



**Network & Campus
Community Health Needs Assessment
Survey Findings
2019**

Department of Community & Preventive Medicine

Rajika E. Reed, Ph.D., MPH, M.Ed.

Kathleen Katchur, MPH

Bonnie Coyle, MD, MS



Community Health Needs Assessment Survey Findings

Contents:

Figures & Tables	3
Project Overview	6
Methodology & Sample	6
Executive Summary	8
Survey Findings	
Demographics	10
Social & Economic Factors	15
Physical Environment	22
Health Behaviors	23
Health Outcomes	34
Clinical Care	48
Conclusion	70
Appendix 1: Survey Frequencies	71
Appendix 2: Survey Demographics by Survey Type	79

Figures & Tables:

Figure 1 Age Distribution	10
Figure 2 Age by Campus	10
Figure 3 Race Distribution	11
Figure 4 Race by Campus	11
Figure 5 Ethnicity Distribution	12
Figure 6 Ethnicity by Campus	13
Figure 7 Sex Distribution	14
Figure 8 Sex by Campus	14
Figure 9 Employment Status Trend	15
Figure 10 Employment Status by Campus	15
Figure 11 Home Ownership Trend	16
Figure 12 Home Ownership Distribution	16
Figure 13 Home Ownership by Campus	17
Figure 14 Educational Attainment Trend	17
Figure 15 Educational Attainment by Campus	18
Figure 16 Household Income Distribution	19
Figure 17 Household Income by Campus	19
Figure 18 Primary Medical Insurance by Household Income	21
Figure 19 Perception of Safety Trend	22
Figure 20 Perception of Safety by Campus	22
Figure 21 Days of Exercise per Week Distribution	23
Figure 22 Days of Exercise per Week Trend	23
Figure 23 Days of Exercise per Week by Campus	24
Figure 24 Exercise Frequency by Household Income	25
Figure 25 Fruit & Vegetable Consumption	25
Figure 26 Fruit & Vegetable Consumption by Campus	26
Figure 27 Fruit & Vegetable Consumption Trend	27
Figure 28 Fruit & Vegetable Consumption by Household Income	27
Figure 29 Binge Drinking Distribution	28
Figure 30 Binge Drinking Trend	28
Figure 31 Binge Drinking by Age Category	28
Figure 32 Binge Drinking by Campus	29
Figure 33 Smoking Trend	30
Figure 34 Smoking by Campus	30
Figure 35 Smoking by Household Income	31
Figure 36 Smoking by Age Category	31
Figure 37 Tobacco Product Usage	32

Figure 38 E-cigarette/Vape by Age Category	32
Figure 39 Hours of Sleep Distribution	32
Figure 40 Hours of Sleep by Campus	33
Figure 41 Hours of Sleep Trend	33
Figure 42 Overall Health Rating Distribution	34
Figure 43 Overall Health Rating Trend	34
Figure 44 Overall Health Rating by Campus	34
Figure 45 Body Mass Index (BMI) Distribution	35
Figure 46 Body Mass Index (BMI) Trend	35
Figure 47 Body Mass Index (BMI) by Campus	36
Figure 48 Body Mass Index (BMI) by Exercise Frequency	37
Figure 49 Body Mass Index (BMI) by Fruit & Vegetable Consumption	37
Figure 50 Body Mass Index (BMI) by Educational Attainment	38
Figure 51 Body Mass Index (BMI) by Household Income	38
Figure 52 Presence of Chronic Diseases	39
Figure 53 Presence of Chronic Diseases Trend	39
Figure 54 Presence of Chronic Diseases – Allentown/Sacred Heart	40
Figure 55 Presence of Chronic Diseases – Anderson	40
Figure 56 Presence of Chronic Diseases – Bethlehem	40
Figure 57 Presence of Chronic Diseases – Western Rural Campuses	41
Figure 58 Presence of Chronic Diseases – Monroe	41
Figure 59 Presence of Chronic Diseases – Quakertown	41
Figure 60 Presence of Chronic Diseases – Warren	42
Figure 61 Diabetes Diagnosis by Household Income	42
Figure 62 Asthma Diagnosis by Household Income	42
Figure 63 Chronic Disease Presence by BMI Category	43
Figure 64 Chronic Disease Presence by Fruit & Vegetable Consumption	43
Figure 65 Chronic Disease Presence by Exercise Frequency	44
Figure 66 Poor Mental Health Days Distribution	44
Figure 67 Poor Mental Health Days Trend	44
Figure 68 Poor Mental Health Days by Campus	45
Figure 69 Poor Physical Health Days Distribution	46
Figure 70 Poor Physical Health Days Trend	46
Figure 71 Poor Physical Health Days by Campus	47
Figure 72 Primary Medical Insurance Trend	48
Figure 73 Primary Medical Insurance by Campus	48
Figure 74 Primary Medical Insurance by Ethnicity	49
Figure 75 Primary Medical Insurance by Educational Attainment	50

Figure 76 Emergency Room Utilization Trend	50
Figure 77 Emergency Room Utilization by Campus	51
Figure 78 Inability to Purchase Eyeglasses Trend	52
Figure 79 Inability to Purchase Eyeglasses by Campus	53
Figure 80 Last Primary Care Provider (PCP) Visit Trend	53
Figure 81 Last Primary Care Provider (PCP) Visit by Campus	54
Figure 82 Last Primary Care Provider (PCP) Visit by Insurance	54
Figure 83 Last Primary Care Provider (PCP) Visit Household Income	55
Figure 84 Reasons for Missed Medical Appointments Trend	55
Figure 85 Sources of Medical Advice Trend	57
Figure 86 Doctor's Office for Medical Advice by Campus	58
Figure 87 Other Sources for Medical Advice by Campus	59
Figure 88 Flu Shot Trend	59
Figure 89 Flu Shot by Campus	60
Figure 90 Pneumonia Shot by Campus	61
Figure 91 Breast Cancer Screening Trend	62
Figure 92 Breast Cancer Screening by Campus	63
Figure 93 Breast Cancer Screening by Insurance	64
Figure 94 Colon Cancer Screening Trend	65
Figure 95 Colon Cancer Screening by Campus	65
Figure 96 Colon Cancer Screening by Insurance	66
Figure 97 Last Dental Visit Trend	66
Figure 98 Last Dental Visit by Campus	67
Figure 99 Last Dental Visit by Household Income	68
Figure 100 Last Dental Visit by Dental Insurance	68
Figure 101 Dental Insurance by Campus	69
Table 1 SLUHN Campus Zip Codes	7
Table 2 Reasons for Postponement of Care – Allentown/Sacred Heart	56
Table 3 Reasons for Postponement of Care – Anderson	56
Table 4 Reasons for Postponement of Care – Bethlehem	56
Table 5 Reasons for Postponement of Care – Western Rural Campuses	56
Table 6 Reasons for Postponement of Care – Monroe	57
Table 7 Reasons for Postponement of Care – Quakertown	57
Table 8 Reasons for Postponement of Care – Warren	57
Table 9 Colorectal Cancer Screening Guidelines by Type	64

Project Overview:

St. Luke's University Health Network (SLUHN) is a nationally recognized non-profit health network that is composed of ten hospital campuses and over 300 outpatient facilities serving counties in both Pennsylvania (Lehigh, Northampton, Carbon, Schuylkill, Bucks, Montgomery, Berks, Monroe) and New Jersey (Warren). An eleventh hospital is slated to open in Orwigsburg, Schuylkill County in the fall of 2019. This needs assessment included data for the new Orwigsburg 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 2019 Community Health Needs Assessment survey was conducted between May 2018 and September 2018 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.

If you have any questions regarding any of these reports, please contact the Department of Community Health & Preventive Medicine at (484) 526-2100.

If you would like additional copies, please visit:

<http://www.sluhn.org/Conditions-Services/Community-Health/Community-Health-Needs-Assessment>

Methodology & Sample:

This survey was conducted to answer the following questions:

1. What are the health needs within our eleven 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. The 2016 and 2019 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 this 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 10,234 respondents; however, when checked for survey completion, only 8,466 surveys were ultimately used for data analysis. 97.0% of surveys were completed in English, 2.5% were completed in Spanish, 0.2% were completed in Arabic, and 0.4% were missing language information. Survey responses were predominantly from Northampton (33%) and Lehigh (25%) counties. In 2019, we printed paper copies of the survey that were used in community settings, in order to achieve greater completion rates. We found that 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.

Service areas for network populations were defined by determining the top patient zip codes for those who received services from SLUHN in 2017. 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(es)	Survey Sample Size - # of Surveys completed in the Top 80% of Zip Codes of Patient Encounters (% of total surveys)	Zip Codes
Allentown & Sacred Heart	2,322 (27.4%)	18102, 18103, 18104, 18052, 18062, 18049, 18109, 18080, 18031, 18106, 18069, 18067, 18101, 18078, 18015, 18037, 18088, 18018
Anderson	3,423 (40.4%)	18045, 18042, 18064, 18020, 18360, 18013, 18017, 18301, 18040, 18091, 18353, 18072, 18302, 18014, 18018, 18015, 18055, 18330
Bethlehem	4,875 (57.6%)	18017, 18015, 18018, 18064, 18020, 18103, 18042, 18055, 18045, 18014, 18067, 18102, 18109, 18040, 18104, 18052, 18036, 18229, 18235, 18013, 18034, 18062, 18360, 18951
Monroe	1,029 (12.2%)	18360, 18301, 18466, 18302, 18353, 18330, 18324, 18344, 18372, 18058, 18210, 18332, 18326, 18334, 18321, 18346, 18610
Quakertown	1,327 (15.7%)	18951, 18073, 18036, 18041, 18076, 18944, 18955, 18960, 18034, 18054, 18015, 18930, 18969, 18055, 19504, 18972, 18970, 18074
Warren	1,103 (13.0%)	08865, 07882, 07823, 08886, 18042, 07863, 18040, 18045
Western Rural Region	931 (11.0%)	18252, 18232, 18218, 18235, 18240, 18250, 17960, 18229, 18214, 18237, 17948

Executive Summary:

St. Luke's University Health Network (SLUHN) is a fully integrated, regional, non-profit network of more than 14,000 employees providing services at 10 hospitals and more than 300 outpatient sites in Eastern Pennsylvania and Western New Jersey, serving 10 counties: Lehigh, Northampton, Berks, Bucks, Carbon, Montgomery, Monroe, and Schuylkill in Pennsylvania, and Warren and Hunterdon in New Jersey. Dedicated to advancing medical education, St. Luke's is the preeminent teaching hospital in central-eastern Pennsylvania. In partnership with Temple University, St. Luke's created the region's first and only regional medical school campus. It also operates the nation's longest continuously operating School of Nursing, established in 1884, and 28 fully accredited graduate medical education programs with 226 residents and fellows.

In 2017, SLUHN announced a merger with Sacred Heart Health Care System, which was completed in early 2018. Sacred Heart hosts its hospital in downtown Allentown and has primary care centers and senior housing services throughout Lehigh and Northampton Counties. Also in 2017, SLUHN announced a merger with Blue Mountain Health System, effective December 31, 2017. The merger added campuses in Palmerton and Lehigh, allowing residents of rural Carbon County better access to healthcare. Additionally, SLUHN and Geisinger are teaming up to build a new acute care hospital in Orwigsburg, in Schuylkill County. Geisinger St. Luke's Hospital will feature advanced specialty services in the hospital, medical office building and surrounding outpatient centers. Because these additions are in existing SLUHN campus service areas, survey responses were combined with existing campuses. Therefore, Sacred Heart was included in Allentown analyses, and Blue Mountain and Geisinger St. Luke's campuses were included with Miners campus, called the Western rural campuses in this report.

A total of 819,608 people live in the 1,177.97 square mile report area defined for this assessment as per five-year estimates from the U.S. Census Bureau's American Community Survey¹. The population density for this area, estimated at 695.78 persons per square mile, falls above the 89.61 persons per square mile in the nation and 285.62 in Pennsylvania, but below the 1,212.07 in New Jersey. For our assessment, we focused on our top patient zip codes to determine where 80% of our patients reside for each hospital campus (41 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 by 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 great services available to help improve health in our region, but a concentrated and sustained effort will be necessary amongst all those who contribute to our community's health to create new programs and try even harder to address the current concerns.

Using our primary data (community forum data with community stakeholders and public health professionals, as well as our community wide survey) in addition to our secondary data, allowed us to

¹ <https://www.census.gov/>

categorize the identified health needs into three major categories for the 2019-2022 CHNA cycle. These priority health categories include:

- Improving access to care
- Preventing chronic disease
- Improving mental and behavioral 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 and lifestyle behaviors play a vital role in the health and wellness of our communities. When looking at the demographic characteristics of survey respondents, they were 62% female, 35% over the age of 65, 93% white, and 91% Non-Hispanic. Additionally, 51.3% were employed or self-employed, 73% owned their homes, 76% were educated beyond high school, and 51% had an annual household income at or above \$60,000. 9% were unemployed or unable to work, 4% did not complete high school, and 19% had an annual household income below \$25,000. When looking at health behaviors, we found that smoking rates were all below the Pennsylvania level, but some were still well above the Healthy People 2020 target, indicating a need for improvement. Furthermore, most survey respondents were insufficiently physically active and did not have adequate fruit and vegetable consumption. Approximately one-quarter of survey respondents reported having a healthy weight, while the remaining three-quarters 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, diabetes, and mental health. Survey responses showed that social determinants of health such as insurance type, education, and income levels all had noticeable impact on health behaviors and the clinical care that survey respondents received. In many instances, data was pulled by income, to highlight these differences.

1. Demographics

A. AGE

Approximately 39% of respondents fell in the 45-64 age range. The 65 years and older group (35%) had the highest percentage of respondents, and the lowest percentage of survey respondents was from the 18-24 age range (3%).

NETWORK
Survey Respondents by Age

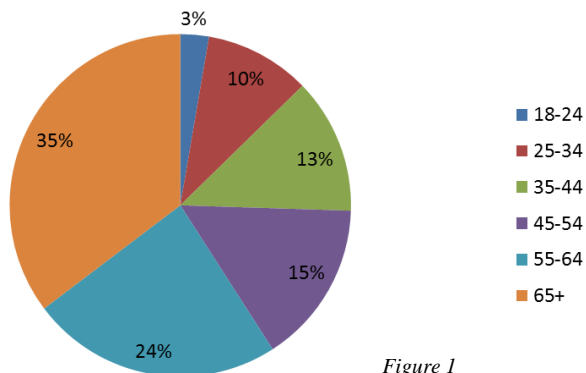


Figure 1

A potential reason for 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.

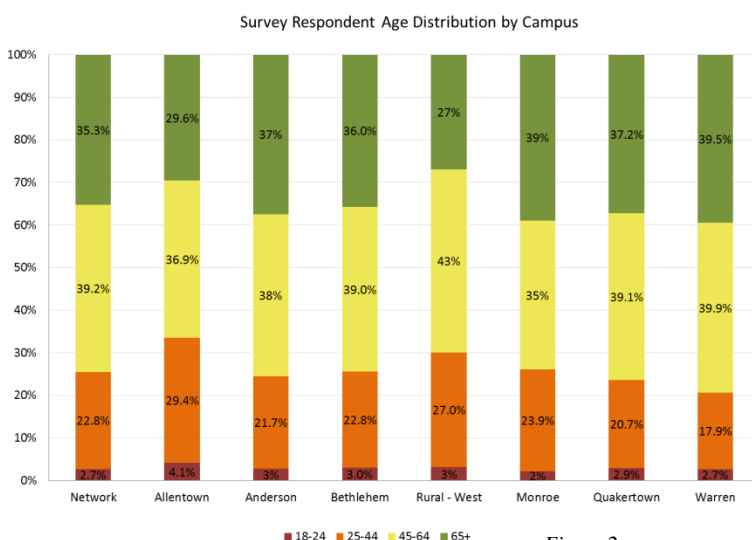


Figure 2

Allentown campus at 29.4% had the largest percentage of respondents in the 25 to 44 age range, and Warren campus had the lowest at 17.9%. Western Rural campuses had the highest percentage of

respondents between the ages of 45-64 at 43.0%, and Monroe campus had the lowest at 35.0%. Warren campus at 39.5% had the highest percentage of respondents over 65 years of age, and Western Rural campuses at 27.0% had the smallest.

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.

Monroe (11%) and Allentown (10%) campuses had the highest percentage of respondents who identify as Non-White (American Indian/Native Alaskan, Asian, Black/African American or Other/Missing), whereas the Western rural campuses (2%) had the smallest percentage of respondents who identify as Non-White. Roughly 5% of respondents were Black/African American across campuses, except for the Western rural campuses, which were at 1%.

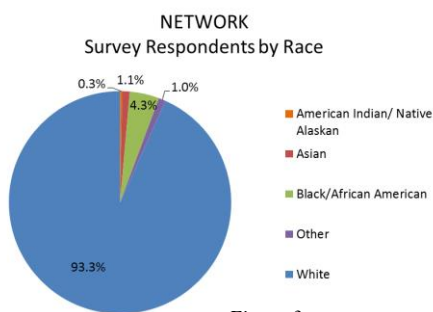


Figure 3

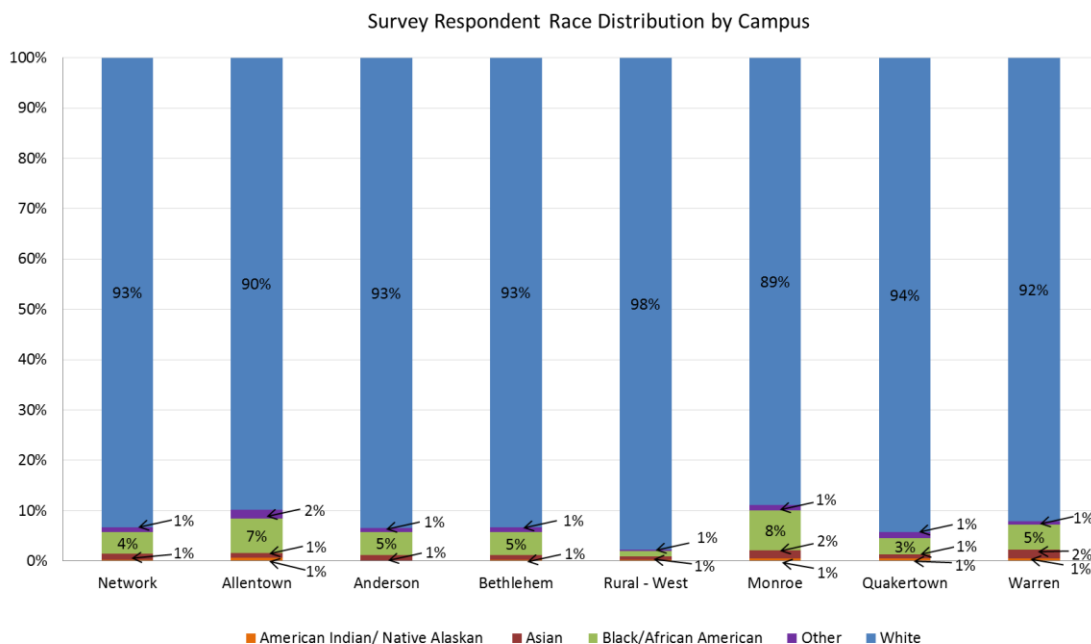


Figure 4

C. ETHNICITY

Our overall survey data was comprised of 8.8% Hispanic respondents and 91.2% Non-Hispanic respondents. 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.

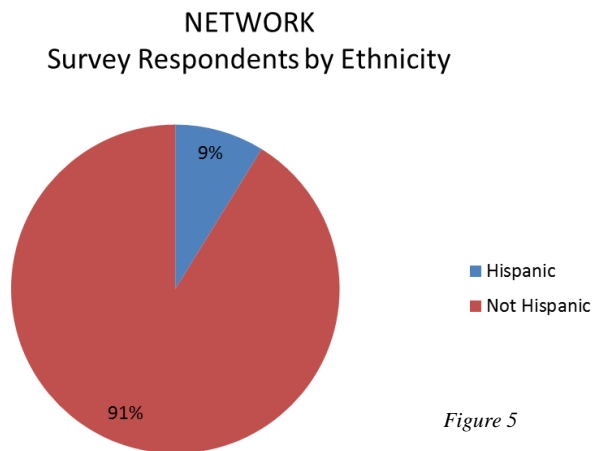


Figure 5

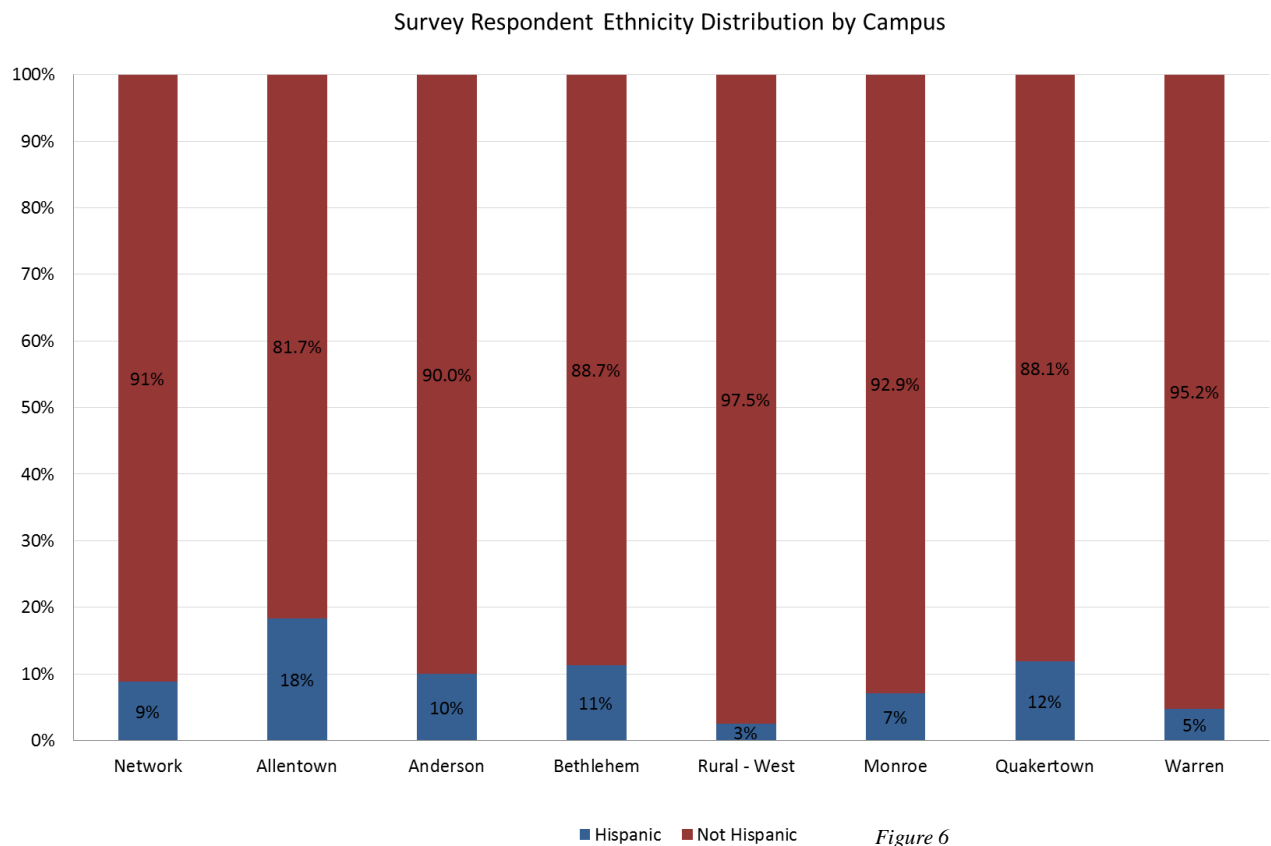


Figure 6

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 11%, whereas the average for our more rural regions (Western rural and Monroe campuses) was 5%.

D. SEX

Survey respondents were asked to indicate what best described them. 61.8% of survey respondents selected female, 38.1% selected male, and 0.1% selected other.

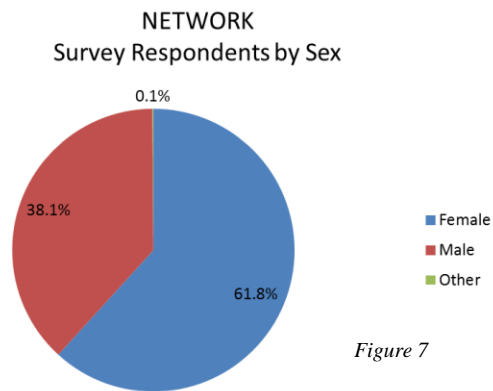


Figure 7

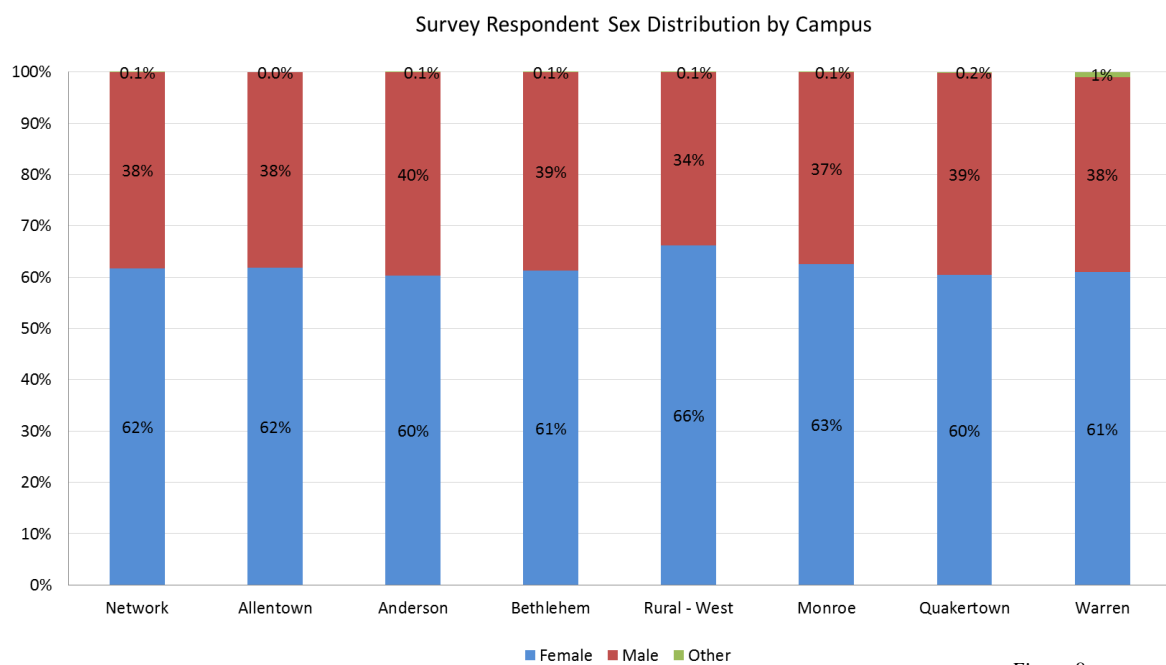
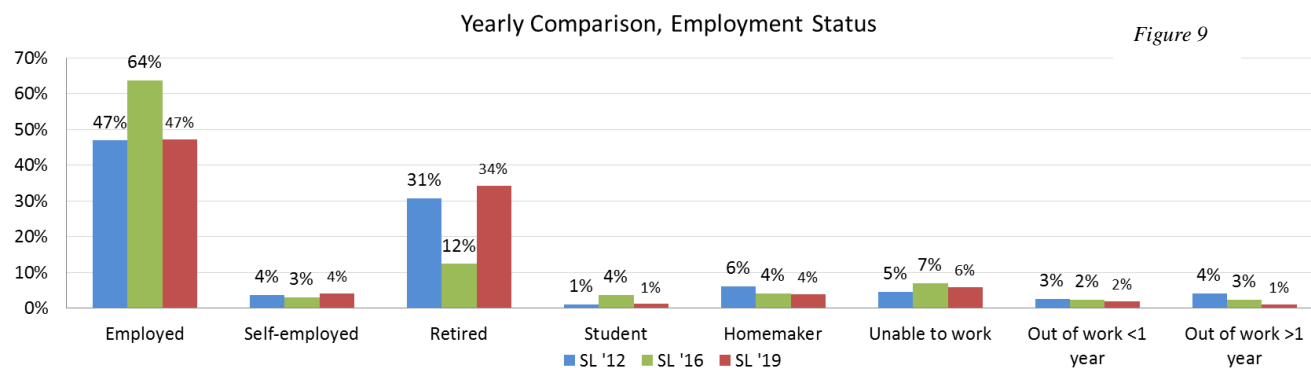


Figure 8

2. Social & Economic Factors

A. EMPLOYMENT STATUS

The current survey results showed that the same percentage of respondents was employed (47%) when compared to 2012 (47%), but less than in 2016 (64%). As evidenced in the age distribution, survey respondents tended to be older. Therefore, it is not surprising that the second highest employment response was retired (34%). 9% of survey respondents indicated that they were unemployed or unable to work. Figure 9 shows the employment status distributions in 2012, 2016, and 2019.



The Western rural campuses (56%) had the highest percentage of employed ('employed' or 'self-employed' categories) respondents and Warren campus (46%) had the lowest percentage of employed individuals. The Western rural campuses (14%) reported the highest percentage of unemployed individuals ('out of work' or 'unable to work' categories), and Anderson (7.7%) reported the lowest. Warren campus (40%) had the highest percentage of retired individuals, and the Western rural campuses (27%) had the lowest.

