in the last year at almost equal rates (21.1% and 19.1% respectively), but the Hispanic respondents had greater percentages of ER use for two or more visits at 34.6%, compared to 12.0% of Non-Hispanic respondents.

When looking at education levels in regard to ER utilization, 69.6% of survey respondents educated beyond high school did not use the ER while 18.3% of those with a high school degree, and 40.6% with less than a high school education did not use the ER. Conversely, 40.1% of those with an education less than high school used the ER two or more times, compared to 26.1% of those with a high school degree, and 14.3% with an education beyond high school.

Income also plays a role in frequent use of the ER. 42.4% of survey respondents making less than $24,999 did not use the ER in the last year compared to 76.4% of those making over $60,000. However, 35.0% of survey respondents making less than $24,999 used the ER two or

53

more times in the last year compared to 6.5% of those making over $60,000.

C. INABILITY TO PAY FOR EYEGLASSES

The survey asked respondents if they were unable to purchase eyeglasses due to cost in the past year. 25.5% of survey respondents reported being unable to pay for eyeglasses compared to 61.6% who were able to pay for eyeglasses. 12.1% responded that they do not need eyeglasses. A third response of "I do not need eyeglasses" was added to the 2016 survey. This additional response may be a reason why the percentages are different when comparing the 2012 and 2016 surveys. However, it is important to note that the 'yes' response remains comparable.

Figure 76
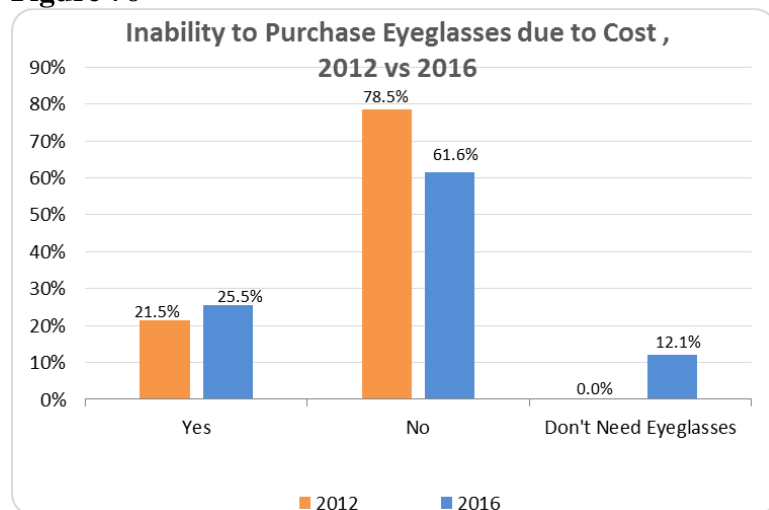
Figure 77
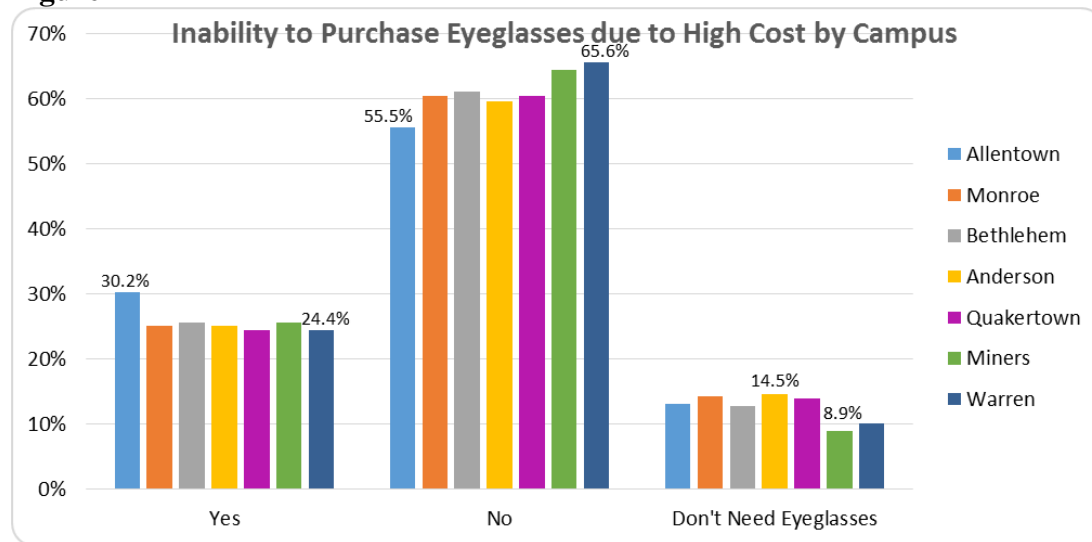
It is clear from Figure 77 that Allentown had the highest percentage of respondents who were not

able to purchase eyeglasses due to cost. For people without insurance that covers eyeglasses, medical expenses are a burden, especially given than all costs are paid out of pocket. It is important to note that each campus had over a 20% response rate of inability to purchase eyeglasses due to cost.

D. PRIMARY CARE CHECK UP

The 2016 CHNA survey asked respondents to note how long it had been since their last visit to a primary care doctor for a routine checkup.

Figure 78
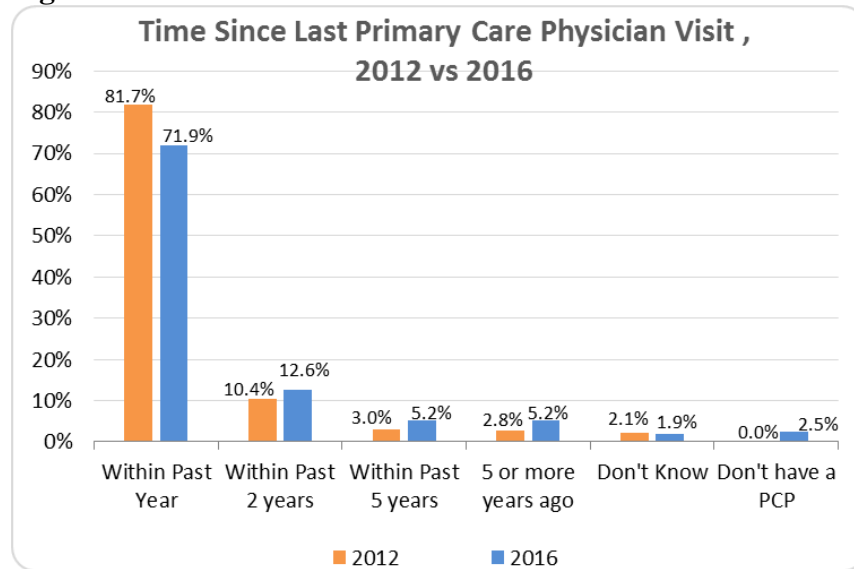
Figure 79
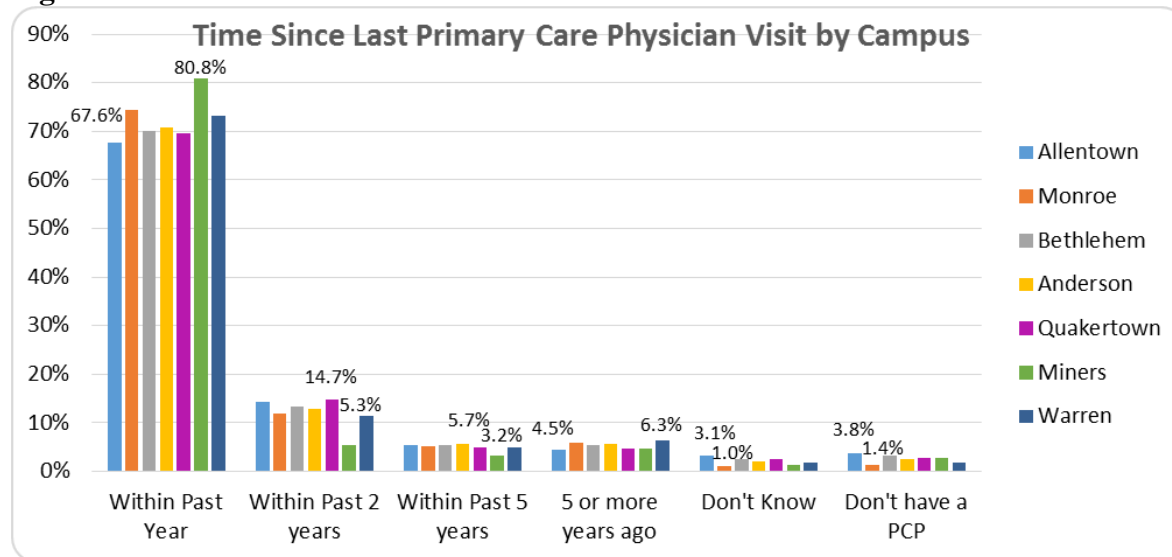
The 2016 CHNA survey data revealed that 69.2% of respondents with private insurance saw their PCP within the last year, compared to 41.1% with no insurance coverage. However, 80.9% of the people with Medicaid saw their PCP in the last year along with 83.5% of respondents with Medicare. 14.4% of people 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.

