



Freeman Joplin Hospital
Community Health Needs Assessment
March 2013



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Consultant's Report

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On behalf of Freeman Joplin Hospital, (Freeman) we have assisted in conducting a Community Health Needs Assessment (CHNA) consistent with the scope of services outlined in our engagement letter dated April 12, 2012. The purpose of our engagement was to assist the System in meeting the requirements of Internal Revenue Code §501(r)(3). We relied on the guidance contained in IRS Notice 2011-52 when preparing your report. We also relied on certain information provided by Freeman, specifically certain utilization data and existing community health care resources.

Based upon the assessment procedures performed, it appears Freeman is in compliance with the provisions of §501(r)(3). Please note that, we were not engaged to, and did not, conduct an examination, the objective of which would be the expression of an opinion on compliance with the specified requirements. Accordingly, we do not express such an opinion.

We used and relied upon information furnished by the Organization, its employees and representatives and on information available from generally recognized public sources. We are not responsible for the accuracy and completeness of the information and are not responsible to investigate or verify it.

These findings and recommendations are based on the facts as stated and existing laws and regulations as of the date of this report. Our assessment could change as a result of changes in the applicable laws and regulations. We are under no obligation to update this report if such changes occur. Regulatory authorities may interpret circumstances differently than we do. Our services do not include interpretation of legal matters.

BKD, LLP

March 29, 2013

Introduction

IRC Section 501(r) requires health care organizations to assess the health needs of their communities and adopt implementation strategies to address identified needs. Per IRC Section 501(r), a byproduct of the *Affordable Care Act*, to comply with federal tax-exemption requirements, a tax-exempt hospital facility must:

- Conduct a community health needs assessment every three years.
- Adopt an implementation strategy to meet the community health needs identified through the assessment.
- Report how it is addressing the needs identified in the community health needs assessment and a description of needs that are not being addressed with the reasons why such needs are not being addressed.

The community health needs assessment must take into account input from persons who represent the broad interest of the community served by the hospital facility, including those with special knowledge of or expertise in public health. The hospital facility must make the community health needs assessment widely available to the public.

This community health needs assessment, which describes both a process and a document, is intended to document Freeman Joplin Hospital's compliance with IRC Section 501(r). Health needs of the community have been identified and prioritized so that Freeman Joplin Hospital (Hospital) may adopt an implementation strategy to address specific needs of the community.

The process involved:

- Collection and analysis of a large range of data, including demographic, socioeconomic and health statistics, health care resources and patient use rates.
- Interviews with key informants who represent a) broad interests of the community, b) populations of need or c) persons with specialized knowledge in public health.
- Circulation of a Community Health Input Questionnaire that gathered a wide range of information which was widely distributed to members of the community.

This document is a summary of all the available evidence collected during the initial cycle of community health needs assessments required by the IRS. It will serve as a compliance document as well as a resource until the next assessment cycle.

Both the process and document serve as the basis for prioritizing the community's health needs and will aid in planning to meet those needs.

Summary of Community Health Needs Assessment

The Hospital engaged **BKD, LLP** to conduct a formal community health needs assessment. **BKD, LLP** is one of the largest CPA and advisory firms in the United States, with approximately 2,000 partners and employees in 30 offices. BKD serves more than 900 hospitals and health care systems across the country. The community health needs assessment was conducted from April 2012 through March 2013.

Based on current literature and other guidance from the treasury and the IRS, the following steps were conducted as part of the Hospital's community health needs assessment:

- The “community” served by the Hospital was defined by utilizing inpatient and outpatient data regarding patient origin. This process is further described in Community Served by the Hospital.
- Population demographics and socioeconomic characteristics of the community were gathered and reported utilizing various third parties (see references in Appendices). The health status of the community was then reviewed. Information on the leading causes of death and morbidity information was analyzed in conjunction with health outcomes and factors reported for the community by CountyHealthrankings.org. Health factors with significant opportunity for improvement were noted.
- An inventory of health care facilities and resources was prepared and a demand for physician and hospital services was estimated. Both were evaluated for unmet needs.
- Community input was provided through key informant interviews of 25 stakeholders and a community health input questionnaire was widely distributed. The Community Health Input Questionnaire was completed by 219 individuals. Results and findings are described in the Key Informant and Community Health Input Questionnaire sections of this report.
- Information gathered in the above steps was analyzed and reviewed to identify health issues of uninsured persons, low-income persons and minority groups and the community as a whole. Health needs were ranked utilizing a weighting method that considers 1) the ability to evaluate and measure outcomes, 2) the size of the problem, 3) the seriousness of the problem and 4) the prevalence of common themes.

Health needs were then prioritized taking into account the perceived degree of influence the Hospital has to impact the need and the health needs impact on the overall health of the community. Information gaps were identified during the prioritization process and are also reported.

- Recommendations based on this assessment have been communicated to Hospital management.

General Description of Hospital

The Hospital is a Missouri, nonprofit organization, located in Joplin, Missouri. The Hospital operations in Joplin are provided by Freeman Hospital West and Freeman Hospital East. Freeman West and Freeman East operate together as one unit. This report will serve these two entities, collectively. A board of directors governs the Hospital and ensures that medical services are available to the residents of Joplin and surrounding areas.

The parent corporation of the Hospital, Freeman Health System (Freeman), is a 517-bed, three-hospital system providing comprehensive healthcare and behavioral health services to an area that includes more than 450,000 from Missouri, Arkansas, Oklahoma and Kansas. The health system includes the entities listed above as well as Freeman Neosho Hospital and Ozark Center, the behavioral health division. The medical team, which includes more than 300 physicians representing 60 specialties, uses the latest techniques, best practices and technologies to give life-saving care. As the only locally owned, not-for-profit health system in the area, Freeman focuses on meeting the health and wellness needs of those they serve as well as the needs of future generations. Since the May 22, 2011, tornado Freeman has responded to increased patient volumes by enhancing their current services and opening new facilities to stay ahead of the needs of the community. At Freeman West, in 2012, the 5th and 6th floors of Gary & Donna Hall Tower at the Hospital opened, adding 59 private patient rooms with advanced medical capabilities. The

Cardiac/Medical Unit on the 5th floor, as well as Freeman Infusion Center, opened in March 2012. The Transitional Care Unit/Surgical Intensive Care unit, on the 6th floor opened in October 2012. In addition, the Freeman Laboratory recently received a \$1.3 million investment in new lab equipment. The new equipment reduces wait times for patients who need test results. Freeman East recently acquired a stationary PET/CT scanner, the only in-house unit in the area. This allows physicians to view highly detailed images of the body to help diagnose cancer, cardiac conditions and neurological disorders. Also at Freeman East, 20 new adult psychiatric beds opened in January 2012 to meet an increased need for care. Other renovations are underway. At Freeman Neosho the Gary Duncan Women's Pavilion opened in November 2011 bringing the latest in digital mammography and ultrasound technologies to that patient population. Freeman Neosho also expanded emergency services by adding more rooms in the Emergency Room. A \$100,000 renovation in July 2012 added three exam rooms and six new infusion chairs for patients receiving nonchemotherapy IV treatments at Freeman Cancer Institute. In March 2012, Freeman Rehabilitation & Sports Center opened on East 32nd Street in Joplin, providing comprehensive therapy services including physical, occupational, speech, hand, aquatic and lymphedema therapies, as well as sports performance evaluations.

The 2011 Joplin tornado was a catastrophic EF5 multiple-vortex tornado that struck May 22, 2011. It rapidly intensified and tracked eastward across the city, and then continued eastward across I-44 into rural portions of Jasper and Newton counties. There were 161 people killed by the tornado and as many as 1,000 injured. 10-20% of Joplin was destroyed, with roughly 2,000 buildings destroyed, including St. John's Regional Medical Center (newly reopened as Mercy Hospital Joplin). 75% of Joplin was damaged. In total, nearly 7,000 houses were destroyed (most of which were flattened or blown away) and over 850 others were damaged. Total damage is estimated at \$1 billion to \$3 billion. In the aftermath of this devastating event, various health needs across the board will be in higher demand throughout the next several years. Mental health services to assist with drug and alcohol abuse, depression and coping with loss; affordability of care due to possible loss of employment; accessibility to care as one of the major competing health care facilities was greatly damaged in the event; and other various socioeconomic factors are examples of community health issues impacted. Several of the health statistics in the following exhibits were gathered prior to the tornado. Hence, they do not reflect the true need generated by this catastrophe.

Community Served by the Hospital

The Hospital is located in the city of Joplin, Missouri. Joplin is approximately 1.5 hours west of Springfield, Missouri, and 2 hours north-east of Tulsa, Oklahoma. Joplin and the surrounding geographic area are not close to any major metropolitan area. Joplin is accessible by interstate and other secondary roads.

Defined Community

A community is defined as the geographic area from which a significant number of the patients utilizing hospital services reside. While the community health needs assessment considers other types of health care providers, the utilization of the Hospital provides the clearest definition of the community. The criteria established to define the community is as follows:

- A zip code area must represent two percent or more of the Hospital's total discharges and outpatient visits.
- The Hospital's market share in the zip code area must be greater than or equal to 20 percent.
- The area is contiguous to the geographical area encompassing the Hospital.

Based on the patient origin of acute care discharges for fiscal year 2012, management has identified the community to include the zip codes listed in *Exhibit 1*, which presents the Hospital’s patient origin and charges for each of the top nine zip code areas in its community. Following is a detailed map of the Hospital’s geographical location and the footprint of the community identified in *Exhibit 1*. The map displays the Hospital’s geographic relationship to surrounding counties, significant roads and highways, and identifies the nine zip codes that comprise the Hospital’s community.

When specific information is not available for zip codes, the community health needs assessment relies on information for specific counties. The geographic area of the defined community based on the identified zip codes for the community covers most of Jasper County, half of Newton County and the southeast corner of Cherokee County. The community health needs assessment utilizes the counties’ corresponding information since it is more readily available.

Exhibit 1
Freeman Joplin Hospital
Summary of Inpatient Discharges by Zip Code (Descending Order)
FY 2012

| Zip Code | City | Discharges | Percent of Total Discharges | Cumulative Percent |
|----------|----------------|----------------------|-----------------------------|--------------------|
| 64801 | Joplin | 3,527 | 16.3% | 16.3% |
| 64804 | Joplin | 2,919 | 13.5% | 29.9% |
| 64850 | Neosho | 1,970 | 9.1% | 39.0% |
| 64836 | Carthage | 1,445 | 6.7% | 45.7% |
| 64870 | Webb City | 1,292 | 6.0% | 51.7% |
| 64834 | Carl Junction | 657 | 3.0% | 54.7% |
| 64865 | Seneca | 536 | 2.5% | 57.2% |
| 66713 | Baxter Springs | 500 | 2.3% | 59.5% |
| 66739 | Galena | 465 | 2.2% | 61.7% |
| | All Other | <u>8,279</u> | <u>38.3%</u> | <u>100.0%</u> |
| | Total | <u><u>21,590</u></u> | <u><u>100.0%</u></u> | |

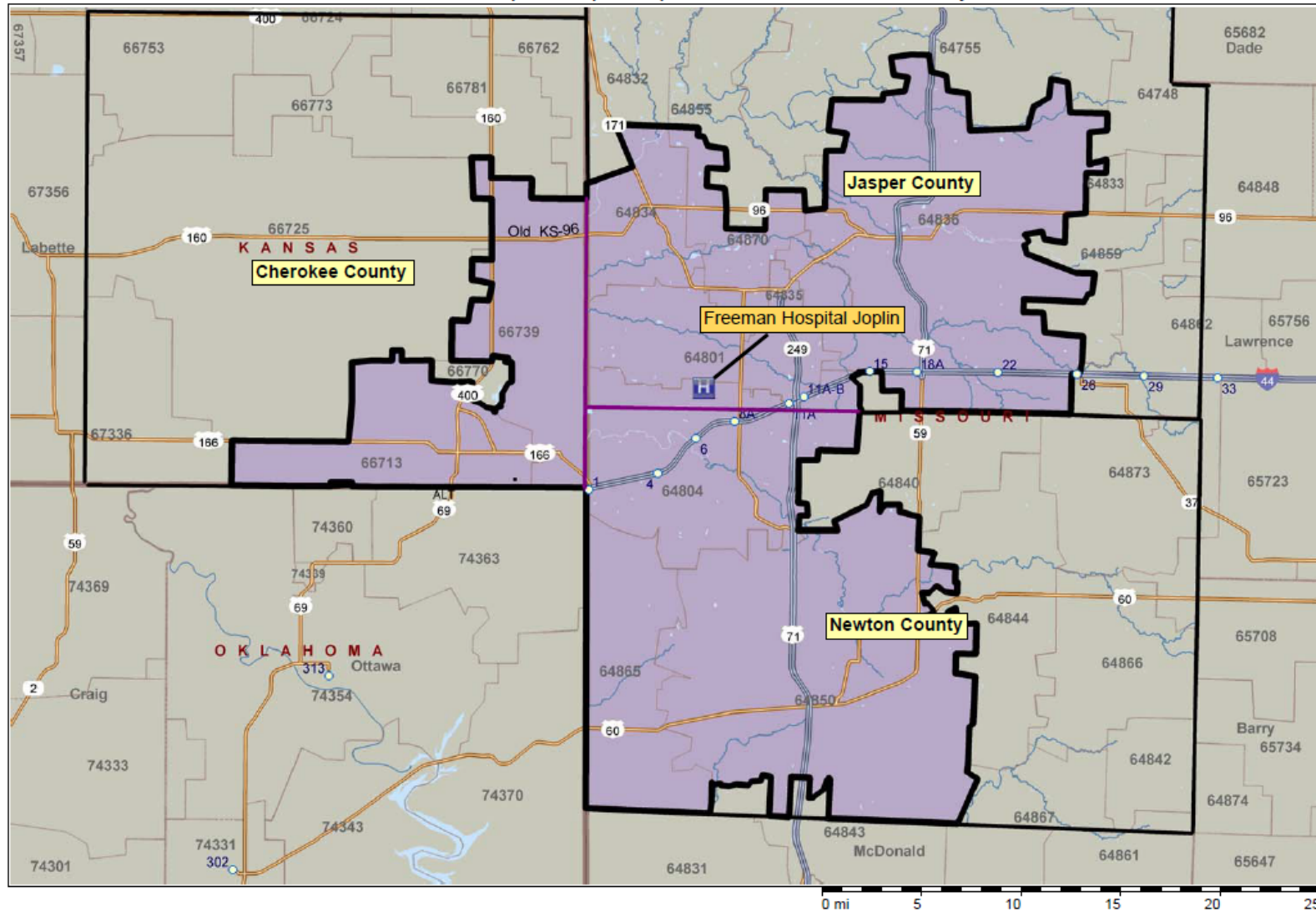
Source: Freeman Health System

Community Details

Identification and Description of Geographical Community

The following map geographically illustrates the Hospital’s location and community by showing the community zip codes shaded. The bulk of the community’s population is concentrated in and around the city of Joplin with portions of the nearby counties of Cherokee and Newton also having significant discharge numbers.