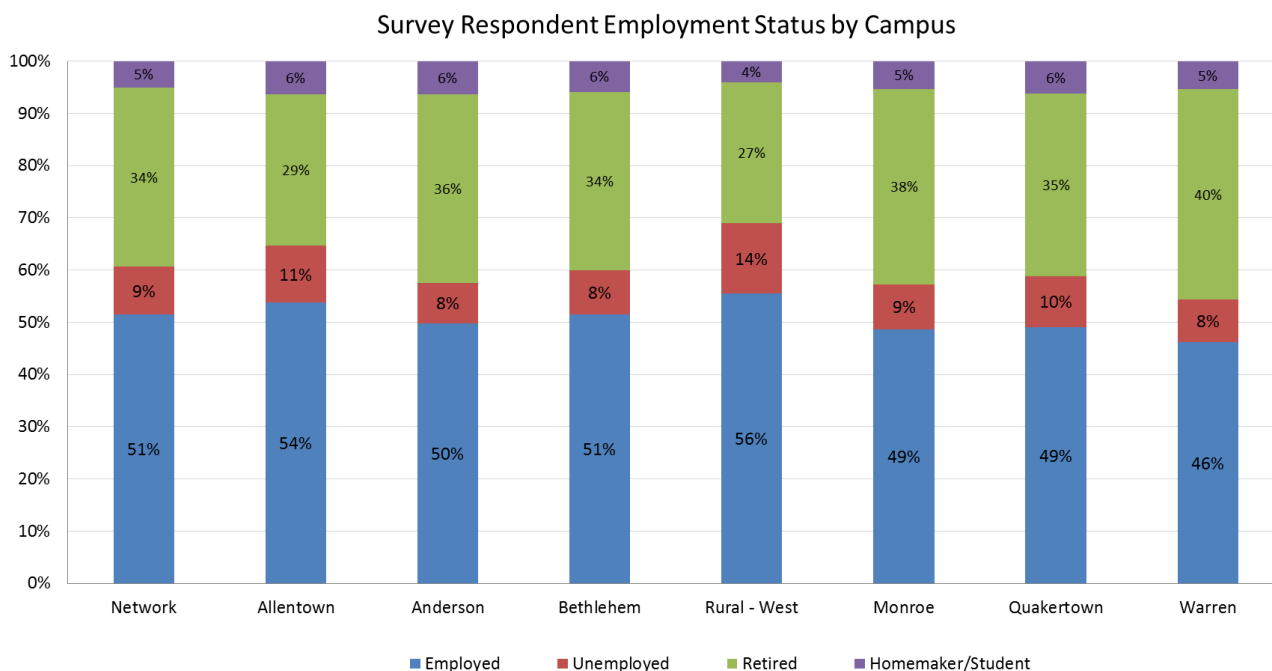


Figure 10

B. OWNING VS. RENTING HOMES

In 2012 and 2016, the survey asked respondents whether they rent or own their homes; however, the question was revised for the 2019 survey, to more accurately reflect different housing situations in our area. Reported home ownership in the 2019 survey was in between 2012 and 2016 levels, but the percentage of respondents reported that they rented their home was more similar to 2012 levels than 2016 levels.

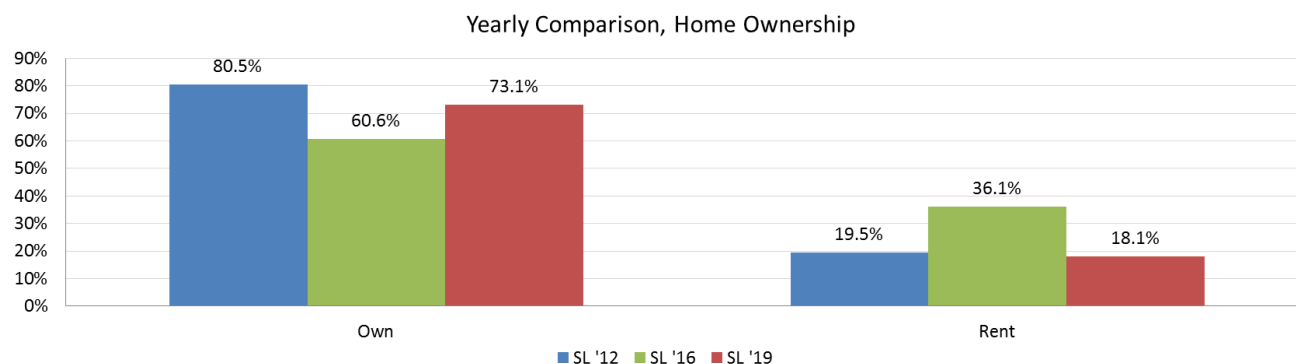


Figure 11

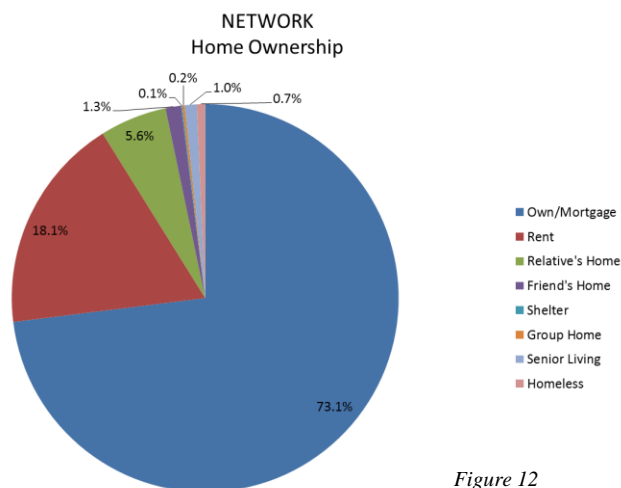


Figure 12

While renting (19%) was the largest non-ownership housing option, nearly 6% of respondents reported that they lived in a relative's home. The remaining 3% reported living in a friend's home, shelter, group home, senior living, or that they were homeless.

Monroe campus reported the highest percentage of home ownership at 79%. All campuses had higher percentages of home owners than home renters; Allentown had the highest percentage of renters (26%).

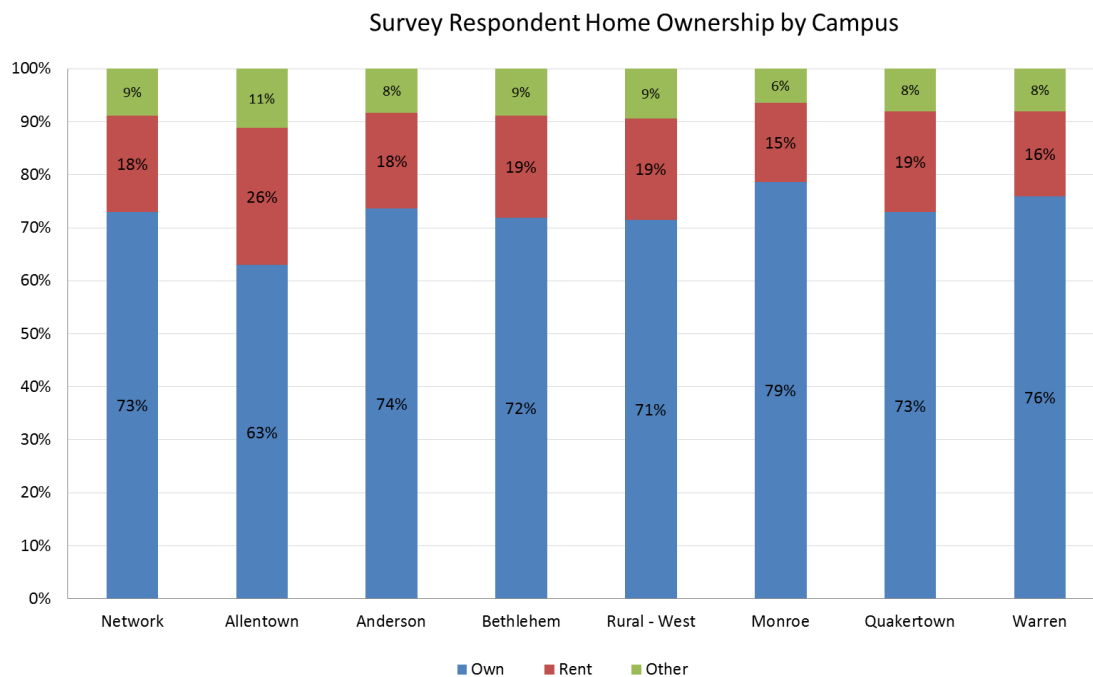


Figure 13

C. EDUCATION LEVELS

Education level is a social determinant of health as it is an important factor for health behaviors and outcomes. Fewer people reported that they only have a high school diploma (32.9% in 2012, 21.7% in 2016, and 20.7% in 2019), and the percentage of people who reported being educated beyond high school increased (55.4% in 2012, 69.7% in 2016, and 75.6% in 2019). In 2019, the most frequently reported education level was some college (32%), and the least frequently reported education level was less than high school (4%).

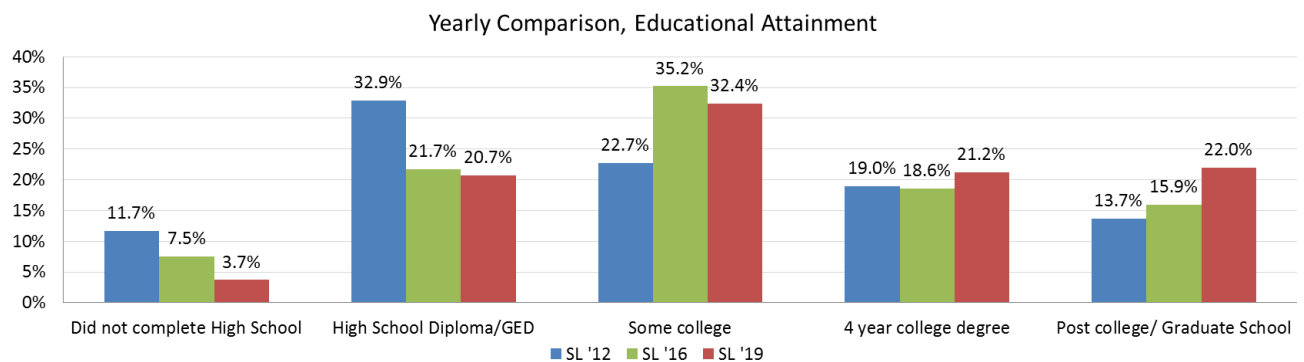
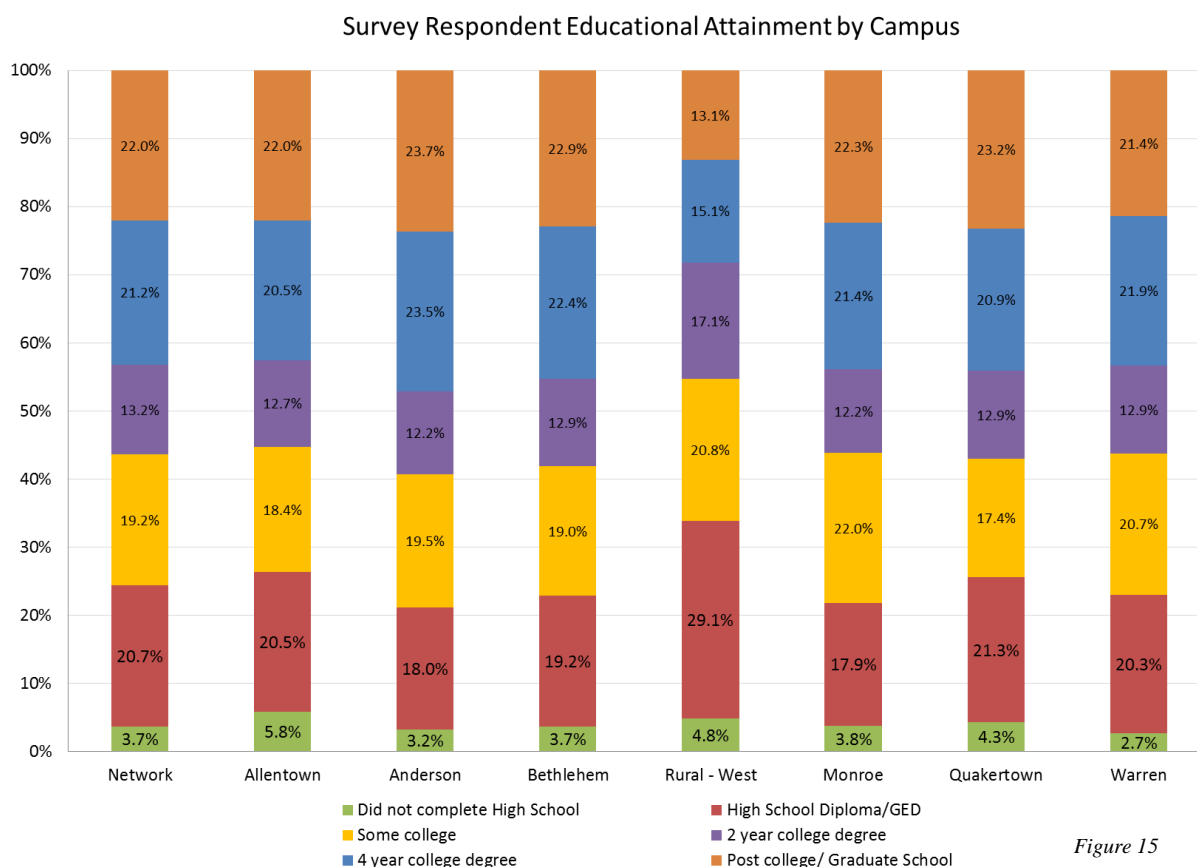


Figure 14



Anderson campus had the highest percentage of respondents who reported education beyond high school at 78.9%. Warren campus was the next highest campus at 77.8%, and Western rural campuses had the lowest percentage at 66.1%. Conversely, Allentown campus had the highest percentage of respondents who reported that they did not have a high school diploma or GED at 5.8%, whereas Warren campus had the lowest percentage at 2.7% and Anderson campus was the next lowest 3.2%.

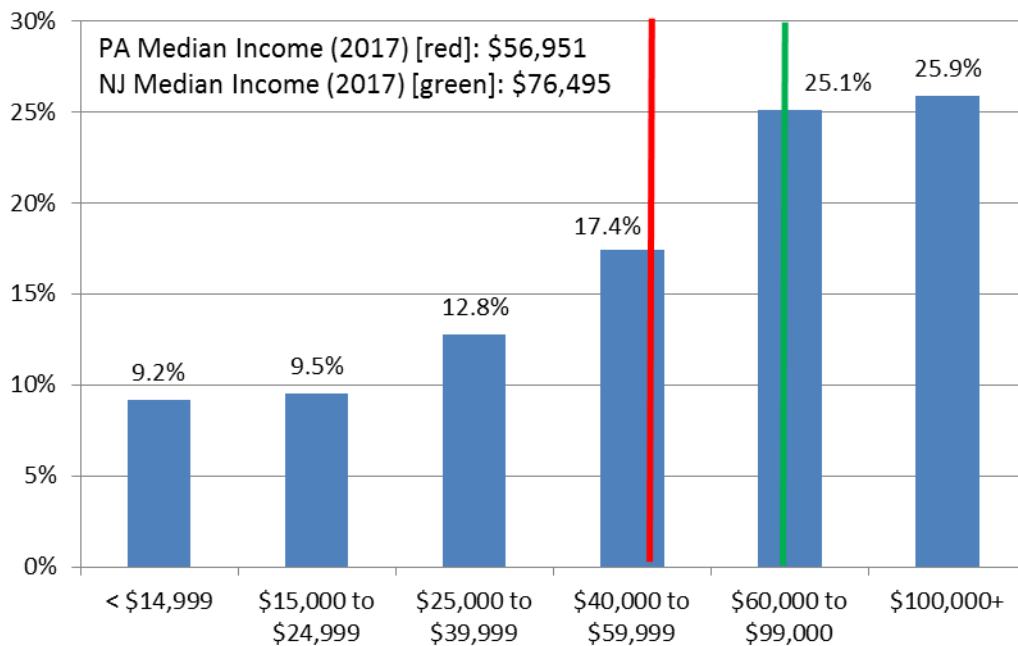
When reviewing education in relation to ethnicity, 14.0% of Hispanic survey respondents reported having an education of less than high school, compared to 2.6% of Non-Hispanic respondents. 29.6% of Hispanic survey respondents reported having a high school degree, compared to 19.4% of Non-Hispanic respondents. However the largest difference can be seen in the percentage of respondents with beyond a high school education when considering ethnicity. 56.4% of Hispanic survey respondents reported having an education beyond high school, compared to 78.0% of Non-Hispanic respondents. Furthermore, 35.0% of Hispanic respondents reported having at least a two-year college degree, compared to 59.1% of Non-Hispanic respondents.

D. HOUSEHOLD INCOME

The overall survey data showed the distribution of family (household) income before taxes in 2017. According to the US Census Bureau's 2017 American Community Survey, the estimated median income for Pennsylvania and New Jersey residents were \$56,951 and \$76,495, respectively, and are depicted in Figure 16. For the SLUHN service area, the frequencies of household incomes are listed in Figure 17.

Household Income Distribution

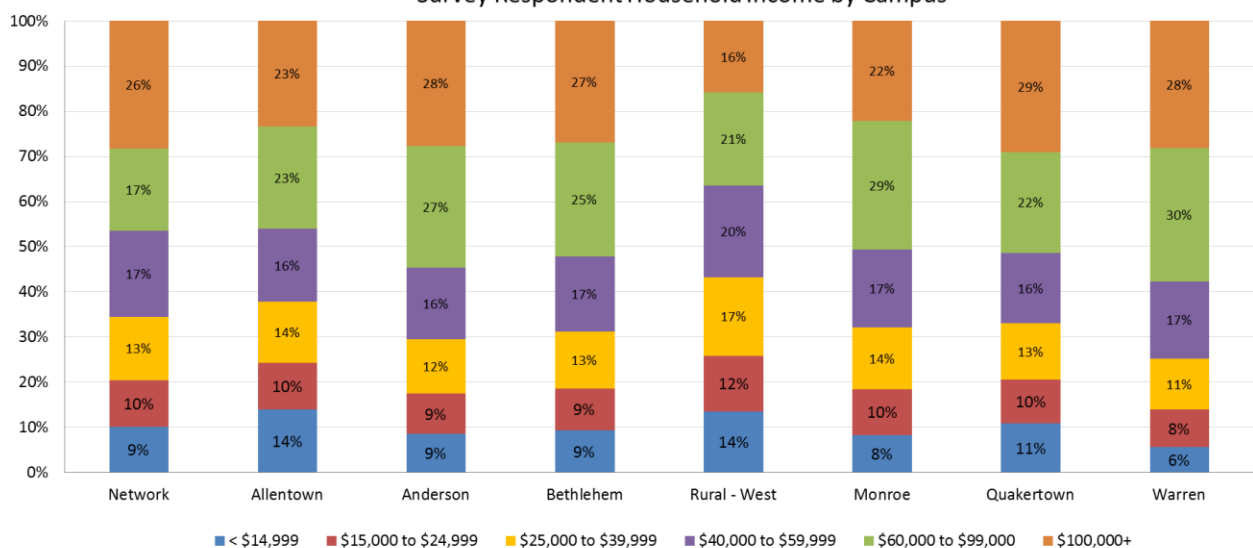
Figure 16



It is important to note that 9.2% 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, 2018.

Survey Respondent Household Income by Campus

Figure 17



Allentown campus (14.0%) had the highest percentage of respondents who made less than \$14,999 annually; Western rural campuses (13.5%) and Quakertown (10.8%) had the second and third highest percentage of respondents reported an annual income at or below \$14,999. Anderson (8.5%), Allentown (8.3%), and Warren (5.6%) campuses were the only campuses whose averages were lower than the SLUHN average (9.2%) in the income greater less than \$14,999.

Additionally, the Western rural campuses had the lowest percentage of respondents in the highest three income brackets (over \$40,000) at 56.8%. Alternatively, Warren (74.7%) and Anderson (70.5%) 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 (68.4%).

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, 31.2% of Hispanic survey respondents reported having an income less than \$15,000 compared to 6.9% of Non-Hispanic respondents. Additionally, 16.9% of Hispanic respondents reported an income between \$15,000 and \$24,999, compared to 8.7% of Non-Hispanic respondents. Conversely, only 22.8% of Hispanic survey respondents reported having an income above \$60,000 compared to 54.3% of Non-Hispanic respondents.

When income is considered in relation to education, 18.1% of survey respondents whose income was less than \$15,000 and 8.7% of those whose income was between \$15,000 and \$24,999 had completed less than high school, compared to 0.3% of those whose income was \$60,000 or above. 39.9% of respondents whose income was less than \$15,000 and 39.0% of respondents whose income was between \$15,000 and \$24,999 had a high school diploma or GED, compared to 9.6% of those whose income was \$60,000 or above. Conversely, 20.1% of respondents whose income was less than \$15,000 and 29.0% of respondents whose income was between \$15,000 and \$24,999 had at least a 2-year college degree, compared to 74.6% of those making \$60,000 or above.

Marmot's longitudinal Whitehall Study identified a relationship between income and health outcomes, where higher income is linked with better health outcomes. Similarly, 2019 CHNA survey response data indicate that there is a clear relationship between income and insurance status, where 42.4% of respondents in the \$14,999 or less annual income category reported that their primary insurance was Medicaid, or that they were uninsured, compared to 0.7% of respondents in the \$60,000 or above income category (Figure 18). Because of this relationship, income was the primary indicator used to represent vulnerable populations in survey analysis.

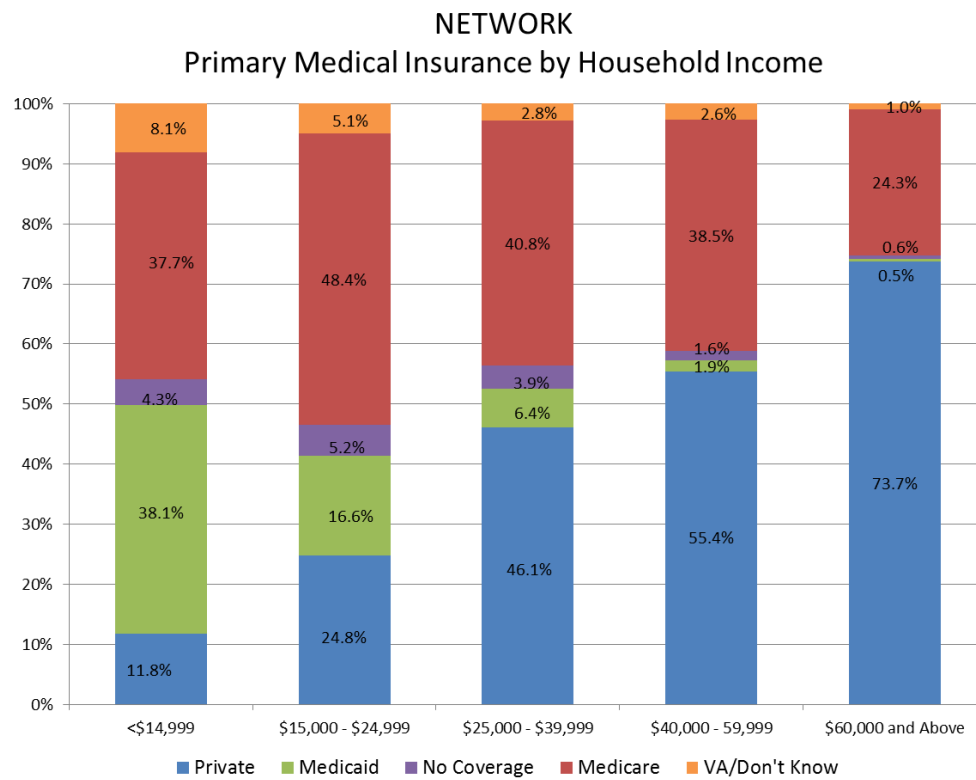


Figure 18

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. Quakertown campus respondents had the highest percentage (90.8%) of respondents who agreed or strongly agreed with the statement that their community is a safe place to live. However, 17.3% of Monroe campus survey respondents and 16.0% 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.

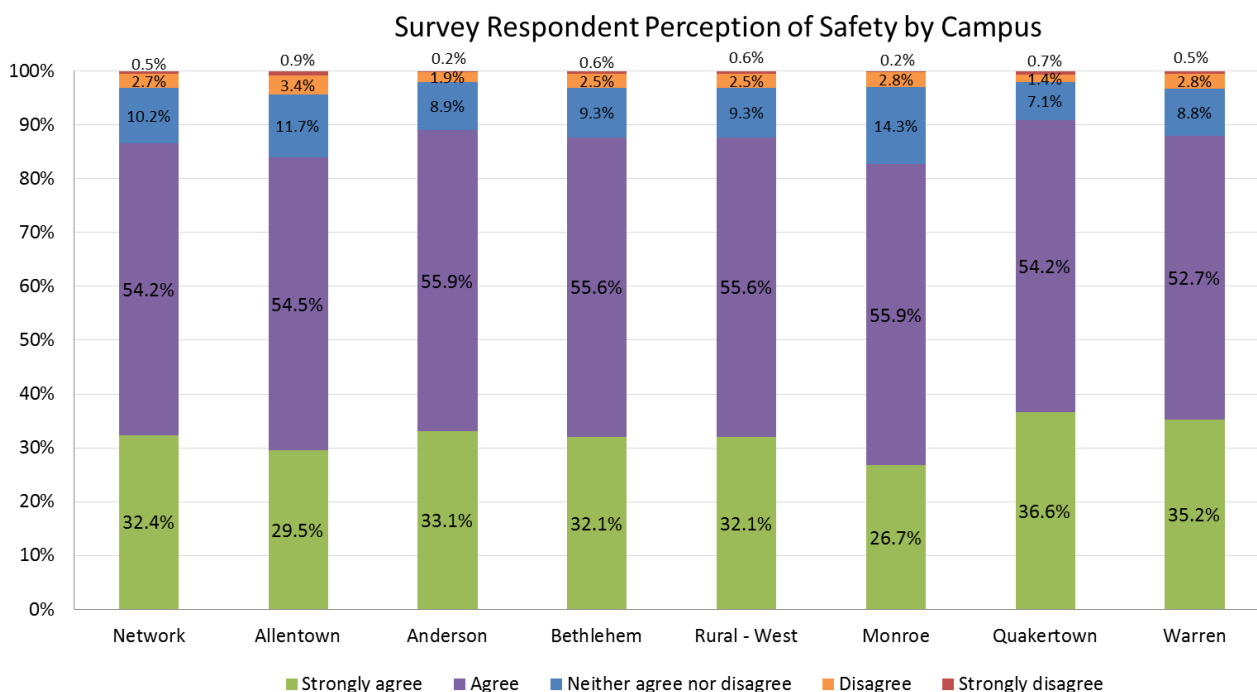
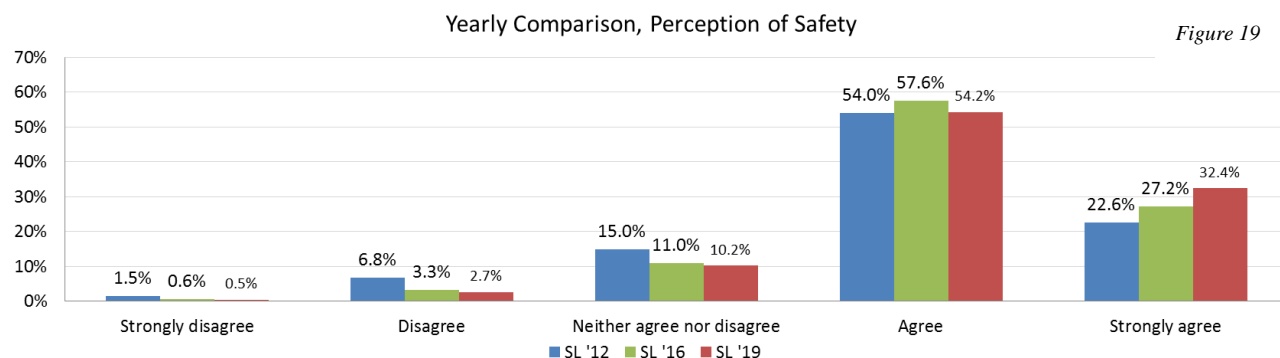


Figure 20

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 15% of SLUHN survey respondents reported exercising at least five times per week. Additionally, 28% reported not exercising at all. Figure 21 depicts the breakdown of exercise among survey respondents.

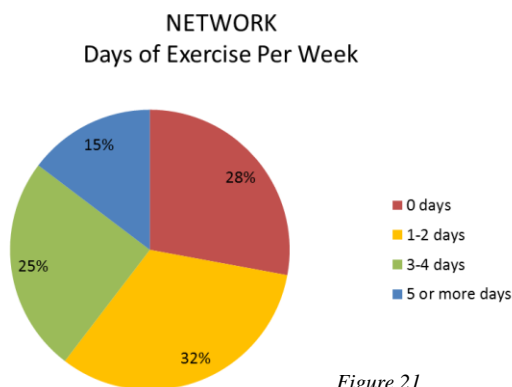


Figure 21

There has been little improvement in the quantity of physical activity, as 40.8% of 2012 respondents, 42.0% of 2016 respondents, and 39.6% of 2019 respondents indicated that they exercise three or more times per week.