E. REASONS FOR POSTPONEMENT OF CARE

The overall survey data revealed that 55.5% of respondents did not miss any doctor's appointments. However, respondents selected various reasons for missing an appointment. 9.5% of respondents reported not having health insurance as a significant reason for why appointments were missed. Additionally, 7.3% of the respondents reported that their insurance did not cover what they needed. 11.1% also reported that deductibles and co-pay costs were too high. 9.5% of respondents reported that they didn't go to an appointment because they did not think their problem was serious. This may highlight miscommunication and/or lack of education related to health problems in our community.

Figure 80

Reasons for Missed Medical Appointments , 2012 vs 2016
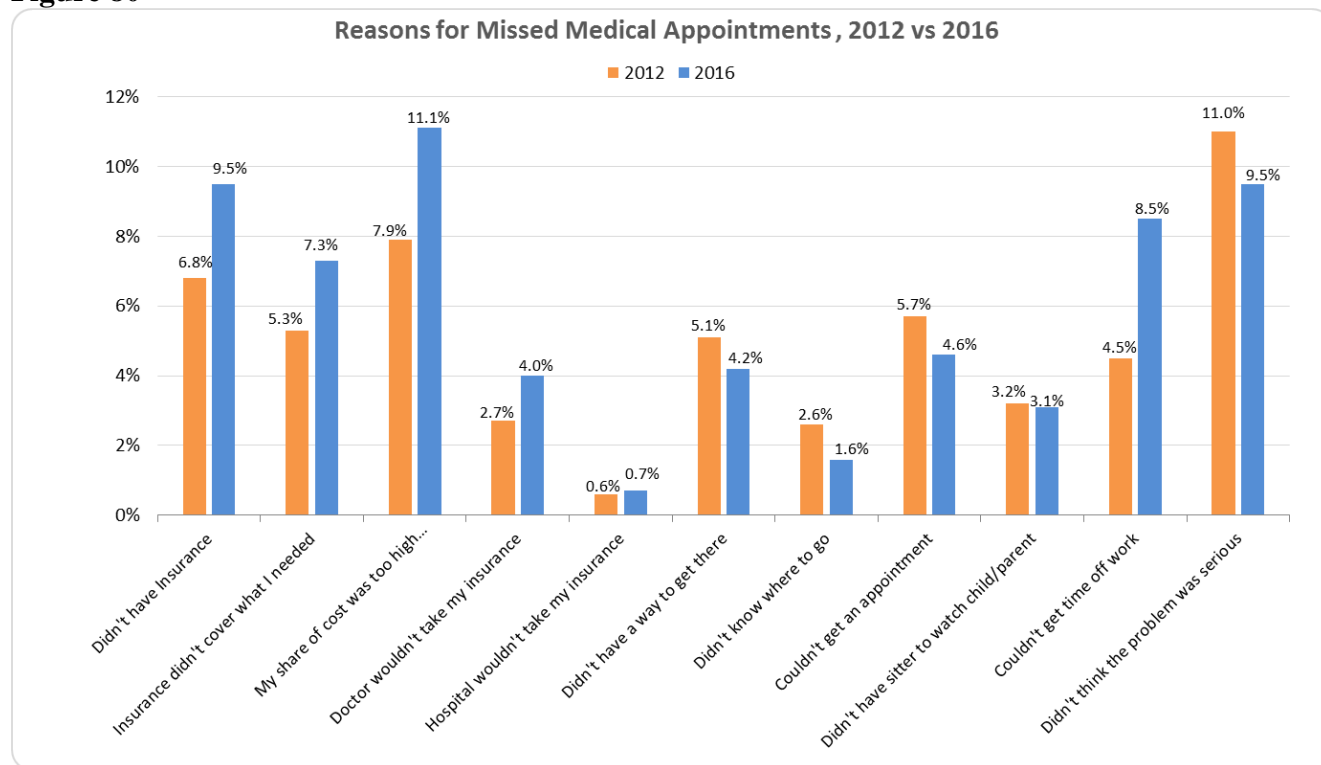
According to the survey data, 57.8% of the people who paid cash missed an appointment because they did not have health insurance. Additionally, those who had government funded insurance, such as Medicaid (12.8%) and Medicare (7.1%) missed an appointment because their insurance did not cover what they needed.

17.2% of respondents with their insurance from the Department of Veteran's Affairs and 13.9% those who had private insurance missed an appointment because their share of the cost was too high. Missed appointments also occurred due to the doctors not accepting an insurance plan. This was the reason for a missed appointment for 13.8% of respondents with VA insurance and 9.2% with Medicaid. 12.2% of those with no insurance coverage missed an appointment because they did not have a way to get there.

Additionally, 10.3% of respondents with VA insurance plans missed an appointment because they could not get an appointment with the doctor. Not having a sitter to watch a child/parent was another reason for missing an appointment for those with VA insurance (10.3%), Medicaid (7.8%) and no insurance coverage (15.6%).

Those with no insurance coverage (28.9%) and those who did not know what coverage they have (25%) reported that they missed an appointment because they did not think the problem was serious.

Table 2: Top Five reasons for Postponement of Care at 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%

Table 3: Top Five reasons for Postponement of Care at Bethlehem

Reason for Postponement of Medical Care at Bethlehem	Percentage of Responses
My share of the cost was too high (deductible/copay)	10.9%
Didn't think problem was serious	10.7%
Didn't have health insurance	10.5%
Couldn't get time off from work	9.0%
Insurance didn't cover what I needed	7.9%

Table 4: Top Five reasons for Postponement of Care at Anderson

Reason for Postponement of Medical Care at Anderson	Percentage of Responses
My share of the cost was too high (deductible/copay)	11.3%
Didn't have health insurance	11.0%
Didn't think problem was serious	10.3%
Couldn't get time off from work	8.7%
Insurance didn't cover what I needed	7.3%

Table 5: Top Five reasons for Postponement of Care at Quakertown

Reason for Postponement of Medical Care at Quakertown	Percentage of Responses
Didn't have health insurance	9.9%
Insurance didn't cover what I needed	6.7%
My share of the cost was too high (deductible/copay)	8.6%
Couldn't get time off from work	8.4%
Didn't think problem was serious	9.7%

Table 6: Top Five reasons for Postponement of Care at Miners

Reason for Postponement of Medical Care at Miners	Percentage of Responses
My share of the cost was too high (deductible/copay)	10.3%
Didn't have health insurance	10.0%
Didn't think problem was serious	8.9%
Insurance didn't cover what I needed	5.7%
Couldn't get time off from work	5.7%

Table 7: Top Five reasons for Postponement of Care at Monroe

Reason for Postponement of Medical Care at Monroe	Percentage of Responses
My share of the cost was too high (deductible/copay)	13.2%
Didn't have health insurance	10.1%
Insurance didn't cover what I needed	9.4%
Couldn't get time off from work	9.4%
Didn't think problem was serious	8.3%

Table 8: Top Five reasons for Postponement of Care at Warren

Reason for Postponement of Medical Care at Warren	Percentage of Responses
My share of the cost was too high (deductible/copay)	11.2%
Didn't think problem was serious	10.0%
Didn't have health insurance	9.0%
Couldn't get time off from work	6.9%
Insurance didn't cover what I needed	5.3%

F. RESOURCES FOR ADVICE ABOUT HEALTH

The survey asked respondents to indicate where their primary source of advice comes from when they are sick or need guidance about their health. The responses may indicate entry points to the medical system that community members are able to easily access, in addition to whom they trust most about their health. Some of the write-in responses not shown on the graph below include: asking a family member who is a nurse or physician and going to a naturopath/homeopathic source or self-treatment. Figure 81 details results from both the 2012 and 2016 surveys.