Freeman Hospital Joplin Zip Code Defined Community



Community Population and Demographics

The U.S. Bureau of Census has compiled population and demographic data based on the 2010 census. The Nielsen Company, a firm specializing in the analysis of demographic data, has extrapolated this data by zip code to estimate population trends from 2012 through 2017.

Exhibit 2 illustrates that the overall population is projected to increase over the five-year period from 161,387 to 171,915. The age category that utilizes health care services the most, 65 years and over, is projected to increase from 22,255 to 25,584. The projected change to the composition of the total community, between male and female, is projected to remain approximately the same over the five-year period.

**Exhibit 2
Freeman Joplin Hospital Community Zip Codes
Estimated 2012 Population and Projected 2017 Population**

| Zip Code | City | Under 18 years | 18-44 years | 45-64 years | 65 years and over | Total | Male | Female |
|----------------------------------|----------------|----------------|---------------|---------------|-------------------|----------------|---------------|---------------|
| Estimated 2012 Population | | | | | | | | |
| 64801 | Joplin | 8,618 | 13,580 | 7,914 | 4,238 | 34,350 | 16,790 | 17,560 |
| 64804 | Joplin | 8,657 | 12,258 | 9,565 | 5,543 | 36,023 | 17,395 | 18,628 |
| 64836 | Carthage | 6,200 | 8,943 | 5,969 | 3,612 | 24,724 | 12,192 | 12,532 |
| 64834 | Carl Junction | 2,495 | 3,587 | 2,689 | 1,151 | 9,922 | 4,848 | 5,074 |
| 64850 | Neosho | 6,484 | 8,327 | 6,084 | 3,340 | 24,235 | 11,918 | 12,317 |
| 64865 | Seneca | 1,477 | 2,003 | 1,609 | 843 | 5,932 | 2,912 | 3,020 |
| 64870 | Webb City | 4,248 | 5,631 | 3,274 | 1,794 | 14,947 | 7,167 | 7,780 |
| 66713 | Baxter Springs | 1,419 | 1,937 | 1,527 | 901 | 5,784 | 2,838 | 2,946 |
| 66739 | Galena | 1,299 | 1,827 | 1,511 | 833 | 5,470 | 2,679 | 2,791 |
| PROVIDER SERVICE AREA | | 40,897 | 58,093 | 40,142 | 22,255 | 161,387 | 78,739 | 82,648 |
| Projected 2017 Population | | | | | | | | |
| 64801 | Joplin | 9,616 | 13,783 | 8,466 | 4,812 | 36,677 | 17,965 | 18,712 |
| 64804 | Joplin | 9,597 | 13,289 | 10,193 | 6,628 | 39,707 | 19,202 | 20,505 |
| 64836 | Carthage | 6,756 | 9,203 | 6,150 | 3,944 | 26,053 | 12,864 | 13,189 |
| 64834 | Carl Junction | 2,692 | 3,840 | 2,888 | 1,418 | 10,838 | 5,291 | 5,547 |
| 64850 | Neosho | 6,606 | 8,588 | 6,252 | 3,929 | 25,375 | 12,481 | 12,894 |
| 64865 | Seneca | 1,483 | 2,103 | 1,671 | 994 | 6,251 | 3,069 | 3,182 |
| 64870 | Webb City | 4,695 | 5,827 | 3,507 | 1,955 | 15,984 | 7,703 | 8,281 |
| 66713 | Baxter Springs | 1,318 | 1,872 | 1,521 | 958 | 5,669 | 2,782 | 2,887 |
| 66739 | Galena | 1,206 | 1,756 | 1,453 | 946 | 5,361 | 2,623 | 2,738 |
| PROVIDER SERVICE AREA | | 43,969 | 60,261 | 42,101 | 25,584 | 171,915 | 83,980 | 87,935 |

Source: The Nielsen Company

Exhibit 2.1 provides the percent difference for each zip code from estimated 2012 to projected 2017 as well as the ability to compare the percent difference to the states of Missouri and the United States for comparison purposes. Exhibit 2.1 illustrates that the overall population is projected to increase by 6.5 percent over the five-year period compared to projected overall increases for Missouri 3.3 percent and the United States at 3.9 percent. Note that the age category that utilizes health care services the most, 65 years and over, is projected to increase 15 percent. This increase in the 65 year and over category will have a dramatic impact on both the amount and type of services required by the community. The ages under 18 years are also projected to be dramatically increasing when compared to Missouri and the United States overall, specifically with almost double the U.S. rate in zip code 64801 for Joplin. This age category has a high level of need of specialized care and requires special types of services to be offered in the community such as pediatrics and OB care.

**Exhibit 2.1
Freeman Joplin Hospital Community Zip Codes
Estimated 2012 Population vs Projected 2017 Population Percent Difference**

| Zip Code | City | Under 18 years | 18-44 years | 45-64 years | 65 years and over | Total | Male | Female |
|-------------------------------------|----------------|----------------|-------------|-------------|-------------------|---------|---------|---------|
| Percent Difference | | | | | | | | |
| 64801 | Joplin | 11.6% | 1.5% | 7.0% | 13.5% | 6.8% | 7.0% | 6.6% |
| 64804 | Joplin | 10.9% | 8.4% | 6.6% | 19.6% | 10.2% | 10.4% | 10.1% |
| 64836 | Carthage | 9.0% | 2.9% | 3.0% | 9.2% | 5.4% | 5.5% | 5.2% |
| 64834 | Carl Junction | 7.9% | 7.1% | 7.4% | 23.2% | 9.2% | 9.1% | 9.3% |
| 64850 | Neosho | 1.9% | 3.1% | 2.8% | 17.6% | 4.7% | 4.7% | 4.7% |
| 64865 | Seneca | 0.4% | 5.0% | 3.9% | 17.9% | 5.4% | 5.4% | 5.4% |
| 64870 | Webb City | 10.5% | 3.5% | 7.1% | 9.0% | 6.9% | 7.5% | 6.4% |
| 66713 | Baxter Springs | -7.1% | -3.4% | -0.4% | 6.3% | -2.0% | -2.0% | -2.0% |
| 66739 | Galena | -7.2% | -3.9% | -3.8% | 13.6% | -2.0% | -2.1% | -1.9% |
| PROVIDER SERVICE AREA | | 7.5% | 3.7% | 4.9% | 15.0% | 6.5% | 6.7% | 6.4% |
| MO 2012 Estimated (1,000s) | | 1,197 | 2,421 | 1,607 | 832 | 6,057 | 2,962 | 3,095 |
| MO 2017 Projected (1,000s) | | 1,237 | 2,422 | 1,651 | 949 | 6,259 | 3,064 | 3,195 |
| PERCENT DIFFERENCE | | 3.3% | 0.0% | 2.7% | 14.1% | 3.3% | 3.4% | 3.2% |
| U.S. 2012 Estimated (1,000s) | | 63,291 | 128,312 | 81,242 | 40,251 | 313,096 | 154,450 | 158,646 |
| U.S. 2017 Projected (1,000s) | | 65,816 | 127,615 | 85,317 | 46,509 | 325,257 | 160,511 | 164,746 |
| PERCENT DIFFERENCE | | 4.0% | -0.5% | 5.0% | 15.5% | 3.9% | 3.9% | 3.8% |

Source: The Nielsen Company

The following is an analysis of the age distribution of the population for the primary community. The analysis is provided by zip code and provides a comparison to Missouri and the United States.

Exhibit 2.2
Freeman Joplin Hospital Community Zip Codes
Estimated 2012 Population vs Projected 2017 Population with Percent Totals

| Zip Code | City | Under 18 years | 18-44 years | 45-64 years | 65 years and over | Total | Male | Female |
|------------------------------------|----------------|----------------|-------------|-------------|-------------------|--------|-------|--------|
| Estimated 2012 Population | | | | | | | | |
| 64801 | Joplin | 25.1% | 39.5% | 23.0% | 12.3% | 100.0% | 48.9% | 51.1% |
| 64804 | Joplin | 24.0% | 34.0% | 26.6% | 15.4% | 100.0% | 48.3% | 51.7% |
| 64836 | Carthage | 25.1% | 36.2% | 24.1% | 14.6% | 100.0% | 49.3% | 50.7% |
| 64834 | Carl Junction | 25.1% | 36.2% | 27.1% | 11.6% | 100.0% | 48.9% | 51.1% |
| 64850 | Neosho | 26.8% | 34.4% | 25.1% | 13.8% | 100.0% | 49.2% | 50.8% |
| 64865 | Seneca | 24.9% | 33.8% | 27.1% | 14.2% | 100.0% | 49.1% | 50.9% |
| 64870 | Webb City | 28.4% | 37.7% | 21.9% | 12.0% | 100.0% | 47.9% | 52.1% |
| 66713 | Baxter Springs | 24.5% | 33.5% | 26.4% | 15.6% | 100.0% | 49.1% | 50.9% |
| 66739 | Galena | 23.7% | 33.4% | 27.6% | 15.2% | 100.0% | 49.0% | 51.0% |
| TOTAL PROVIDER SERVICE AREA | | 25.3% | 36.0% | 24.9% | 13.8% | 100.0% | 48.8% | 51.2% |
| Projected 2017 Population | | | | | | | | |
| 64801 | Joplin | 26.2% | 37.6% | 23.1% | 13.1% | 100.0% | 49.0% | 51.0% |
| 64804 | Joplin | 24.2% | 33.5% | 25.7% | 16.7% | 100.0% | 48.4% | 51.6% |
| 64836 | Carthage | 25.9% | 35.3% | 23.6% | 15.1% | 100.0% | 49.4% | 50.6% |
| 64834 | Carl Junction | 24.8% | 35.4% | 26.6% | 13.1% | 100.0% | 48.8% | 51.2% |
| 64850 | Neosho | 26.0% | 33.8% | 24.6% | 15.5% | 100.0% | 49.2% | 50.8% |
| 64865 | Seneca | 23.7% | 33.6% | 26.7% | 15.9% | 100.0% | 49.1% | 50.9% |
| 64870 | Webb City | 29.4% | 36.5% | 21.9% | 12.2% | 100.0% | 48.2% | 51.8% |
| 66713 | Baxter Springs | 23.2% | 33.0% | 26.8% | 16.9% | 100.0% | 49.1% | 50.9% |
| 66739 | Galena | 22.5% | 32.8% | 27.1% | 17.6% | 100.0% | 48.9% | 51.1% |
| TOTAL PROVIDER SERVICE AREA | | 25.6% | 35.1% | 24.5% | 14.9% | 100.0% | 48.8% | 51.2% |
| ESTIMATED 2012 | | 25.3% | 36.0% | 24.9% | 13.8% | 100.0% | 48.9% | 51.1% |
| PROJECTED 2017 POPULATION | | 25.6% | 35.1% | 24.5% | 14.9% | 100.0% | 49.0% | 51.0% |
| MISSOURI 2012 | | 20.2% | 41.0% | 25.9% | 12.9% | 100.0% | 49.3% | 50.7% |
| UNITED STATES 2012 | | 20.2% | 39.2% | 26.2% | 14.3% | 100.0% | 49.3% | 50.7% |

Source: The Nielsen Company

Very similar to the 15 percent growth seen in the overall number of people in the 65 year and over category in *Exhibit 2.1*. *Exhibit 2.2* indicates that as a percent of total population for the community, the 65 year and over category will make up almost 15 percent of the total population in 2017 compared to nearly 14 percent in 2012.

While the relative age of the community population can impact community health needs, so can the ethnicity and race of a population. *Exhibit 3* shows the population of the community by ethnicity by illustrating the Hispanic versus non-Hispanic residents. In total, the projected 2017 population breakdown shows the community has a higher percentage Hispanic population than the state of Missouri, but a lower percentage than the United States. Carthage has a particularly high percentage Hispanic population when compared to other zip codes in the community. This may create access to care issues due to language barriers.

Exhibit 3
Freeman Joplin Hospital Community Zip Codes
Estimated 2012 Population vs Projected 2017 Population with Percent Difference

| Zip Code | City | Estimated 2012 | | | Projected 2017 | | | % Difference | | % Total | |
|------------------------------|----------------|----------------|--------------|---------|----------------|--------------|---------|--------------|--------------|----------|--------------|
| | | Hispanic | Non-Hispanic | Total | Hispanic | Non-Hispanic | Total | Hispanic | Non-Hispanic | Hispanic | Non-Hispanic |
| 64801 | Joplin | 1,638 | 32,712 | 34,350 | 2,165 | 34,512 | 36,677 | 32.2% | 5.5% | 5.9% | 94.1% |
| 64804 | Joplin | 1,389 | 34,634 | 36,023 | 1,855 | 37,852 | 39,707 | 33.5% | 9.3% | 4.7% | 95.3% |
| 64836 | Carthage | 4,653 | 20,071 | 24,724 | 5,914 | 20,139 | 26,053 | 27.1% | 0.3% | 22.7% | 77.3% |
| 64834 | Carl Junction | 283 | 9,639 | 9,922 | 388 | 10,450 | 10,838 | 37.1% | 8.4% | 3.6% | 96.4% |
| 64850 | Neosho | 1,902 | 22,333 | 24,235 | 2,436 | 22,939 | 25,375 | 28.1% | 2.7% | 9.6% | 90.4% |
| 64865 | Seneca | 121 | 5,811 | 5,932 | 154 | 6,097 | 6,251 | 27.3% | 4.9% | 2.5% | 97.5% |
| 64870 | Webb City | 687 | 14,260 | 14,947 | 890 | 15,094 | 15,984 | 29.5% | 5.8% | 5.6% | 94.4% |
| 66713 | Baxter Springs | 96 | 5,688 | 5,784 | 105 | 5,564 | 5,669 | 9.4% | -2.2% | 1.9% | 98.1% |
| 66739 | Galena | 156 | 5,314 | 5,470 | 178 | 5,183 | 5,361 | 14.1% | -2.5% | 3.3% | 96.7% |
| PROVIDER SERVICE AREA | | 10,925 | 150,462 | 161,387 | 14,085 | 157,830 | 171,915 | 28.9% | 4.9% | 8.2% | 91.8% |
| Missouri (1,000s) | | 229 | 5,827 | 6,056 | 277 | 5,981 | 6,258 | 21.0% | 2.6% | 4.4% | 95.6% |
| U.S. (1,000s) | | 53,183 | 259,912 | 313,095 | 60,902 | 264,355 | 325,257 | 14.5% | 1.7% | 18.7% | 81.3% |

Source: The Nielsen Company

Exhibit 4 shows the population of the community by race by illustrating three different categories, white, black and other residents. In total, the population breakdown for the community shows a higher concentration of white residents than the state of Missouri. A review of the specific zip code areas shows a larger percentage of black residents in the Joplin zip codes compared to other zip codes.