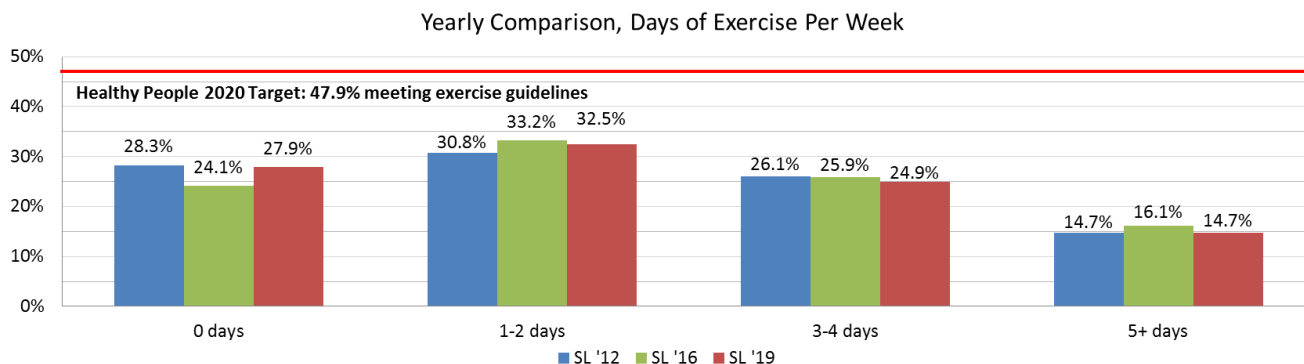


Figure 22

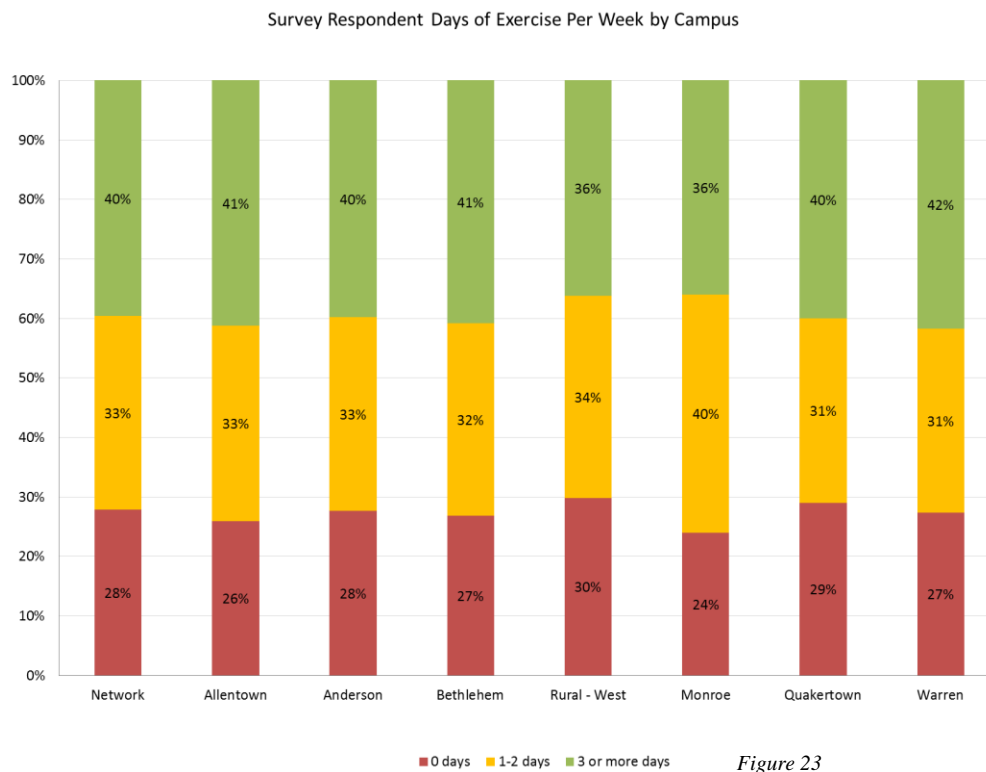


Figure 23

Warren campus (42%) had the highest percentage of respondents exercising three or more times a week, while the Western rural and Monroe campuses (36%) had the lowest percentage.

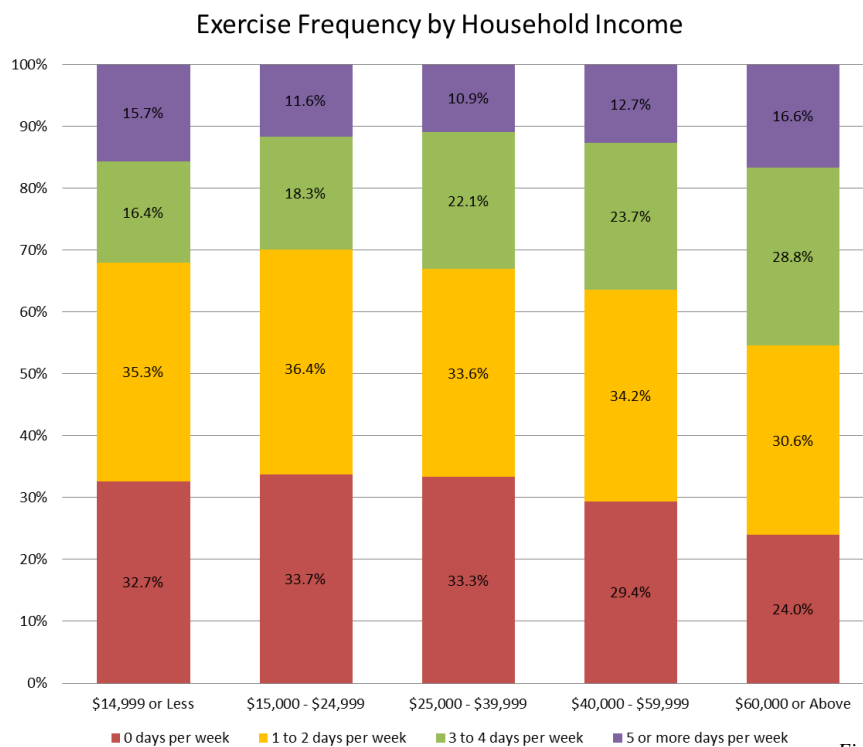


Figure 24

As shown in Figure 24, exercise frequency was highest among individuals in higher income brackets.

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 9.6% of the survey respondents reported eating at least the five daily recommended servings of fruits and vegetables, and 43.4% reported consuming three or more servings daily.

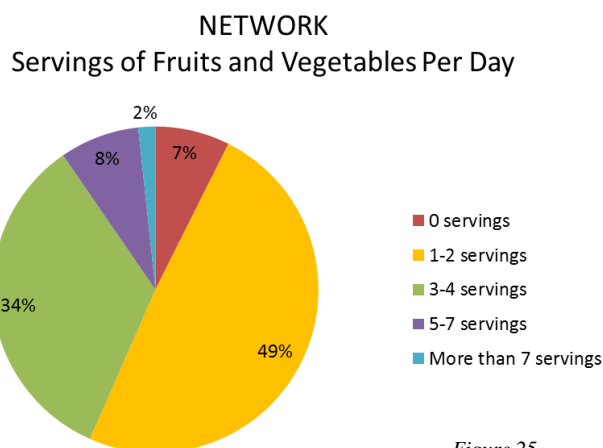


Figure 25

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

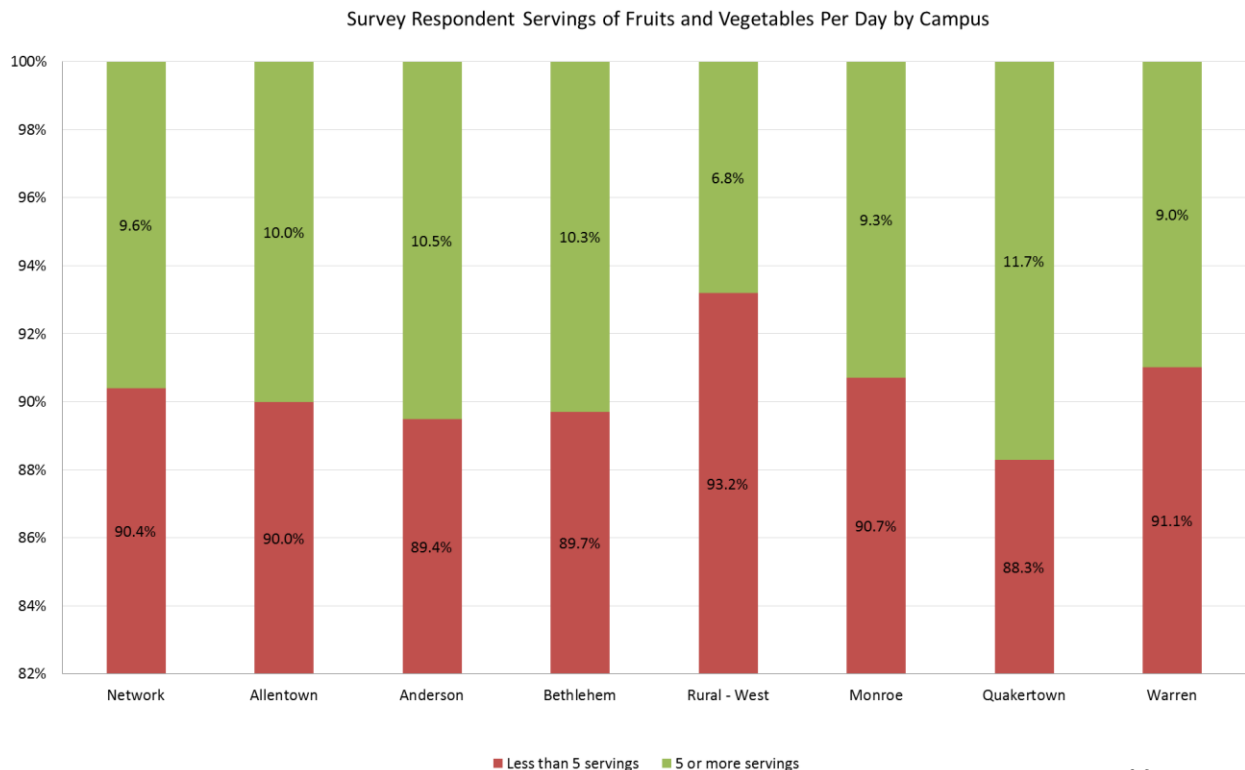


Figure 26

Quakertown (11.7%), Anderson (10.5%), and Bethlehem (10.3%) campuses performed the best in terms of percentage of respondents hitting FDA targets. All campuses 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 (9.3%) and Western rural (6.8%) 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.

Rates of respondents reporting that they consumed 5 or more servings of fruits and vegetables (10%) decreased from the 2016 rate (11%); however, the rate of respondents reporting that they consumed zero servings of fruits and vegetables (7%) also decrease from the 2016 rate (8%). Respondents reporting consuming 1 to 2 servings of fruits and vegetables increased to 49%, up from 45% in 2016.

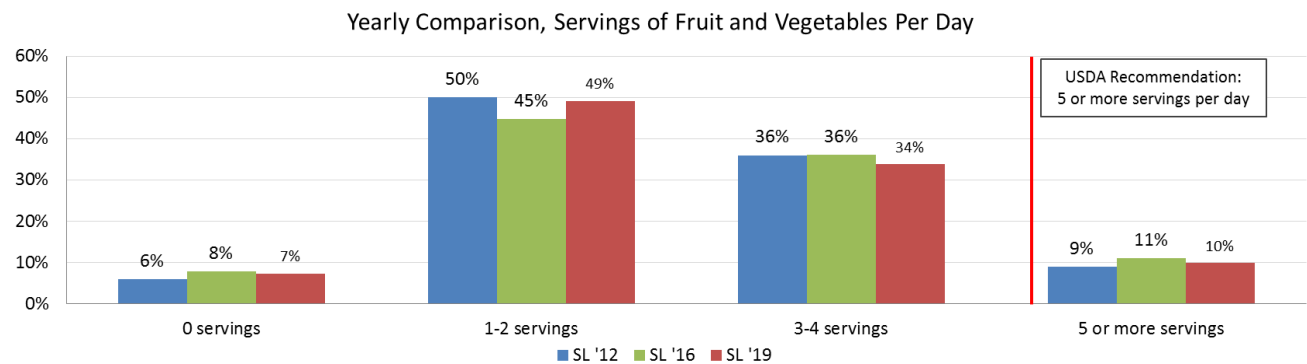


Figure 27

Although low fruit and vegetable consumption is a concern across all Network respondents, survey responses showed a positive relationship between fruit and vegetable consumption and with household income, where fruit and vegetable consumption increased as income increased. 71.1% of respondents making less than \$15,000, and 68.9% of respondents making between \$15,000 and \$24,999 reported consuming 2 or less servings of fruits and vegetables per day, compared to 49.2% of respondents making \$60,000 or above.

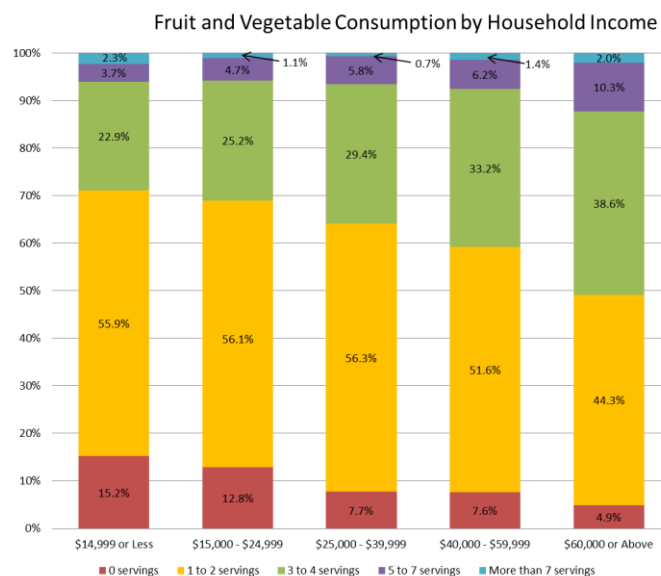


Figure 28

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. 19.4% of respondents reported at least one binge drinking episode in the past month. Moreover, 10.7% of respondents reported having two or more episodes of binge drinking.

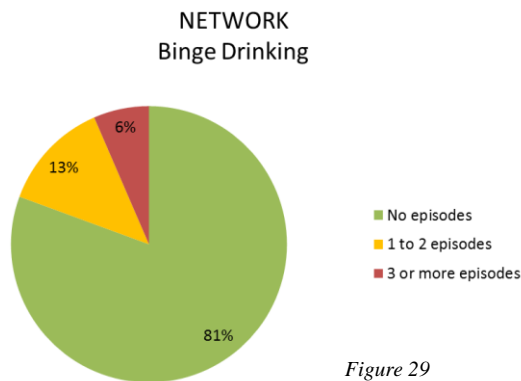


Figure 29

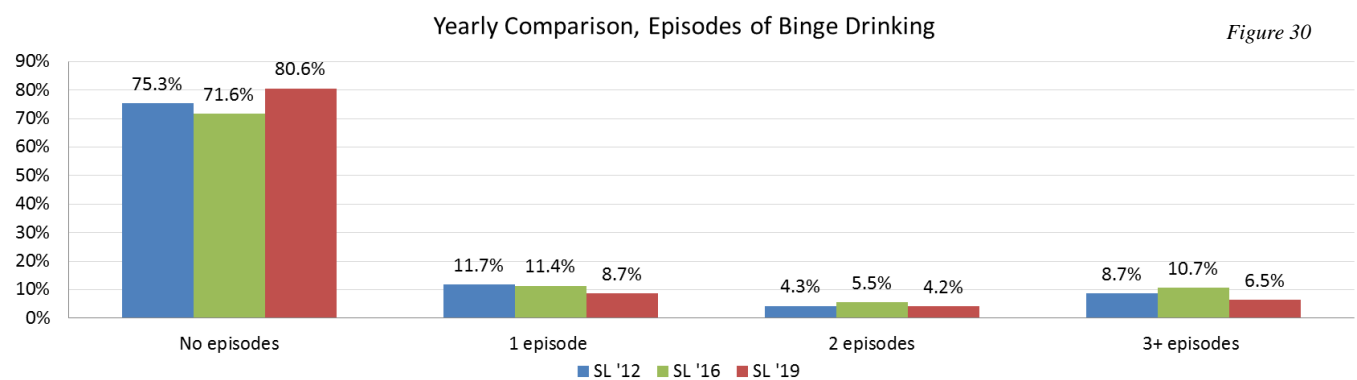


Figure 30

When looking at binge drinking trends across all three surveys, there was an increase in respondents reporting 2 or more episodes of binge drinking in 2016 (16%); however, the 2019 rate (11%) was lower than the 2012 rate (13%).

Binge Drinking by Age Category - 3 or more episodes

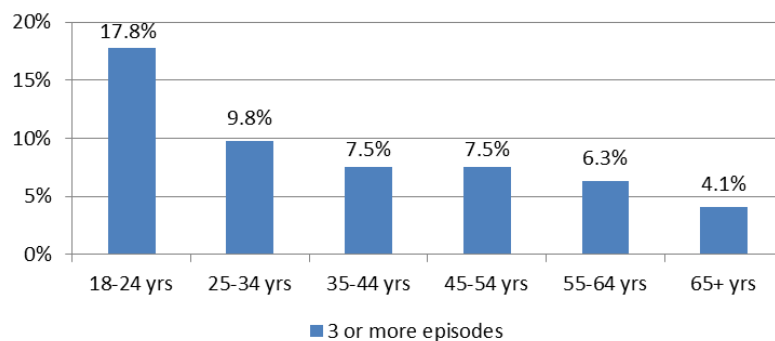


Figure 31

Upon comparison of episodes of binge drinking to age of respondent, it becomes apparent that high levels of drinking often correspond to younger ages. The highest percentage of respondents who reported any

episodes of binge drinking fell into the 18-24 age category at 42.3%. The 65 and older population reported the lowest percentage of binge drinking episodes (11.6%).

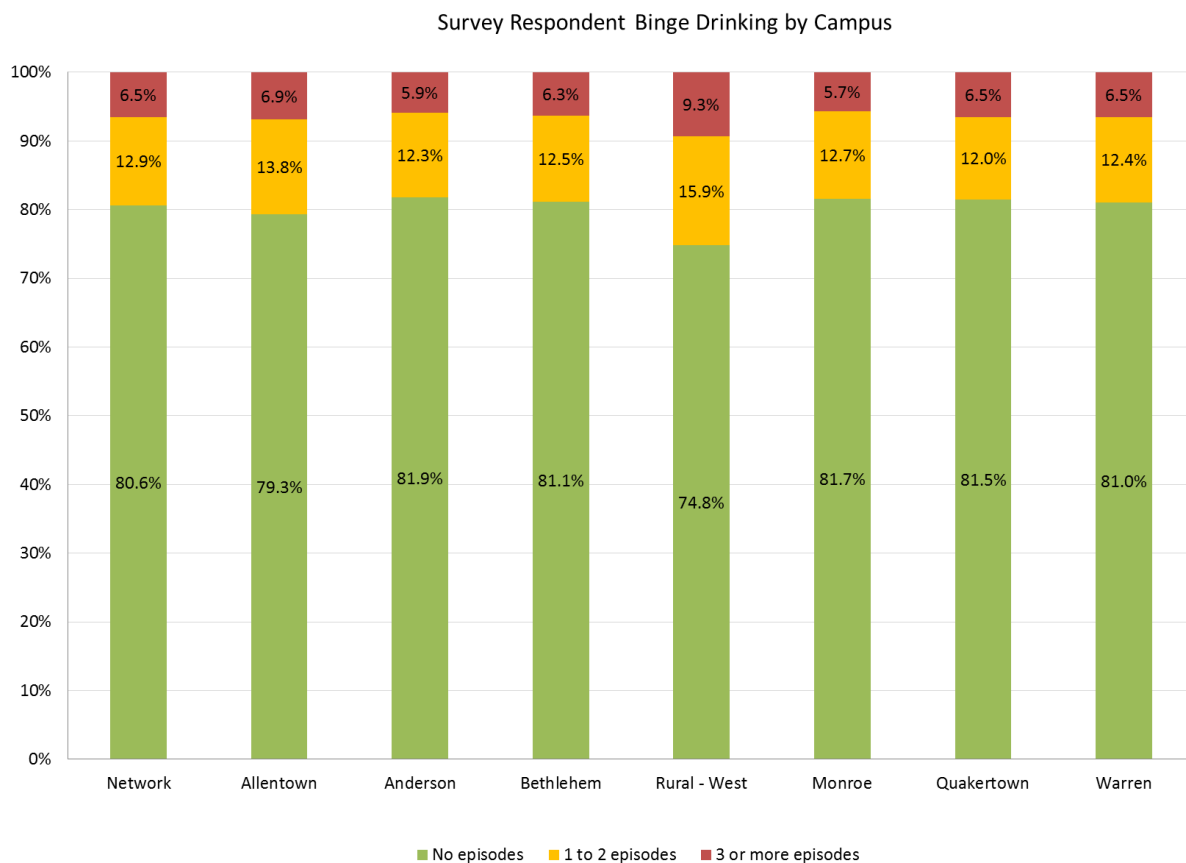


Figure 32

The Western rural campuses had the highest percentage of respondents reporting three or more episodes of binge drinking at 9.3% and Monroe campus had the lowest at 5.7%. Conversely, Anderson campus had the highest percentage of respondents reporting no binge drinking at 81.9% and the Western rural campuses had the lowest percentage of respondents who reported no binge drinking at 74.8%.

D. SMOKING

89.1% of respondents reported being non-smokers, and 10.9% 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 increased from 13.4% in 2012 to 15.2% in 2016, and decreased to 10.9% in 2019 (Figure 33).

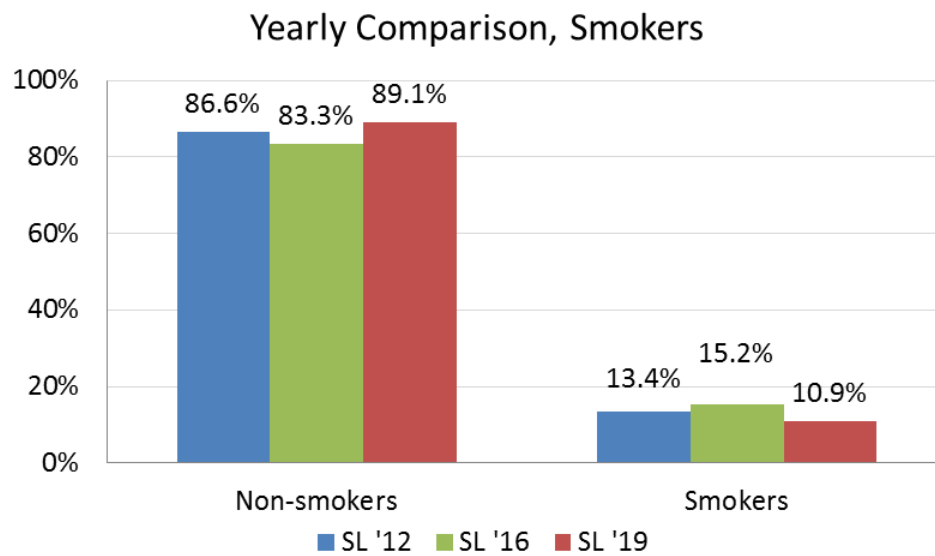


Figure 33

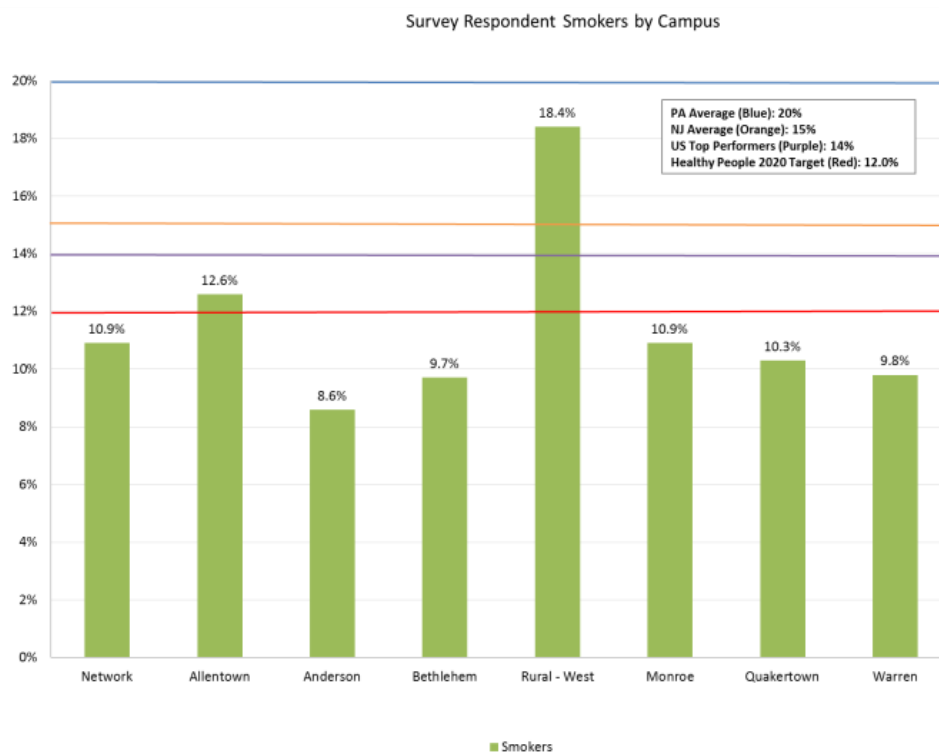


Figure 34

NETWORK Smokers by Household Income

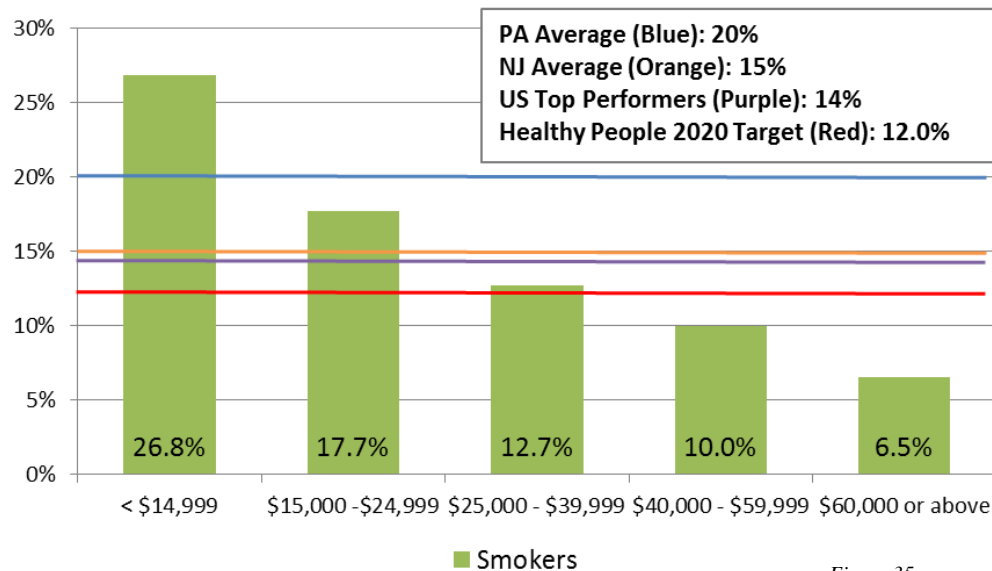


Figure 35

Smoking by Age Category

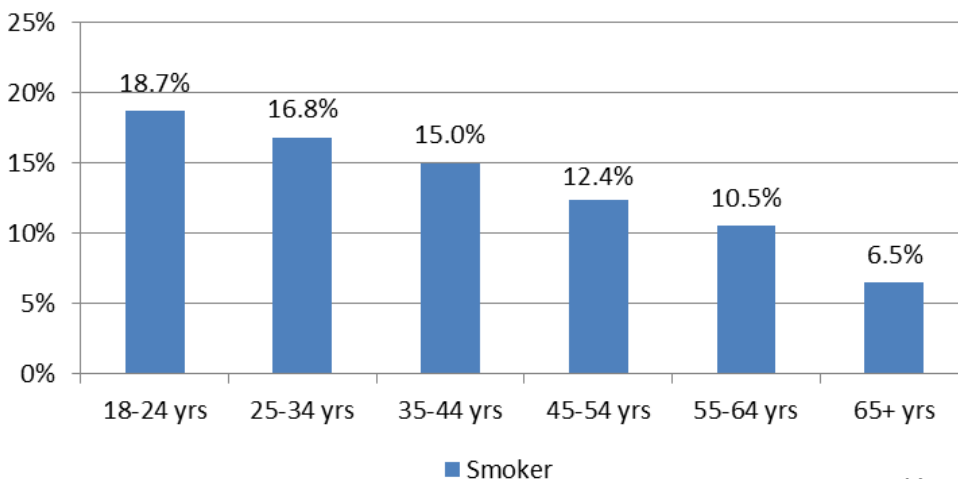


Figure 36

The Western rural campuses had the highest percentage of reported smokers (18.4%) and Anderson campus had the lowest (8.6%), as shown in Figure 34.

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, 26.8% reported smoking as compared to only 6.5% among those making more than \$60,000 annually. This trend was seen among all income ranges with percentage of those smoking dropping as income increased (Figure 35).

As with binge drinking, smoking rates were higher among younger survey respondents, with the 18-24 age group reporting the highest smoking rate (19%), and the 65+ age group reporting the lowest (7%), as shown in Figure 36.

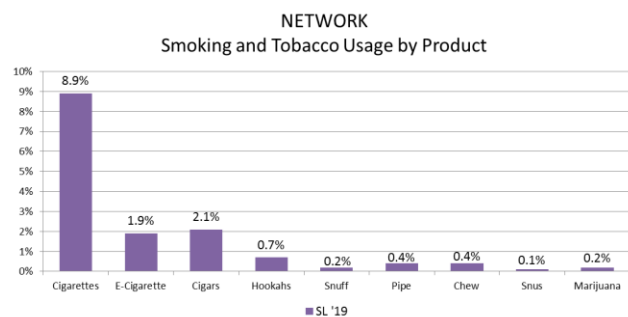


Figure 37

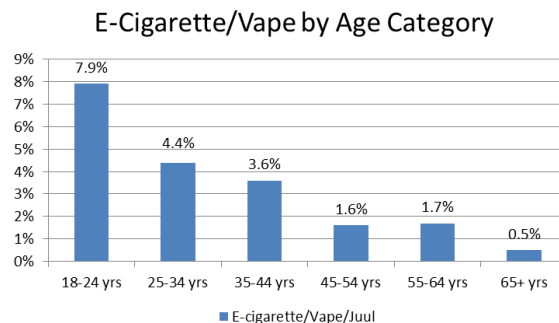


Figure 38

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, in recent years, there has been a proliferation of e-cigarettes and other similar products, as evidenced by e-cigarettes being the third most commonly used product (1.9%).

When looking at the respondents who reported using e-cigarettes, it is apparent that e-cigarette usage is especially high among younger respondents, as shown in Figure 38. Given current popular trends towards e-cigarettes, it is interesting to note that 48.8% of people (n=162) 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.