Figure 81

Most Commonly Used Sources for Medical Advice, 2012 vs 2016
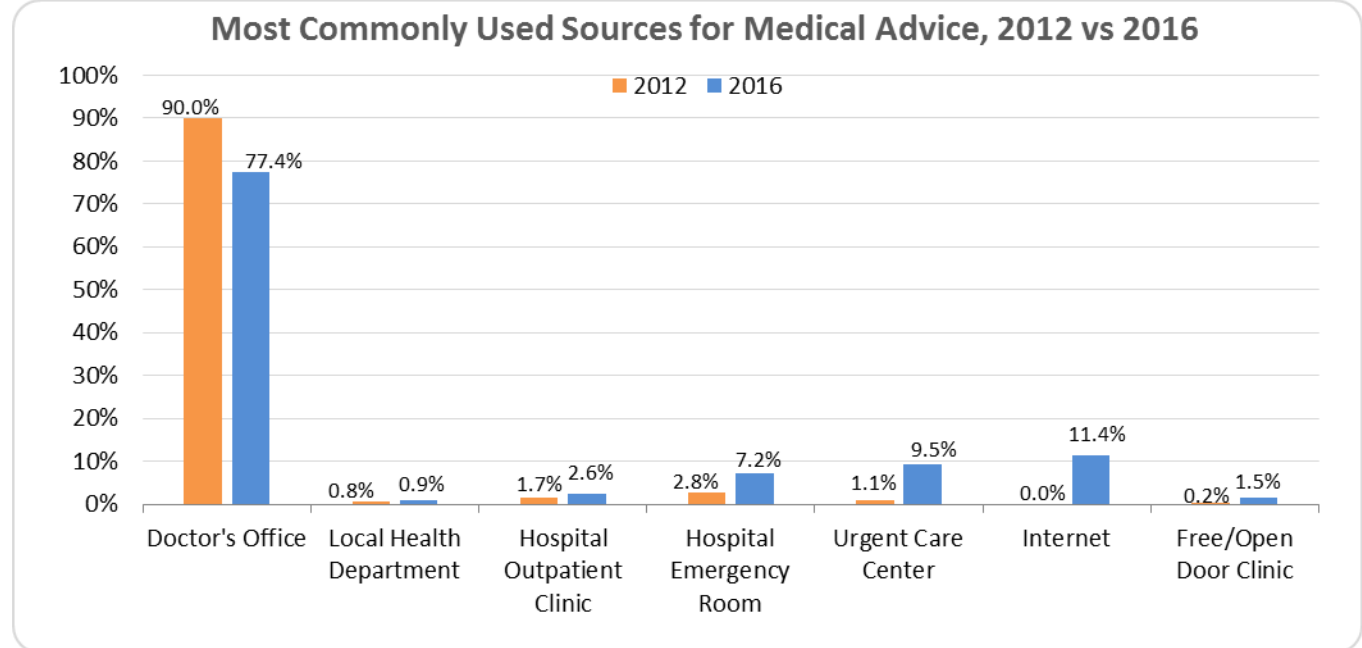
It is important to note that for all of SLUHN's campuses, most respondents sought their medical advice from their doctor's offices. Another note is the use of hospital ER's as sources of medical advice. This trend was highest for respondents from both Allentown and Quakertown Campuses (14.4% and 12.1% respectively). Using the ER as a constant source of care and information is problematic because it is an expensive and unsustainable method for receiving care and information. However, it is an indicator that individuals/families most likely do not have a primary care doctor through whom more cost effective preventative care is administered.

Figure 82

Most Commonly Used Sources for Medical Advice by Campus
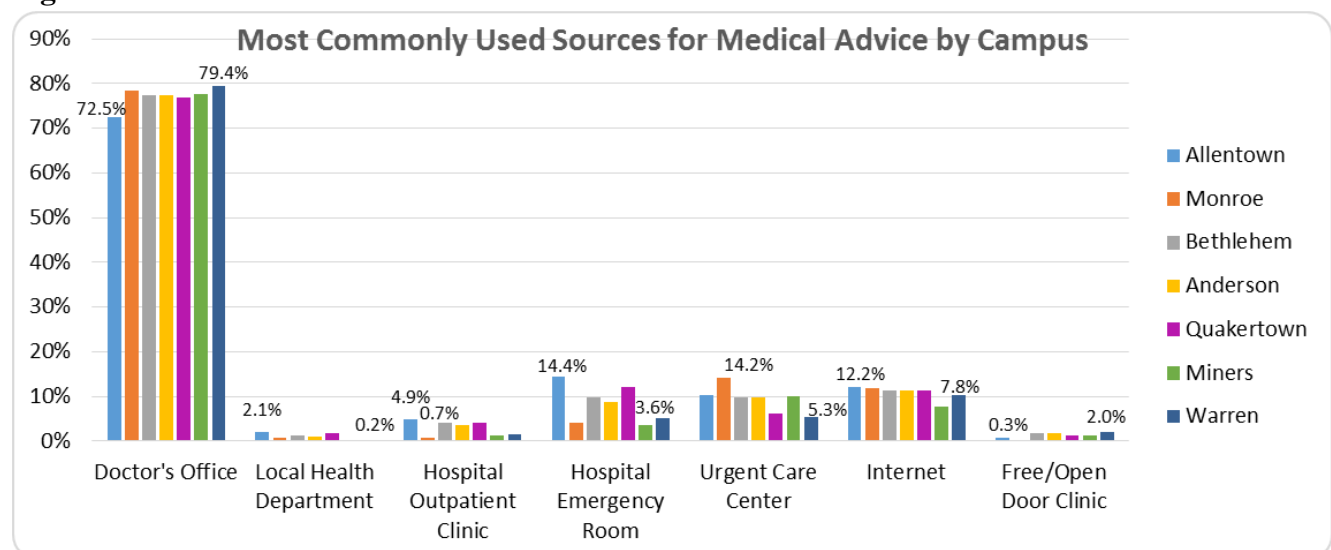
G. FLU VACCINES

67.1% of respondents have received a flu shot. It is important to note that there was an overall increase (5.5%) in those who received a flu shot from 2012 to 2016.

Figure 83
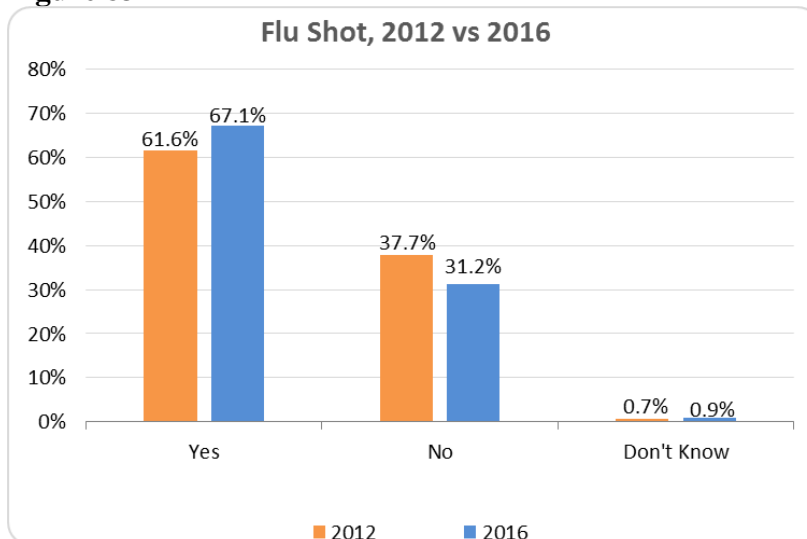
59.7% of Hispanic respondents reported receiving a flu shot and 69.2% of Non-Hispanic respondents reported receiving a flu shot. 68.8% of females, compared to 60.8% males received a flu shot.

59.4% of respondents making less than $24,999 received a flu shot compared to 73.2% of respondents making over $60,000.

Figure 84
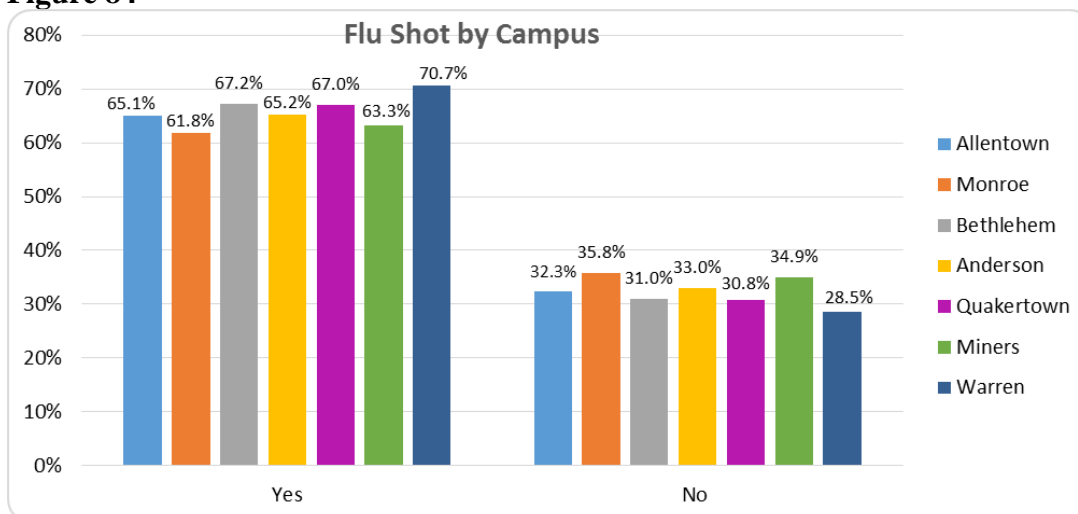
It is important to note the significance of preventative health initiatives, as these measures are utilized to prevent disease development. Preventative health is a vital part of the community's overall well-being. Sections G (flu vaccines), H (pneumonia vaccines), I (mammography), and J (colon cancer screening), give a more in depth look at preventative healthcare measures.

H. PNEUMONIA VACCINES

The pneumonia shot is recommended to individuals over the age of 65. Of the respondents over the age of 65, 65.6% received a pneumonia shot.