Exhibit 4
Freeman Joplin Hospital Community Zip Codes
Estimated 2012 Population vs Projected 2017 Population with Percent Difference

| Zip Code | City | Estimated 2012 | | | | Projected 2017 | | | | Percent Difference | | | | Percent Total | | |
|------------------------------|----------------|----------------|--------|--------|---------|----------------|--------|--------|---------|--------------------|--------|-------|-------|---------------|-------|-------|
| | | White | Black | Other | Total | White | Black | Other | Total | White | Black | Other | Total | White | Black | Other |
| 64801 | Joplin | 30,155 | 1,153 | 3,042 | 34,350 | 31,668 | 1,313 | 3,696 | 36,677 | 5.0% | 13.9% | 21.5% | 6.8% | 86.3% | 3.6% | 10.1% |
| 64804 | Joplin | 32,246 | 716 | 3,061 | 36,023 | 34,964 | 894 | 3,849 | 39,707 | 8.4% | 24.9% | 25.7% | 10.2% | 88.1% | 2.3% | 9.7% |
| 64836 | Carthage | 19,711 | 279 | 4,734 | 24,724 | 19,821 | 295 | 5,937 | 26,053 | 0.6% | 5.7% | 25.4% | 5.4% | 76.1% | 1.1% | 22.8% |
| 64834 | Carl Junction | 9,201 | 97 | 624 | 9,922 | 9,924 | 131 | 783 | 10,838 | 7.9% | 35.1% | 25.5% | 9.2% | 91.6% | 1.2% | 7.2% |
| 64850 | Neosho | 20,903 | 186 | 3,146 | 24,235 | 21,306 | 213 | 3,856 | 25,375 | 1.9% | 14.5% | 22.6% | 4.7% | 84.0% | 0.8% | 15.2% |
| 64865 | Seneca | 5,179 | 26 | 727 | 5,932 | 5,395 | 34 | 822 | 6,251 | 4.2% | 30.8% | 13.1% | 5.4% | 86.3% | 0.5% | 13.1% |
| 64870 | Webb City | 13,560 | 251 | 1,136 | 14,947 | 14,324 | 321 | 1,339 | 15,984 | 5.6% | 27.9% | 17.9% | 6.9% | 89.6% | 2.0% | 8.4% |
| 66713 | Baxter Springs | 4,946 | 44 | 794 | 5,784 | 4,777 | 39 | 853 | 5,669 | -3.4% | -11.4% | 7.4% | -2.0% | 84.3% | 0.7% | 15.0% |
| 66739 | Galena | 4,926 | 20 | 524 | 5,470 | 4,802 | 14 | 545 | 5,361 | -2.5% | -30.0% | 4.0% | -2.0% | 89.6% | 0.3% | 10.2% |
| PROVIDER SERVICE AREA | | 140,827 | 2,772 | 17,788 | 161,387 | 146,981 | 3,254 | 21,680 | 171,915 | 4.4% | 17.4% | 21.9% | 6.5% | 85.5% | 1.9% | 12.6% |
| Missouri (1,000s) | | 4,993 | 707 | 357 | 6,057 | 5,097 | 743 | 418 | 6,258 | 2.1% | 5.1% | 17.1% | 3.3% | 81.4% | 11.9% | 6.7% |
| U.S. (1,000s) | | 224,843 | 39,675 | 48,577 | 313,095 | 228,281 | 41,779 | 55,198 | 325,258 | 1.5% | 5.3% | 13.6% | 3.9% | 70.2% | 12.8% | 17.0% |

Source: The Nielsen Company

Socioeconomic Characteristics of the Community

The socioeconomic characteristics of a geographic area influence the way residents access health care services and perceive the need for health care services within society. The economic status of an area may be assessed by examining multiple variables within the community. The following exhibits are a compilation of data that includes household income, labor force, employees by types of industry, employment rates, educational attainment and poverty for the community. These measures will be used to compare the socioeconomic status of the community to the State of Missouri and to the U.S.

Income and Employment

Exhibit 5 presents the average, median and per capita income for households in each zip code. Average income is projected to increase between 1.4% and 3.7% between 2012 and 2017, while the median income is projected to increase between 1.3% and 3.0%. The average per capita is projected to increase between 1.9% and 4.2%.

Exhibit 5
Freeman Joplin Hospital Community Zip Codes
Estimated Family Income for 2012 and 2017 with Percent Difference

| Zip Code | City | Estimated 2012 | | | Projected 2017 | | | Percent Difference | | |
|----------|----------------|-----------------------|-------------------------|------------------------|-----------------------|-------------------------|------------------------|-----------------------|-------------------------|------------------------|
| | | Avg. Household Income | Median Household Income | Avg. Per Capita Income | Avg. Household Income | Median Household Income | Avg. Per Capita Income | Avg. Household Income | Median Household Income | Avg. Per Capita Income |
| 64801 | Joplin | \$ 45,328 | \$ 35,055 | \$ 18,854 | \$ 46,605 | \$ 35,982 | \$ 19,559 | 2.8% | 2.6% | 3.7% |
| 64804 | Joplin | \$ 55,626 | \$ 40,040 | \$ 23,071 | \$ 56,423 | \$ 40,566 | \$ 23,509 | 1.4% | 1.3% | 1.9% |
| 64836 | Carthage | \$ 46,593 | \$ 36,582 | \$ 17,154 | \$ 47,579 | \$ 37,296 | \$ 17,670 | 2.1% | 2.0% | 3.0% |
| 64834 | Carl Junction | \$ 58,456 | \$ 47,325 | \$ 20,921 | \$ 59,678 | \$ 48,309 | \$ 21,269 | 2.1% | 2.1% | 1.7% |
| 64850 | Neosho | \$ 48,969 | \$ 39,778 | \$ 18,935 | \$ 50,338 | \$ 40,680 | \$ 19,514 | 2.8% | 2.3% | 3.1% |
| 64865 | Seneca | \$ 50,479 | \$ 40,514 | \$ 19,096 | \$ 51,669 | \$ 41,514 | \$ 19,891 | 2.4% | 2.5% | 4.2% |
| 64870 | Webb City | \$ 44,025 | \$ 34,538 | \$ 16,962 | \$ 44,913 | \$ 35,138 | \$ 17,290 | 2.0% | 1.7% | 1.9% |
| 66713 | Baxter Springs | \$ 41,593 | \$ 33,240 | \$ 17,042 | \$ 42,625 | \$ 33,927 | \$ 17,654 | 2.5% | 2.1% | 3.6% |
| 66739 | Galena | \$ 44,531 | \$ 37,847 | \$ 17,308 | \$ 46,193 | \$ 38,967 | \$ 18,004 | 3.7% | 3.0% | 4.0% |
| | Missouri | \$ 58,652 | \$ 44,915 | \$ 23,756 | \$ 60,123 | \$ 45,874 | \$ 24,454 | 2.5% | 2.1% | 2.9% |
| | United States | \$ 67,315 | \$ 49,581 | \$ 25,919 | \$ 69,219 | \$ 50,850 | \$ 26,693 | 2.8% | 2.6% | 3.0% |

Source: The Nielsen Company

Exhibit 6 presents the average annual unemployment rates for Cherokee County in Kansas, Jasper and Newton counties in Missouri and the United States. Exhibit 6 illustrates unemployment rates have risen in recent years except 2011 where all rates showed a small decline.

**Exhibit 6
Freeman Joplin Hospital Community
Unemployment Rates (%)
2007-2011**

| County | 2007 | 2008 | 2009 | 2010 | 2011 |
|---------------------|------|------|------|------|------|
| Cherokee County, KS | 4.7 | 5.0 | 8.8 | 8.8 | 7.8 |
| Jasper County, MO | 4.5 | 5.1 | 8.3 | 8.2 | 7.7 |
| Newton County, MO | 4.7 | 5.4 | 8.2 | 8.6 | 7.9 |
| Missouri | 5.1 | 5.9 | 9.4 | 9.4 | 8.6 |
| Kansas | 4.1 | 4.4 | 7.2 | 7.2 | 6.7 |
| United States | 4.6 | 5.8 | 9.3 | 9.6 | 9.0 |

Source: FDIC

Cherokee, Jasper and Newton counties are supported by several major industries including healthcare and education; manufacturing; trade, transportation and utilities; and local government. Exhibit 7 summarizes employment by major industry for the three counties.

**Exhibit 7
Freeman Joplin Hospital Community
Employment by Major Industry
2010**

| Major Industries | Jasper County | % | Newton County | % | Cherokee County | % | Total | % | US % |
|-------------------------------------|------------------|--------|------------------|--------|--------------------|--------|--------|--------|---------|
| Goods-producing | 11,803 | 21.2% | 4,420 | 22.7% | 2,039 | 34.7% | 18,262 | 22.5% | 14.7% |
| Natural Resources and Mining | 361 | 0.6% | 152 | 0.8% | 59 | 1.0% | 572 | 0.7% | 1.4% |
| Construction | 1,545 | 2.8% | 724 | 3.7% | 333 | 5.7% | 2,602 | 3.2% | 4.3% |
| Manufacturing | 9,897 | 17.7% | 3,544 | 18.2% | 1,647 | 28.0% | 15,088 | 18.6% | 9.0% |
| Service-providing | 37,210 | 66.7% | 12,429 | 63.8% | 2,484 | 42.3% | 52,123 | 64.3% | 68.4% |
| Trade, Transportation and Utilities | 16,044 | 28.8% | 3,100 | 15.9% | 891 | 15.2% | 20,035 | 24.7% | 19.1% |
| Information | 661 | 1.2% | 335 | 1.7% | 81 | 1.4% | 1,077 | 1.3% | 2.1% |
| Financial Activities | 1,853 | 3.3% | 663 | 3.4% | 125 | 2.1% | 2,641 | 3.3% | 5.8% |
| Professional and Business Services | 5,457 | 9.8% | 900 | 4.6% | 248 | 4.2% | 6,605 | 8.1% | 13.1% |
| Education and Health Services | 6,863 | 12.3% | 4,854 | 24.9% | 597 | 10.2% | 12,314 | 15.2% | 14.6% |
| Leisure and Hospitality | 4,628 | 8.3% | 2,063 | 10.6% | 310 | 5.3% | 7,001 | 8.6% | 10.2% |
| Other Services | 1,703 | 3.1% | 514 | 2.6% | 231 | 3.9% | 2,448 | 3.0% | 3.4% |
| Federal Government | 331 | 0.6% | 168 | 0.9% | 61 | 1.0% | 560 | 0.7% | 2.3% |
| State Government | 1,326 | 2.4% | 126 | 0.6% | 36 | 0.6% | 1,488 | 1.8% | 3.6% |
| Local Government | 5,090 | 9.1% | 2,330 | 12.0% | 1,253 | 21.3% | 8,673 | 10.7% | 11.0% |
| Total Employment | 55,759 | 100.0% | 19,473 | 100.0% | 5,872 | 100.0% | 81,104 | 100.0% | 100.0% |

Source: U.S. Department of Census

Major employers by county include the following, noting no information could be found for employers specific to Cherokee County, Kansas:

**Exhibit 8
Freeman Joplin Hospital Community
Employment by Top Employers**

| Top Employers | Year | County | | |
|---------------------------------------|------|--------|--------|----------|
| | Est. | Jasper | Newton | Cherokee |
| | | | | N/A |
| Freeman Health System | 1922 | X | | |
| Eagle-Picher Technologies Div | 1843 | X | | |
| Leggett & Platt Inc. | 1883 | X | | |
| La-Z-Boy Midwest | 1920 | | X | |
| Able Manufacturing | 1954 | X | | |
| Aegis Communications | 1982 | X | | |
| Butterball Turkey | 1954 | X | | |
| Cardinal Scale/Detecto Company | 1950 | X | | |
| Conway | 1929 | X | | |
| Crossland Construction | 1978 | X | | |
| Ducommun Inc. | 1849 | X | | |
| Empire District Electric Co. | 1909 | X | | |
| Schaeffler Group USA | 1942 | X | | |
| General Mills Bakeries & Food Service | 1860 | X | | |
| Moark Productions | 2000 | | X | |
| Modine Manufacturing | 1916 | X | | |
| Premiere Turbines | 1972 | | X | |
| Rock-Tenn | N/A | X | | |
| Scholastic | 1920 | | X | |
| Schreiber Foods | 1945 | X | | |
| Stremick's Heritage Foods | N/A | X | | |
| Systems Services & Technology | 1995 | X | | |
| TAMKO Roofing Products | 1944 | X | | |
| TSMT | 1929 | X | | |

Source: <http://www.missouripartnership.com/Regions/Southwest-Region>

Poverty

Exhibit 9 presents the percentage of total population in poverty (including under age 18) and median household income for households in each county versus the state of Missouri and the United States.