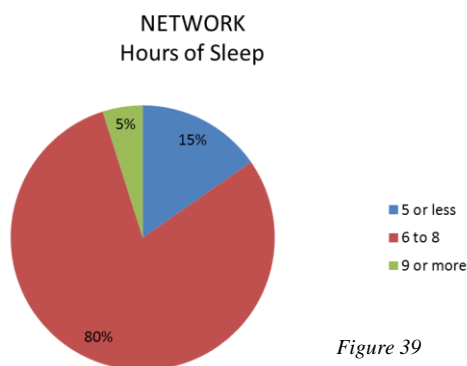


Figure 39

The CDC recommends that adults average 7 to 8 hours of sleep per night, and according to the 2016 data, 55.4% of respondents reported getting at least 7 hours of sleep the previous night.

Survey respondents for Quakertown campus reported the highest percentage attaining the recommended hours of sleep at 61.5%, whereas the Western rural campuses reported the lowest percentage at 55.5%.

The Western rural campuses reported the highest percentage of respondents getting 4 or less hours of sleep at 19.0%, and Bethlehem campus had the lowest percentage at 14.6%.

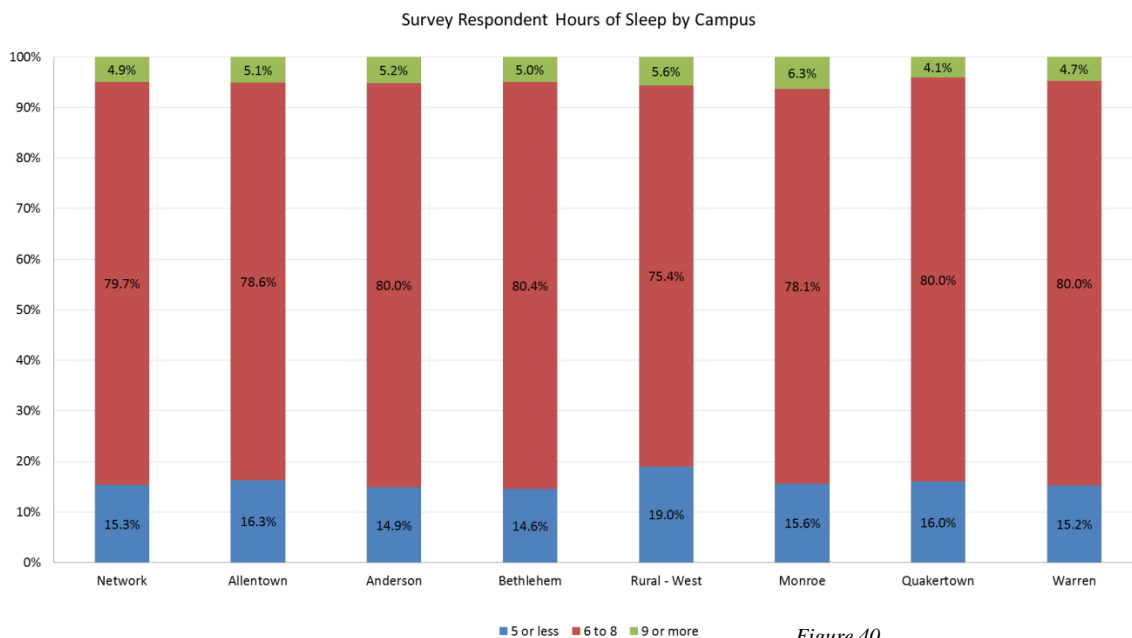


Figure 40

Survey respondents reporting 6 or less hours of sleep decreased, while a greater percentage of respondents reported getting 7 or more hours of sleep, when compared to 2012 and 2016 surveys (Figure 41).

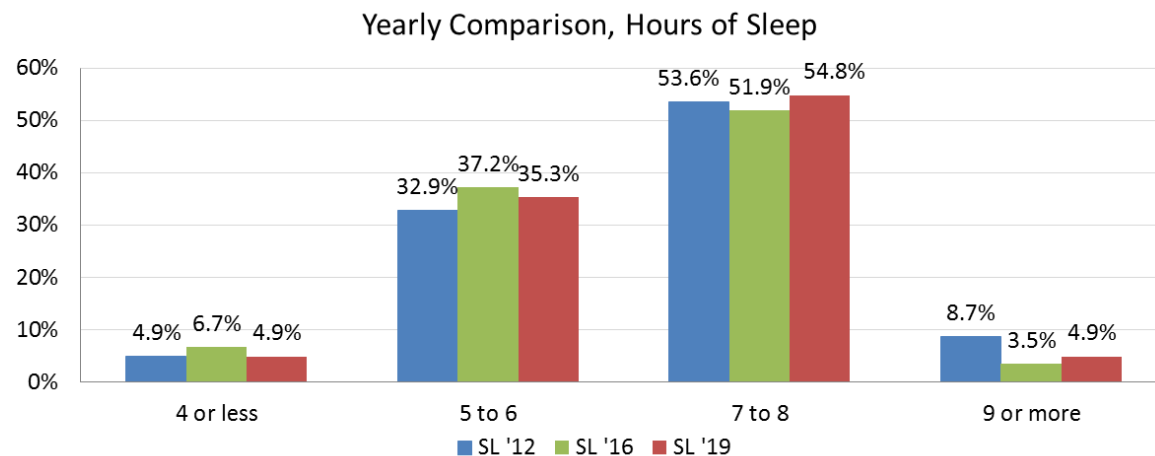


Figure 41

5. Health Outcomes:

A. OVERALL HEALTH RATING

93.0% of people rated their overall health as “good” or better.

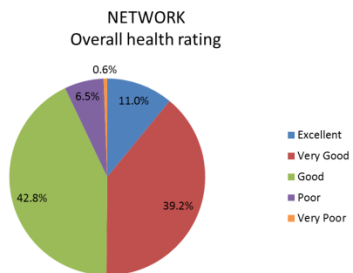


Figure 42

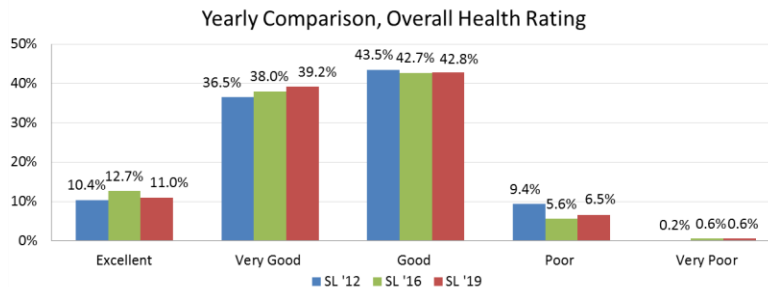


Figure 43

These results are similar to those collected by the 2012 and 2016 survey, which had 90.4% and 93.4% of people ranking their overall health as ‘good’ or better, respectively. Because this question is quite subjective, it is difficult to use it on its own to assess health outcomes for the community, but it can be used in conjunction with more specific data to obtain a more accurate image of health in the SLUHN service area.

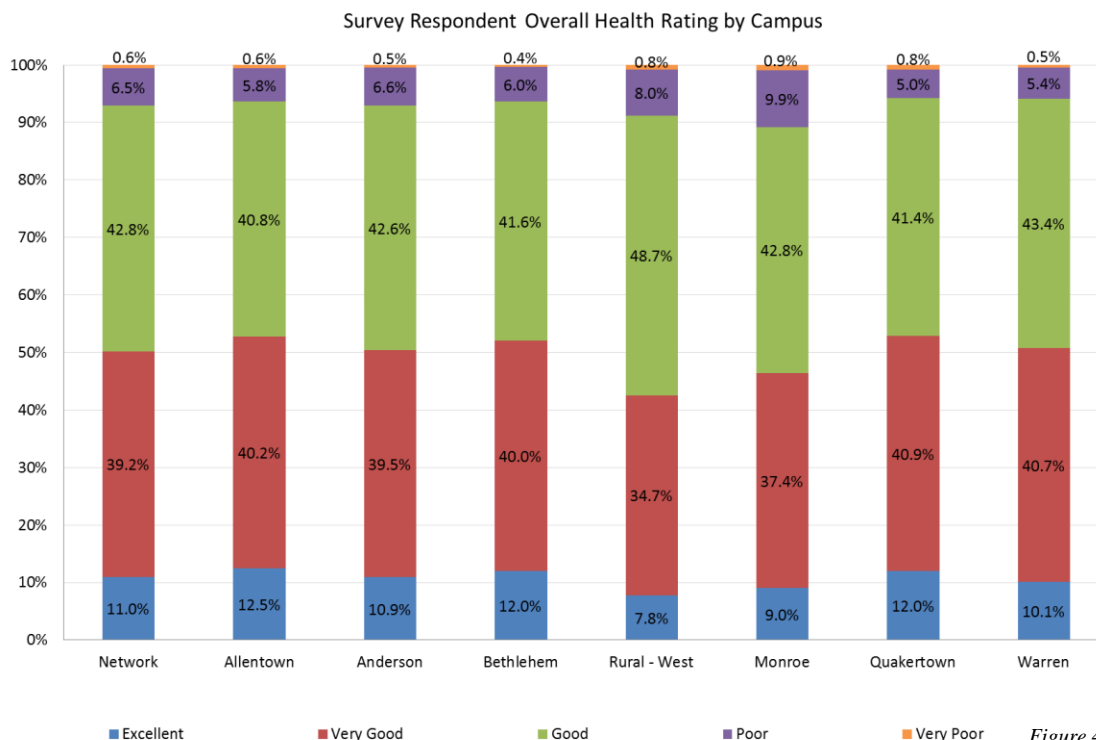


Figure 44

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 from 18.5-24.9, for someone who is overweight the range is 25-29.9, and for someone who is obese the BMI is 30.0 or more. The BMI distribution of the survey population is represented below.

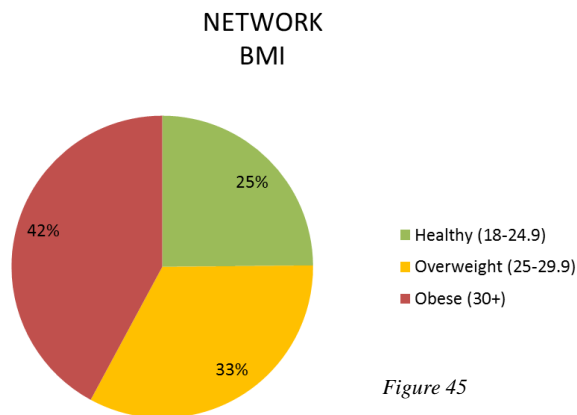


Figure 45

Based on standardized BMI calculations, 74% 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. With 51 being the least obese state and one being the most obese, Pennsylvania is ranked at 25 and New Jersey at 36². Recent data show 30% of Pennsylvania residents, 26% of New Jersey residents, and 26% of the nation are obese, compared to 42% of the network³. 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).

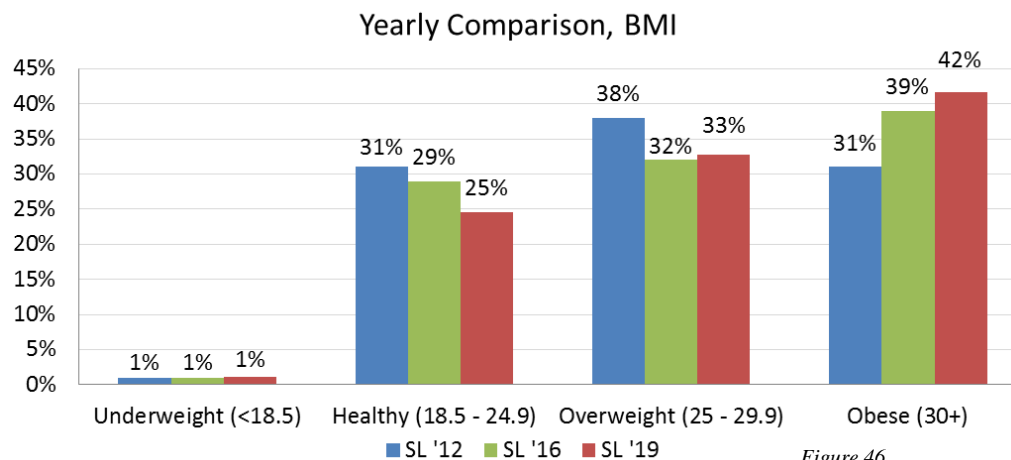


Figure 46

In looking at BMI trends across the three survey years, 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.

² <https://www.tfah.org/reports/>

³ <http://www.countyhealthrankings.org/app/pennsylvania/2018/overview>

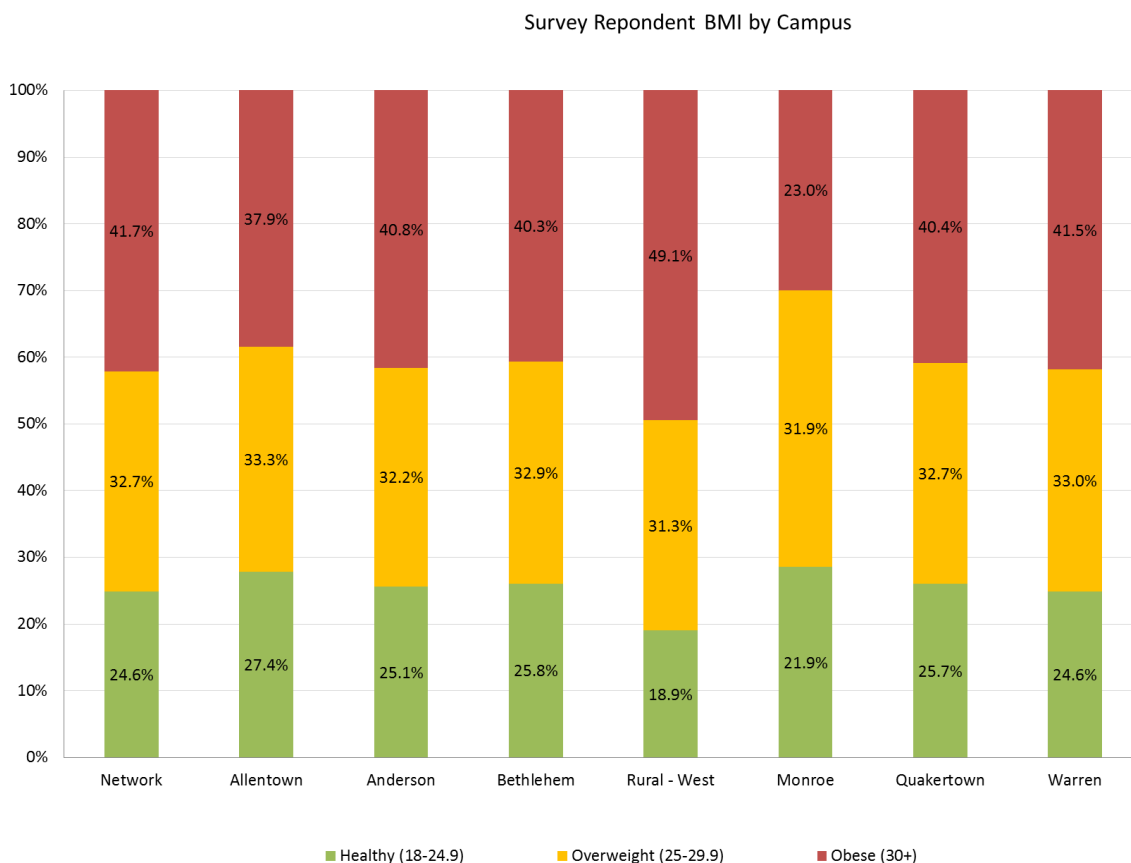


Figure 47

When information about BMI is broken up by campus, it becomes apparent that all campuses reported obesity rates that are higher than national (26%) and state (30%) levels. Monroe campus reported the lowest percentage of obese respondents at 23.0%, and the Western rural campuses had the highest percentage of obese adults at 49.1%, with 10.8% of those obese individuals falling into the morbidly obese category. Of the respondents identified as obese, the Western rural campuses had the highest percentage of morbidly obese people at 10.8%, and Allentown campus had the lowest at 7.0%.

The percentage of women falling into the healthy BMI category (28.6%) outweighed the percentage of men in that category (18.0%). 28.8% of women and 39.0% of men fell into the overweight category. For all categories of obesity, 41.2% of women and 42.5% of men fell into the obese category.

40.8% of respondents who reported exercising 5 or more days per week were in the healthy BMI range, compared to 21.6% of respondents exercising 1 to 2 days per week, and 16.1% of those not exercising at all. Conversely, 21.5% of respondents who reported exercising 5 or more days per week fell into the obese category, compared to 45.3% of those exercising 1 to 2 days per week, and 56.8% of those not exercising at all. Interestingly, the percentage of respondents in the overweight category is higher among those exercising more. The higher percentages in the overweight category is likely due to the fact that the percentage of respondents in the obese categories among those exercising more is significantly lower than it is in those exercising less (Figure 48).

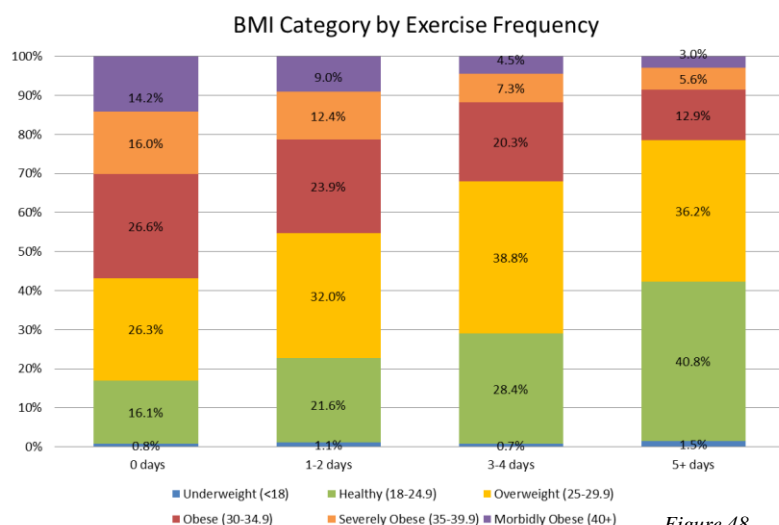


Figure 48

Similarly, increased fruit and vegetable consumption showed an inverse relationship with obesity. 39.7% of respondents eating more than 7 servings of fruits and vegetables, and 35.2% of respondents eating 5 to 7 servings of fruits and vegetables were in the healthy BMI range, compared to 21.3% of those eating 1 to 2 servings and 22.2% of those eating zero servings. Conversely, 27.9% of those eating 7 or more servings, and 31.3% of those eating 5 to 7 servings of fruits and vegetables were in the obese categories, compared to 45.0% of those eating 1 to 2 servings, and 48.7% of those eating zero servings (Figure 49).

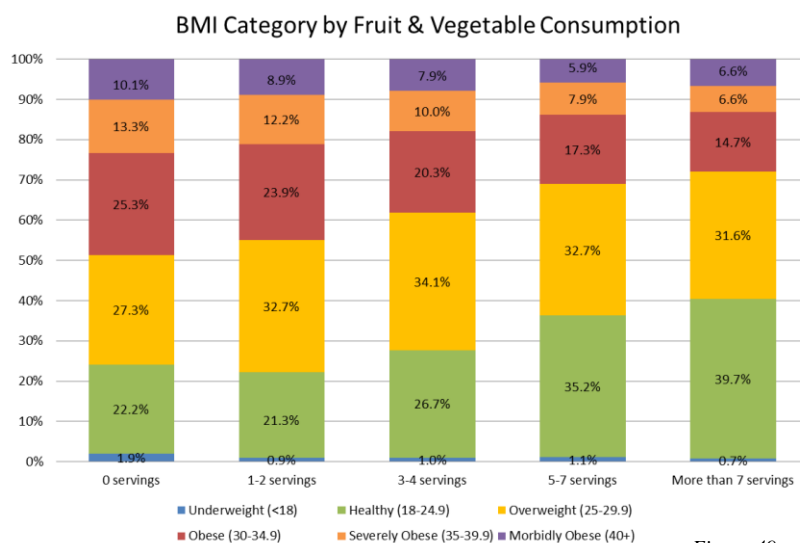
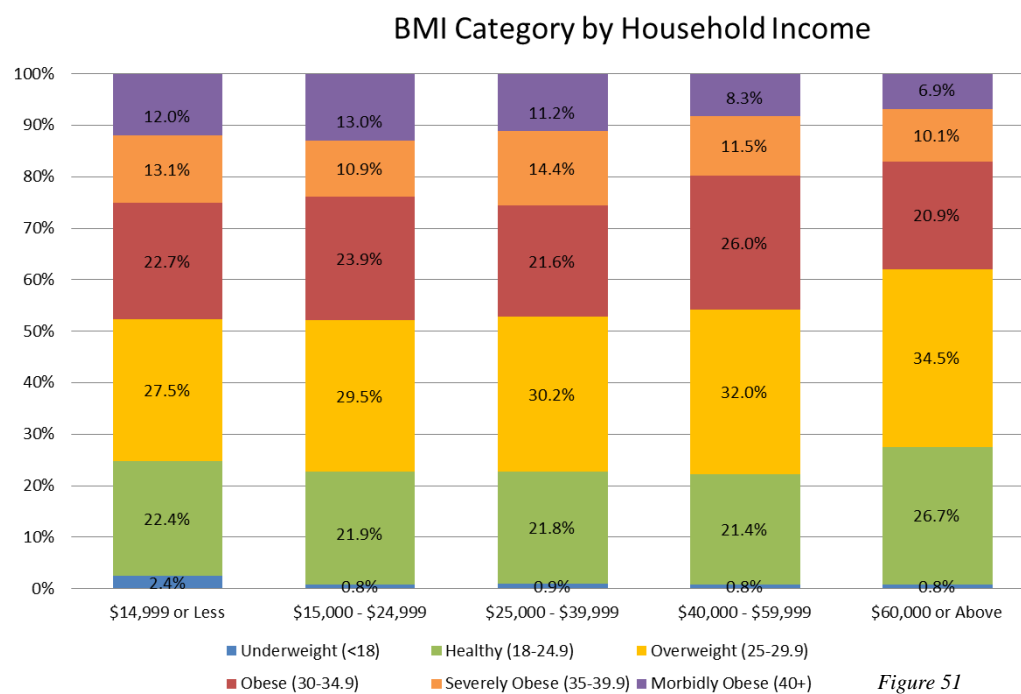
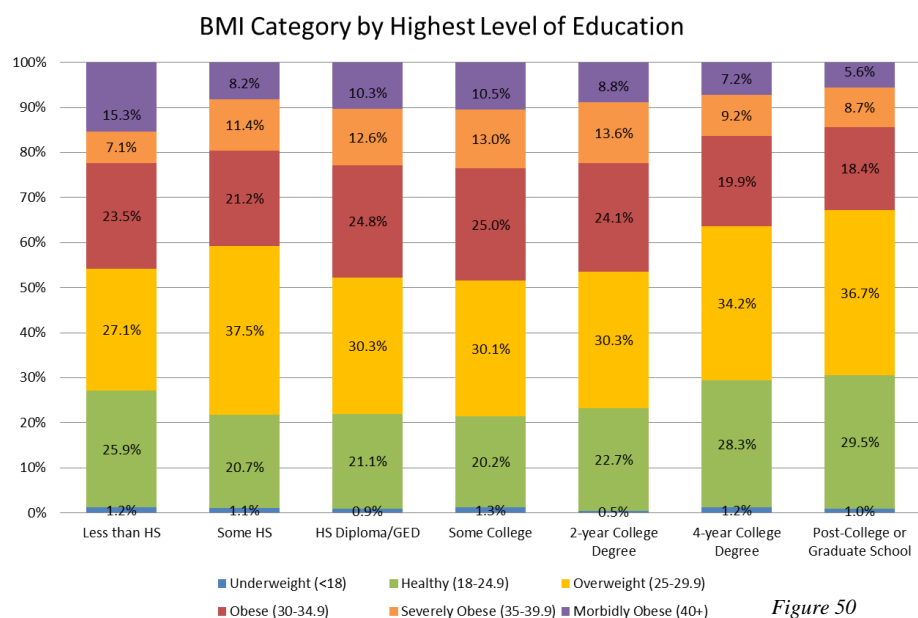


Figure 49

Education levels can also provide interesting information when correlated. Among those who did not receive a high school degree, 42.3% were classified as obese. Meanwhile, 47.7% of respondents who attained a high school diploma or GED and 40.1% of those educated beyond high school were classified as obese. As shown in Figure 50, obesity levels are lowest among those with a four-year college degree or higher.



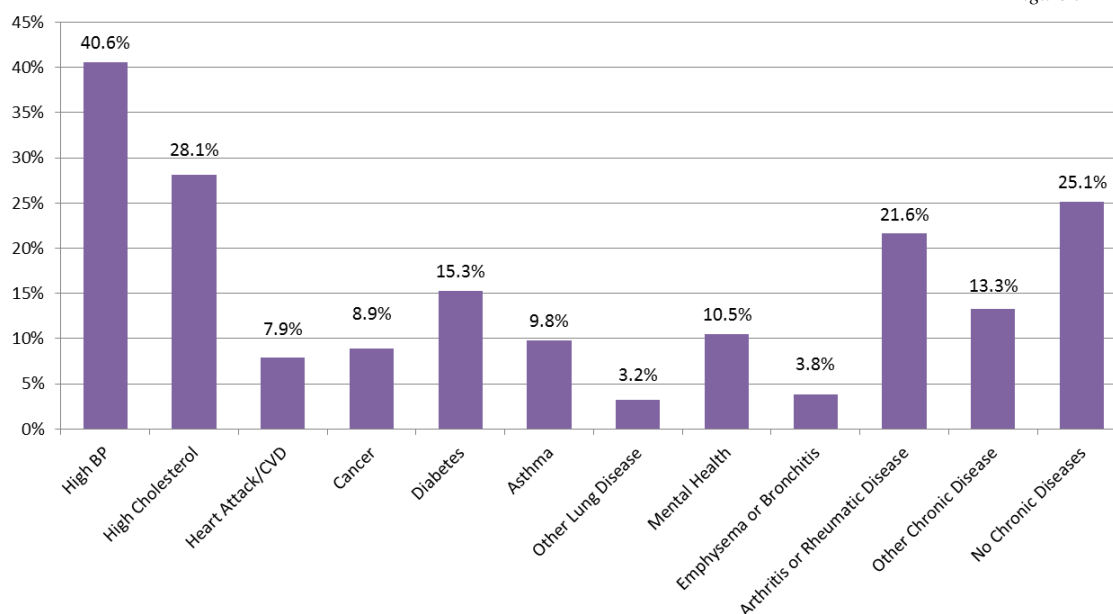
Income is an additional socioeconomic factor that can have an influence on BMI. As shown in Figure 51, obesity rates increase in lower income brackets. 47.8% of respondents making less than \$15,000, and 47.8% of respondents making between \$15,000 and \$24,999 were obese, compared to 37.9% of those making more than \$60,000. This gradient is especially apparent in the morbidly obese category, where percentage of morbidly obese respondents in the lowest income brackets was nearly twice as high as the highest income bracket.

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

NETWORK
Presence of Chronic Diseases

Figure 52

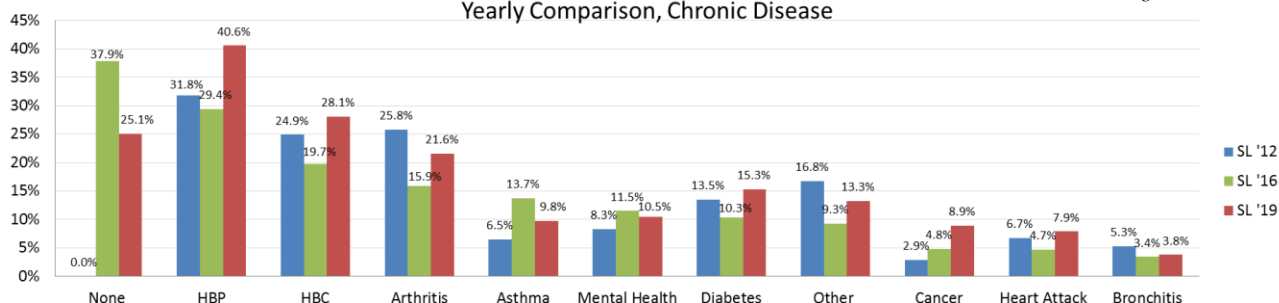


Overall 74.9% of survey respondents reported having a chronic disease. High blood pressure is definitively the most common condition for respondents to have, and it is generally considered to be a precursor or indicator for many other chronic diseases and health conditions, such as stroke, heart attacks, and heart disease. 86.2% of survey respondents over the age of 65 reported having at least one chronic 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 and 2019 surveys had higher rates of respondents over the age of 65 – this might explain why some of the 2012 and 2019 percentages seem higher than 2016 percentages. There was no option for ‘none’ in 2012, so Figure 53 only shows this option for 2016 and 2019.

Yearly Comparison, Chronic Disease

Figure 53



29% of respondents for Allentown campus reported having no chronic health conditions.

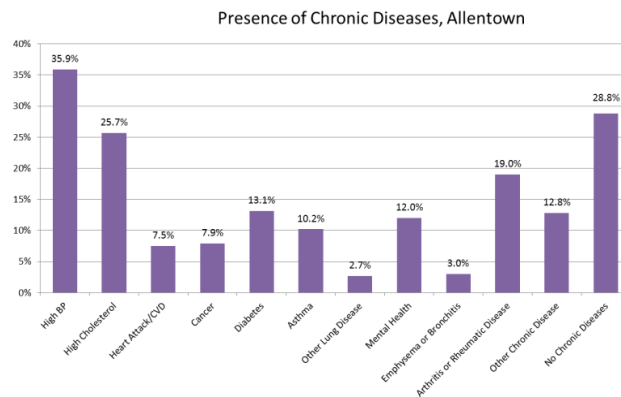


Figure 54

24% of respondents for Anderson campus reported having no chronic health conditions.