Figure 85

Pneumonia Shot by Campus, Respondents 65 years or Older
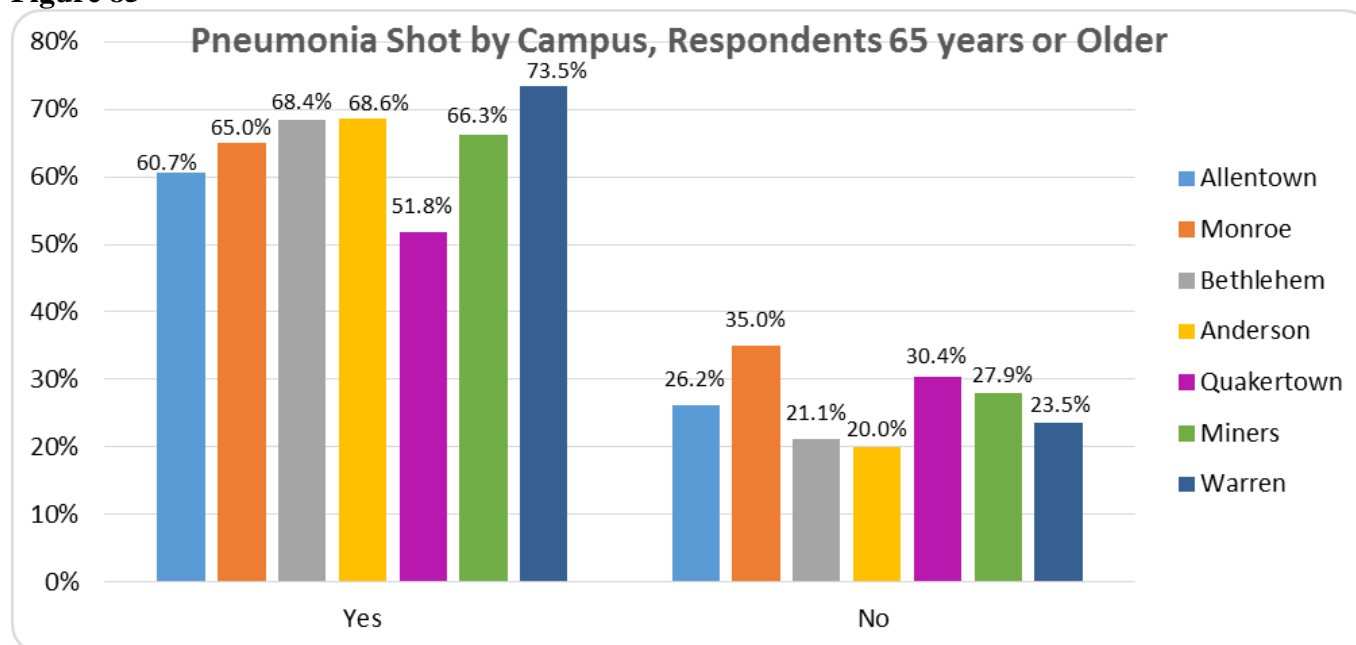
59.3% of Hispanic respondents over the age of 65 reported receiving a pneumonia shot and 69.1% of Non-Hispanic seniors respondents reported receiving a pneumonia shot. 64.8% of females over 65, compared to 68.5% males over 65 received a pneumonia shot.

I. MAMMOGRAPHY

This survey asked female respondents to indicate whether or not they have had a mammogram in the past year. A comparative chart from the 2012 and 2016 CHNA surveys is shown below.

Figure 86

Breast Cancer Screening, 2012 vs 2016
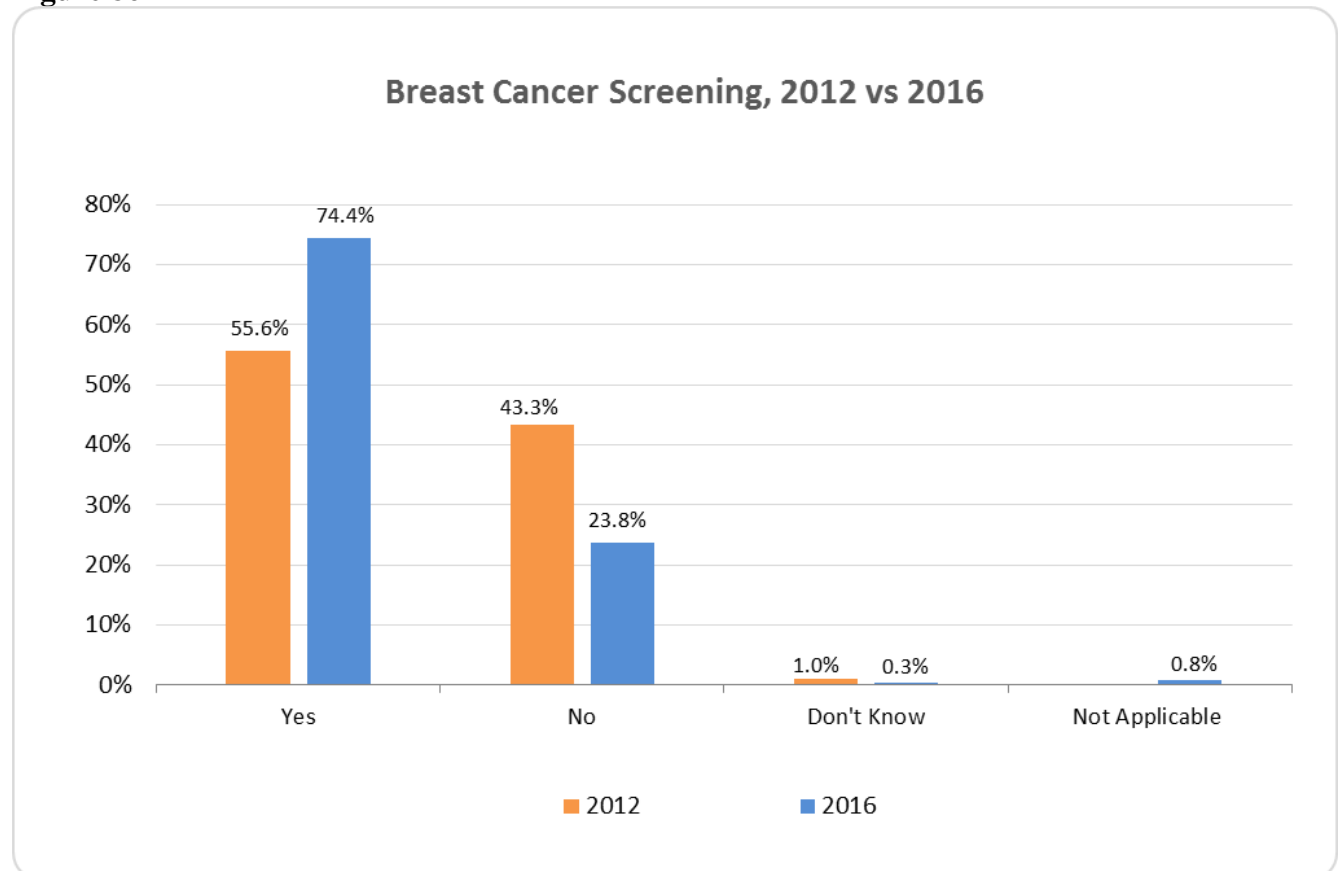
Noticeably more women over 40 reported receiving mammograms (74.4%) in 2016 than in 2012 (55.6%). Figure 87 shows the SLUHN campus breakdown for breast cancer screening in women over the age of 40. Bethlehem campus (76.2%) had the largest percentage of women receiving mammograms, while Miners campus (65.9%) had the smallest percentage. The remaining campuses had screening rates around 75%, aside from Monroe, where 69.8% of women over 40 reported having a mammogram. Monroe and Miners campuses fell below the network average (74.4%), which indicates that there may be issues with Monroe and Miners patients accessing mammograms.

Figure 87

Mammogram by Campus, Female Respondents 40 years or Older
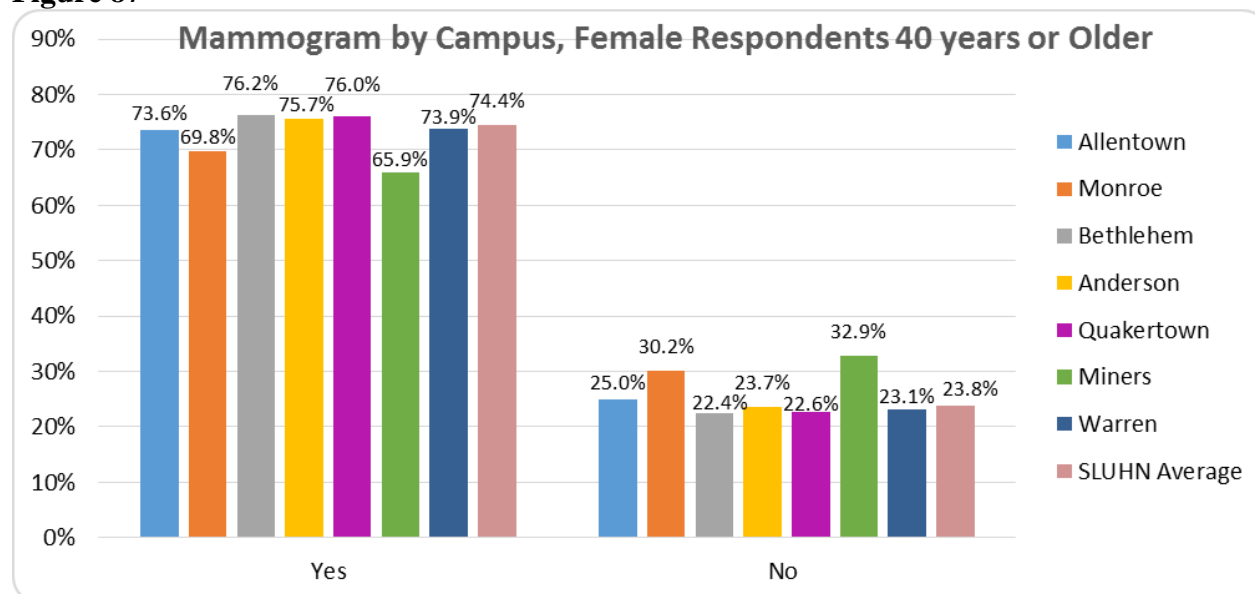
When examining mammogram rates by insurance type, women over 40 who reported having no insurance had noticeably lower breast cancer screening rates (47.2%) than those who reported having private insurance (77.3%), Medicaid (77.4%), or Veterans' Administration (72.7%).