**Exhibit 9
Freeman Joplin Hospital Community
Poverty Estimate: Percentage of Total Population in Poverty and Median Household Income**

| County | 2010 | | Median Household Income | 2011 | | Median Household Income |
|-----------------|-------------|--------------|-------------------------|-------------|--------------|-------------------------|
| | All Persons | Under Age 18 | | All Persons | Under Age 18 | |
| Jasper County | 20.0% | 28.5% | \$ 37,745 | 18.6% | 24.3% | \$ 39,426 |
| Newton County | 14.3% | 21.5% | \$ 40,954 | 14.8% | 23.1% | \$ 41,262 |
| Cherokee County | 18.5% | 23.4% | \$ 37,541 | 18.2% | 25.8% | \$ 37,321 |
| Missouri | 14.5% | 20.2% | \$ 45,829 | 15.2% | 21.3% | \$ 46,123 |
| Kansas | 12.8% | 17.0% | \$ 49,444 | 13.6% | 18.4% | \$ 49,929 |
| United States | 14.4% | 20.1% | \$ 51,222 | 15.2% | 21.4% | \$ 51,484 |

Source: U.S. Census Bureau, 2008-2010 & 2009-2011 American Community Surveys 3-year Estimates

Low-income residents often postpone seeking medical attention until health problems become aggravated, creating a greater demand on a given community’s medical resources. This includes reliance upon emergency room services for otherwise routine primary care. Often uninsured, the low-income demographic’s inability to pay for services further strains the medical network. Low-income residents are also less mobile, requiring medical services in localized population centers, placing additional pressure on those providers already in high demand. Understanding the extent of poverty within the population, therefore, helps determine an accurate picture of demand. Newton County ranked favorably when compared to Missouri’s and national averages in 2010. Jasper and Cherokee counties ranked unfavorably. There were no changes in favorability in 2011.

Uninsured

Exhibit 10 presents health insurance coverage status by age (under 65 years) and income (below 400 percent) of poverty for each county versus the states of Missouri and Kansas and the United States.

Exhibit 10
Freeman Joplin Hospital Community
Health Insurance Coverage Status by Age (Under 65 years) and Income (At or Below 400%) of Poverty
2009-2011 3-year Estimates

| County | All Income Levels | | | | Below 400% of FPL | | | |
|-----------------|-----------------------|----------------------|---------------------|--------------------|-----------------------|----------------------|---------------------|--------------------|
| | Under 65 Uninsured | Percent Uninsured | Under 65 Insured | Percent Insured | Under 65 Uninsured | Percent Uninsured | Under 65 Insured | Percent Insured |
| Jasper County | 20,682 | 20.9% | 78,321 | 79.1% | 19,237 | 24.7% | 58,783 | 75.3% |
| Newton County | 8,926 | 18.4% | 39,572 | 81.6% | 7,772 | 21.4% | 28,500 | 78.6% |
| Cherokee County | 3,302 | 18.5% | 14,542 | 81.5% | 3,213 | 22.0% | 11,372 | 78.0% |
| Missouri | 1,077,646 | 20.3% | 4,229,029 | 79.7% | 697,310 | 20.6% | 2,688,522 | 79.4% |
| Kansas | 363,813 | 15.2% | 2,033,915 | 84.8% | 328,680 | 20.9% | 1,240,760 | 79.1% |
| United States | 45,640,406 | 17.5% | 215,786,240 | 82.5% | 40,138,822 | 23.9% | 127,905,808 | 76.1% |

Source: U.S. Census Bureau, 2009-2011 American Community Survey 3-year estimates

When compared to the United States, all counties rank unfavorably in all categories represented above, with the exception of the percent insured population that are at or below 400% of the federal poverty level. In that category, all counties exceed Missouri and Kansas.

Education

Exhibit 11 presents educational attainment by age cohort for individuals in each county versus the states of Missouri and Kansas.

**Exhibit 11
Freeman Joplin Hospital Community
Educational Attainment by Age - Total Population
2011**

| State/ County | Age Cohort | | | | |
|--|------------|-------|-------|-------|-------|
| | 18-24 | 25-34 | 35-44 | 45-64 | 65+ |
| <u>Completing High School</u> | | | | | |
| Jasper County | 73.5% | 84.5% | 83.2% | 83.6% | 77.4% |
| Newton County | 85.4% | 85.0% | 86.1% | 90.3% | 72.9% |
| Cherokee County, KS | 78.8% | 90.6% | 90.8% | 89.4% | 76.4% |
| Missouri | 83.9% | 89.5% | 89.7% | 89.5% | 78.1% |
| Kansas | 85.7% | 89.6% | 90.0% | 91.9% | 84.7% |
| <u>Bachelor's Degree or More</u> | | | | | |
| Jasper County | 6.6% | 22.9% | 21.1% | 19.9% | 14.3% |
| Newton County | 6.5% | 15.3% | 21.4% | 19.6% | 15.0% |
| Cherokee County, KS | 7.7% | 13.6% | 11.8% | 18.3% | 9.6% |
| Missouri | 9.2% | 30.8% | 29.5% | 25.7% | 17.2% |
| Kansas | 9.0% | 32.7% | 34.1% | 30.9% | 21.0% |
| <u>Graduate or Professional Degree (Population 25 and over)</u> | | | | | |
| Jasper County | 5.8% | | | | |
| Newton County | 6.7% | | | | |
| Cherokee County, KS | 5.1% | | | | |
| Missouri | 9.6% | | | | |
| Kansas | 10.3% | | | | |

Source: U.S. Census Bureau, 2009-2011 American Community Survey 3-year estimates

Education levels obtained by community residents may impact the local economy. Higher levels of education generally lead to higher wages, less unemployment and job stability. These factors may indirectly influence community health. Persons aged 25 and older have fewer graduate or professional degrees than the state as a whole. All counties compare unfavorably to Missouri and Kansas for all age categories in obtaining a bachelor's degree or higher. Jasper County is consistently lower across all age groups compared to the state of Missouri for those completing high school.

Health Status of the Community

This section of the assessment reviews the health status of Cherokee, Jasper and Newton County residents, with comparisons to the states of Missouri and Kansas. This in-depth assessment of the mortality and morbidity data, health outcomes, health factors and mental health indicators of the county residents that make up the community will enable the Hospital to identify priority health issues related to the health status of its residents.

Good health can be defined as a state of physical, mental and social well-being, rather than the absence of disease or infirmity. According to *Healthy People 2020*, the national health objectives released by the U.S. Department of Health and Human Services, individual health is closely linked to community health. Community health, which includes both the physical and social environment in which individuals live, work and play, is profoundly affected by the collective behaviors, attitudes and beliefs of everyone who lives in the community. Healthy people are among a community's most essential resources.

Numerous factors have a significant impact on an individual's health status: lifestyle and behavior, human biology, environmental and socioeconomic conditions, as well as access to adequate and appropriate health care and medical services. Studies by the American Society of Internal Medicine conclude that up to 70 percent of an individual's health status is directly attributable to personal lifestyle decisions and attitudes. Persons who do not smoke, who drink in moderation (if at all), use automobile seat belts (car seats for infants and small children), maintain a nutritious low-fat, high-fiber diet, reduce excess stress in daily living and exercise regularly have a significantly greater potential of avoiding debilitating diseases, infirmities and premature death.

The interrelationship among lifestyle/behavior, personal health attitude and poor health status is gaining recognition and acceptance by both the general public and health care providers. Some examples of lifestyle/behavior and related health care problems include the following:

| <i>Lifestyle</i> | <i>Primary Disease Factor</i> |
|-----------------------------|--|
| Smoking | Lung cancer Cardiovascular disease Emphysema Chronic bronchitis |
| Alcohol/drug abuse | Cirrhosis of liver Motor vehicle crashes Unintentional injuries Malnutrition Suicide Homicide Mental illness |
| Poor nutrition | Obesity Digestive disease Depression |
| Driving at excessive speeds | Trauma Motor vehicle crashes |

| Lifestyle | Primary Disease Factor |
|------------------|--|
| Lack of exercise | Cardiovascular disease Depression |
| Overstressed | Mental illness Alcohol/drug abuse Cardiovascular disease |

Health problems should be examined in terms of morbidity as well as mortality. Morbidity is defined as the incidence of illness or injury and mortality is defined as the incidence of death. However, law does not require reporting the incidence of a particular disease, except when the public health is potentially endangered. More than 50 infectious diseases in Missouri and Kansas must be reported to county health departments. Except for Acquired Immune Deficiency Syndrome (AIDS), most of these reportable diseases currently result in comparatively few deaths.

Due to limited morbidity data, this health status report relies heavily on death and death rate statistics for leading causes in death in Jasper and Newton counties and the state Missouri. Leading causes of death information wasn't available for Cherokee County, Kansas. Such information provides useful indicators of health status trends and permits an assessment of the impact of changes in health services on a resident population during an established period of time. Community attention and health care resources may then be directed to those areas of greatest impact and concern.

Leading Causes of Death

Exhibit 12 reflects the leading causes of death for Jasper, Newton and Cherokee County residents and compares the rates, per hundred thousand, to the states of Missouri and Kansas average rates, per hundred thousand.

Exhibit 12
Freeman Joplin Hospital Community
Selected Causes of Resident Deaths: Number and Rate (2009 10 year trend) Rates per 100,000

| | Jasper | | Newton | | Missouri | | Cherokee | | Kansas | |
|--------------------------------------|--------|-------|--------|-------|----------|-------|----------|---------|---------|-------|
| | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| Total Deaths, All Causes | 12,128 | 928.4 | 5,918 | 896.2 | 602,631 | 871.5 | 2,985 | 1,244.7 | 269,993 | 896.3 |
| Heart Disease | 3,906 | 295.3 | 1,720 | 257.9 | 172,202 | 245.6 | 842 | 351.0 | 72,590 | 240.8 |
| All Cancers (Malignant Neoplasms) | 2,525 | 196.5 | 1,340 | 200.3 | 135,732 | 197.7 | 527 | 219.8 | 58,410 | 193.1 |
| Smoking-Attributable | 2,345 | 181.1 | 1,059 | 157.8 | 105,354 | 152.2 | 190 | 79.3 | 18,090 | 60.2 |
| All Injuries and Poisonings | 742 | 61.0 | 420 | 70.9 | 43,403 | 67.0 | 39 | 16.3 | 17,936 | 58.9 |
| Lung Cancer | 806 | 63.0 | 399 | 59.4 | 42,092 | 61.4 | 222 | 92.6 | 16,833 | 55.9 |
| Stroke/Other Cerebrovascular Disease | 714 | 53.5 | 397 | 59.7 | 38,628 | 54.9 | 180 | 75.0 | 17,079 | 56.6 |
| Chronic Lower Respiratory Disease | 847 | 64.7 | 341 | 51.2 | 33,585 | 48.7 | N/A | N/A | N/A | N/A |
| Total Unintentional Injuries | 483 | 39.5 | 298 | 50.3 | 29,386 | 45.0 | 12 | 5.0 | 14,148 | 46.3 |
| Diabetes Mellitus | 295 | 22.9 | 129 | 19.3 | 16,393 | 23.8 | 106 | 44.2 | 7,623 | 25.6 |
| Pneumonia and Influenza | 465 | 34.5 | 237 | 35.3 | 16,373 | 23.1 | 90 | 37.5 | 7,253 | 24.2 |

Source: Missouri Department of Health & Senior Services, CDC.gov

Exhibit 13 compares the rates of deaths for Jasper County residents, with state and U.S. rates for the county's top 10 causes and identifies the statistical differences from U.S. rates.

Exhibit 13
Freeman Joplin Hospital Community
Comparison of Rates for Selected Causes of Death: Rate per 100,000 Residents: Jasper County
2009 10-year Trend

| Selected Cause of Death | Number of Deaths | County Rate | MO Rate | 2010 US Rate | Percent Difference from US |
|--------------------------------------|------------------|-------------|---------|--------------|----------------------------|
| Total Deaths, All Causes | 12,128 | 928.4 | 871.5 | 798.7 | 16.2% |
| Heart Disease | 3,906 | 295.3 | 245.6 | 192.9 | 53.1% |
| All Cancers (Malignant Neoplasms) | 2,525 | 196.5 | 197.7 | 185.9 | 5.7% |
| Smoking-Attributable | 2,345 | 181.1 | 152.2 | N/A | N/A |
| Chronic Lower Respiratory Disease | 847 | 64.7 | 48.7 | 44.6 | 45.1% |
| Lung Cancer | 806 | 63.0 | 61.4 | 51.2 | 23.0% |
| All Injuries and Poisonings | 742 | 61.0 | 67.0 | N/A | N/A |
| Stroke/Other Cerebrovascular Disease | 714 | 53.5 | 54.9 | 41.8 | 28.0% |
| Total Unintentional Injuries | 483 | 39.5 | 45.0 | 38.2 | 3.4% |
| Pneumonia and Influenza | 465 | 34.5 | 23.1 | 16.2 | 113.0% |
| Diabetes Mellitus | 295 | 22.9 | 23.8 | 22.3 | 2.7% |

Source: Missouri Department of Health & Senior Services

Exhibit 13.1 compares the rates of deaths for Newton County residents, with state and U.S. rates for the county's top 10 causes and identifies statistical differences from the U.S. rates.

Exhibit 13.1
Freeman Joplin Hospital Community
Comparison of Rates for Selected Causes of Death: Rate per 100,000 Residents: Newton County
2009 10-year Trend

| Selected Cause of Death | Number of Deaths | County Rate | MO Rate | 2010 US Rate | Percent Difference from US |
|--------------------------------------|------------------|-------------|---------|--------------|----------------------------|
| Total Deaths, All Causes | 5,918 | 896.2 | 871.5 | 798.7 | 12.2% |
| Heart Disease | 1,720 | 257.9 | 245.6 | 192.9 | 33.7% |
| All Cancers (Malignant Neoplasms) | 1,340 | 200.3 | 197.7 | 185.9 | 7.7% |
| Smoking-Attributable | 1,059 | 157.8 | 152.2 | N/A | N/A |
| All Injuries and Poisonings | 420 | 70.9 | 67.0 | N/A | N/A |
| Stroke/Other Cerebrovascular Disease | 397 | 59.7 | 54.9 | 41.8 | 42.8% |
| Lung Cancer | 399 | 59.4 | 61.4 | 51.2 | 16.0% |
| Chronic Lower Respiratory Disease | 341 | 51.2 | 48.7 | 44.6 | 14.8% |
| Total Unintentional Injuries | 298 | 50.3 | 45.0 | 38.2 | 31.7% |
| Pneumonia and Influenza | 237 | 35.3 | 23.1 | 16.2 | 117.9% |
| Motor Vehicle Accidents | 150 | 25.6 | 18.6 | 11.4 | 124.6% |

Source: Missouri Department of Health & Senior Services

Exhibit 13.2 compares the rates of deaths for Cherokee County residents, with state and U.S. rates for the county’s top 10 causes and identifies statistical differences from the U.S. rates.