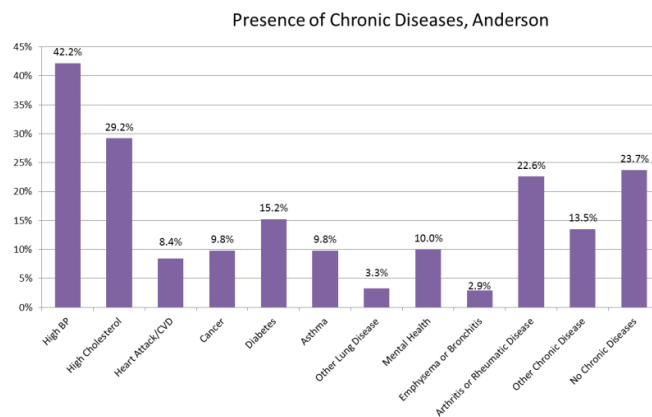


Figure 55

26% of respondents for Bethlehem campus reported having no chronic health conditions.

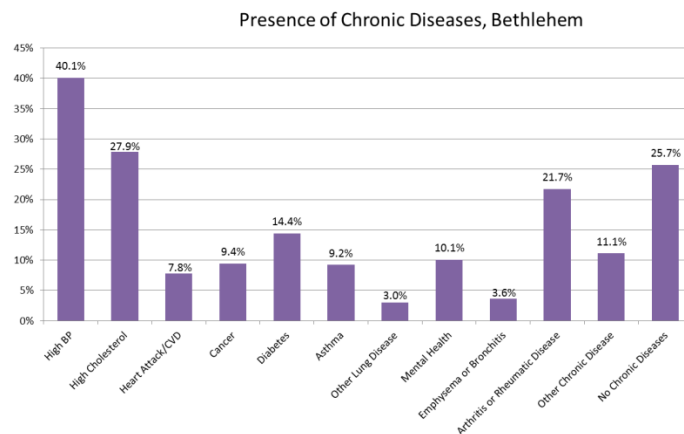


Figure 56

26% of respondents for the Western rural campuses reported having no chronic health conditions.

2019 Community Health Needs Assessment Survey

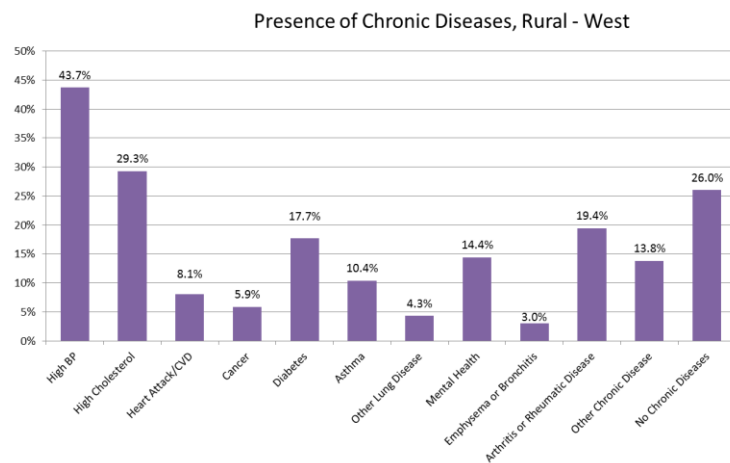


Figure 57

22% of respondents for Monroe campus reported having no chronic health conditions.

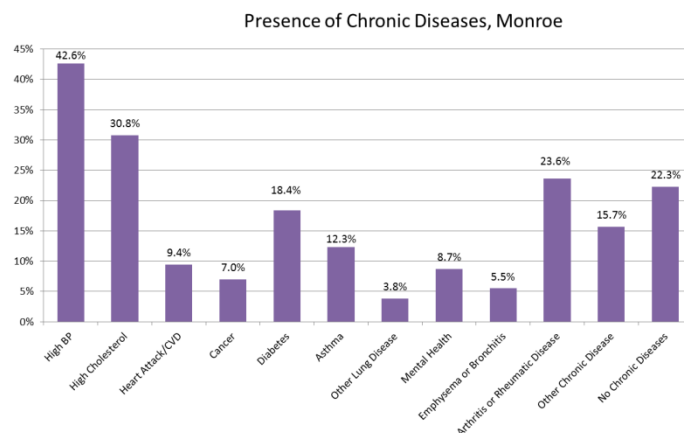


Figure 58

27% of respondents for Quakertown campus reported having no chronic health conditions.

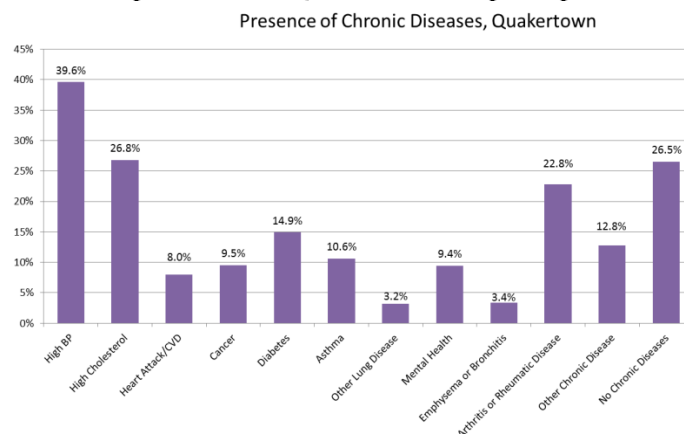


Figure 59

23% of respondents for Warren campus reported having no chronic health conditions.

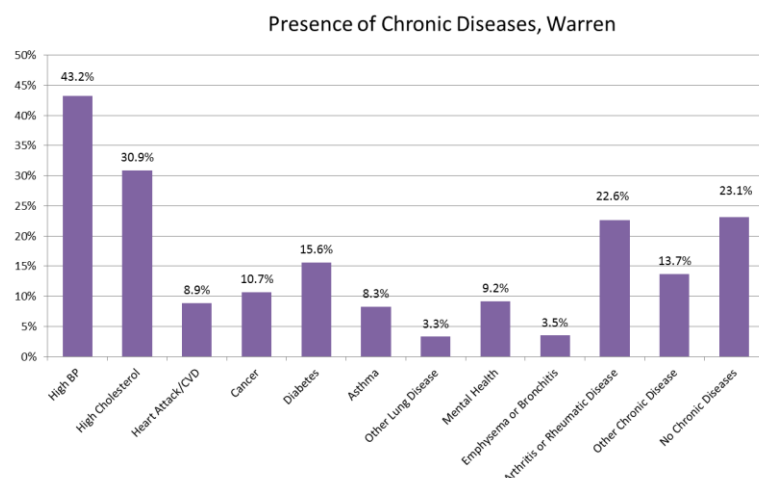


Figure 60

As previously discussed, obesity was most prevalent among respondents in lower income brackets. Therefore, chronic disease in general tends to be more prevalent as well. Our survey also looked specifically at two chronic diseases that tend to have an excess burden on community members in lower socioeconomic brackets – diabetes and asthma. As shown in Figures 61 and 62, both diabetes and asthma rates were higher among survey respondents in lower income brackets. Asthma rates among the lowest income bracket (18.6%) were more than double those of the highest income bracket (7.7%).

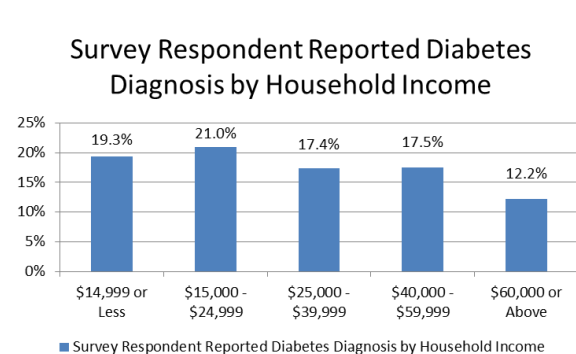


Figure 61

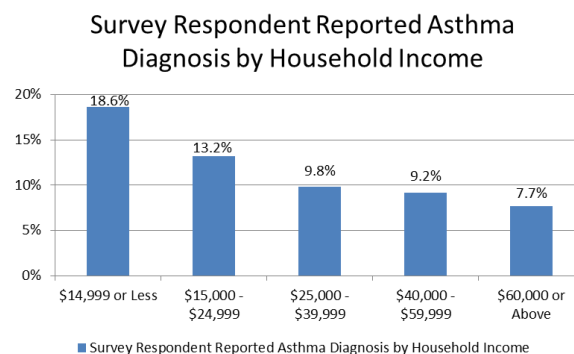


Figure 62

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. 54.1% of respondents with a healthy BMI reported having chronic diseases, while 84.1% of morbidly obese respondents reported having a chronic disease.

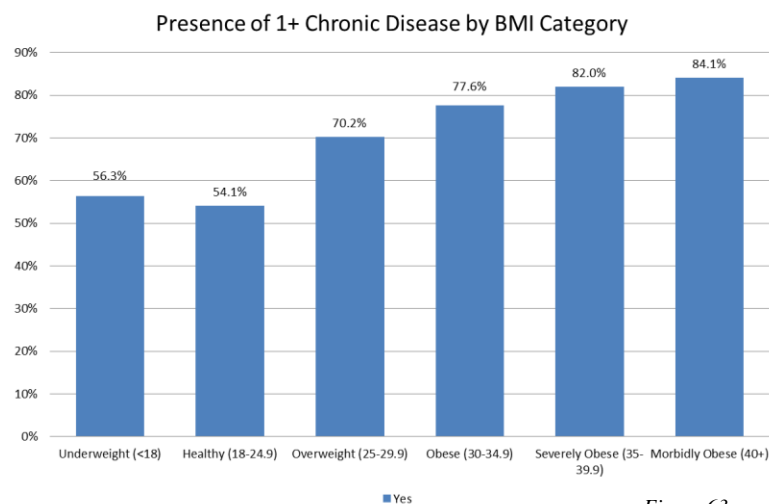


Figure 63

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. 73.1% of respondents who reported having zero servings of fruits and vegetables had a chronic disease, whereas only 53.1% of those reporting more than 7 servings of fruits and vegetables had a chronic disease.

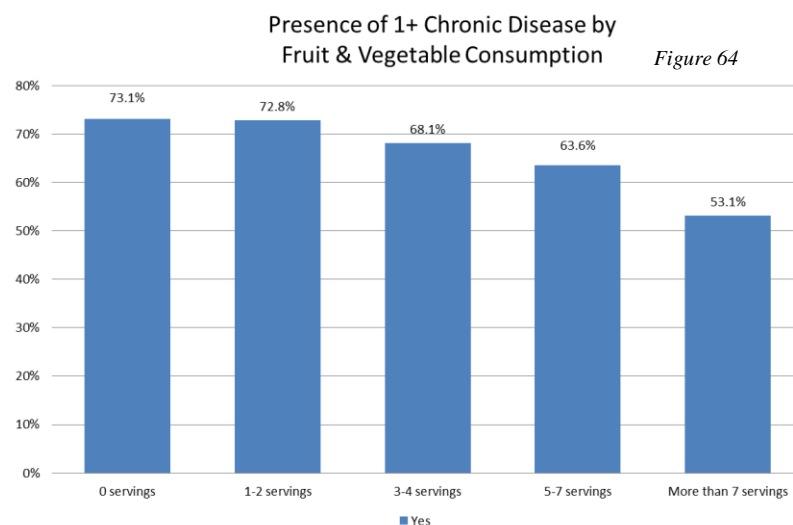


Figure 64

Similarly, exercise frequency had an inversely proportional relationship to presence of chronic diseases. 76.9% of respondents who did not exercise had at least one chronic disease, compared to 60.4% of respondents who exercised 5 or more days per week.

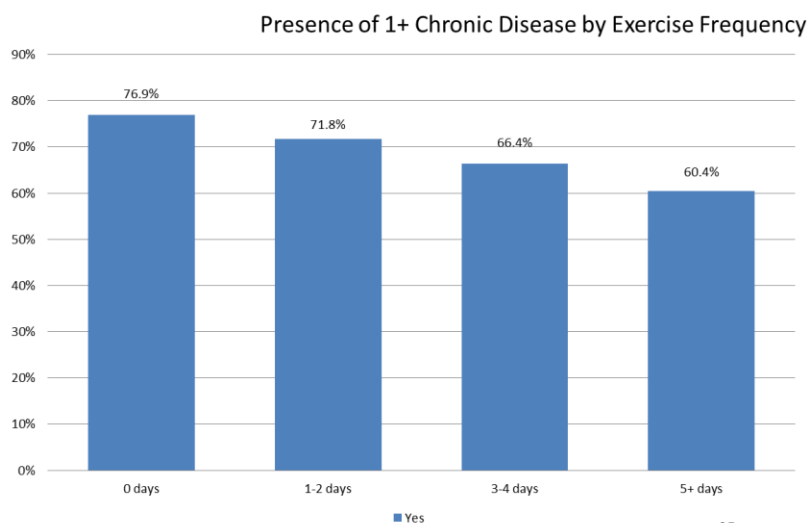


Figure 65

Additionally, income has also been shown to play a role in the presence of chronic disease. 81% of respondents making less than \$14,999 reported having chronic disease, compared to 70% of respondents making more than \$60,000.

D. POOR MENTAL HEALTH DAYS

According to survey responses, 37% 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.

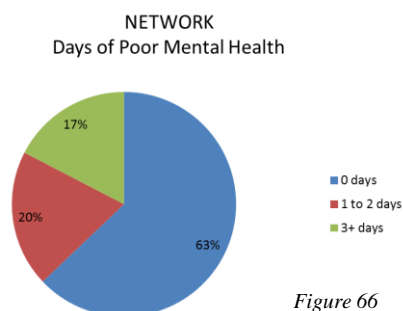


Figure 66

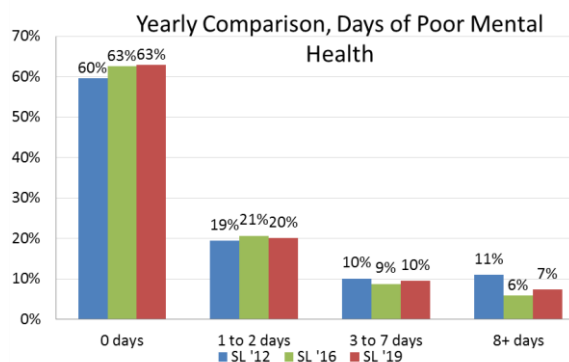


Figure 67

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 (63.6%) reported having no days of poor mental health compared to Hispanic respondents (54.5%). Additionally, 11.5% of Hispanic respondents reported having 8 or more poor mental health days, whereas only 7.3% 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. 70% of those making more than \$60,000 had no poor mental health days compared to 41% of those making less than \$14,999.

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

72.0% of those consuming 5 to 7 servings of fruits and vegetables, and 73.0% of those consuming more than 7 servings suffered no days of poor mental health, as compared to only 53.8% of those consuming 0 servings of fruits and vegetables. 14.7% respondents who had no servings of fruit and vegetable experienced 8 or more sick days compared to 5.4% of those consuming 5 to 7 servings, and 5.0% among those who ate more than 7 servings.

73.5% of people exercising five or more days a week had no poor mental health days compared to 56.6% of those who did not exercise. 11.3% of those who did not exercise had 8 or more poor mental health days, compared to 4.3% of people who exercised 3 to 4 days per week, and 5.3% of those who exercised 5 or more days per week.

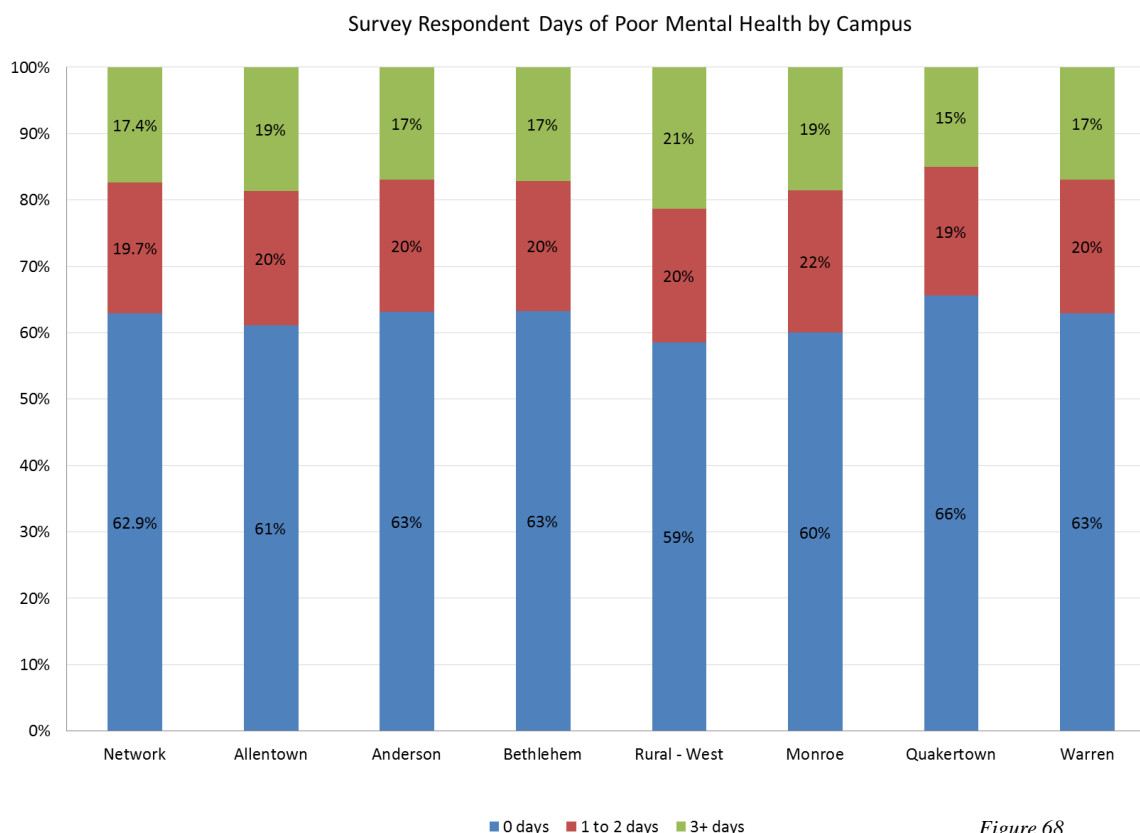


Figure 68

When information regarding days of poor mental health was examined by campus, 66% of respondents from Quakertown campus reported missing no days of work due to poor mental health, compared to the network wide average of 63%. The Western rural campuses (59%) had the lowest percentage of respondents reporting that they missed no days of work due to poor mental health; conversely, they had

the highest percentage (10%) 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 and 2019 surveys 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. 45.6% 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 93% of respondents rated their health as ‘good’ or better.

When comparing the 2019 data to the 2016 and 2012 data, it appears as though physical health is getting worse. The percentage of respondents indicating that they had zero to two sick days decreased, while the percentage of respondents indicating that they had three or more sick days has increased, more closely mirroring 2012 respondents.

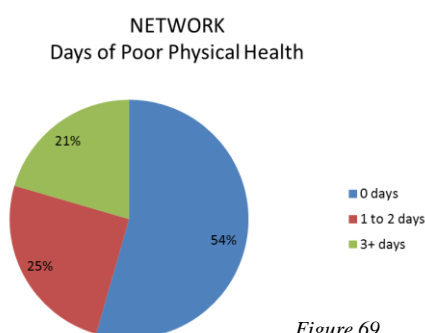


Figure 69

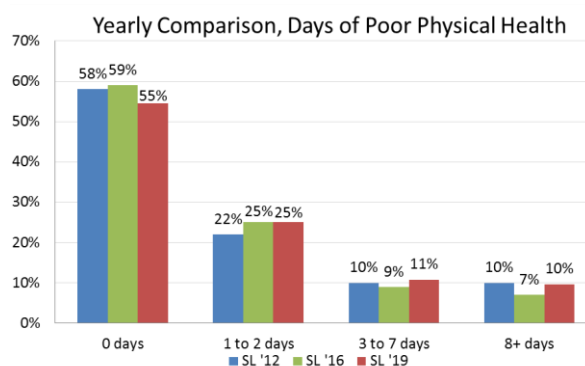


Figure 70

The ethnicity of respondents is an important factor to consider when examining sick days due to poor physical health. Non-Hispanic respondents had a slightly higher percentage of no sick days at 54.8% compared to the Hispanic respondents at 51.0%. While 11.0% of Hispanic respondents reported having 8 or more poor physical health days, only 9.5% of Non-Hispanic respondents reported this.

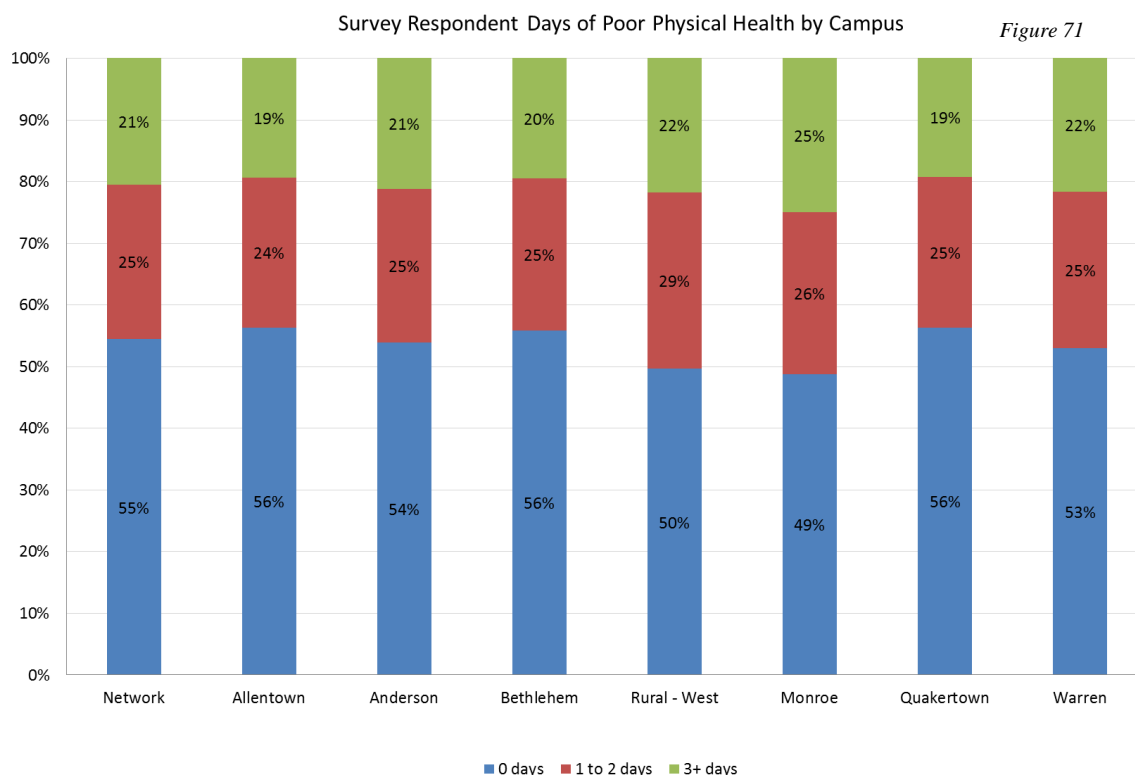
When income of respondents is compared to number of days of poor physical health, 60.5% of respondents making more than \$60,000 reported having no physical health sick days compared to 40.9% among those making less than \$14,999. Additionally, 20.5% of respondents making less than \$14,999 and 15.1% of the respondents making \$15,000 to \$24,999 reported having 8 or more sick days due to poor physical health, as compared to 6.4% among those making more than \$60,000.

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

63.7% of those consuming 5 to 7 servings of fruits and vegetables, and 66.9% of those consuming more than 7 servings suffered no sick days due to poor physical health, as compared to only 49.8% of those consuming no servings of fruits and vegetables. 15.8% respondents who had no servings of fruits and

vegetables experienced 8 or more sick days compared to 6.5% of those consuming 5 to 7 servings, and 5.8% among those who ate more than 7 servings.

67.1% of people exercising five or more days a week had no sick days due to poor physical health compared to 45.7% of those who did not exercise. 16.7% of those who did not exercise had 8 or more poor physical health days, compared to 5.1% of people who exercised five or more days a week.



Bethlehem, Quakertown, and Allentown campuses (56%) had the greatest percentage of respondents reporting no days of poor physical health, while Monroe campus (49%) had the smallest percentage. Conversely, Monroe campus (49%) had the greatest percentage of respondents reporting three or more days of poor physical health, while Allentown and Quakertown campuses (19%) had the smallest percentage.

F. FALLS

Survey respondents over the age of 45 were asked how many times they had fallen in the past year. 22.0% of respondents age 45 years or older reported falling at least one time in the past 12 months. The average number of falls among respondents age 45 years or older was 2.63, Quakertown had the highest average number of falls (3.90) and Allentown had the lowest (2.00). Across the Network, an average of 1.51 falls resulted in injury. Quakertown had the lowest average resulting in injury (1.30), and Warren had the highest (1.70).

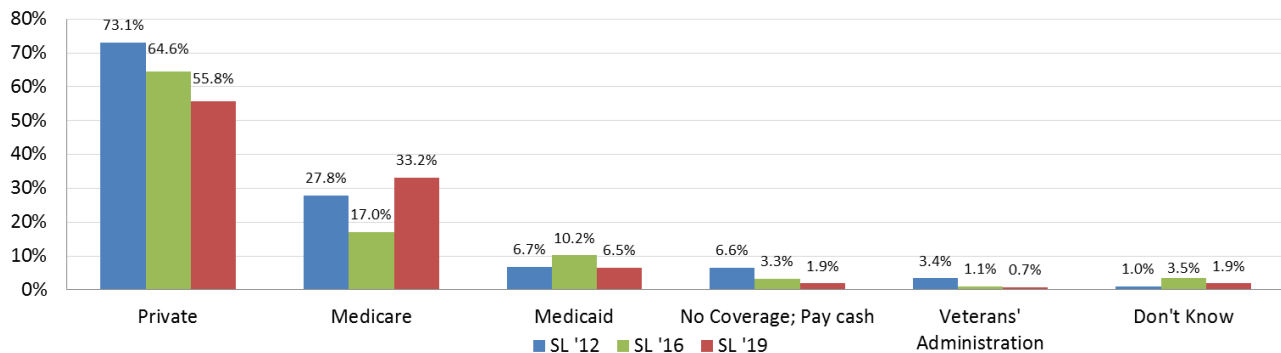
5. Clinical Care:

A. HEALTH INSURANCE

The overall 2019 survey data found that 56.5% of respondents used private insurance (including Veterans Administration), 6.5% of respondents had Medicaid – a government subsidized insurance, 33.2% of respondents had Medicare, and 1.9% of respondents did not have coverage and therefore paid cash.

Yearly Comparison, Primary Medical Insurance

Figure 72



Survey Respondent Primary Medical Insurance by Campus

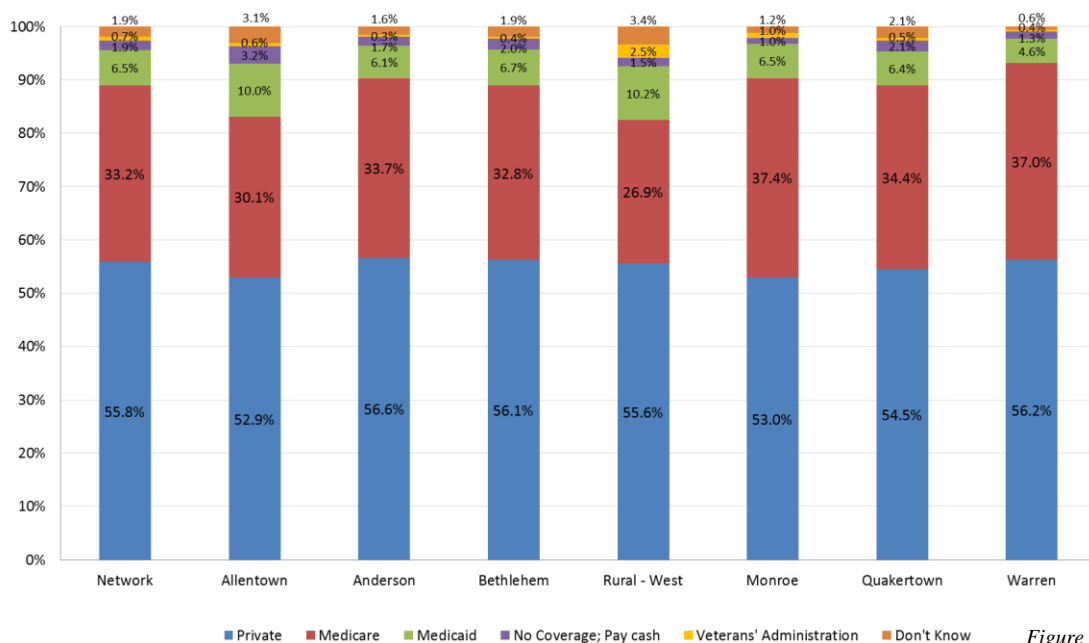


Figure 73

As suspected, based on the survey data trends, Monroe campus had the largest percentage (37%) of respondents using Medicare, and the Western rural campuses (27%) had the smallest. The Western rural campuses had the largest percentage of survey respondents using Medicaid at 10.2% and Warren had the smallest percentage at 4.6%. Allentown campus had the largest uninsured population at 3.2%.

4.3% of those making less than \$14,999 were uninsured, while only 0.5% of those making \$60,000 or more reported being uninsured. 80% of survey respondents making \$60,000 or more were privately insured compared to 25% of those making between \$15,000 and \$24,999, and 12% of those making less than \$15,000.

25.5% of survey respondents who reported that they had Medicaid were Hispanic and 4.6% were Non-Hispanic. Additionally, 6.3% of those with no coverage also identified themselves as Hispanic and 1.5% were Non-Hispanic. When looking at those with private insurance, only 40.9% identified themselves as Hispanic and 57.9% were Non-Hispanic.