What is even more noticeable, however, is that nearly twice the amount of uninsured women went without a mammogram when compared to insured women. It is also interesting to note that half of women over 40 who did not know what type of insurance they used reported not having a mammogram, and less than half (42.9%) reported having had a mammogram.

Figure 88

Mammogram by Insurance Type, Female Respondents 40+ years
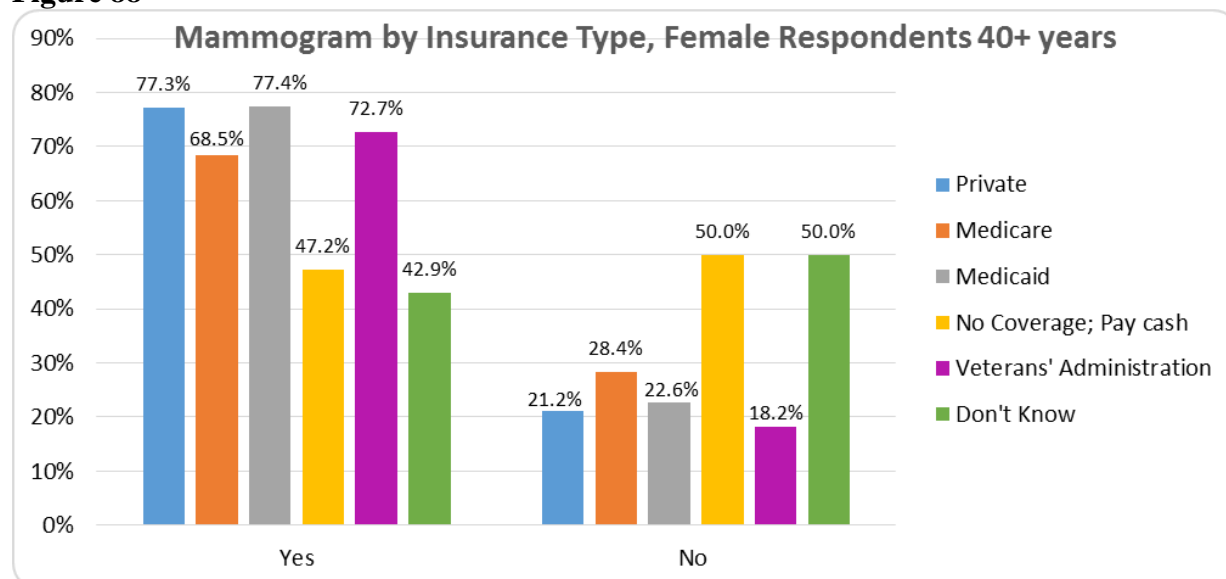
J. COLON CANCER SCREENING

There is a noticeable difference in colon cancer screening when looking at screening rates by insurance type. 67.2% of respondents who reported having private insurance additionally reported having a colon cancer screening, whereas 52.4% of uninsured respondents and 47.8% of Medicaid respondents reported having a colon cancer screening.

Figure 89

Colon Cancer Screening Respondents 50+ years, 2012 vs 2016

Figure 90

Colon Cancer Screening by Campus, Respondents 50+ years
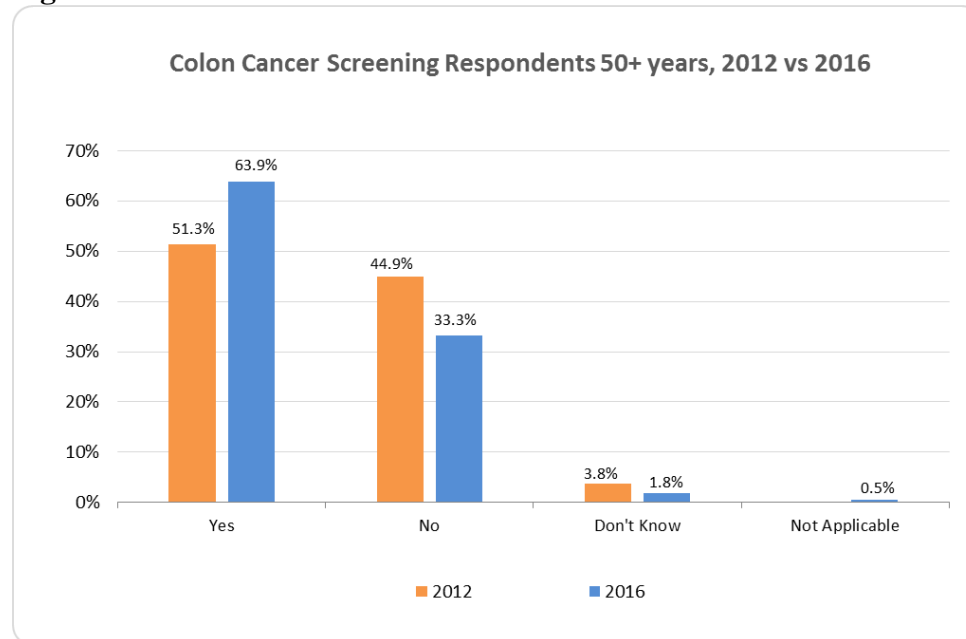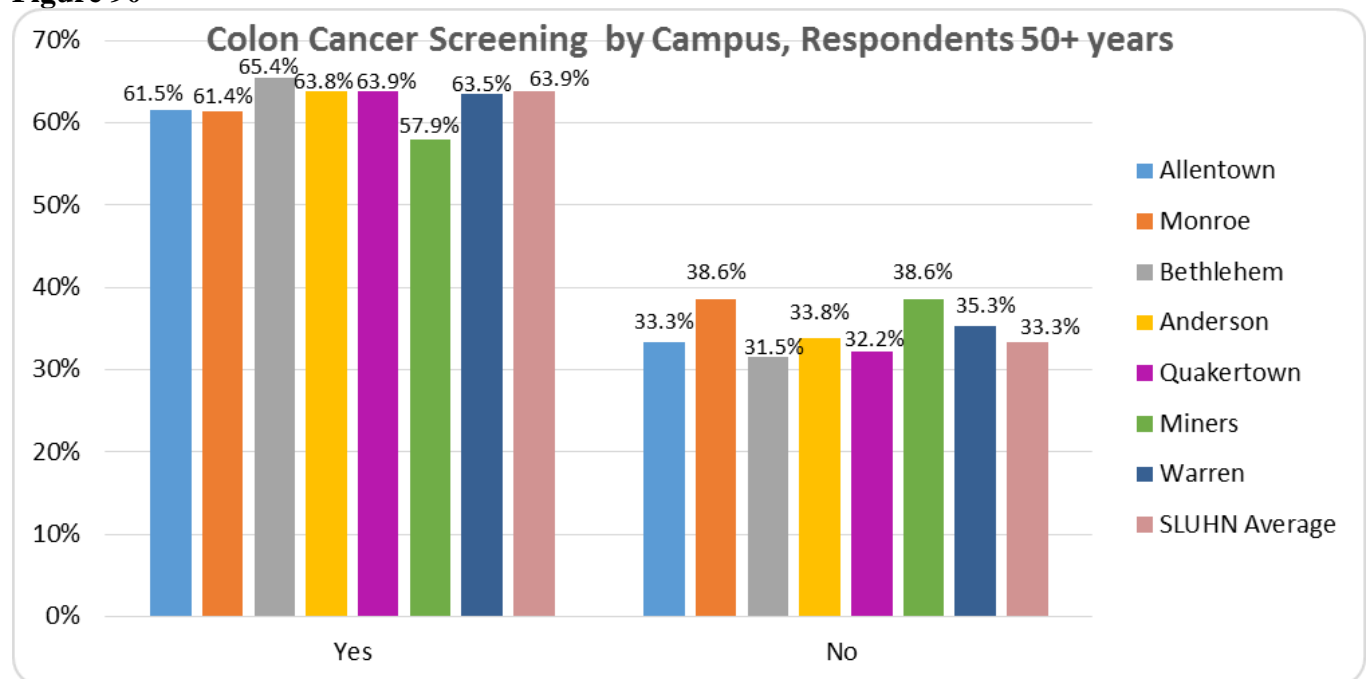
Figure 91
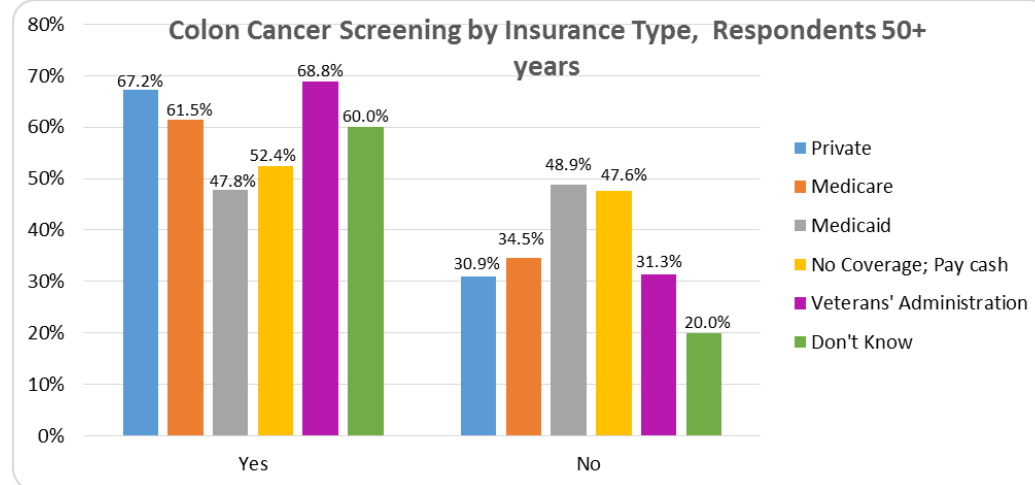
These breakdowns by insurance, especially among screened cancers, are highly important to note because they make it evident that there are some barriers with our uninsured and Medicaid populations being screened, most notably for colorectal and breast cancer.