Exhibit 13.2
Freeman Health System Community
Comparison of Rates for Selected Causes of Death: Rate per 1,000 Residents: Cherokee County
2011

| Selected Cause of Death | Number of Deaths | County Rate | KS Rate | 2010 US Rate | Percent Difference from US |
|-------------------------------------|------------------|-------------|---------|--------------|----------------------------|
| Total Deaths, All Causes | 280 | 1,309.0 | 874.7 | 798.7 | 63.9% |
| Heart Disease | 78 | 364.7 | 255.7 | 192.9 | 89.1% |
| All Cancers (Malignant Neoplasms) | 55 | 257.2 | 188.9 | 185.9 | 38.4% |
| All Other Diseases | 41 | 191.7 | 170.0 | 87.1 | 120.1% |
| Chronic Lower Respiratory Disease | 29 | 135.6 | 57.6 | 44.6 | 204.0% |
| Alzheimer's | 16 | 74.8 | 27.7 | 27.0 | 177.0% |
| Diabetes Mellitus | 13 | 60.8 | 24.7 | 22.3 | 172.6% |
| Influenza and Pneumonia | 12 | 56.1 | 22.3 | 16.2 | 246.3% |
| All Other Accidents/Adverse Effects | 12 | 56.1 | 32.8 | 38.2 | 46.9% |
| Suicide | 6 | 28.1 | 13.4 | 12.2 | 130.3% |
| Motor Vehicles Accidents | 5 | 23.4 | 14.5 | 11.4 | 105.3% |

Source: KS Department of Health & Environment, Kansas Information for Communities

Total death rates for all causes are above the U.S. rate for each county in Freeman’s community. Cherokee county is especially high, at 63.9% over the U.S. rate for total deaths. Jasper County has high rates of death from pneumonia and influenza, heart disease and chronic lower respiratory disease when compared to the United States. Newton County has high rates of death from motor vehicle accidents at 124.6% of the nation’s rate. Freeman has expanded ambulance services in response to this issue, as well as lobbied for improved roads in area counties. Pneumonia and influenza deaths are also an issue for Newton County. Cherokee County’s death rates on the whole are significantly higher when compared to the United States, with pneumonia and influenza, chronic lower respiratory diseases, Alzheimer’s and diabetes having the greatest differences. Causes of death data for Cherokee County are only for one year. Since it is a lower populated area, one or two additional deaths in any given year can have a significant impact on percent difference from United States death rates.

Health Outcomes and Factors

An analysis of various health outcomes and factors for a particular community can, if improved, help make that community a healthier place to live, learn, work and play. A better understanding of the factors that affect the health of the community will assist with how to improve the community's habits, culture and environment. This portion of the community health needs assessment utilizes information from County Health Rankings, a key component of the Mobilizing Action Toward Community Health (MATCH) project, a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute.

The County Health Rankings model is grounded in the belief that programs and policies implemented at the local, state and federal levels have an impact on the variety of factors that, in turn, determine the health outcomes for communities across the nation. The model provides a ranking method that ranks all 50 states and the counties within each state, based on the measurement of two types of health outcomes for each county: how long people live (mortality) and how healthy people feel (morbidity). These outcomes are the result of a collection of health factors and are influenced by programs and policies at the local, state and federal levels.

Counties in each of the 50 states are ranked according to summaries of a variety of health measures. Those having high ranks, *e.g.* 1 or 2, are considered to be the "healthiest." Counties are ranked relative to the health of other counties in the same state on the following summary measures:

- Health Outcomes--rankings are based on an equal weighting of one length of life (mortality) measure and four quality of life (morbidity) measures.
- Health Factors--rankings are based on weighted scores of four types of factors:
 - Health behaviors (six measures)
 - Clinical care (five measures)
 - Social and economic (seven measures)
 - Physical environment (four measures)

A more detailed discussion about the ranking system, data sources and measures, data quality and calculating scores and ranks can be found at the website for County Health Rankings (www.countyhealthrankings.org).

As part of the analysis of the needs assessment for the community, the three counties that comprise the majority of the community will be used to compare the relative health status of each county to the states of Missouri or Kansas as well as to a national benchmark. A better understanding of the factors that affect the health of the community will assist with how to improve the community's habits, culture and environment.

The following tables, from County Health Rankings, summarize the 2012 health outcomes for the three counties that comprise the community for Freeman Joplin Hospital. Each measure is described and includes a confidence interval or error margin surrounding it – if a measure is above the state average and the state average is beyond the error margin for the county, then further investigation is recommended.

Health Outcomes--rankings are based on an equal weighting of one length of life (mortality) measure and four quality of life (morbidity) measures. *Exhibit 14* shows Jasper County mortality measure was slightly higher than the state of Missouri; however, morbidity factors were favorable in comparison (ranking 57 on mortality and 26 on morbidity out of 115 counties). *Exhibit 15* shows Newton County health outcomes at or lower compared to the state, ranking 46th on mortality and 40th on morbidity. *Exhibit 16* shows Cherokee County health outcomes at near the lowest levels in the state of Kansas, ranking 97th (out of 100 counties) on mortality and 82nd on morbidity. Each measure for every county was below national benchmarks with opportunities for improvement.

Jasper County

Exhibit 14
Freeman Joplin Hospital Community
Jasper County Health Rankings - Health Outcomes (2012)

| | Jasper County | Error Margin | National Benchmark | MO | Rank (of 115) |
|--|---------------|--------------|--------------------|-------|---------------|
| <i>Mortality</i> | | | | | |
| Premature death - Years of potential life lost before age 75 per 100,000 population (age-adjusted) | 8,499 | 7,928-9,070 | 5,466 | 7,981 | 57 |
| <i>Morbidity</i> | | | | | |
| Poor or fair health - Percent of adults reporting fair or poor health (age-adjusted) | 14% | 11-17% | 10% | 16% | 26 |
| Poor physical health days - Average number of physically unhealthy days reported in past 30 days (age-adjusted) | 3.7 | 2.9-4.4 | 2.6 | 3.6 | |
| Poor mental health days - Average number of mentally unhealthy days reported in past 30 days (age-adjusted) | 3.7 | 2.9-4.6 | 2.3 | 3.7 | |
| Low birth weight - Percent of live births with low birth weight (<2500 grams) | 6.7% | 6.3-7.1% | 6% | 8.1% | |

Source: Countyhealthrankings.org

A number of different health factors shape a community’s health outcomes. The County Health Rankings model includes four types of health factors: health behaviors, clinical care, social and economic and the physical environment.

Exhibit 14.1 summarizes the health factors for Jasper County. Areas for improvement include:

- Health Behavior/Adult obesity
- Health Behavior/Motor vehicle crash death rate
- Health Behavior/Teen Birth Rate
- Clinical Care/Uninsured adults
- Social & Economic Factors/Children in poverty
- Social & Economic Factors/Some college

**Exhibit 14.1
Freeman Joplin Hospital Community
Jasper County Health Rankings - Health Factors (2012)**

| | Jasper County | Error Margin | National Benchmark | MO | Rank (of 115) |
|--|------------------|-----------------|-----------------------|---------|------------------|
| <i>Health Behaviors</i> | | | | | 76 |
| Adult smoking - Percent of adults that report smoking at least 100 cigarettes and that they currently smoke | 24% | 19-29% | 14% | 24% | |
| Adult obesity - Percent of adults that report a BMI >= 30 | 33% | 28-39% | 25% | 31% | |
| Excessive drinking - Percent of adults that report excessive drinking in the past 30 days | 15% | 11-20% | 8% | 17% | |
| Motor vehicle crash death rate - Motor vehicle deaths per 100K population | 22 | 19-25 | 12 | 19 | |
| Sexually transmitted infections - Chlamydia rate per 100K population | 430 | | 84 | 438 | |
| Teen birth rate - Per 1,000 female population, ages 15-19 | 68 | 64-71 | 22 | 44 | |
| <i>Clinical Care</i> | | | | | 28 |
| Uninsured adults - Percent of population under age 65 without health insurance | 18% | 16-20% | 11% | 15% | |
| Primary care physicians - Ratio of population to primary care physicians | 1,372:1 | | 631:1 | 1,274:1 | |
| Preventable hospital stays - Hospitalization rate for ambulatory-care sensitive conditions per 1,000 Medicare enrollees | 74 | 69-79 | 49.0 | 75 | |
| Diabetic screening - Percent of diabetic Medicare enrollees that receive HbA1c screening | 83% | 78-88% | 89.0% | 84% | |
| Mammography screening - Percent of female Medicare enrollees that receive mammography screening | 66% | 60-71% | 74.0% | 65% | |
| <i>Social & Economic Factors</i> | | | | | 59 |
| High school graduation - Percent of ninth grade cohort that graduates in 4 years | 84% | | | 86% | |
| Some college - Percent of adults aged 25-44 years with some post-secondary education | 52% | 50-55% | 68% | 61% | |
| Children in poverty - Percent of children under age 18 in poverty | 23% | 18-29% | 13% | 21% | |
| Inadequate social support - Percent of adults without social/emotional support | 20% | 15-26% | 14% | 19% | |
| Children in single-parent households - Percent of children that live in household headed by single parent | 35% | 32-29% | 20% | 32% | |
| Violent Crime rate - Violent crimes per 100,000 population (age-adjusted) | 438 | | 73 | 518 | |
| <i>Physical Environment</i> | | | | | 76 |
| Air pollution-particulate matter days - Annual number of unhealthy air quality days due to fine particulate matter | - | | - | - | |
| Air pollution-ozone days - Annual number of unhealthy air quality days due to ozone | - | | - | 7 | |
| Limited access to healthy foods - Healthy food outlets include grocery stores and produce stands/farmers' markets | 19% | | 0% | 8% | |
| Access to recreational facilities - Rate of recreational facilities per 100,000 population | 11 | | 16 | 10 | |
| Fast food restaurants - Percent of all restaurants that are fast food establishments | 49% | | 25% | 47% | |

Source: Countyhealthrankings.org

Newton County

Exhibit 15
 Freeman Joplin Hospital Community
 Newton County Health Rankings - Health Outcomes (2012)

| | Newton County | Error Margin | National Benchmark | MO | Rank (of 115) |
|--|---------------|--------------|--------------------|-------|---------------|
| <i>Mortality</i> | | | | | |
| Premature death - Years of potential life lost before age 75 per 100,000 population (age-adjusted) | 8,219 | 7,374-9,064 | 5,466 | 7,981 | 46 |
| <i>Morbidity</i> | | | | | |
| Poor or fair health - Percent of adults reporting fair or poor health (age-adjusted) | 16% | 12-20% | 10% | 16% | 40 |
| Poor physical health days - Average number of physically unhealthy days reported in past 30 days (age-adjusted) | 3.7 | 2.7-4.8 | 2.6 | 3.6 | |
| Poor mental health days - Average number of mentally unhealthy days reported in past 30 days (age-adjusted) | 3.6 | 2.5-4.8 | 2.3 | 3.7 | |
| Low birth weight - Percent of live births with low birth weight (<2500 grams) | 7.2% | 6.5-7.8% | 6% | 8.1% | |

Source: Countyhealthrankings.org

Exhibit 15.1 summarizes the health factors for Newton County. Areas for improvement include:

- Health Behavior/Adult obesity
- Health Behavior/Motor vehicle crash death rate
- Health Behavior/Teen Birth Rate
- Clinical Care/Uninsured adults
- Clinical Care/Primary care physicians
- Social & Economic Factors/Children in poverty
- Social & Economic Factors/Some college

**Exhibit 15.1
Freeman Joplin Hospital Community
Newton County Health Rankings - Health Factors (2012)**

| | Newton County | Error Margin | National Benchmark | MO | Rank (of 115) |
|--|---------------|--------------|--------------------|---------|---------------|
| <i>Health Behaviors</i> | | | | | 36 |
| Adult smoking - Percent of adults that report smoking at least 100 cigarettes and that they currently smoke | 20% | 14-26% | 14% | 24% | |
| Adult obesity - Percent of adults that report a BMI >= 30 | 33% | 26-39% | 25% | 31% | |
| Excessive drinking - Percent of adults that report excessive drinking in the past 30 days | 10% | 6-17% | 8% | 17% | |
| Motor vehicle crash death rate - Motor vehicle deaths per 100K population | 25 | 20-30 | 12 | 19 | |
| Sexually transmitted infections - Chlamydia rate per 100K population | 244 | | 84 | 438 | |
| Teen birth rate - Per 1,000 female population, ages 15-19 | 57 | 53-61 | 22 | 44 | |
| <i>Clinical Care</i> | | | | | 56 |
| Uninsured adults - Percent of population under age 65 without health insurance | 18% | 16-19% | 11% | 15% | |
| Primary care physicians - Ratio of population to primary care physicians | 5,598:1 | | 631:1 | 1,274:1 | |
| Preventable hospital stays - Hospitalization rate for ambulatory-care sensitive conditions per 1,000 Medicare enrollees | 76 | 70-81 | 49 | 75 | |
| Diabetic screening - Percent of diabetic Medicare enrollees that receive HbA1c screening | 85% | 80-90% | 89% | 84% | |
| Mammography screening - Percent of female Medicare enrollees that receive mammography screening | 63% | 57-68% | 74% | 65% | |
| <i>Social & Economic Factors</i> | | | | | 45 |
| High school graduation - Percent of ninth grade cohort that graduates in 4 years | 87% | | | 86% | |
| Some college - Percent of adults aged 25-44 years with some post-secondary education | 54% | 50-59% | 68% | 61% | |
| Children in poverty - Percent of children under age 18 in poverty | 24% | 18-30% | 13% | 21% | |
| Inadequate social support - Percent of adults without social/emotional support | 18% | 12-25% | 14% | 19% | |
| Children in single-parent households - Percent of children that live in household headed by single parent | 27% | 22-32% | 20% | 32% | |
| Violent crime rate - violent crimes per 100,000 population (age-adjusted) | 263 | | 73 | 518 | |
| <i>Physical Environment</i> | | | | | 95 |
| Air pollution-particulate matter days - Annual number of unhealthy air quality days due to fine particulate matter | - | | - | - | |
| Air pollution-ozone days - Annual number of unhealthy air quality days due to ozone | 1 | | - | 7 | |
| Access to healthy foods - Healthy food outlets include grocery stores and produce stands/farmers' markets | 27% | | 0% | 8% | |
| Access to recreational facilities - Rate of recreational facilities per 100,000 population | 7 | | 16 | 10 | |
| Fast food restaurants - Percent of all restaurants that are fast food establishments | 48% | | 25% | 47% | |