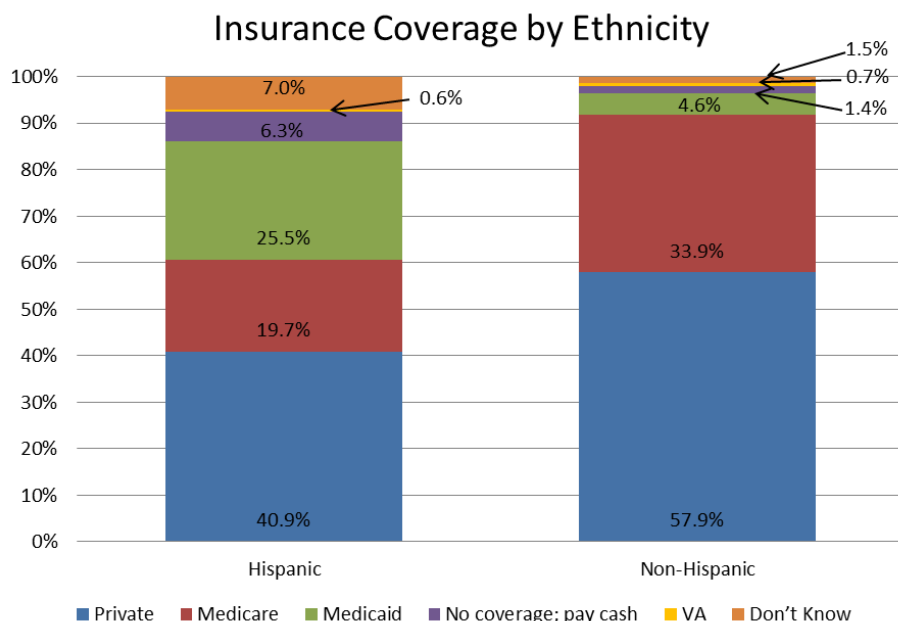


Figure 74

30.6% of the respondents who had less than a high school education had Medicaid compared to 10.1% of high school educated respondents and only 4.2% of those who had an education beyond high school. 5.0% of respondents who had less than a high school education, and 3.2% of high school educated respondents were uninsured, compared to 1.4% of those who had an education beyond high school. Conversely, 62.5% of those who had an education beyond high school had private insurance, compared to 39.6% of high school educated respondents and 15.0% of those who had less than a high school education.

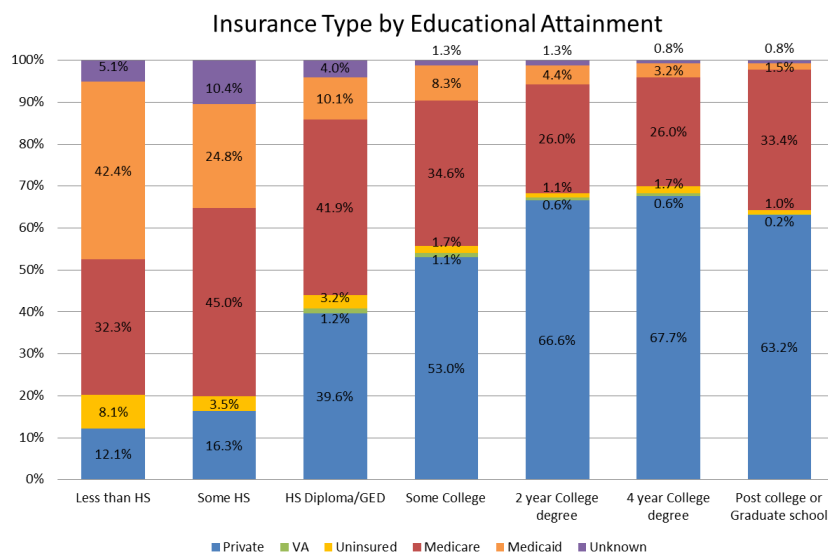


Figure 75

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.

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, 67.6% of survey respondents did not use the ER at all in the past year, and 26.5% of the respondents used the ER once or twice. This question was not asked on the 2012 Survey, thus Figure 76 only represents the 2016 and 2019 survey data.

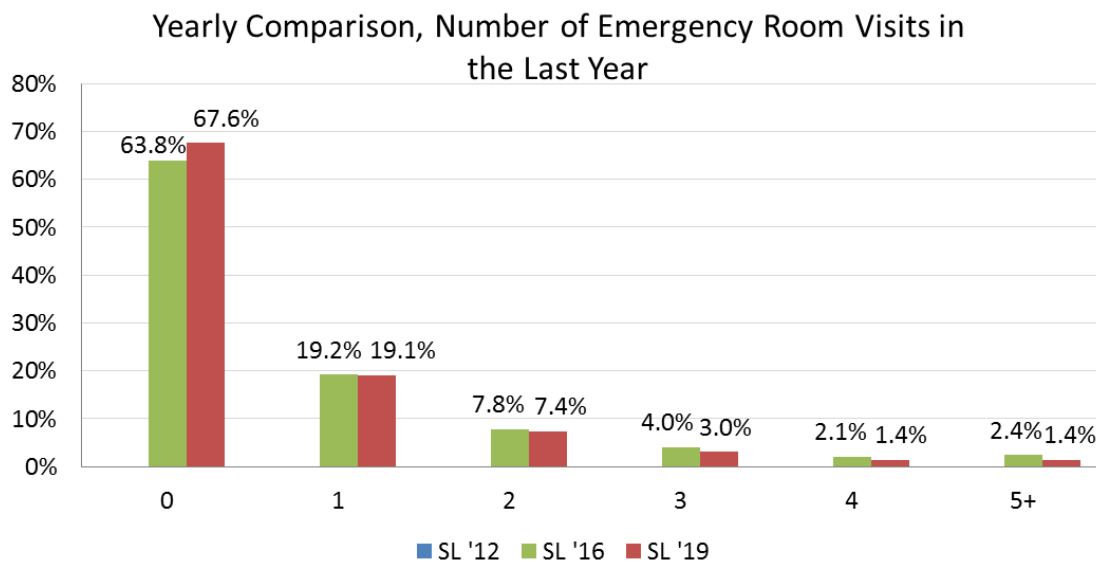


Figure 76

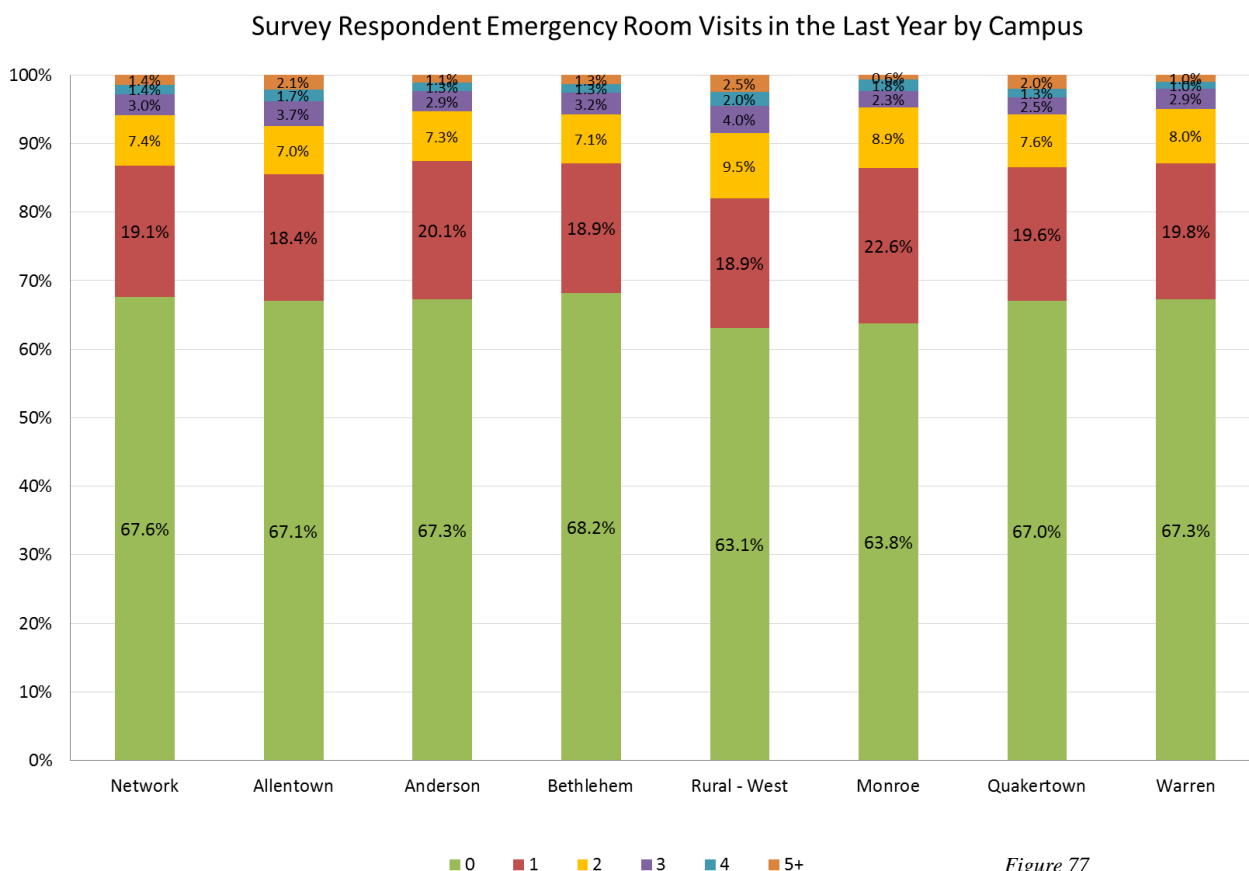


Figure 77

Bethlehem campus reported the highest percentage of people who did not visit the ER in the past year at 68.2%, and the Western rural campuses reported the lowest percentage in this category at 63.1%. Conversely, the Western rural campuses had the highest percentage of respondents using the ER five or more times at 2.5%, whereas Monroe campus had the lowest percentage at 0.6%.

73.2% of respondents with private insurance reported not using the ER in the past year, compared to 35.3% of respondents with Medicaid. Conversely, 9.0% of respondents with Medicaid used the ER five or more times compared to 0.6% with private insurance. 41.0% of respondents with Medicaid used the ER two or more times, compared to 8.4% of those with private insurance.

4.3% of Hispanic respondents used the ER five or more times compared to 1.2% of Non-Hispanic respondents. Conversely, 69.7% of Non-Hispanic respondents did not use the ER in the past year, compared to 46.3% of Hispanic respondents. Hispanic and Non-Hispanic respondents seem to have used the ER once in the last year at similar rates (24.2% and 18.6%, respectively), but the Hispanic respondents had greater percentages of ER use for two or more visits at 29.5% compared to 10.9% of Non-Hispanic respondents.

Income also plays a role in frequent use of the ER. 53.1% of survey respondents making between \$15,000 and \$24,999, and 40.2% of respondents making less than \$15,000 did not use the ER in the last year, compared to 76.3% of those making over \$60,000. However, 37.3% of survey respondents making

between \$15,000 and \$24,999, and 24.8% of respondents making less than \$15,000 used the ER two or more times in the last year, compared to 7.2% 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. 25.2% of survey respondents reported being unable to pay for eyeglasses compared to 66.1% who were able to pay for eyeglasses. 8.7% responded that they do not need eyeglasses. A third response of “I do not need eyeglasses” was added to the 2016 and 2019 surveys. This additional response may be a reason why the percentages are different when comparing the 2012 survey to the 2016 and 2019 surveys. However, it is important to note that the ‘yes’ response remains comparable.

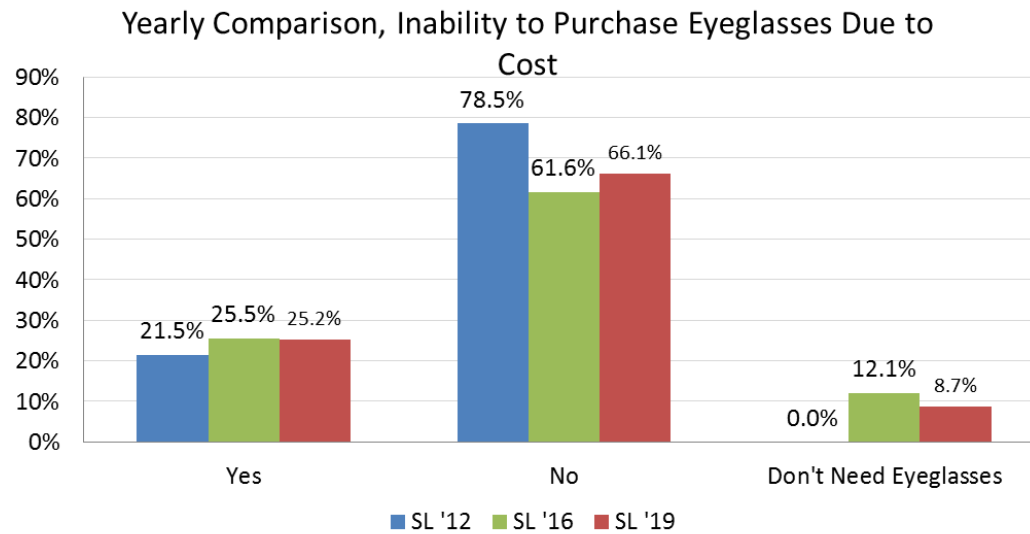


Figure 78

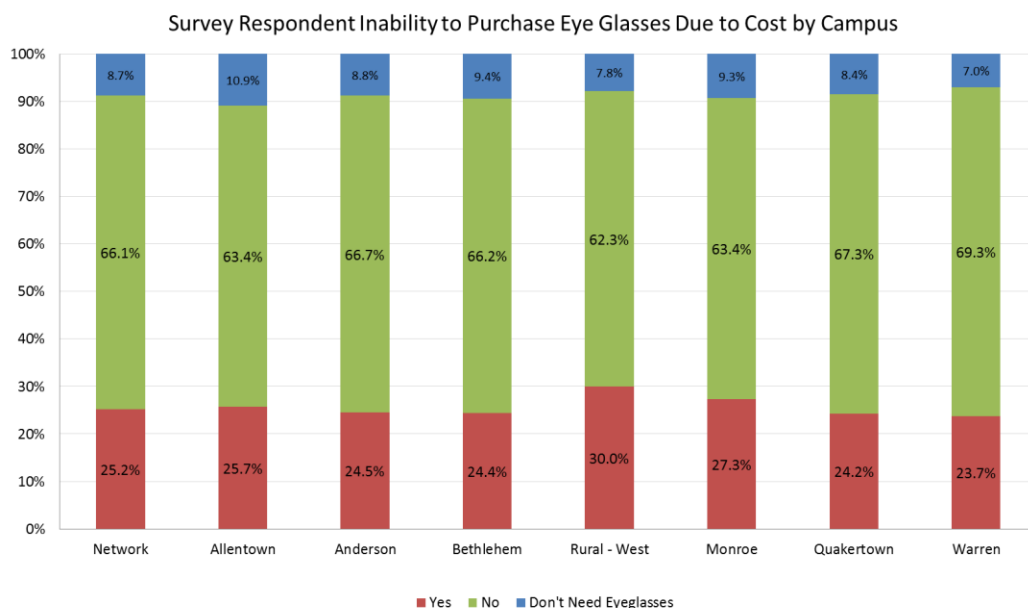


Figure 79

It is clear from Figure 79 that the Western rural campuses had the highest percentage (30%) 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 that all costs are paid out of pocket. It is important to note that each campus had approximately a 25% response rate of inability to purchase eyeglasses due to cost.

D. PRIMARY CARE CHECK UP

The 2019 CHNA survey asked respondents to note how long it had been since their last visit to a primary care doctor for a routine checkup.

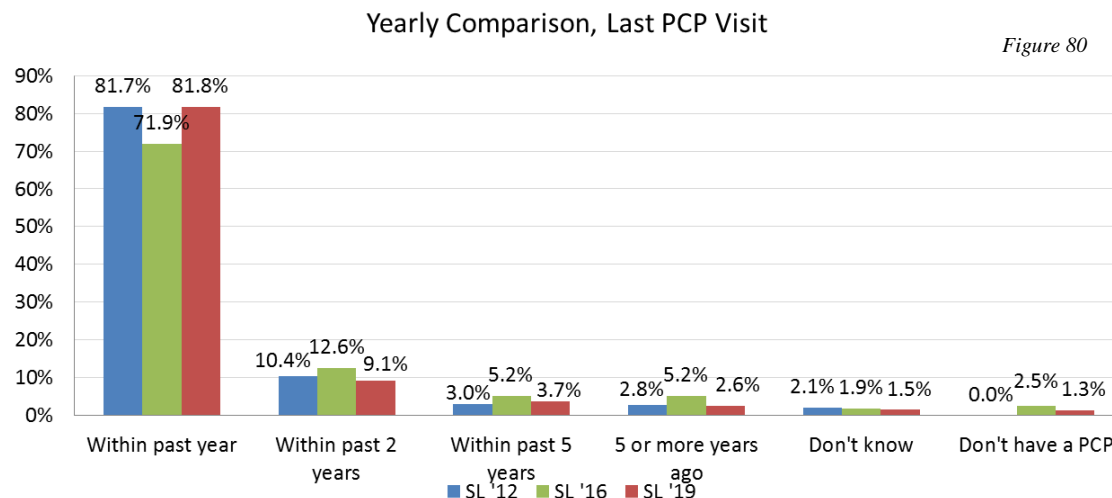


Figure 80

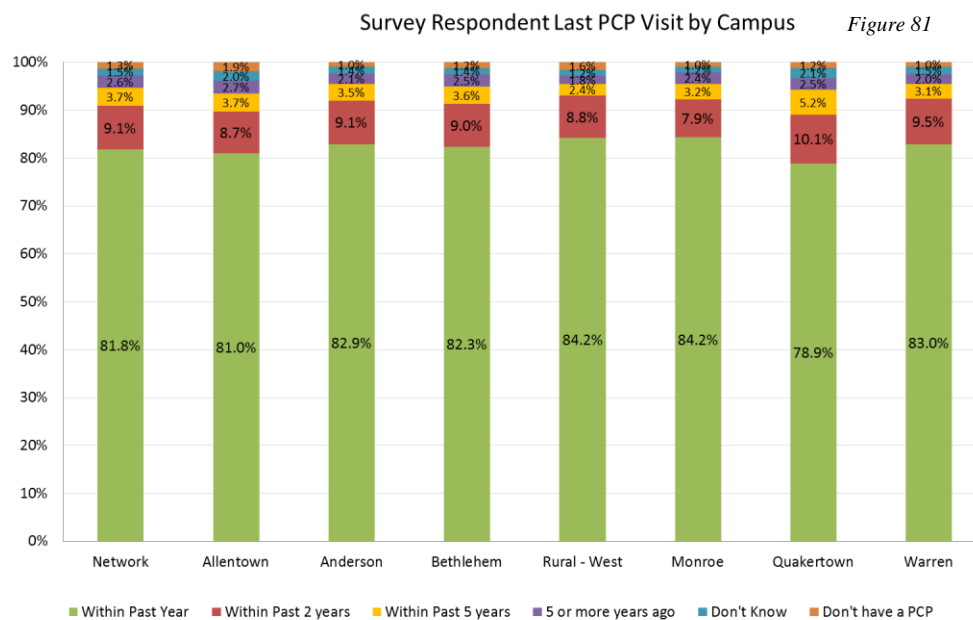
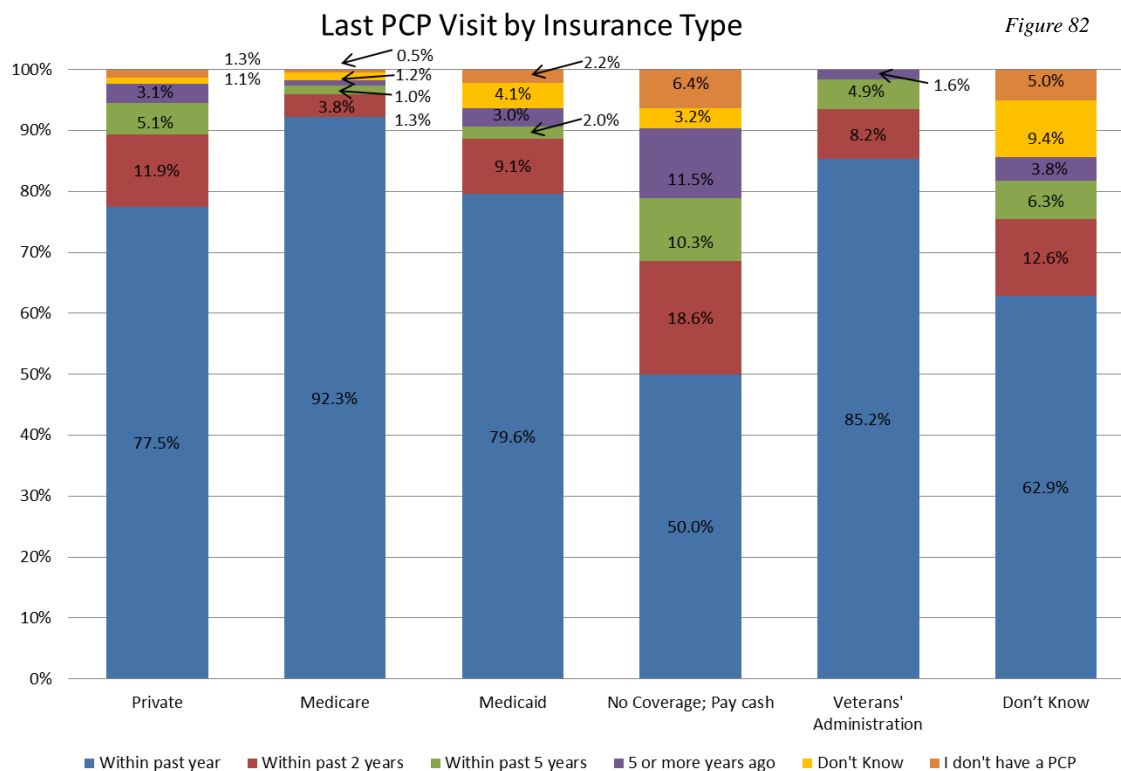
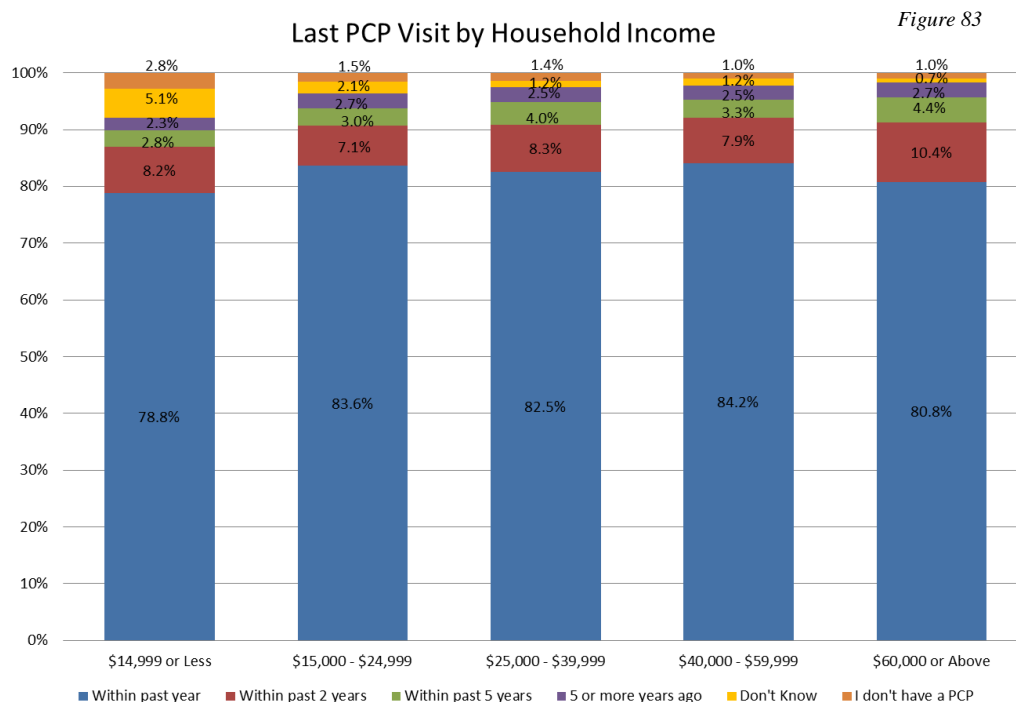


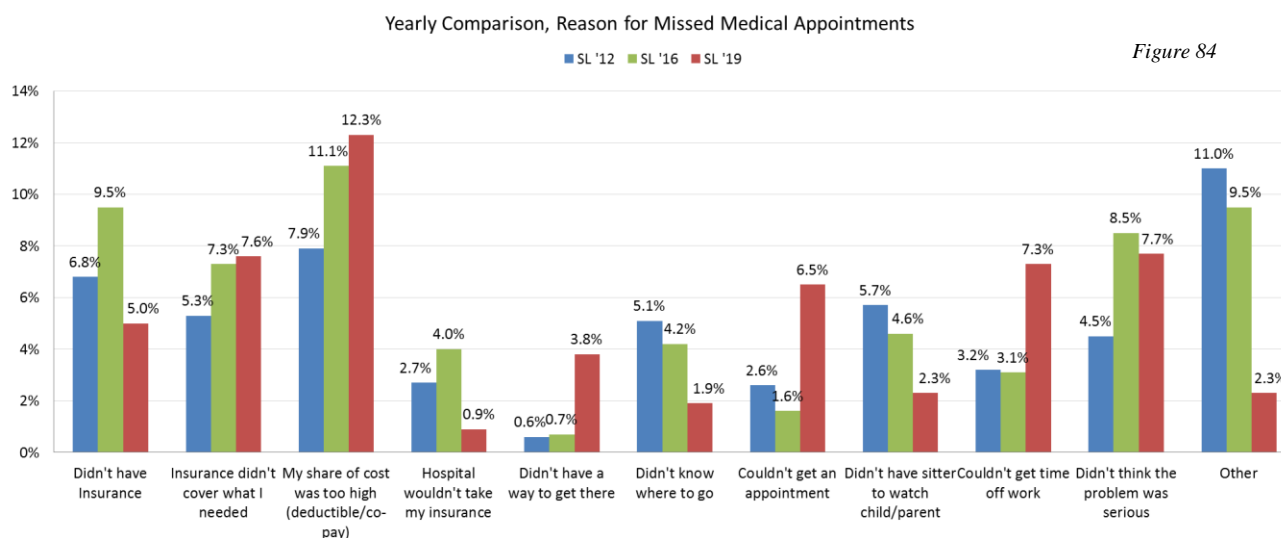
Figure 82 shows that 77.5% of respondents with private insurance saw their PCP within the last year compared to 50.0% with no insurance coverage. However, 79.6% of the people with Medicaid saw their PCP in the last year along with 92.3% of respondents with Medicare. 6.4% of people with no insurance coverage did not have a primary care doctor compared to 1.3% of those with private insurance and 2.2% of those with Medicaid.





E. REASONS FOR POSTPONEMENT OF CARE

The overall survey data revealed that 58.9% of respondents did not miss any doctor's appointments. However, respondents selected various reasons for missing an appointment. 12.3% of respondents reported that their share of the cost (co-pay/co-insurance) being too high was a reason for why appointments were missed. Additionally, 7.7% of the respondents reported that they didn't think that their problem was serious. This may highlight miscommunication and/or lack of education related to health problems in our community. 7.6% of responses indicated that their insurance did not cover what they needed. 7.3% also reported that they couldn't get time off from work to attend appointments, and 6.5% reported that they couldn't get an appointment.



According to the survey data, 67.7% 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 (4.3%) missed an appointment because their insurance did not cover what they needed.

16.6% of respondents with private insurance and 15.2% of uninsured patients 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 13.0% of respondents with Medicaid and 4.9% with VA insurance. 17.2% of those with Medicaid missed an appointment because they did not have a way to get there.

Additionally, 10.6% of respondents with Medicaid, 7.6% of privately insured respondents, and 6.6% of respondents with VA insurance 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 Medicaid (5.7%).

Those with Medicaid (9.9%) and those who did not know what coverage they have (13.8%) reported that they missed an appointment because they did not think the problem was serious.