K. DENTAL VISITS & DENTAL INSURANCE

The 2016 survey asked how long it had been since respondents visited a dentist or a dental clinic. Many respondents (69.1%) had been to the dentist within the past year. The 2012 survey reported that 70.1% of respondents had gone to the dentist within the past year. Dental health is an important factor in overall health status especially because of the link to cardiovascular health, cancer development and the ability to eat healthy foods such as fruits and vegetables.

Another important measure of dental health is access to this care via insurance. The survey asked respondents how they pay for dental care. 62.4% of respondents reported that they use private insurance to pay for dental care.

Figure 92

Figure 93

Figure 93 — Time Since Last Dentist Visit by Campus
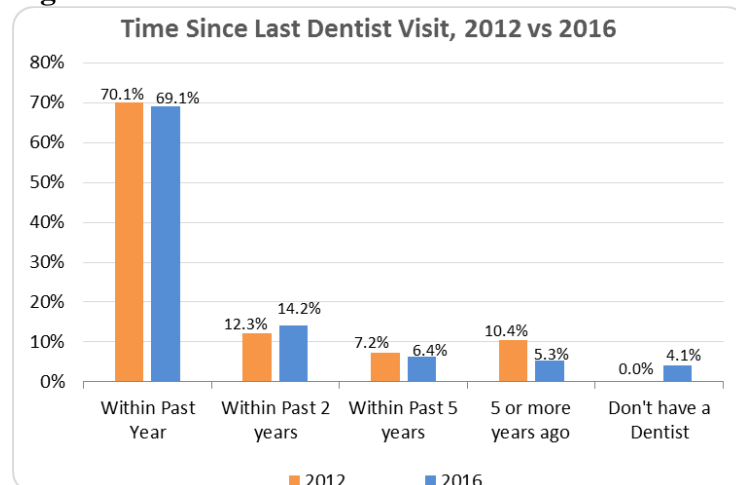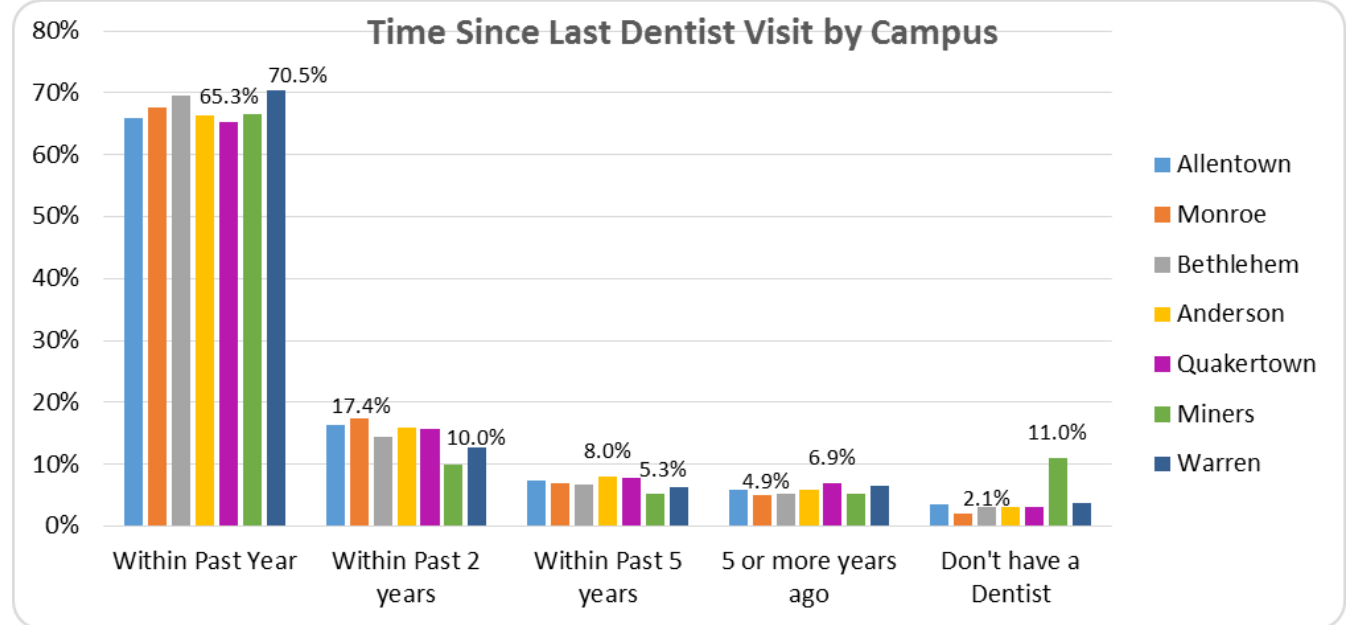
Miners campus had the highest percentage of respondents who reported not having a dentist at 11.0%, compared to Monroe campus which had the lowest percentage at 2.1%. Warren campus reported the highest percentage of respondents who visited a dentist in the past year at 70.5%, while Quakertown reported the lowest percentage of respondents who visited a dentist in the last year at 65.3%.

72.3% of Non-Hispanic respondents saw a dentist within the past year while 56.3% of Hispanic respondents saw a dentist in the past year. Additionally, 6.1% of Hispanic respondents reported not having a dentist, compared to 3.6% of Non-Hispanic respondents.

51.3% of respondents making less than $24,999 saw a dentist in the past year, compared to 82.3% of respondents making over $60,000. Additionally, 8.0% of those making less than $24,999 did not have a dentist compared to 1.0% of those making more than $60,000.

74.6% of respondents educated beyond high school saw a dentist in the past year compared to 58.3% of those with a high school degree and 50.2% of the respondents with less than a high school education.

Figure 94

Type of Dental Insurance, 2012 vs 2016

- Private: 51.0% (2012), 62.4% (2016)
- Medicaid: 6.3% (2012), 14.0% (2016)
- No Coverage; Pay cash: 39.9% (2012), 19.3% (2016)
- Veterans' Administration: 0.3% (2012), 0.9% (2016)

Figure 95

Type of Dental Insurance by Campus

- Private: 51.2%, 68.6%
- Medicaid: 22.6%, 8.5%
- No Coverage; Pay cash: 31.7%, 17.3%
- Veterans' Administration: 0.3%, 1.4%