Source: Countyhealthrankings.org

Cherokee County

**Exhibit 16
Freeman Joplin Hospital Community
Cherokee County Health Rankings - Health Outcomes (2012)**

| | Cherokee County | Error Margin | National Benchmark | KS | Rank (of 100) |
|--|----------------------------|-------------------------|-------------------------------|-----------|--------------------------|
| <i>Mortality</i> | | | | | |
| Premature death - Years of potential life lost before age 75 per 100,000 population (age-adjusted) | 10,771 | 9,223-12,318 | 5,466 | 7,012 | 97 |
| <i>Morbidity</i> | | | | | |
| Poor or fair health - Percent of adults reporting fair or poor health (age-adjusted) | 19% | 15-23% | 10% | 13% | 82 |
| Poor physical health days - Average number of physically unhealthy days reported in past 30 days (age-adjusted) | 3.9 | 3.1-4.7 | 2.6 | 3 | |
| Poor mental health days - Average number of mentally unhealthy days reported in past 30 days (age-adjusted) | 3.1 | 2.2-3.9 | 2.3 | 2.8 | |
| Low birth weight - Percent of live births with low birth weight (<2500 grams) | 7% | 5.9-8.2% | 6% | 7.2% | |

Source: Countyhealthrankings.org

The following table summarizes the health factors for Cherokee County and shows there is significant room for improvement in the following areas:

- Health Behaviors/Adult Smoking
- Health Behavior/Adult Obesity
- Health Behavior/Motor Vehicle Crash Death Rate
- Health Behavior/Teen Birth Rate
- Clinical Care/Uninsured Adults
- Clinical Care/Preventable Hospital Stays
- Clinical Care/Primary Care Physicians
- Social & Economic Factors/Children in Poverty
- Social & Economic Factors/Some College

Exhibit 16.1
Freeman Joplin Hospital Community
Cherokee County Health Rankings - Health Factors (2012)

| | Cherokee County | Error Margin | National Benchmark | KS | Rank (of 100) |
|--|-----------------|--------------|--------------------|---------|---------------|
| <i>Health Behaviors</i> | | | | | 86 |
| Adult smoking - Percent of adults that report smoking at least 100 cigarettes and that they currently smoke | 20% | 16-25% | 14% | 18% | |
| Adult obesity - Percent of adults that report a BMI \geq 30 | 36% | 31-41% | 25% | 30% | |
| Excessive drinking - Percent of adults that report excessive drinking in the past 30 days | 12% | 8-16% | 8% | 15% | |
| Motor vehicle crash death rate - Motor vehicle deaths per 100K population | 30 | 21-38 | 12 | 18 | |
| Sexually transmitted infections - Chlamydia rate per 100K population | 176 | | 84 | 375 | |
| Teen birth rate - Per 1,000 female population, ages 15-19 | 59 | 52-65 | 22 | 43 | |
| <i>Clinical Care</i> | | | | | 82 |
| Uninsured adults - Percent of population under age 65 without health insurance | 16% | 14-18% | 11% | 15% | |
| Primary care physicians - Ratio of population to primary care physicians | 4,236:1 | | 631:1 | 1,244:1 | |
| Preventable hospital stays - Hospitalization rate for ambulatory-care sensitive conditions per 1,000 Medicare enrollees | 82 | 72-92 | 49 | 70 | |
| Diabetic screening - Percent of diabetic Medicare enrollees that receive HbA1c screening | 74% | 66-82% | 89% | 85% | |
| Mammography screening - Percent of female Medicare enrollees that receive mammography screening | 53% | 44-61% | 74% | 67% | |
| <i>Social & Economic Factors</i> | | | | | 93 |
| High school graduation - Percent of ninth grade cohort that graduates in 4 years | 89% | | | 80% | |
| Some college - Percent of adults aged 25-44 years with some post-secondary education | 55% | 47-63% | 68% | 66% | |
| Children in poverty - Percent of children under age 18 in poverty | 28% | 21-35% | 13% | 18% | |
| Inadequate social support - Percent of adults without social/emotional support | 17% | 13-22% | 14% | 16% | |
| Children in single-parent households - Percent of children that live in household headed by single parent | 30% | 22-37% | 20% | 28% | |
| Violent Crime rate - Violent crimes per 100,000 population (age-adjusted) | 203 | | 73 | 421 | |
| <i>Physical Environment</i> | | | | | 50 |
| Air pollution-particulate matter days - Annual number of unhealthy air quality days due to fine particulate matter | - | | - | - | |
| Air pollution-ozone days - Annual number of unhealthy air quality days due to ozone | 2 | | - | 2 | |
| Access to healthy foods - Healthy food outlets include grocery stores and produce stands/farmers' markets | 0% | | 0% | 7% | |
| Access to recreational facilities - Rate of recreational facilities per 100,000 population | 5 | | 16 | 10 | |
| Fast food restaurants - Percent of all restaurants that are fast-food establishments | 41% | | 25% | 48% | |

Source: Countyhealthrankings.org

Jasper County Health Synopsis: Jasper County has low rates of excessive drinking, violent crimes, low birth weights, poor or fair health and sexually transmitted infections in comparison to the state. Also, compared to the state, the county has a higher rate of mammography screenings for female Medicare enrollees. The county has good clinical care with the exception of uninsured adults. All other clinical care factors were favorable when compared to the state of Missouri. Despite these strengths, the county shows some health behavior problems. The county is challenged by higher-than-desirable rates of premature death, adult obesity, motor vehicle crash deaths, teens giving birth, uninsured adults and overall social and economic factors with the exception of violent crimes. While the ratio per physician is in line with the state, it is near double the population per physician than the national benchmark. Overall morbidity factors are higher when compared to national benchmarks. Adult smoking is 70% higher than the national benchmark. Sexually transmitted infections are in line with the state, yet over four times the national rate. Overall, clinical care for the county ranks the highest for the categories of health factors (28 out of 115 counties), with health behaviors as well as physical environment ranking the lowest (76 out of 115 counties).

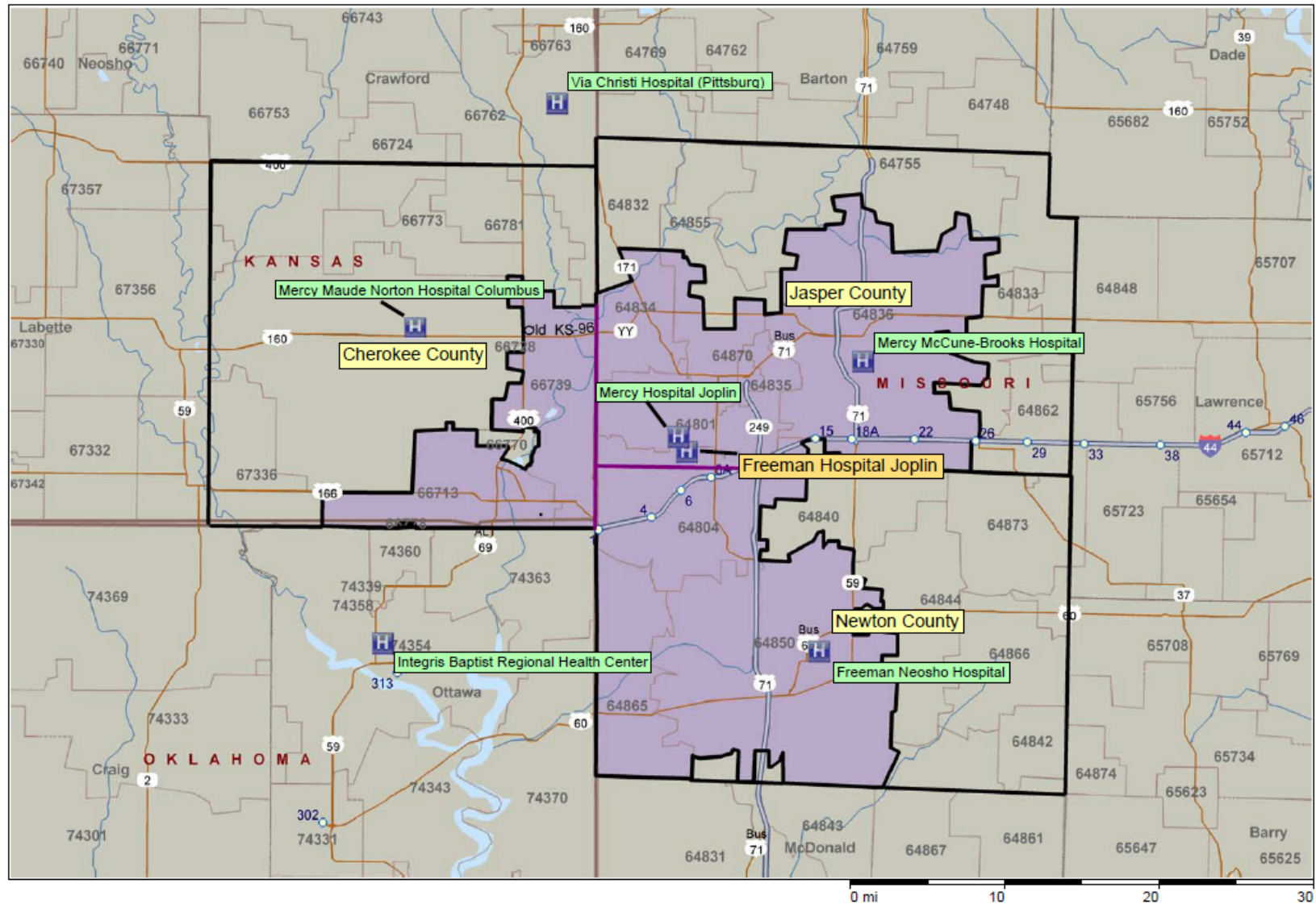
Newton County Health Synopsis: Newton County has low rates of poor mental health days, low birth weights, adult smoking, excessive drinking, sexually transmitted infections, violent crime and children in single-parent households in comparison to the state. The premature death rate is slightly higher than Missouri, but over 50% higher than the national benchmark. All morbidity factors are significantly higher than national levels. Further, when compared to national benchmarks all health factors rank unfavorably. Specific factors that stand out include primary care physician ratio, teen birth rate, violent crime rate and motor vehicle crash rate. Population to physician ratio is over five times higher in this county than the national benchmark. When looking at the health factor groupings, healthy behaviors ranked highest (36 of 115 counties) with physical environment ranking lowest (95 of 115 counties). 48% of all restaurants in Newton County are fast food establishments. Clinical care as well as social and economic factors ranked somewhat in the middle. With these mediocre factors, poor physical environment, and not enough physicians, this county faces some challenges.

Cherokee County Health Synopsis: Cherokee County faces some serious health challenges. With 100 counties in the state of Kansas none of the health factor groupings ranked in the top half of the state. The mortality factor and premature death rate, is ranked 97, making only three counties in the state having higher rates of premature death. This county's premature death rate is 97% higher than the national benchmark. The population to primary care physician ratio is 175% higher than the state and 273% higher than the national benchmark. Despite these problems, the county has strengths that indicate the potential for reducing health risks and saving lives. The county has comparatively low rates of excessive drinking, sexually transmitted infections and violent crime to the state. Social and economic factors rank 93 (out of 100). This can be attributed to 28% children under age 18 in poverty. Also, the rate of high school graduates is above the state average, yet lower than the state with adults ages 25-44 with some college. Physical environment is the factors grouping with the most favorable rank, 50 out of 100, even with 41% of all restaurants being fast food establishments.

Health Care Resources

The availability of health resources is a critical component to the health of a community and a measure of the soundness of the area's health care delivery system. An adequate number of health care facilities and health care providers is vital for sustaining a community's health status. Fewer health care facilities and health care providers can impact the timely delivery of services. A limited supply of health resources, especially providers, results in the limited capacity of the health care delivery system to absorb charity and indigent care as there are fewer providers upon which to distribute the burden of indigent care. This section will address the availability of health care resources to the residents of Jasper, Newton and Cherokee Counties. The following is a map showing a geographical representation of the area facilities within a 30 mile radius from the Hospital in relation to the defined zip code population.

Area Facilities in 30 Mile Radius of Freeman Hospital Joplin



Hospitals and Health Centers

The Hospital currently has 317 acute beds and is one of four hospitals located in the service area. Residents of the community also take advantage of services provided outside the service area. *Exhibit 17* summarizes hospital services 2010 data reported to Medicare that was available to the residents of Jasper, Newton and Cherokee counties pre-tornado:

Exhibit 17
Freeman Joplin Hospital Community
Summary of Area Hospitals (2010 Cost Report Data)

| | | Facility Type | Miles from Freeman | Bed Size | Annual Discharges | Annual Patient Revenue (000's) |
|---|--|------------------|--------------------|----------|-------------------|--------------------------------|
| Freeman Hospital Joplin | 1102 W. 32nd St., Joplin, MO 64804 | Short Term Acute | 0 | 292 | 16,231 | \$ 1,060,413,314 |
| Mercy Hospital Joplin | 2817 St. John's Boulevard, Joplin, MO 64804 | Short Term Acute | 0.7 | 337 | 15,103 | \$ 804,792,533 |
| Mercy McCune-Brooks Hospital | 3125 Dr. Russell Smith Way, Carthage, MO 64836 | Critical Access | 18.4 | 25 | 1,378 | \$ 87,470,947 |
| Freeman Neosho Hospital | 113 West Hickory St., Neosho, MO 64850 | Critical Access | 20.4 | 25 | 1,396 | \$ 75,486,542 |
| Integrus Baptist Regional Health Center | 200 2nd Ave. SW, Miami, OK 74354 | Short Term Acute | 26.8 | 94 | 3,281 | \$ 123,016,549 |
| Mercy Maude Norton Hospital Columbus | 220 North Pennsylvania, Columbus, KS 66725 | Critical Access | 27.7 | 18 | 57 | \$ 4,305,641 |
| Via Christi Hospital Pittsburg Inc. | 1 Mt. Carmel Way, Pittsburg, KS 66762 | Short Term Acute | 31.2 | 101 | 4,633 | \$ 211,695,173 |

Source: Costreportdata.com

The following is a brief description of the health care services available at each of these facilities:

Mercy Hospital Joplin – Located in Joplin, Missouri, Mercy Hospital is newly opened after the May 2011 tornado. Mercy Hospital Joplin is only a two minute drive from Freeman Hospital West. The facility includes a full-scale emergency department with three triage rooms, 17 exam rooms, three trauma rooms and 18 critical care beds. The Hospital also includes a heart and vascular department equipped to perform open heart procedures, a radiology wing with 14 imaging rooms, four surgical rooms, six dedicated pediatric rooms and a labor and delivery department, including a nursery and 10 labor and delivery suites.