Reason for Postponement of Medical Care at Allentown/Sacred Heart	Percentage of Responses
My share of the cost was too high (deductible/copay)	11.2%
Insurance didn't cover what I needed	8.1%
Didn't have insurance	7.5%
Couldn't get time off from work	7.5%
Didn't think the problem was serious	7.4%

Table 2

Reason for Postponement of Medical Care at Anderson	Percentage of Responses
My share of the cost was too high (deductible/copay)	12.2%
Didn't think problem was serious	8.0%
Couldn't get time off from work	8.0%
Insurance didn't cover what I needed	7.2%
Couldn't get an appointment	6.7%

Table 3

Reason for Postponement of Medical Care at Bethlehem	Percentage of Responses
My share of the cost was too high (deductible/copay)	11.5%
Didn't think problem was serious	7.5%
Insurance didn't cover what I needed	7.4%
Couldn't get time off from work	7.2%
Couldn't get an appointment	6.1%

Table 4

Reason for Postponement of Medical Care at Western Rural campuses	Percentage of Responses
My share of the cost was too high (deductible/copay)	13.2%
Didn't think problem was serious	9.2%
Insurance didn't cover what I needed	7.8%
Couldn't get an appointment	7.7%
Couldn't get time off from work	7.4%

Table 5

Reason for Postponement of Medical Care at Monroe	Percentage of Responses
My share of the cost was too high (deductible/copay)	13.1%
Couldn't get time off from work	8.5%
Insurance didn't cover what I needed	8.5%
Couldn't get an appointment	8.5%
Didn't think problem was serious	7.5%

Table 6

Reason for Postponement of Medical Care at Quakertown	Percentage of Responses
My share of the cost was too high (deductible/copay)	10.9%
Didn't think problem was serious	7.8%
Couldn't get time off from work	7.2%
Insurance didn't cover what I needed	6.3%
Couldn't get an appointment	5.2%
Didn't have health insurance	5.2%

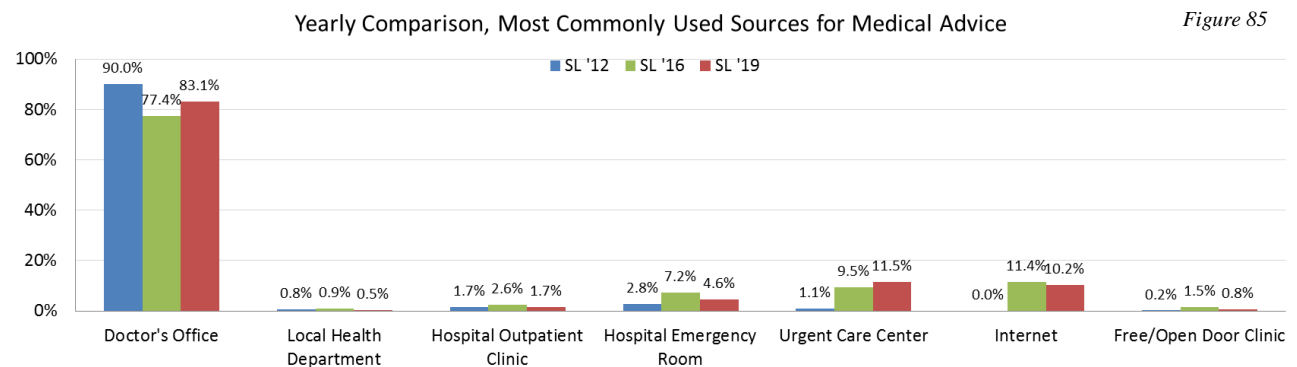
Table 7

Reason for Postponement of Medical Care at Warren	Percentage of Responses
My share of the cost was too high (deductible/copay)	12.3%
Didn't think problem was serious	8.7%
Insurance didn't cover what I needed	6.9%
Couldn't get time off from work	6.9%
Couldn't get an appointment	6.0%

Table 8

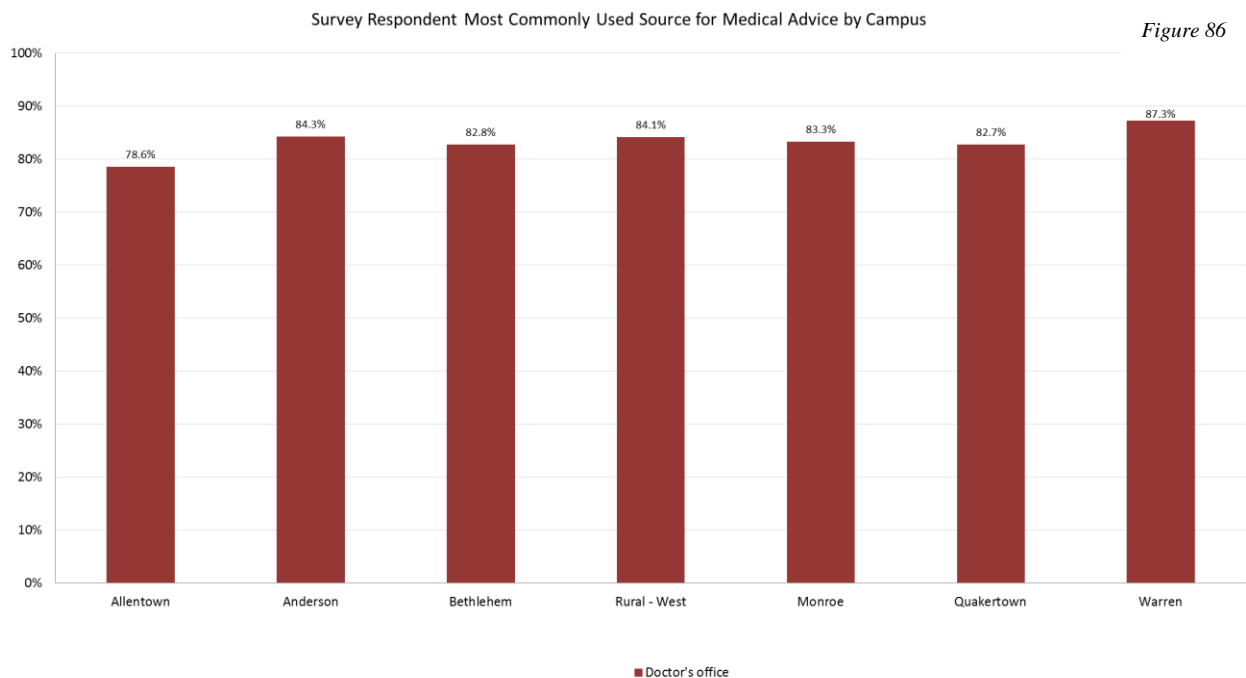
F. RESOURCES FOR ADVICE ABOUT HEALTH

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. A comparative graph is shown in Figure 85, detailing results from the 2012, 2016, and 2019 surveys.



It is important to note that for all of SLUHN's campuses, most respondents sought their medical advice from their doctor's offices (Figure 86). Another note is the use of hospital ERs centers as sources of medical advice. This trend was highest for respondents from both Allentown and Western rural campuses

(7.4% and 6.2%, 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. In addition to ER utilization, 11.5% of respondents indicated that they utilize Urgent Care Centers as a commonly used source of medical information, especially in our rural (Western rural and Monroe) campus areas. In fact, while the percent of respondents indicating ER utilization decreased from 2016 to 2019, Urgent Care Center utilization increased between all survey years. Both ER and Urgent Care Center utilization can be an indicator that individuals/families most likely do not have a primary care doctor through whom more cost effective preventive care is administered.



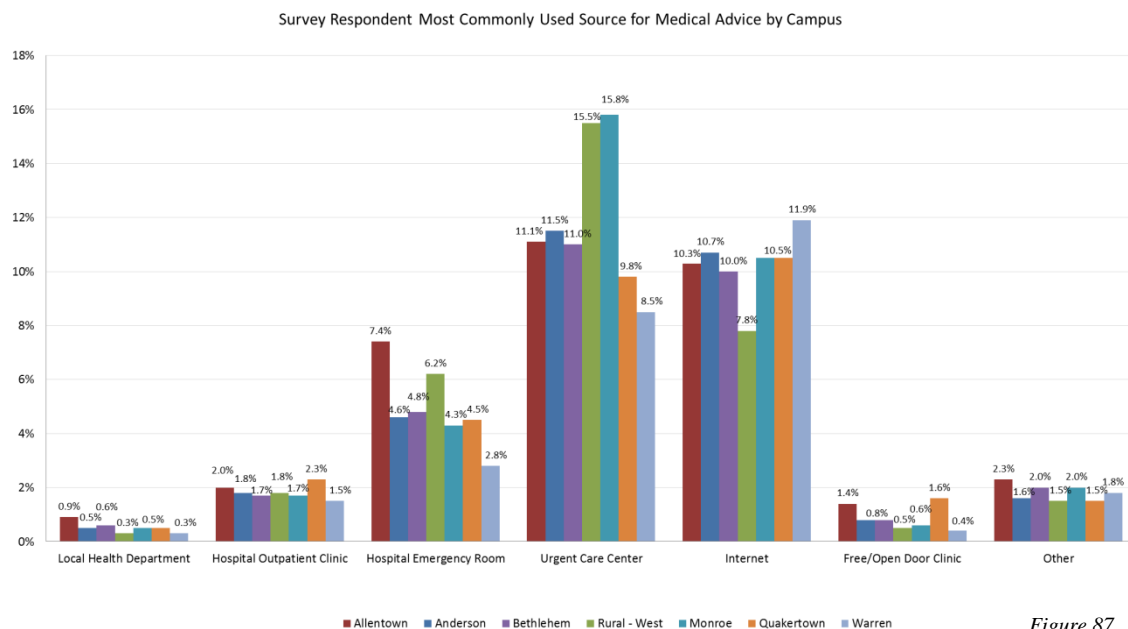


Figure 87

G. FLU VACCINES

68.7% of respondents have received a flu shot. It is important to note that there was an overall increase in those who received a flu shot from 2012 to 2016, and 2016 to 2019.

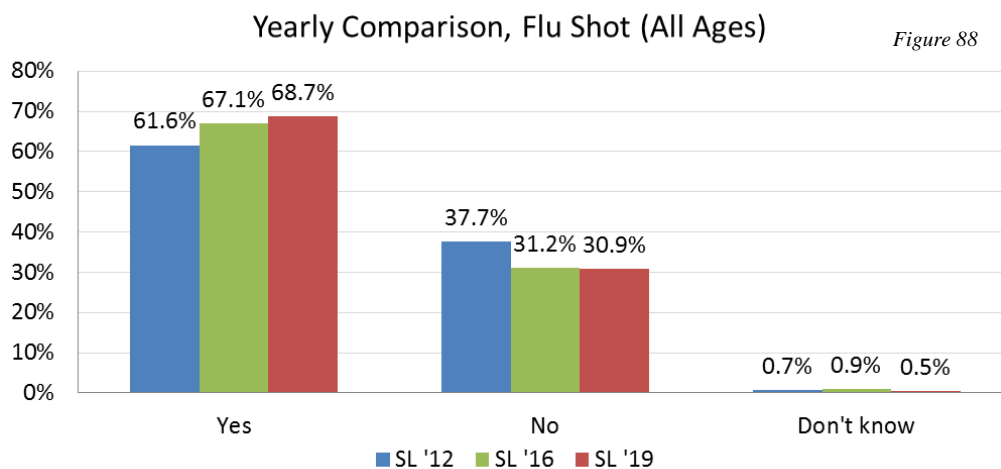


Figure 88

55.1% of respondents making less than \$15,000 and 62.8% of respondents making between \$15,000 and \$24,999 received a flu shot, compared to 72.2% of respondents making over \$60,000.

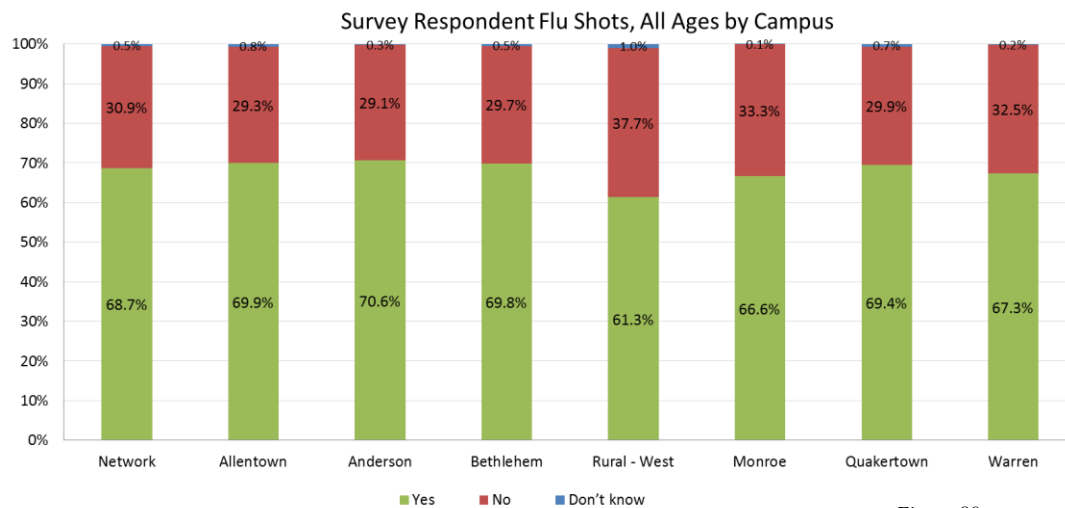


Figure 89

It is important to note the significance of preventive health initiatives as these measures are utilized to prevent disease development. Preventive 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 preventive 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, 80.3% received a pneumonia shot.

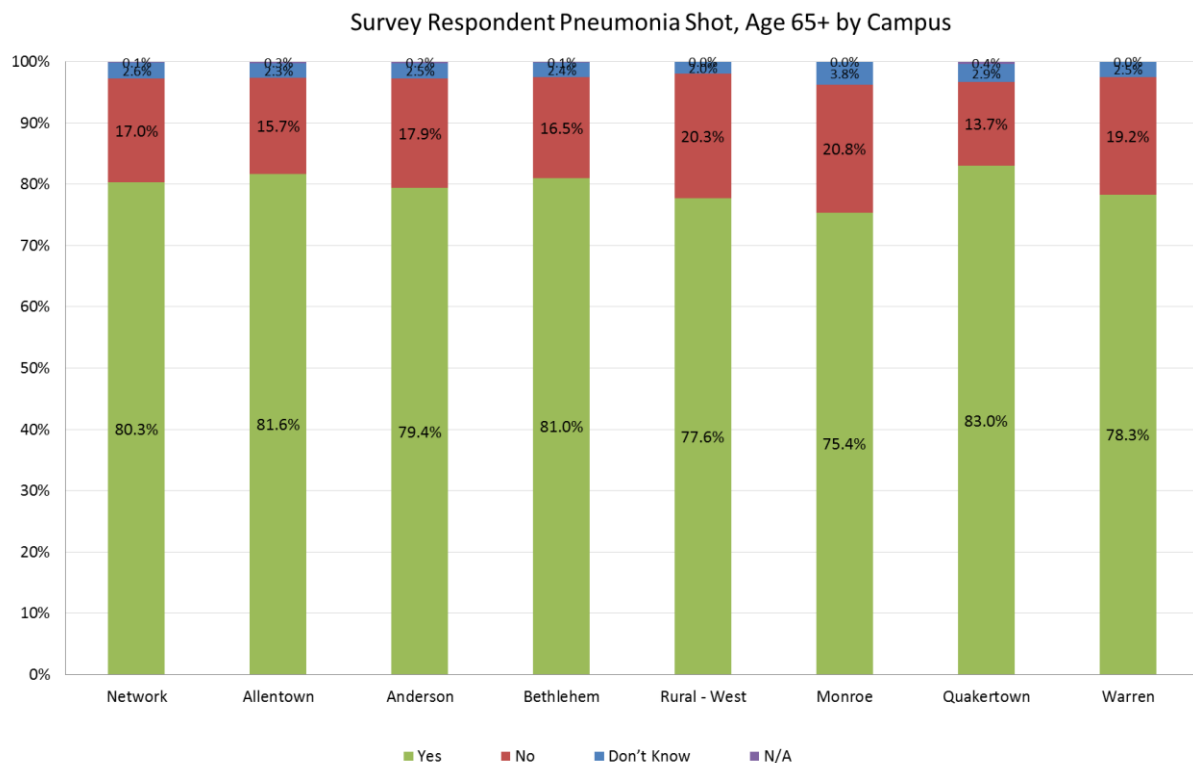
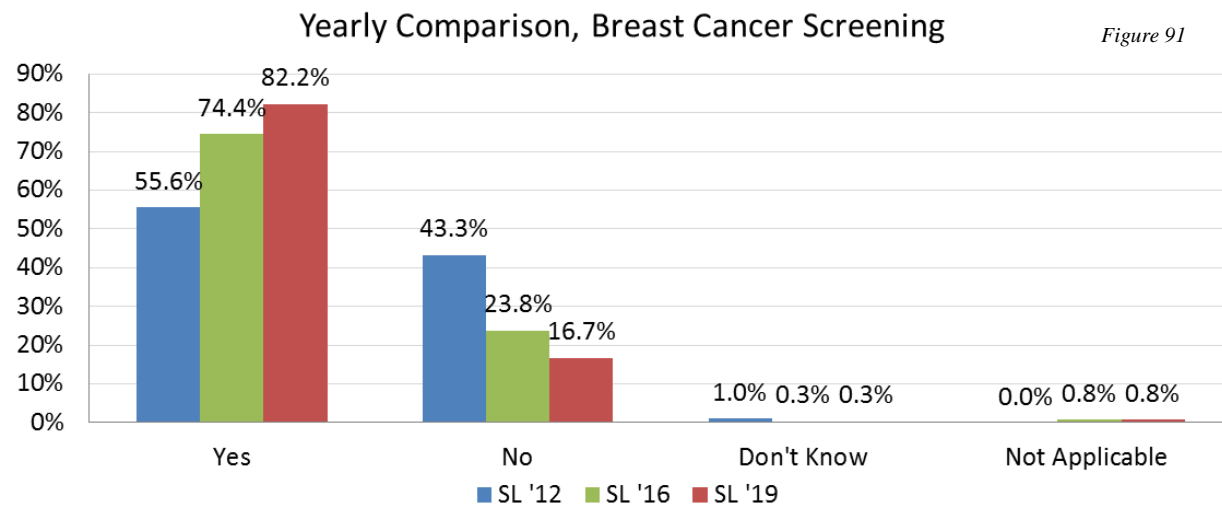


Figure 90

66.9% of respondents over the age of 65 making less than \$15,000 and 76.7% of respondents over the age of 65 making between \$15,000 and \$24,999 reported receiving a pneumonia shot, compared to 81.5% of respondents over the age of 65 making over \$60,000.

I. MAMMOGRAPHY

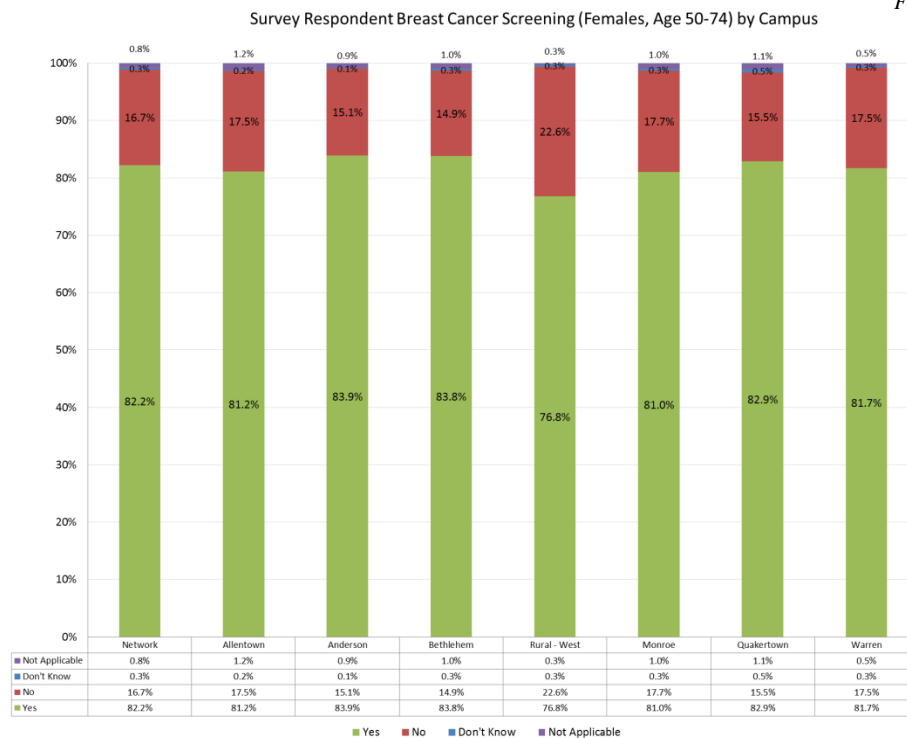
Many organizations have differing breast cancer screening guidelines, ranging from annual screening beginning at age 40, to biennial (once every two years) beginning at age 50. The United States Preventive Services Task Force (USPSTF) is an independent group of national experts in prevention and evidence-based medicine, which works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services. The USPSTF screening guidelines were used for this survey. Therefore, the 2019 survey asked female respondents between the ages of 50 and 74 to indicate whether or not they have had a mammogram in the past two years. Figure 91 illustrates the survey responses from 2012, 2016, and 2019 surveys.



Noticeably more women reported receiving mammograms (82.2%) in 2019 than in 2016 (74.4%) and 2012 (55.6); however, it is important to note that the USPSTF guidelines were not being used in the 2012 and 2016 surveys. 2012 and 2016 survey responses were calculated for women over the age of 40 years, where the 2019 survey responses were calculated only for women between the ages of 50 and 74 years.

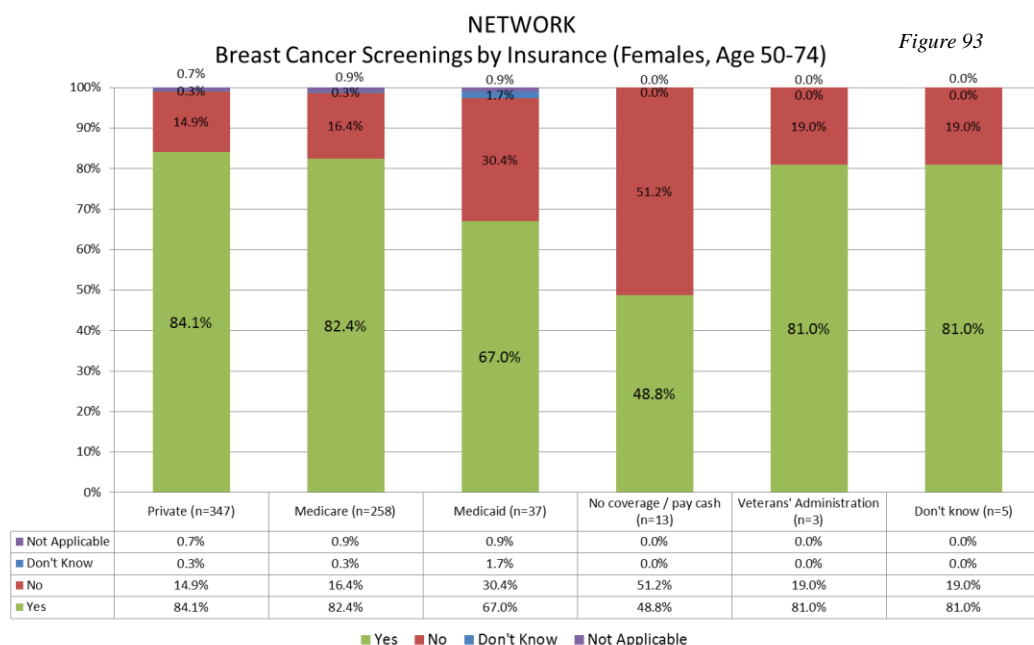
Figure 92 shows the SLUHN campus breakdown for breast cancer screening in women between 50 and 74 years of age. Anderson campus (83.9%) had the largest percentage of women receiving mammograms, while the Western rural campuses (76.8%) had the smallest percentage. The remaining campuses had screening rates around 82%. Allentown, Western rural, Monroe, and Warren campuses fell below the network average (82.2%), which indicates that there may be issues with patients accessing mammograms, especially in our rural regions.

Figure 92



When examining mammogram rates by insurance type, women aged 50 to 74 who reported having no insurance had noticeably lower breast cancer screening rates (48.8%) than those who reported having private insurance (84.1%), Medicare (82.4%), Medicaid (67.0%), or Veterans' Administration (81.0%).

What is even more noticeable, however, is that nearly twice the amount of uninsured women went without a mammogram when compared to insured women.



J. COLON CANCER SCREENING

As with breast cancer screening, USPSTF screening guidelines were followed to ask patients about their colorectal cancer screening. In order to more accurately gauge whether or not survey respondents were up to date on colorectal cancer screenings, the way that the question was asked was changed for the 2019 survey. Two questions were included to determine if respondents were up to date on colorectal cancer screening. The first question asked respondents age 50-74 to indicate which of the following ways they had been screened for colorectal cancer: colonoscopy; sigmoidoscopy; stool blood test (i.e: FIT/FOBT); don't know; never been screened; or Not Applicable. Respondents were then asked the approximate date of their last screening. In order to be considered up to date with screenings for this analysis, respondents must have had a screening date fall in the recommended time frame for their screening type (Table 9). If a respondent was missing an answer to one of the questions, their screening status was marked "Unknown".

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

Table 9

There is a noticeable difference in colorectal cancer screening when looking at screening rates by insurance type. 68.0% of respondents who reported having private insurance and 65.6% of respondents who reported having Medicare reported having a colorectal cancer screening, whereas 45.5% of uninsured respondents and 28.3% of Medicaid respondents reported having a colorectal cancer screening.

Additionally, screening rate variations can be seen across campuses. Bethlehem (67.1%) had the highest percentage of respondents being classified as up-to-date with colorectal cancer screening, while the Western rural campuses had the lowest (52.4%). Additionally, Monroe (64.3%), Allentown (64.0%), and Western rural (52.4%) campuses fell below the Network average (65.1%).

Yearly Comparison, Colon Cancer Screening

Figure 94

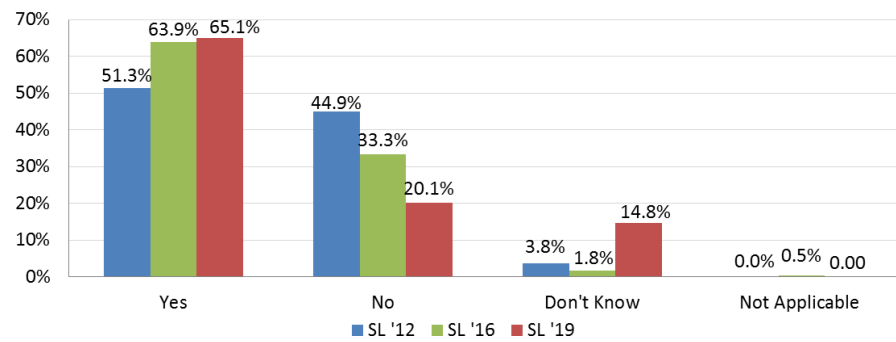
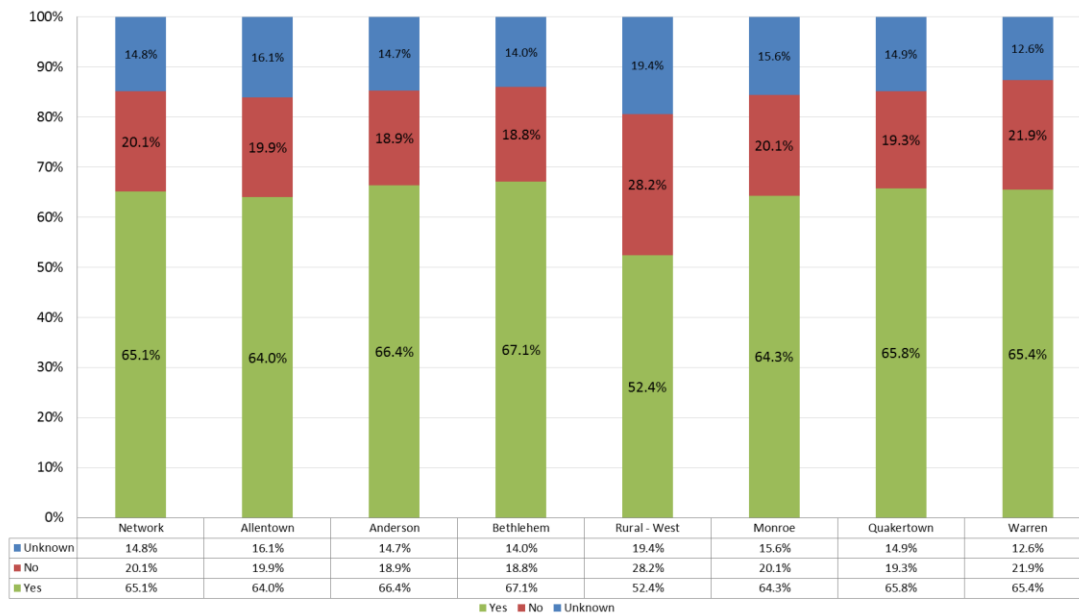


Figure 95

Survey Respondent Colorectal Cancer Screening (Age 50-74) by Campus



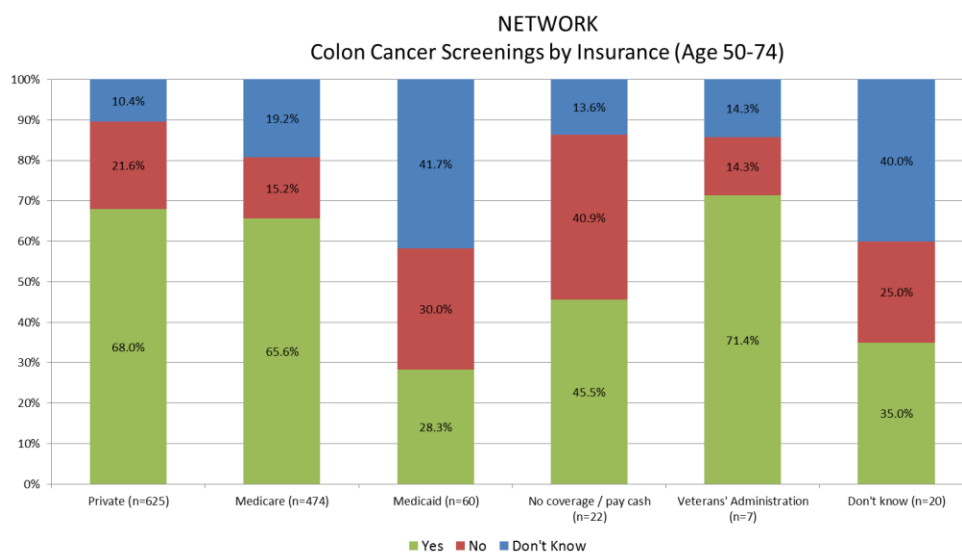


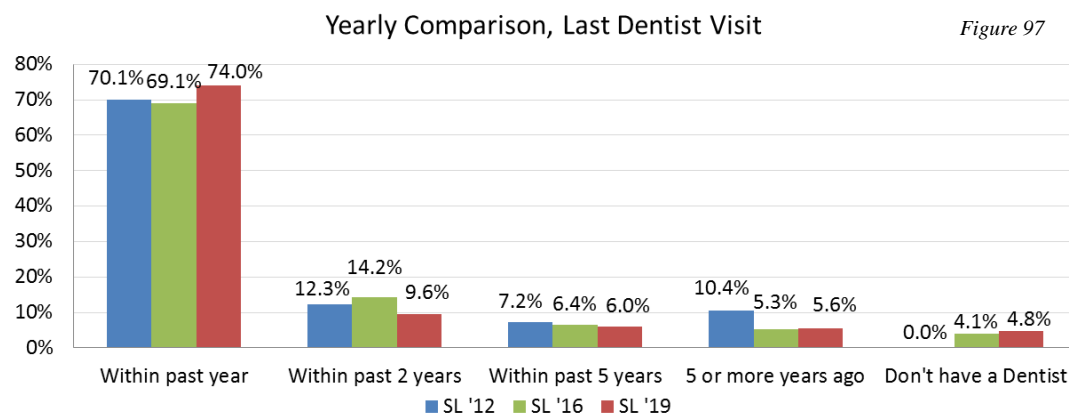
Figure 96

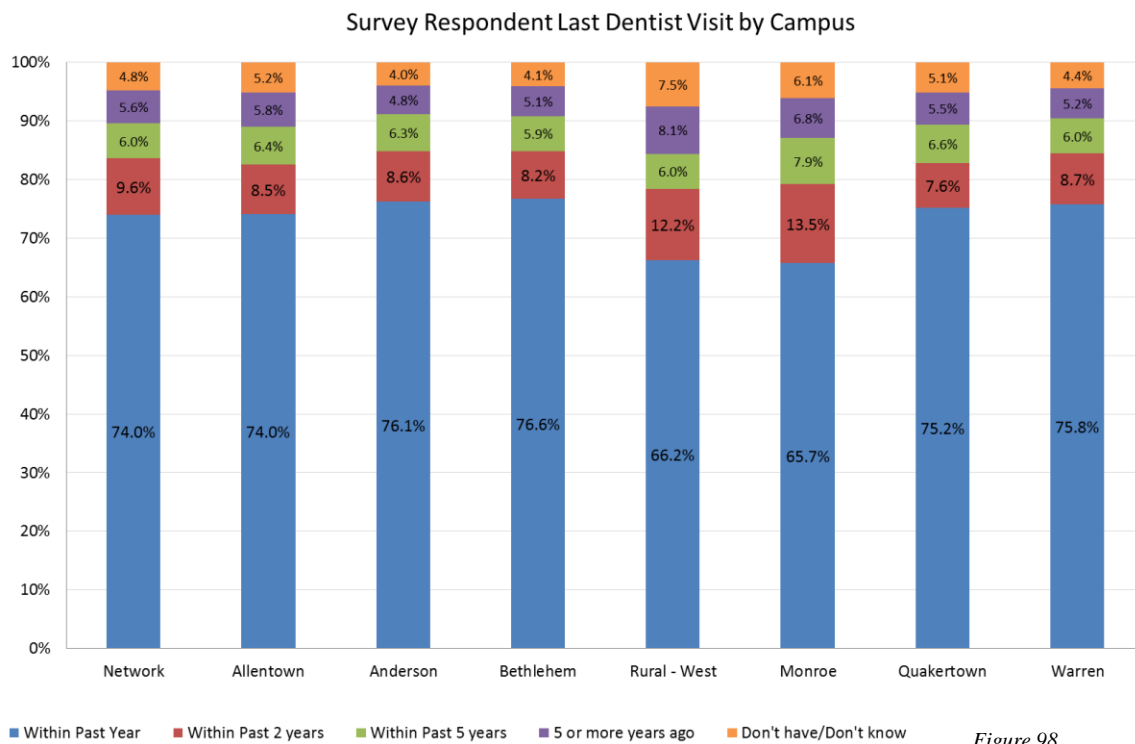
These breakdowns by insurance, especially among screened cancers, are highly important to note because they make it evident that there are some barriers with our uninsured and Medicaid populations being screened, most notably for colorectal and breast cancer.