Legend: Allentown, Monroe, Bethlehem, Anderson, Quakertown, Miners, Warren

67
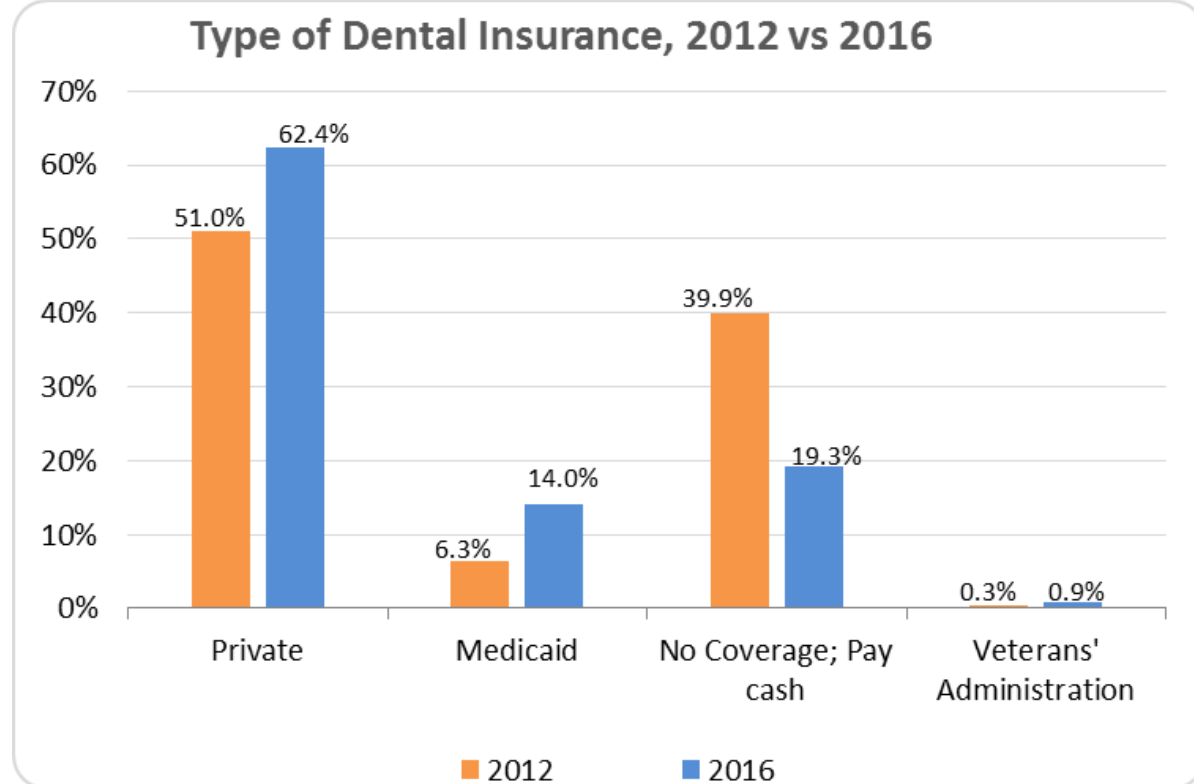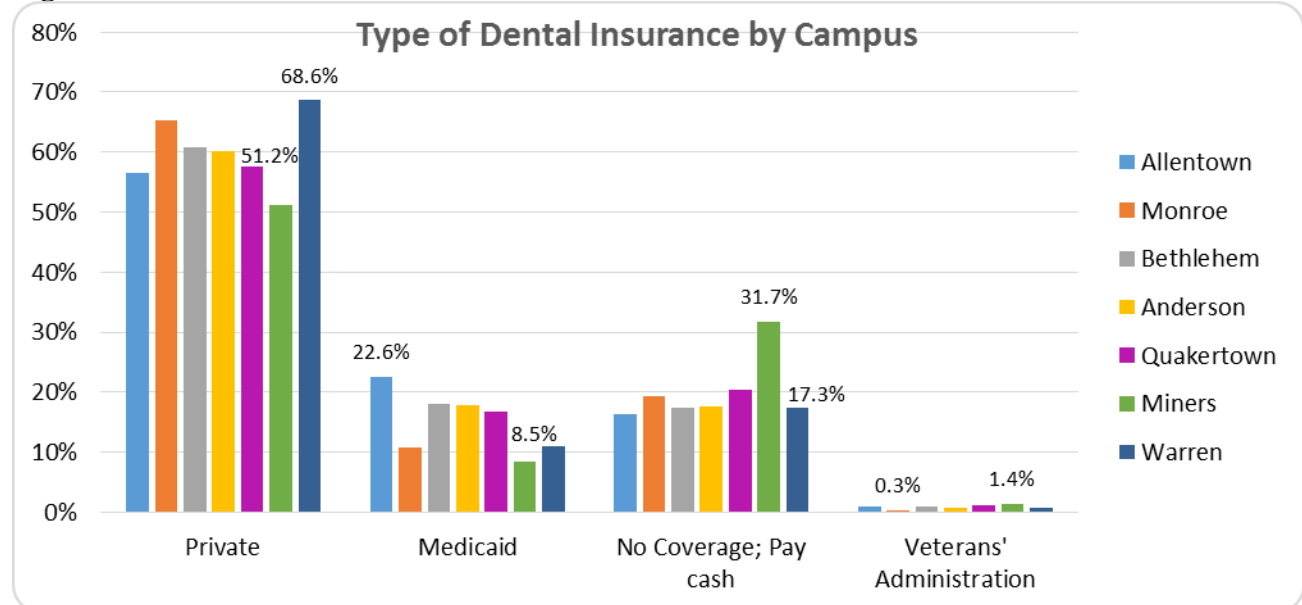
Warren campus reported the greatest percentage of respondents who had private dental insurance at 68.6%, compared to Miners campus which had the lowest at 51.2%. Miners campus (31.7%) also had the highest percentage of respondents with no dental insurance coverage, compared to Allentown campus at 16.4%, however Allentown had the highest percentage of respondents covered by Medicaid.

39.7% of Hispanic respondents used Medicaid to pay for their dental care compared to 8.2% of Non-Hispanic respondents. 34.2% of Hispanic respondents used private insurance to pay for dental care compared to 69.5% of Non-Hispanic respondents. The percentage of people who paid cash is similar among both Hispanic and Non-Hispanic respondents (19.4% and 18.7% respectively).

22.9% of those making less than $24,999 used private insurance to pay for dental care compared to 86.8% of those making more than $60,000. Additionally, 30.7% of those making less than $24,999 did not have a dentist compared to 10.5% of those making more than $60,000.

73.7% of those educated beyond high school reported having private insurance, versus 42.4% of those with a high school degree, and 20.2% of those educated less than high school. Only 6.7% of those educated beyond high school paid for dental care with Medicaid, while 26.3% with a high school degree and 45.9% of those educated less than high school paid with Medicaid.

16.8% of those educated beyond high school did not have dental insurance, while 24.5% of those with a high school degree and 26.1% of respondents with an education less than high school did not have dental insurance.

Conclusion:

This survey data gives a snapshot of the health of our community. The data represented here follows many national and state trends. In reviewing this data it is evident that the social determinants of health play a vital role in health outcomes.

A study published in the Archives of Internal Medicine reports that if people didn't smoke, maintained a healthy weight, ate at least five servings of fruits and vegetables and exercised regularly, they would be able to ward off many chronic diseases and conditions. The study which included over 150,000 adults reviewed health data that revealed that only:

- 76% of people didn't smoke
- 40% maintained a healthy weight
- 23% ate five or more fruits and vegetables a day
- 22% got at least 30 minutes of moderate physical activity at least five times a week

Moreover, this study revealed that only 3% of people met all four criteria for a healthy lifestyle. When these findings were compared to our survey sample, we found that among the SLUHN survey respondents, smoking was the only criteria where we did better than the study participants. The SLUHN respondents did worse on the other three criteria for healthy lifestyles:

- 83% of people didn't smoke
- 29% maintained a healthy weight
- 11% ate five or more fruits and vegetables a day
- 16% got at least 30 minutes of moderate physical activity at least five times a week

When reviewing our survey data, we found that only 1.8% of respondents met all four criteria, with 7.7% meeting three of the criteria, 26.9% meeting two of the criteria, and 53.4% meeting only one criterion. Roughly 1 out of 10 respondents (10.2%) did not meet any of the four criteria for a healthy lifestyle.

When addressing the health of our communities, St. Luke's University Health Network Department of Community Health and Preventive Medicine uses a prevention-based, holistic approach. Our goal is to enable and support our communities to engage in healthy lifestyle choices in culturally appropriate ways. Since extensive research in public health draws the parallel between social determinants of health and health outcomes, future programming and efforts need to focus on populations with disparities in order to address these social determinants of health and create a healthier community.

Source: Reeves, Mathew J, and Ann P. Rafferty. Healthy lifestyle characteristics among adults in the United States, 2000. *Archives of Internal Medicine* 2005; 165: 854-857.

Appendix 1:

Survey Question	Answer Choices	2012 Responses	2016 Responses
1. How are you completing this survey?			
	ipad/Tablet	N/A	38.2%
	iPhone/Smartphone	N/A	6.1%
	SLUHN website/other website	N/A	12.6%
	Social media outlets(Facebook, Twitter, etc)	N/A	0.4%
	Computer	N/A	29.6%
	Hard copy	N/A	12.6%
	Other	N/A	0.0%
2. How would you rate your overall health?			
	Excellent	10.4%	12.7%
	Very good	36.5%	38.0%
	Good	43.5%	42.7%
	Poor	9.4%	5.6%
	Very poor	0.2%	0.6%
3. My community is a safe place to live.			
	Strongly agree	22.6%	27.1%
	Agree	54.0%	57.6%
	Neither agree nor disagree	15.0%	11.0%
	Disagree	6.8%	3.3%
	Strongly disagree	1.5%	0.6%
4. What kind of health insurance do you use to pay for most of your medical care?			
	Private insurance	73.1%	64.6%
	Department of veterans administration	3.4%	1.1%
	No coverage; pay cash	6.6%	3.3%
	Medicare	27.8%	17.0%
	Medicaid	6.7%	10.2%
	Don't know	1.0%	3.5%