Mercy McCune-Brooks Hospital – McCune-Brooks Regional Hospital, MBRH is located in Carthage, Missouri, less than a half hour north east of Joplin. As of January 1, 2012, MBRH became part of the Mercy health care system. MBRH provides general medical and surgical care for inpatient, outpatient and emergency room patients.

Freeman Neosho Hospital – Located in Neosho, Missouri, Freeman Neosho Hospital less than a thirty minute drive southeast from Joplin. The services provided include emergency room, pediatrics, critical care (ICU), women’s services, radiology, rehabilitation, surgery and various specialty clinics.

Integrus Baptist Regional Health Center – Located in Miami, Oklahoma, Integrus Baptist Regional Health Center offers a full range of diagnostic, therapeutic and rehabilitative services. They also provide inpatient and outpatient services including critical care, surgical services, diabetes management, hospice, home health care and home medical equipment.

Mercy Maude Norton Hospital Columbus – Located in Columbus, Kansas, Mercy Maude Norton Hospital Columbus (MMNHC) is a critical access hospital approximately a thirty minute drive from Joplin. The services provided by MMNHC are very basic and more limited to those provided by the Hospital but include an emergency room, imaging, industrial medicine, mammography, physical therapy, respiratory therapy, skilled nursing, visiting specialty clinics, cardiology, cardiovascular, colon/rectal, podiatry and urology. MMNHC is affiliated with Mercy Hospital Joplin.

Via Christi Hospital Pittsburg Inc. – Located in Pittsburg, Kansas, Via Christi Hospital Pittsburg Inc. serves the southeast region of Kansas by offering a cancer center, heart center, emergency room and specialty services including orthopedics, diagnostics, surgery, physical therapy and occupational health.

Hospital Market Share

Hospital competition in the area is mainly between the two major health systems, Freeman Health System and Mercy Health System. Both systems offer comparable services in the major healthcare service lines. Freeman Health System does operate the area’s only NeoNatal ICU. Freeman has two hospitals in Joplin and one in Neosho. Mercy has hospitals in Carthage, Joplin and Columbus, Kansas. Other competition to both health systems does exist in the form of independently owned surgery centers, imaging centers and ancillary providers of physical therapy, speech therapy, occupational therapy, home health, durable medical equipment providers, pharmacy providers and mental health services.

The market share of a hospital relative to that of its competitors may be based largely on the services required by patients and the availability of those services at each facility. For this study, the market share of the Hospital was considered based on the type of services required by those patients in the community. The ability to attain a certain relative market share (percentage) of the community varies based on a number of factors, including the services provided, geographical location and accessibility of each competing facility. *Exhibit 18* presents the relative market share of hospitals that had discharges of residents from the counties of Jasper, Newton and Cherokee. This information provides a pre-tornado summary market share information as well as the outmigration of patients from the community. Market share has most likely shifted post-tornado.

**Exhibit 18
Freeman Joplin Hospital Community
Discharges by Hospital, by County 2010**

| | Jasper County | | Newton County | | Cherokee County | |
|---|------------------|-------|------------------|-------|--------------------|-------|
| | | % | | % | | % |
| Freeman Hospital Joplin | 8,397 | 43.6% | 3,768 | 50.8% | 1,093 | 32.4% |
| Mercy Hospital Joplin | 7,555 | 39.2% | 2,086 | 28.1% | 1,490 | 44.2% |
| Freeman Neosho Hospital | 31 | 0.2% | 864 | 11.6% | - | 0.0% |
| Mercy McCune-Brooks Hospital | 1,464 | 7.6% | 89 | 1.2% | 32 | 0.9% |
| Via Christi Hospital Pittsburg Inc. | 46 | 0.2% | - | 0.0% | 419 | 12.4% |
| Mercy Maude Norton Hospital Columbus | - | 0.0% | - | 0.0% | 58 | 1.7% |
| Integris Baptist Regional Health Center | - | 0.0% | - | 0.0% | - | 0.0% |
| All Others | 1,764 | 9.2% | 614 | 8.3% | 279 | 8.3% |
| Total | 19,257 | | 7,421 | | 3,371 | |

Source: HIDI data

Other Health Care Facilities and Providers

Access Family Care – Access Family Care has a combined dental, medical and pediatric clinic at the larger Joplin clinic site. There is also a small clinic housed in the Ozark Center serving Ozark Center patients. In Anderson, Missouri, Access has a combined dental and medical facility, and right now Cassville, Missouri, location only has medical, but a new clinic is in the process of being constructed and once completed, will have dental services as well. The administrative office is located in Neosho, Missouri. These federally qualified health centers offer obstetrics/gynecology, prenatal, pediatrics, well-child visits, vaccines for children, adolescent health, family practice, internal medicine, geriatrics, family dental care, chronic illness treatment, laboratory services, referral for mental health services, nutrition care, pregnancy testing, social services, cancer screenings, Spanish interpreting and 340B pharmacy discounts.

Community Health Center of Southeast Kansas – Located in Baxter Springs and Columbus within Cherokee County, Kansas, these federally qualified health centers provide long-term facility nursing visits, women’s health, men’s health, pediatrics, mental health, pharmacy, dental, laboratory and community outreach services. Other locations include Pittsburg, Coffeyville and Iola, Kansas.

Preferred Family Healthcare – Numerous locations throughout include Joplin, Missouri. Preferred Family Healthcare is a comprehensive behavioral health nonprofit organization providing substance abuse treatment/prevention and mental health services.

Fresenius Medical Care North America – Numerous locations include Joplin, Missouri. Fresenius Medical Care provides in-center dialysis, home dialysis, as well as transplant support.

Health Departments – Area health departments include: Joplin Health Department, Newton County Health Department, Jasper County Health Department and Economic Security Corporation of Southwest Area.

Imaging Centers – Area imaging centers include: Joplin 3D & 4D Imaging Center and Thousand Oaks Imaging Center.

Estimated Demand for Physician Office Visits and Hospital Services

In order to define existing services and develop future plans that may affect the operations of the Hospital, this study includes an analysis of estimated demand for physician office visits, hospital emergency room visits and hospital discharges using national averages and population estimates. Current and future unmet need can be evaluated based on the changes in the size of the market for certain services as determined by applying these national average use rates to the population of the community. *Exhibit 19* summarizes estimated 2012 and projected 2017 physician office visits, emergency department visits and hospital discharges using 2009 national average use rates from the National Center for Health Statistics.

Exhibit 19
Freeman Joplin Hospital Community
Physician Office Visits, Emergency Department Visits, and Discharges
Estimated 2012

| Age | 2012 Community Population | Physician Office Visits per Person | Estimated Physician Office Visits | Emergency Department Visits per Person | Estimated Emergency Department Visits | Hospital Discharges per Person | Estimated Hospital Discharges |
|-----------------------|---------------------------|------------------------------------|-----------------------------------|--|---------------------------------------|--------------------------------|-------------------------------|
| 0-17 | 40,897 | 2.47 | 101,016 | 0.45 | 18,404 | 0.0342 | 1,399 |
| 18-44 | 58,093 | 2.34 | 135,938 | 0.49 | 28,466 | 0.0886 | 5,147 |
| 45-64 | 40,142 | 4.01 | 160,969 | 0.37 | 14,853 | 0.1210 | 4,857 |
| 65+ | 22,255 | 7.37 | 164,019 | 0.52 | 11,573 | 0.3549 | 7,898 |
| Total | 161,387 | | 561,942 | | 73,296 | | 19,301 |
| Primary Care Visits | | 55.9% | 314,126 | | | | |
| Specialty Care Visits | | 44.1% | 247,816 | | | | |
| Total | | | 561,942 | | | | |

Projected 2017

| Age | 2017 Community Population | Physician Office Visits per Person | Projected Physician Office Visits | Emergency Department Visits per Person | Projected Emergency Department Visits | Hospital Discharges per Person | Projected Hospital Discharges |
|-----------------------|---------------------------|------------------------------------|-----------------------------------|--|---------------------------------------|--------------------------------|-------------------------------|
| 0-17 | 43,969 | 2.47 | 108,603 | 0.45 | 19,786 | 0.0342 | 1,504 |
| 18-44 | 60,261 | 2.34 | 141,011 | 0.49 | 29,528 | 0.0886 | 5,339 |
| 45-64 | 42,101 | 4.01 | 168,825 | 0.37 | 15,577 | 0.1210 | 5,094 |
| 65+ | 25,584 | 7.37 | 188,554 | 0.52 | 13,304 | 0.3549 | 9,080 |
| Total | 171,915 | | 606,993 | | 78,195 | | 21,017 |
| Primary Care Visits | | 55.9% | 339,309 | | | | |
| Specialty Care Visits | | 44.1% | 267,684 | | | | |
| Total | | | 606,993 | | | | |

Source: www.cdc.gov, community populations from The Nielsen Company

Examination of the population demographics suggests that the aging of the “baby boom” population will actually slightly increase the overall utilization of hospital and primary care services within the community. For example, the projected change in the age category 65+ shows a significant increase.

While the age category 65+ is projected to increase fifteen percent from 2012 to 2017, the overall population of the community is projected to increase by 6.5%.

Exhibit 20 illustrates the percentage change in the calculated utilization from *Exhibit 19* as an estimated percentage increase in utilization from 2012 to 2017.

Exhibit 20
Freeman Joplin Hospital Community
Estimated Difference in Utilization: Physician Office Visits,
Emergency Room Visits and Hospital Discharges
Estimated 2012 and Projected 2017

| | Estimated 2012 | Projected 2017 | Percent Difference |
|---|-------------------|-------------------|-----------------------|
| Primary Care Physician Office Visits | 314,126 | 339,309 | 8.0% |
| Specialty Care Physician Office Visits | 247,816 | 267,684 | 8.0% |
| Total Estimated Physician Office Visits | 561,942 | 606,993 | 8.0% |
| Emergency Department Visits | 73,294 | 78,195 | 6.7% |
| Hospital Discharges | 19,301 | 21,017 | 8.9% |

Exhibits 21 and *22* provide detailed analysis of estimated acute care discharges, ambulatory procedures, hospital outpatient department visits and physician office visits. These exhibits categorize the utilization for estimated 2012 and projected 2017 by different age categories to assess possible growth areas. A review of each of the charts indicates the category for highest percentage increase is procedures relating to the cardiovascular system. Potential market growth exists in many other acute care areas.

Exhibit 21
Freeman Joplin Hospital Community
Estimated and Projected Number of Ambulatory Surgery Procedures by Procedure Category and Age: Provider Service Area

| Procedure Category | Total | Estimated 2012 | | | | Projected 2017 | | | | Market Difference Percent | |
|---|----------------|----------------|---------------|---------------|-------------------|----------------|---------------|---------------|-------------------|---------------------------|-------|
| | | Under 15 years | 15-44 years | 45-64 years | 65 years and over | Under 15 years | 15-44 years | 45-64 years | 65 years and over | | |
| Total Provider Service Area Population | 161,387 | 34,474 | 63,916 | 40,142 | 22,255 | 171,915 | 37,318 | 66,912 | 42,101 | 25,584 | |
| All procedures | 24,483 | 1,066 | 7,499 | 6,503 | 9,415 | 26,648 | 1,154 | 7,850 | 6,821 | 10,823 | 8.8% |
| Operations on the nervous system | 653 | 108 | 171 | 169 | 206 | 709 | 116 | 179 | 177 | 236 | 8.6% |
| Operations on the eye | 44 | 5 | 10 | 10 | 18 | 48 | 6 | 10 | 11 | 21 | 9.5% |
| Operations on the ear | 21 | 12 | 5 | 0 | 4 | 23 | 13 | 5 | 0 | 4 | 8.6% |
| Operations on the nose, mouth and pharynx | 139 | 31 | 46 | 32 | 31 | 150 | 34 | 48 | 33 | 35 | 7.8% |
| Operations on the respiratory system | 584 | 0 | 79 | 190 | 314 | 644 | 0 | 83 | 200 | 362 | 10.3% |
| Operations on the cardiovascular system | 3,762 | 0 | 371 | 1,320 | 2,071 | 4,154 | 0 | 388 | 1,385 | 2,381 | 10.4% |
| Operations on the digestive system | 3,006 | 125 | 635 | 914 | 1,332 | 3,290 | 136 | 664 | 959 | 1,531 | 9.4% |
| Operations on the urinary system | 546 | 15 | 109 | 182 | 241 | 598 | 16 | 114 | 191 | 277 | 9.4% |
| Operations on the male genital organs | 128 | 12 | 9 | 47 | 60 | 140 | 13 | 9 | 49 | 69 | 9.9% |
| Operations on the female genital organs | 935 | 7 | 523 | 290 | 116 | 991 | 7 | 547 | 304 | 133 | 6.0% |
| Operations on the musculoskeletal system | 2,355 | 82 | 471 | 813 | 989 | 2,571 | 88 | 493 | 853 | 1,136 | 9.2% |
| Operations on the integumentary system | 762 | 0 | 239 | 267 | 255 | 824 | 0 | 250 | 280 | 294 | 8.2% |
| Miscellaneous diagnostic and therapeutic procedures | 7,481 | 440 | 1,225 | 2,147 | 3,668 | 8,228 | 477 | 1,283 | 2,252 | 4,217 | 10.0% |
| Obstetrical procedures | 3,577 | 7 | 3,563 | 7 | 0 | 3,837 | 99 | 3,730 | 8 | 0 | 7.3% |