K. DENTAL VISITS & DENTAL INSURANCE

The 2019 survey asked how long it had been since respondents visited a dentist or a dental clinic. Many respondents (74.0%) had been to the dentist within the past year, which was an increase from both the 2012 and 2016 surveys. 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. 59.6% of respondents reported that they use private insurance to pay for dental care.



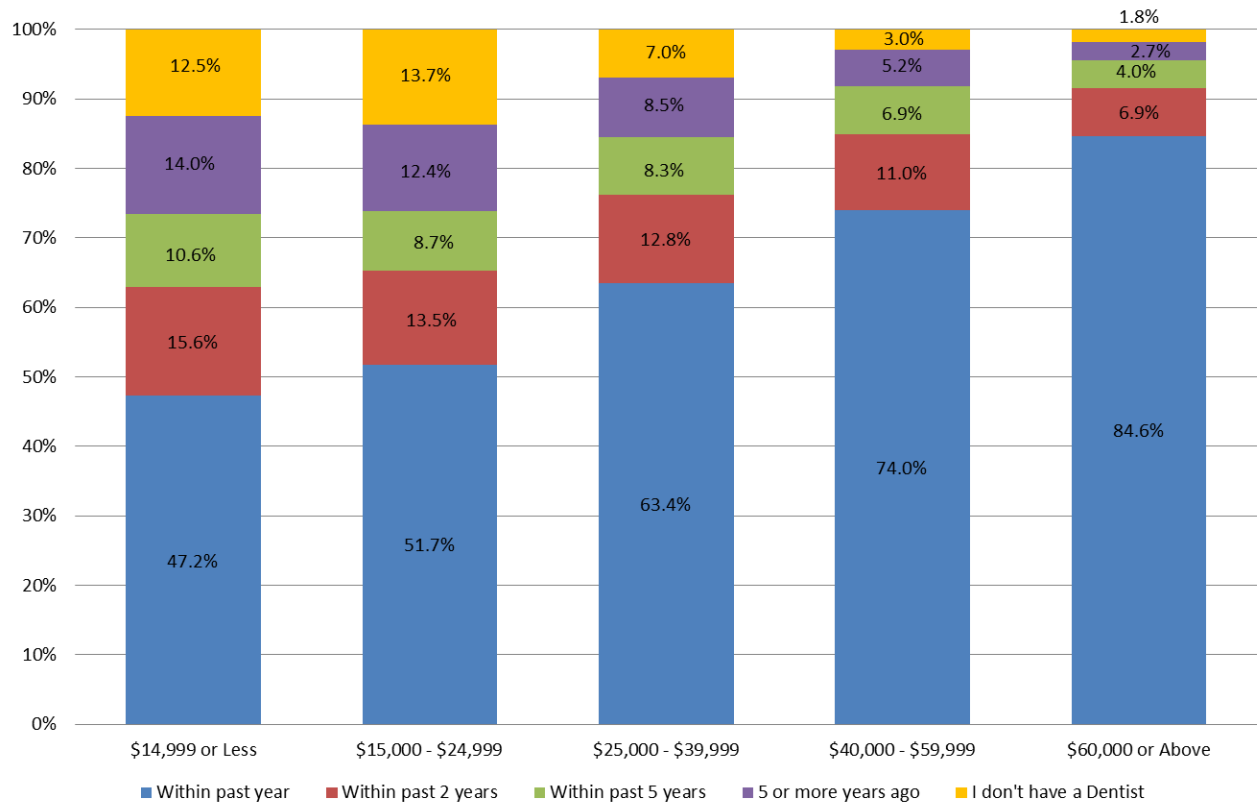


The Western rural campuses had the highest percentage of respondents who reported not having a dentist at 7.5%, compared to Anderson campus which had the lowest percentage at 4.0%. Bethlehem campus reported the highest percentage of respondents who visited a dentist in the past year at 76.6%, while Monroe reported the lowest percentage of respondents who visited a dentist in the last year at 65.7%.

47.2% of respondents making less than \$15,000 and 51.7% of respondents making between \$15,000 and \$24,999 saw a dentist in the past year compared to 84.6% of respondents making over \$60,000. Additionally, 12.5% of those making less than \$15,000 and 13.7% of those making between \$15,000 and \$24,999 did not have a dentist compared to 1.8% of those making more than \$60,000.

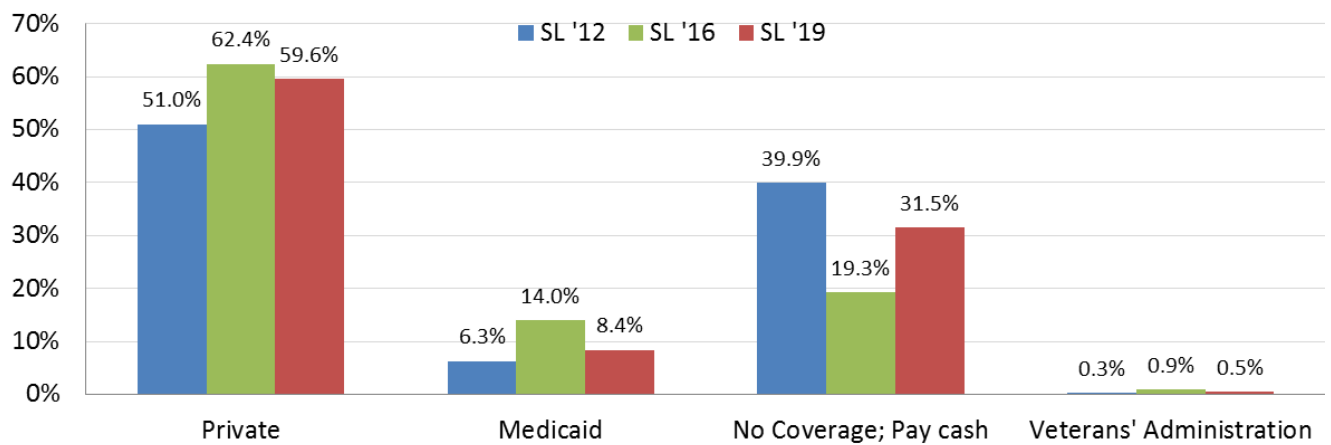
Last Dental Visit by Household Income

Figure 99



Yearly Comparison, Dental insurance

Figure 100



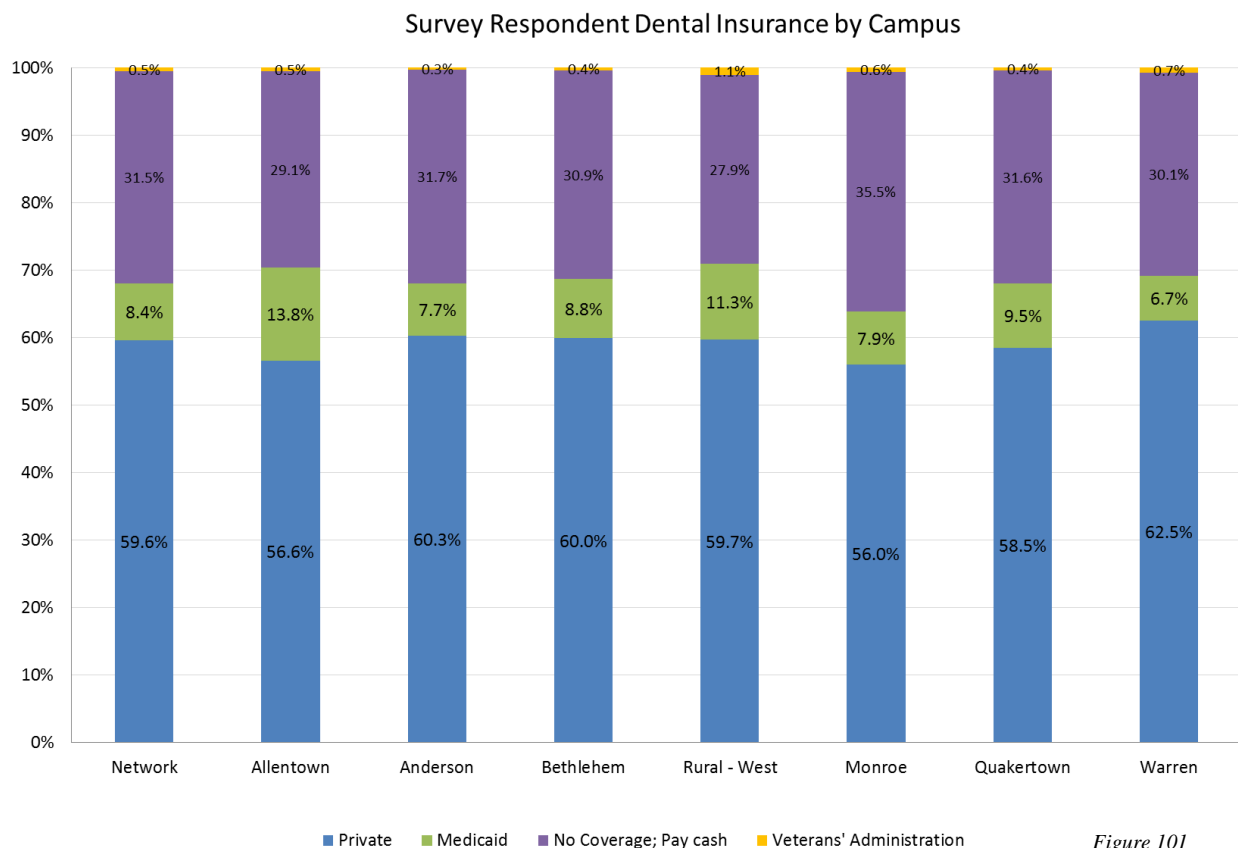


Figure 101

Warren campus reported the greatest percentage of respondents who had private dental insurance at 62.5% and Monroe campus had the lowest at 56.0%. Similarly, Monroe campus (35.5%) also had the highest percentage of respondents with no dental insurance coverage. Interestingly, the Western Rural campuses (27.9%) had the lowest percentage of respondents without dental insurance. Allentown (13.8%) had the highest percentage of respondents covered by Medicaid and Warren (6.7%) had the lowest.

17.6% of respondents making less than \$15,000 and 29.3% of respondents making between \$15,000 and \$24,999 reported using private insurance to pay for dental care, compared to 76.6% of those making more than \$60,000. Additionally, 12.5% of those making less than \$15,000 and 13.7% of those making between \$15,000 and \$24,999 did not have a dentist compared to 1.8% of those making more than \$60,000.

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:

- 89% of people didn't smoke
- 25% maintained a healthy weight
- 10% ate five or more fruits and vegetables a day
- 15% got at least 30 minutes of moderate physical activity at least five times a week

When reviewing our 2019 survey data, we found that only 1.6% of respondents met all four criteria, down from 1.8% in 2016. 7.1% met three of the criteria, 24.9% met two of the criteria, and 58.9% met only one criterion, which was worse than the 2016 rates of 7.7%, 26.9%, and 53.4%, respectively. However, there was improvement in the amount of respondents not meeting any of the four criteria in 2019, where 7.5% of 2019 respondents did not meet any criteria, compared to 10.2% of 2016 respondents.

When addressing the health of our communities, St. Luke's University Health Network – Department of Community 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:

Answer Choices	2012 Responses	2016 Responses	2019 Responses
<i>Note: Question 1 was consenting to participate in the survey.</i>			
2. What language are you using to complete this survey?			
English		95.1%	97.3%
Spanish		4.9%	2.5%
Arabic	N/A	N/A	0.2%
3. How are you completing this survey?			
iPad/Tablet	N/A	38.2%	10.1%
iPhone/Smartphone	N/A	6.1%	26.9%
SLUHN website/other website	N/A	12.6%	2.8%
Social media outlets (Facebook, Twitter, etc.)	N/A	0.4%	0.2%
Computer	N/A	29.6%	43.6%
Hard copy	N/A	12.6%	16.4%
Other	N/A	0.0%	0.0%
4. How would you rate your overall health?			
Excellent	10.4%	12.7%	11.0%
Very good	36.5%	38.0%	39.2%
Good	43.5%	42.7%	42.8%
Poor	9.4%	5.6%	6.5%
Very poor	0.2%	0.6%	0.6%
5. My community is a safe place to live.			
Strongly agree	22.6%	27.1%	32.4%
Agree	54.0%	57.6%	54.2%
Neither agree nor disagree	15.0%	11.0%	10.2%
Disagree	6.8%	3.3%	2.7%
Strongly disagree	1.5%	0.6%	0.5%
6. What kind of health insurance do you use to pay for most of your medical care?			
Private insurance	73.1%	64.6%	55.8%
Department of veterans administration	3.4%	1.1%	0.7%
No coverage; pay cash	6.6%	3.3%	1.9%
Medicare	27.8%	17.0%	33.2%
Medicaid	6.7%	10.2%	6.5%
Don't know	1.0%	3.5%	1.9%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
7. 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%	40.6%
High blood cholesterol	N/A	19.7%	28.1%
Heart attack or other heart disease	N/A	4.7%	7.9%
Cancer	N/A	4.8%	8.9%
Diabetes	N/A	10.3%	15.3%
Asthma or other lung disease	N/A	13.7%	13.0%
Mental health	N/A	11.5%	10.5%
Emphysema or bronchitis	N/A	3.4%	3.8%
Arthritis or rheumatic disease	N/A	15.9%	21.6%
None of the above	N/A	37.9%	25.1%
Other chronic disease	N/A	9.3%	13.3%
8. How many times have you used the Emergency Room in the past year?			
None	N/A	63.8%	67.6%
1-2 times	N/A	27.0%	26.5%
3-4 times	N/A	6.1%	4.4%
5 or more times	N/A	2.4%	1.4%
9. 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%	25.2%
No	78.5%	61.6%	66.1%
I do not need eyeglasses	N/A	12.1%	8.7%
10. 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%	81.8%
Within the past 2 years	10.4%	12.6%	9.1%
Within the past 5 years	3.0%	5.2%	3.7%
5 or more years	2.8%	5.2%	2.6%
Don't know	2.1%	1.9%	1.5%
I don't have a primary care doctor	N/A	2.5%	1.3%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
11. 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%	5.0%
Insurance didn't cover what I needed	5.3%	7.3%	7.6%
My share of cost was too high (deductible/co-pay)	7.9%	11.1%	12.3%
Doctor would not take my insurance	2.7%	4.0%	4.1%
Hospital would not take my insurance	0.6%	0.7%	0.9%
Didn't have a way to get there	5.1%	4.2%	3.8%
Didn't know where to go	2.6%	1.6%	1.9%
Couldn't get an appointment	5.7%	4.6%	6.5%
Didn't have a sitter to watch child/parent	3.2%	3.1%	2.3%
Couldn't get time off from work	4.5%	8.5%	7.3%
Didn't think problem was serious	11.0%	9.5%	7.7%
No, I have never missed an appointment	N/A	55.5%	58.9%
Other	4.4%	2.5%	2.3%
If you are 45 years or older continue with question 12, otherwise go to the next section.			
12. In the past 12 months, how many times have you fallen? (Note: By a fall, we mean when a person unintentionally comes to rest on the ground or another lower level).			
Number of times (ranged from 1 to 333)	N/A	N/A	22.0%
None	N/A	N/A	75.8%
Don't know/not sure	N/A	N/A	2.2%
If you have fallen at least once in the past 12 months continue with question 13, otherwise go to the next question.			
13. How many of these falls caused an injury? (Note: By an injury, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor).			
Number of times (ranged from 0 to 15)	N/A	N/A	27.5%
None	N/A	N/A	68.5%
Don't know/not sure	N/A	N/A	4.0%
14. Where do you go most often when you are sick or need advice about your health?			
Doctor's office	90.0%	77.4%	83.1%
Local health department	0.8%	0.9%	0.5%
Hospital outpatient clinic	1.7%	2.6%	1.7%
Hospital emergency room	2.8%	7.2%	4.6%
Urgent care center	1.1%	9.5%	11.5%
Internet	N/A	11.4%	10.2%
Open door/free clinic	0.2%	1.5%	0.8%
Other	3.5%	2.8%	1.9%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
14. During the past year have you had a flu shot? <i>Note: “or intranasal spray” was removed for 2019 survey.</i>			
Yes	61.6%	67.1%	68.7%
No	37.7%	31.2%	30.8%
Don’t know	0.7%	0.9%	0.5%
15. Have you ever had a pneumonia shot? (Note: This is usually given only once or twice in a person’s life and is different from the flu shot). <i>[Respondents age 65+ years]</i>			
Yes	35.8%	26.2%	80.3%
No	52.3%	59.6%	17.0%
Don’t know	12.0%	11.6%	2.6%
Not Applicable	N/A	2.3%	0.1%
If you are a woman continue to question 17, otherwise go to the next section.			
16. Women only: Have you had a mammogram in the past two years? <i>[Women age 50-74 years]</i>			
Yes	55.6%	74.4%	82.2%
No	43.3%	23.8%	16.7%
Don’t know	1.0%	0.3%	0.3%
Not applicable	N/A	0.8%	0.8%
18. What was your most recent colon cancer screening test? <i>[Respondents age 50-74 years]</i>			
Colonoscopy	N/A	N/A	73.3%
Sigmoidoscopy	N/A	N/A	0.6%
Stool Blood Test (FIT/FOBT)	N/A	N/A	7.2%
Don’t know	N/A	N/A	3.1%
Never been screened	N/A	N/A	13.9%
Not applicable	N/A	N/A	1.9%
Note: Question 19 asked respondents when their most recent colon cancer screening was. This information was used to calculate if they were up to date with screening, based on their screening type selected in Question 18.			
[2012 and 2016 responses] Have you ever had a screen test for colon cancer?			
Yes	51.3%	63.9%	N/A
No	44.9%	33.3%	N/A
Don’t know	3.8%	0.3%	N/A
Not applicable	N/A	0.8%	N/A
20. On average, how many days a week do you exercise at least 30 minutes?			
0 days per week	28.3%	24.1%	27.9%
1 to 2 days per week	30.8%	33.2%	32.5%
3 to 4 days per week	26.1%	25.9%	24.9%
5 or more days per week	14.7%	16.1%	14.7%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
21. How many total servings of fruits and/or vegetables did you eat yesterday?			
0 servings	6.1%	7.9%	7.4%
1 to 2 servings	49.5%	44.8%	49.2%
3 to 4 servings	36.3%	36.1%	33.8%
5 to 7 servings	7.8%	8.7%	7.9%
More than 7 servings	0.5%	1.8%	1.7%
Note: Questions #22 and #23 ask respondents to list height and weight. These variables were used to compute BMI indices.			
24. On average, how many hours of sleep do you get in a 24-hour period?			
Fewer than 4	0.7%	2.1%	1.6%
4	4.2%	4.6%	3.3%
5	8.5%	13.4%	10.4%
6	24.4%	23.8%	24.9%
7	28.4%	32.9%	33.4%
8	25.2%	19.0%	21.4%
9 or more	8.7%	3.5%	4.9%
25. Do you Smoke?			
Yes	13.4%	15.2%	10.9%
No	86.6%	83.3%	89.1%
26. Do you use any of the following? (Please check all that apply).			
Cigarettes	N/A	14.2%	8.9%
Chew	N/A	0.3%	0.4%
Snuff	N/A	0.4%	0.2%
Hookahs	N/A	1.0%	0.7%
Snus	N/A	0.1%	0.1%
Cigars	N/A	1.2%	2.1%
Pipe	N/A	0.4%	0.4%
E-cigarettes	N/A	1.8%	1.9%
None	N/A	77.8%	83.3%
Other	N/A	0.2%	0.2%
27. 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%	80.6%
1 episode	11.7%	11.4%	8.7%
2 episode	4.3%	5.5%	4.2%
3 episode	8.3%	4.0%	2.2%
4 episode	N/A	2.5%	1.4%
5 episode	N/A	1.8%	0.7%
6 or more episodes	N/A	2.4%	0.2%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
28. 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%	74.0%
Within the past 2 years	12.3%	14.2%	9.6%
Within the past 5 years	7.2%	6.4%	6.0%
5 or more years	10.4%	5.3%	5.6%
I do not have a dentist	N/A	4.1%	4.8%
29. How do you pay for dental care?			
Private insurance	51.0%	62.4%	59.6%
Veteran's Administration	0.3%	0.9%	0.5%
Pay cash; no insurance	39.9%	19.3%	31.5%
Medicaid	6.3%	14.0%	8.4%
30. 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%	62.9%
1-2 sick days	19.4%	20.7%	19.7%
3-7 sick days	10.1%	8.8%	9.8%
8 or more sick days	11.0%	6.0%	7.6%
31. 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%	54.5%
1-2 sick days	22.2%	24.6%	25.1%
3-7 sick days	10.1%	9.1%	10.8%
8 or more sick days	9.9%	6.7%	9.7%
32. What county do you live in?			
Lehigh	52.8%	23.8%	24.9%
Northampton	43.3%	34.1%	33.1%
Bucks	1.3%	5.9%	7.0%
Warren	N/A	10.6%	5.9%
Carbon	N/A	7.0%	6.2%
Monroe	N/A	7.0%	11.3%
Schuylkill	N/A	6.5%	4.8%
Other	0.5%	4.5%	6.7%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
33. What is the town/municipality where you currently live? (Note: Additional municipality and zip code data available) <i>We didn't analyze this for 2019</i>			
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%	
34. Question #34 asks respondents for their home ZIP code. ZIP codes were analyzed from 80% of each hospital's population			
35. Question #35 asks respondents for their age.			
36. Are you:			
Male	46.5%	23.2%	38.1%
Female	53.5%	75.9%	61.7%
Other	N/A%	0.1%	0.1%
37. Which of the following best describes you?			
White	83.8%	83.0%	93.3%
Black/African American	2.5%	6.3%	4.3%
American Indian/Alaskan Native	0.9%	0.5%	0.3%
Asian	4.2%	1.2%	1.1%
Other	8.6%	6.2%	1.0%
38. What is your ethnicity?			
Hispanic	13.4%	18.4%	8.8%
Non-Hispanic	86.6%	77.9%	91.2%
39. What is your employment status?			
Employed	46.9%	63.6%	47.2%
Self-employed	3.8%	3.0%	4.1%
Homemaker	6.1%	4.1%	4.0%
Retired	30.8%	12.4%	34.5%
Student	1.1%	3.8%	1.2%
Out of work less than 1 year	4.1%	2.4%	1.9%
Out of work more than 1 year	2.6%	2.5%	1.1%
Unable to work	4.6%	7.0%	6.0%

Answer Choices	2012 Responses	2016 Responses	2019 Responses
40. Where do you currently live?			
I own (or have a mortgage on) the home where I currently live	80.5%	60.6%	73.1%
Rental apartment/home	19.5%	36.1%	18.1%
Relative's home	N/A	N/A	5.6%
Friend's home	N/A	N/A	1.3%
Shelter	N/A	N/A	0.1%
Group home	N/A	N/A	0.2%
Senior living	N/A	N/A	1.0%
Homeless	N/A	N/A	0.7%
Other	N/A	0.3%	N/A
41. What is the highest level of education you have completed?			
Less than high school	N/A	2.4%	1.2%
Some high school	11.7%	5.1%	2.5%
High school degree/GED	32.9%	21.7%	20.7%
Some college	18.0%	20.9%	19.2%
2-year college degree	4.7%	14.3%	13.2%
4-year college degree	19.0%	18.6%	21.2%
Post college or graduate school	13.7%	15.9%	22.0%
42. What was your family's/household's income before taxes in 2011/2014/2017?			
Less than \$14,999	9.4%	15.5%	9.2%
Between \$15,000 and \$24,999	12.8%	12.0%	9.5%
Between \$25,000 and \$39,999	21.3%	12.5%	12.8%
Between \$40,000 and \$59,999	17.5%	15.1%	17.4%
Between \$60,000 and \$99,999	17.6%	20.5%	25.2%
More than \$100,000	21.4%	19.0%	25.9%

Appendix 2:

Demographic Indicator	Paper Survey Respondents	Digital Survey Respondents	All Respondents
Language	<i>n=1383</i>	<i>n=7042</i>	<i>n=8434</i>
English	87.5%	99.3%	97.3%
Spanish	11.9%	0.7%	2.5%
Arabic	0.7%	0.1%	0.2%
Sex	<i>n=1359</i>	<i>n=7023</i>	<i>n=8392</i>
Male	31.7%	39.4%	38.1%
Female	68.1%	60.5%	61.7%
Other	0.1%	0.1%	0.1%
Age Bracket	<i>n=1325</i>	<i>n=7049</i>	<i>n=8384</i>
18-24 years	7.0%	1.9%	2.7%
25-34 years	17.9%	8.5%	10.0%
35-44 years	19.6%	11.6%	12.8%
45-54 years	15.8%	15.3%	15.4%
55-64 years	16.7%	25.1%	23.8%
65+ years	22.9%	37.6%	35.3%
Race	<i>n=1200</i>	<i>n=6965</i>	<i>n=8175</i>
White	82.2%	95.2%	93.3%
Black/African American	12.5%	2.9%	4.3%
American Indian/Alaska Native	1.3%	0.2%	0.3%
Asian	1.4%	1.0%	1.1%
Multi-Racial	1.7%	0.5%	0.7%
Other	1.0%	0.2%	0.3%
Ethnicity	<i>n=1299</i>	<i>n=6839</i>	<i>n=8148</i>
Hispanic	28.6%	5.0%	8.8%
Non-Hispanic	71.4%	95.0%	91.2%
Employment	<i>n=1353</i>	<i>n=7046</i>	<i>n=8049</i>
Employed	40.3%	48.5%	47.2%
Self-Employed	4.2%	4.1%	4.1%
Out of work <1 year	5.1%	1.3%	1.9%
Out of work >1 year	3.3%	0.7%	1.1%
Unable to work	13.9%	4.5%	6.0%
Homemaker	7.6%	3.3%	4.0%
Retired	23.4%	36.6%	34.5%
Student	2.1%	1.0%	1.2%

Demographic Indicator	Paper Survey Respondents	Digital Survey Respondents	All Respondents
Housing Type	<i>n=1353</i>	<i>n=7048</i>	<i>n=8411</i>
Own/Mortgage	39.0%	79.7%	73.1%
Rent	41.3%	13.6%	18.1%
Relative's home	9.7%	4.8%	5.6%
Friend's home	2.8%	1.0%	1.3%
Shelter	0.7%	0.0%	0.1%
Group home	0.5%	0.1%	0.2%
Senior living	2.4%	0.8%	1.0%
Homeless	3.7%	0.1%	0.7%
Education Level	<i>n=1351</i>	<i>n=7033</i>	<i>n=8393</i>
Less than High School	6.1%	0.3%	1.2%
Some High School	10.5%	1.0%	2.5%
High School Diploma/GED	35.1%	17.9%	20.7%
Some college	19.8%	19.1%	19.2%
2 year college	10.1%	13.8%	13.2%
4 year college	9.4%	23.5%	21.2%
Post-college/Graduate school	9.0%	24.5%	22.0%
Income Level	<i>n=1190</i>	<i>n=6565</i>	<i>n=7764</i>
\$14,999 or less	34.6%	4.6%	9.2%
\$15,000 - \$24,999	18.9%	7.8%	9.5%
\$25,000 - \$39,999	15.4%	12.3%	12.8%
\$40,000 - \$59,999	11.9%	18.4%	17.4%
\$60,000 - \$99,999	12.1%	27.6%	25.2%
\$100,000 or more	7.1%	29.3%	25.9%