Survey Question	Answer Choices	2012 Responses	2016 Responses
5. In the past five years, has a doctor, nurse, or other health professional told you that you have any of the following health problems or conditions?			
	High blood pressure	N/A	29.4%
	High blood cholesterol	N/A	19.7%
	Heart attack or other heart disease	N/A	4.7%
	Cancer	N/A	4.8%
	Diabetes	N/A	10.3%
	Asthma or other lung disease	N/A	13.7%
	Mental health	N/A	11.5%
	Emphysema or bronchitis	N/A	3.4%
	Arthritis or rheumatic disease	N/A	15.9%
	None of the above	N/A	37.9%
	Other chronic disease	N/A	9.3%
6. How many times have you used the Emergency Room in the past year?			
	None	N/A	63.8%
	1-2 times	N/A	27.0%
	3-4 times	N/A	6.1%
	5 or more times	N/A	2.4%
7. Was there a time in the past year that you have gone without getting eyeglasses because they cost too much?			
	Yes	21.5%	25.5%
	No	78.5%	61.6%
	I do not need eyeglasses	N/A	12.1%
8. How long has it been since you last visited a primary care doctor for a routine checkup?			
	Within the past year	81.7%	71.9%
	Within the past 2 years	10.4%	12.6%
	Within the past 5 years	3.0%	5.2%
	5 or more years	2.8%	5.2%
	Don't know	2.1%	1.9%
	I don't have a primary care doctor	N/A	2.5%

Survey Question	Answer Choices	2012 Responses	2016 Responses
9. Was there a time in the past year when you missed or postponed medical care because of any of the following?			
	Didn't have health insurance	6.8%	9.5%
	Insurance didn't cover what I needed	5.3%	7.3%
	My share of cost was too high (deductible/co-pay)	7.9%	11.1%
	Doctor would not take my insurance	2.7%	4.0%
	Hospital would not take my insurance	0.6%	0.7%
	Didn't have a way to get there	5.1%	4.2%
	Didn't know where to go	2.6%	1.6%
	Couldn't get an appointment	5.7%	4.6%
	Didn't have a sitter to watch child/parent	3.2%	3.1%
	Couldn't get time off from work	4.5%	8.5%
	Didn't think problem was serious	11.0%	9.5%
	No, I have never missed an appointment	N/A	55.5%
	Other	4.4%	2.5%
10. Where do you go most often when you are sick or need advice about your health?			
	Doctor's office	90.0%	77.4%
	Local health department	0.8%	0.9%
	Hospital outpatient clinic	1.7%	2.6%
	Hospital emergency room	2.8%	7.2%
	Urgent care center	1.1%	9.5%
	Internet	N/A	11.4%
	Open door/free clinic	0.2%	1.5%
	Other	3.5%	2.8%
11. During the past year have you had a flu shot or intranasal flu spray?			
	Yes	61.6%	67.1%
	No	37.7%	31.2%
	Don't know	0.7%	0.9%

Survey Question	Answer Choices	2012 Responses	2016 Responses
12. Have you ever had a pneumonia shot? This is usually given only once or twice in a person's life and is different from the flu shot.			
	Yes	35.8%	26.2%
	No	52.3%	59.6%
	Don't know	12.0%	11.6%
	Not Applicable	N/A	2.3%
13. Women only: Have you had a mammogram in the past two years?			
	Yes	55.6%	39.6%
	No	43.3%	32.3%
	Don't know	1.0%	0.7%
	Not applicable	N/A	17.3%
14. Have you ever had a screen test for colon cancer?			
	Yes	51.3%	33.9%
	No	44.9%	59.1%
	Don't know	3.8%	1.6%
	Not applicable	N/A	4.9%
15. On average, how many days a week do you exercise at least 30 minutes?			
	0 days per week	28.3%	24.1%
	1 to 2 days per week	30.8%	33.2%
	3 to 4 days per week	26.1%	25.9%
	5 or more days per week	14.7%	16.1%
16. How many total servings of fruits and/or vegetables did you eat yesterday?			
	0 servings	6.1%	7.9%
	1 to 2 servings	49.5%	44.8%
	3 to 4 servings	36.3%	36.1%
	5 to 7 servings	7.8%	8.7%
	More than 7 servings	0.5%	1.8%
Note: Questions #17 and #18 ask respondents to list height and weight. These variables were used to compute BMI indices.			

Survey Question	Answer Choices	2012 Responses	2016 Responses
19. On average, how many hours of sleep do you get in a 24-hour period?			
	Fewer than 4	0.7%	2.1%
	4	4.2%	4.6%
	5	8.5%	13.4%
	6	24.4%	23.8%
	7	28.4%	32.9%
	8	25.2%	19.0%
	9 or more	8.7%	3.8%
20. Do you Smoke?			
	Yes	13.4%	15.2%
	No	86.6%	83.3%
21. Do you use:			
	Cigarettes	N/A	14.2%
	Chew	N/A	0.3%
	Snuff	N/A	0.4%
	Hookahs	N/A	1.0%
	Snus	N/A	0.2%
	Cigars	N/A	1.2%
	Pipe	N/A	0.4%
	E-cigarettes	N/A	1.8%
	None	N/A	77.8%
	Other	N/A	0.2%
22. Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on one occasion?			
	No episodes	75.3%	71.6%
	1 episode	11.7%	11.4%
	2 episodes	4.3%	5.5%
	3 episodes	8.3%	4.0%
	4 episodes	N/A	2.5%
	5 episodes	N/A	1.8%
	6 or more episodes	N/A	2.4%

Survey Question	Answer Choices	2012 Responses	2016 Responses
23. How long has it been since you last visited a dentist or dental clinic for any reason?			
	Within the past year	70.1%	69.1%
	Within the past 2 years	12.3%	14.2%
	Within the past 5 years	7.2%	6.4%
	5 or more years	10.4%	5.3%
	I do not have a dentist	N/A	4.1%
24. How do you pay for dental care?			
	Private insurance	51.0%	62.4%
	Veteran's Administration	0.3%	0.9%
	Pay cash; no insurance	39.9%	19.3%
	Medicaid	6.3%	14.0%
25. Thinking about your mental health, which includes stress, depression and problems with emotions, how many days during the past month would you say that your mental health was not good?			
	No sick days	59.6%	62.7%
	1-2 sick days	19.4%	20.7%
	3-7 sick days	10.1%	8.8%
	8 or more sick days	11.0%	6.0%
26. Thinking about your physical health, which includes physical illness and injury for how many days during the past month would you say that your physical health was not good?			
	No sick days	57.8%	58.5%
	1-2 sick days	22.2%	24.6%
	3-7 sick days	10.1%	9.1%
	8 or more sick days	9.9%	6.7%
27. What county do you live in?			
	Lehigh	52.8%	23.8%
	Northampton	43.3%	34.1%
	Bucks	1.3%	5.9%
	Warren	N/A	10.6%
	Carbon	N/A	7.0%
	Monroe	N/A	7.0%
	Schuylkill	N/A	6.5%
	Other	0.5%	4.5%

Survey Question	Answer Choices	2012 Responses	2016 Responses
28. What is your hometown/municipality? (Note: Additional municipality and zip code data available)			
	Bethlehem	8.5%	19.2%
	Allentown	15.4%	9.1%
	Easton	5.0%	4.9%
	Phillipsburg	N/A	3.8%
	Tamaqua	N/A	3.2%
	Quakertown	N/A	2.5%
	Jim Thorpe	N/A	1.8%
	East Stroudsburg	N/A	1.7%
29. Question #29 asks respondents for their home zip code. Zip codes were analyzed from 80% of each hospital's population			
30. Question #30 asks respondents for their age.			
31. Are you:			
	Male	46.5%	23.2%
	Female	53.5%	75.9%
	Other	N/A%	0.1%
32. Which of the following best describes you?			
	White	83.8%	83.0%
	Black/African American	2.5%	6.3%
	American Indian/Alaskan Native	0.9%	0.5%
	Asian	4.2%	1.2%
	Other	8.6%	6.2%
33. What is your ethnicity?			
	Hispanic	13.4%	18.4%
	Non-Hispanic	86.6%	77.9%
34. Employment status:			
	Employed	46.9%	63.6%
	Self-employed	3.8%	3.0%
	Homemaker	6.1%	4.1%
	Retired	30.8%	12.4%
	Student	1.1%	3.8%
	Out of work less than 1 year	4.1%	2.4%
	Out of work more than 1 year	2.6%	2.5%
	Unable to work	4.6%	7.0%

Survey Question	Answer Choices	2012 Responses	2016 Responses
35. Do you own or rent your home?			
	Own	80.5%	60.6%
	Rent	19.5%	36.1%
	Other	N/A	0.3%
36. What is the highest level of education you have completed?			
	Less than high school	N/A	2.4%
	Some high school	11.7%	5.1%
	High school degree/GED	32.9%	21.7%
	Some college	18.0%	20.9%
	2-year college degree	4.7%	14.3%
	4-year college degree	19.0%	18.6%
	Post college or graduate school	13.7%	15.9%
37. What was your family (household) income before taxes in 2014?			
	Less than $14,999	9.4%	15.5%
	Between $15,000 and $24,999	12.8%	12.0%
	Between $25,000 and $39,999	21.3%	12.5%
	Between $40,000 and $59,999	17.5%	15.1%
	Between $60,000 and $99,999	17.6%	20.5%
	More than $100,000	21.4%	19.0%

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