Source: CDC - National Health Statistic Report #29, October 26, 2010

Exhibit 22
Freeman Joplin Hospital Community
Estimated and Projected Number of Acute Care Discharges by Medical Diagnostic Category and Age: Provider Service Area

| Procedure Category | Total | Estimated 2011 | | | | Total | Projected 2016 | | | | Market Difference Percent |
|--|----------------|----------------|---------------|---------------|-------------------|----------------|----------------|---------------|---------------|-------------------|---------------------------|
| | | Under 15 years | 15-44 years | 45-64 years | 65 years and over | | Under 15 years | 15-44 years | 45-64 years | 65 years and over | |
| Total Provider Service Area Population | 161,387 | 34,474 | 63,916 | 40,142 | 22,255 | 171,915 | 37,318 | 66,912 | 42,101 | 25,584 | |
| All Conditions | 18,781 | 1,235 | 5,398 | 4,592 | 7,556 | 20,490 | 1,337 | 5,651 | 4,816 | 8,686 | 9.1% |
| Infectious and parasitic diseases | 675 | 74 | 115 | 155 | 332 | 744 | 80 | 120 | 162 | 381 | 10.2% |
| Neoplasms | 879 | 21 | 123 | 340 | 393 | 962 | 23 | 129 | 357 | 452 | 9.4% |
| Endocrine, nutritional and metabolic diseases and immunity disorders | 1,002 | 87 | 186 | 286 | 442 | 1,098 | 94 | 195 | 300 | 509 | 9.6% |
| Diseases of the blood and blood-forming organs | 259 | 0 | 65 | 61 | 133 | 285 | 0 | 68 | 64 | 153 | 10.0% |
| Mental Disorders | 1,256 | 84 | 639 | 390 | 144 | 1,334 | 91 | 669 | 409 | 165 | 6.2% |
| Diseases of the nervous system and sense organs | 437 | 58 | 89 | 117 | 173 | 478 | 62 | 93 | 123 | 199 | 9.3% |
| Diseases of the circulatory system | 3,312 | 18 | 222 | 949 | 2,123 | 3,688 | 20 | 232 | 995 | 2,441 | 11.3% |
| Diseases of the respiratory system | 1,852 | 310 | 169 | 409 | 964 | 2,050 | 335 | 177 | 429 | 1,108 | 10.7% |
| Diseases of the digestive system | 1,800 | 115 | 418 | 546 | 722 | 1,963 | 124 | 438 | 572 | 829 | 9.1% |
| Diseases of the genitourinary system | 1,152 | 40 | 267 | 288 | 556 | 1,265 | 44 | 280 | 302 | 640 | 9.8% |
| Complications of pregnancy, childbirth and puerperium | 250 | 0 | 250 | 0 | 0 | 262 | 0 | 262 | 0 | 0 | 4.7% |
| Diseases of the skin and subcutaneous tissue | 410 | 47 | 98 | 126 | 139 | 445 | 51 | 102 | 132 | 159 | 8.6% |
| Diseases of the musculoskeletal system and connective tissue | 1,039 | 16 | 138 | 368 | 517 | 1,142 | 18 | 145 | 386 | 594 | 9.9% |
| Congenital anomalies | 38 | 0 | 15 | 15 | 8 | 41 | 0 | 15 | 16 | 10 | 7.0% |
| Certain conditions originating in the perinatal period | 96 | 96 | 0 | 0 | 0 | 104 | 104 | 0 | 0 | 0 | 8.2% |
| Symptoms, signs and ill defined conditions | 103 | 25 | 27 | 24 | 27 | 112 | 27 | 28 | 25 | 31 | 8.3% |
| Injury and poisoning | 1,564 | 108 | 407 | 403 | 647 | 1,709 | 116 | 426 | 423 | 744 | 9.2% |
| Supplementary classifications | 2,555 | 37 | 2,169 | 114 | 235 | 2,700 | 40 | 2,271 | 120 | 270 | 5.7% |

Source: CDC - National Health Statistic Report #29, October 26, 2010

Estimated Demand for Physician Services

Physician needs assessment data has become increasingly important to hospitals developing strategic physician recruitment plans and seeking to comply with federal recruiting regulations. There are several methodologies for estimating physician needs within a community using physician-to-population ratios. These methodologies have been applied to the population of the community to assist with the determination of future need for additional primary care and/or specialty care physicians.

Exhibit 22 provides four different need methodologies widely recognized in the health care industry. These rates serve as a useful starting point in assessing community need for physicians, but alone they should not constitute the basis for a comprehensive medical staff plan. While the rates of the four methodologies offer a general range of physicians needed per 100,000 population, they reflect national numbers.

- GMENAC (Graduate Medical Education National Advisory Committee) was a one-time, ad hoc committee of health care experts convened by Congress to assess U.S. health care manpower needs. In 1980, GMENAC issued estimates of the number of physicians needed per 100,000 population. The GMENAC numbers are over 30 years old and are considered dated by many.
- Writing in the December 11, 1996, issue of JAMA, David Goodman, MD, et al, projected needs based on three different types of service populations: the patient panel of a large HMO, the population of a community with a high level of managed care and the population of a mostly fee-for-service community. The numbers in this group of rates reflect a mostly fee-for-service community.
- Writing in an 1989 edition of the Journal of Health Care Management, Hicks and Glenn, projected needs based on the current rate of patient visits generated to particular specialists as determined by the Department of Health and Human Services' National Ambulatory Healthcare Administration report divided by the number of patient visits physicians typically handle, as determined by the Medical Group Management Association.
- Solucient is a health care consulting firm. Its numbers are based on a 2003 study and are, therefore, the most current of the four methodologies used in our analysis. Solucient employed a methodology similar to Hicks & Glenn which analyzed National Ambulatory Health Care Administration patient/physician visits data, Medical Group Management Association physician productivity data and private and public claims data showing patient/physician visit rates by age.

An average of all four methodologies was calculated and applied to the Hospital's estimated 2012 and projected 2017 community population to estimate the specific physician needs for the area. Aiding in calculating the estimated need populations, recommendations were taken from the Healthcare Strategy Group (HGS) Advanced Manpower Planning guide. Most physician to population methodologies do not consider technological advancements over time nor do they consider the differing healthcare needs of the local populations. Medicated stents and new imaging procedures are examples of advancements that have greatly impacted the demand for physician services, but are unaccounted for under the four provided models. HGS recommended making technology adjustments to the following specialties: cardiology, cardiac surgery, neurology, neurosurgery and orthopedics. These recommendations are built into the estimated needs calculations that generate the numbers shown in *Exhibit 22*. In addition to technology adjustments, HGS also recommended making adjustments to models based on mortality rate variances by contrasting national and local mortality rates. Refer to the contrasts for Freeman Hospital Joplin

Community at *Exhibit 13*. HGS recommended adjusting for 80% of the variance after the first 10% that recognizes potential annual fluctuations of community need that could be supported by the current complement of physicians in the community. The calculated average estimated need from the four methodologies after adjustments for mortality and technological advances was then compared to current physician supply and an incremental difference was derived.

In rural and small metropolitan areas, general and family practice physicians often have internal medicine specialties. These physicians also may see children within their individual practices. Evaluation of potential need and supply for these physicians becomes more complicated to statistically measure since Internal Medicine and Pediatric physician needs are often served by the General and Family Practice physicians. Therefore, the statistical analysis of General and Family Practice, Internal Medicine and Pediatrics physician groups are presented individually as well as in combination to reflect the nature of these practices.

Exhibit 23 is organized among physician groups, defined by the four physician studies. The physician studies originally grouped OB/GYN and Psychiatry in the medical specialty grouping. These were moved into primary care's grouping to provide a more comprehensive definition of primary care for this report. Medical specialties include: allergy/immunology, cardiology, dermatology, gastroenterology, hematology/oncology, neurology, pulmonology and other medical specialties. Surgical specialties include: general surgery, neurosurgery, ophthalmology, orthopedic surgery, plastic surgery, urology and other surgical specialties. Hospital-based includes: emergency, anesthesiology, radiology and pathology. Pediatric subspecialties include: pediatric cardiology, pediatric psychiatry and other pediatric subspecialties.

**Exhibit 23
Summary of Physician Need by Specialty: Provider Service Area**

Freeman Hospital Joplin Community

| Physician Group | 4 Studies Physician Need per 100,000 Population | | | | | Estimated Supply based on Health Resources & Svcs Admin. Average & National Supply of Total Active Physicians | | Estimated Need based on Average Physician Need, Mortality, and Technological Advances | | Physician Shortage (Excess) | |
|-----------------------------|---|---------|---------------|-----------|---------|---|--------|---|--------|-----------------------------|---------|
| | GNEMAC | Goodman | Hicks & Glenn | Solucient | Average | 2012 | 2017 | 2012 | 2017 | 2012 | 2017 |
| Primary Care | | | | | | | | | | | |
| General and Family Practice | 25.20 | - | 16.20 | 22.53 | 21.31 | 62.70 | 66.80 | 38.80 | 41.30 | (23.90) | (25.50) |
| Internal Medicine | 28.80 | - | 11.30 | 19.01 | 19.70 | 32.60 | 34.70 | 35.70 | 38.00 | 3.10 | 3.30 |
| Pediatrics | 12.80 | - | 7.60 | 13.90 | 11.43 | 17.60 | 18.70 | 20.70 | 22.10 | 3.10 | 3.40 |
| | 66.80 | - | 35.10 | 55.44 | 52.45 | 112.90 | 120.20 | 95.20 | 101.40 | (17.70) | (18.80) |
| OB/GYN | 9.90 | 8.40 | 8.00 | 10.17 | 9.12 | 15.10 | 16.10 | 16.50 | 17.60 | 1.40 | 1.50 |
| Psychiatry | 15.90 | 7.20 | 3.90 | 5.73 | 8.18 | 10.00 | 10.60 | 14.80 | 15.80 | 4.80 | 5.20 |
| Medical Specialties | | | | | | | | | | | |
| Allergy/Immunology | 0.80 | 1.30 | - | 1.72 | 1.27 | 0.80 | 0.90 | 2.30 | 2.50 | 1.50 | 1.60 |
| Cardiology | 3.20 | 3.60 | 2.60 | 4.22 | 3.41 | 5.30 | 5.60 | 6.20 | 6.60 | 0.90 | 1.00 |
| Dermatology | 2.90 | 1.40 | 2.10 | 3.13 | 2.38 | 2.60 | 2.70 | 4.30 | 4.60 | 1.70 | 1.90 |
| Gastroenterology | 2.70 | 1.30 | - | 3.50 | 2.50 | 2.70 | 2.90 | 4.50 | 4.80 | 1.80 | 1.90 |
| Hematology/Oncology | 3.70 | 1.20 | - | 1.08 | 1.99 | 1.10 | 1.20 | 3.60 | 3.80 | 2.50 | 2.60 |
| Neurology | 2.30 | 2.10 | 1.40 | 1.79 | 1.90 | 3.80 | 4.00 | 3.40 | 3.70 | (0.40) | (0.30) |
| Pulmonology | 1.50 | 1.40 | - | 1.30 | 1.40 | 2.20 | 2.30 | 2.50 | 2.70 | 0.30 | 0.40 |
| Other Medical Specialties | 3.50 | 0.40 | - | 4.07 | 2.66 | 14.50 | 15.40 | 4.80 | 5.10 | (9.70) | (10.30) |
| Total | 20.60 | 12.70 | 6.10 | 20.81 | 17.51 | 33.00 | 35.00 | 31.60 | 33.80 | (1.40) | (1.20) |

Exhibit 23 (continued)
Summary of Physician Need by Specialty: Provider Service Area

| Physician Group | 4 Studies Physician Need per 100,000 Population | | | | | Estimated Supply based on Health Resources & Svcs Admin. Average & National Supply of Total Active Physicians | | Estimated Need based on Average Physician Need, Mortality, and Technological Advances | | Physician Shortage (Excess) | |
|---------------------------------|---|---------|---------------|-----------|---------|---|-------|---|-------|-----------------------------|--------|
| | GNEMAC | Goodman | Hicks & Glenn | Solucient | Average | 2012 | 2017 | 2012 | 2017 | 2012 | 2017 |
| | Freeman Hospital Joplin Community | | | | | | | | | | |
| Surgical Specialties | | | | | | | | | | | |
| General Surgery | 9.70 | 9.70 | 4.10 | 6.01 | 7.38 | 10.90 | 11.60 | 13.40 | 14.20 | 2.50 | 2.60 |
| Neurosurgery | 1.10 | 0.70 | - | - | 0.90 | 1.20 | 1.30 | 1.60 | 1.70 | 0.40 | 0.40 |
| Ophthalmology | 4.80 | 3.50 | 3.20 | 4.71 | 4.05 | 4.30 | 4.60 | 7.30 | 7.80 | 3.00 | 3.20 |
| Orthopedic Surgery | 6.20 | 5.90 | 4.20 | 6.12 | 5.61 | 5.70 | 6.10 | 10.10 | 10.80 | 4.40 | 4.70 |
| Plastic Surgery | 1.10 | 1.10 | 2.30 | 2.22 | 1.68 | 1.40 | 1.50 | 3.00 | 3.20 | 1.60 | 1.70 |
| Urology | 3.20 | 2.60 | 1.90 | 2.86 | 2.64 | 2.30 | 2.40 | 4.80 | 5.10 | 2.50 | 2.70 |
| Other Surgical Specialties | - | - | - | 2.20 | 2.20 | 4.90 | 5.30 | 4.00 | 4.20 | (0.90) | (1.10) |
| Total | 26.1 | 23.5 | 15.7 | 24.1 | 24.46 | 30.7 | 32.8 | 44.2 | 47.0 | 13.5 | 14.2 |
| Hospital-Based | | | | | | | | | | | |
| Emergency | 8.50 | 2.70 | - | 12.4 | 7.87 | 7.50 | 8.00 | 14.20 | 15.20 | 6.70 | 7.20 |
| Anesthesiology | 8.30 | 7.00 | - | - | 7.65 | 10.40 | 11.00 | 13.90 | 14.80 | 3.50 | 3.80 |
| Radiology | 8.90 | 8.00 | - | - | 8.45 | 8.30 | 8.90 | 15.30 | 16.30 | 7.00 | 7.40 |
| Pathology | 5.60 | 4.10 | - | - | 4.85 | 4.70 | 5.00 | 8.80 | 9.40 | 4.10 | 4.40 |
| Total | 31.3 | 21.8 | - | 12.4 | 28.82 | 30.9 | 32.9 | 52.2 | 55.7 | 21.3 | 22.8 |
| Pediatric Subspecialties | | | | | | | | | | | |
| Pediatric Cardiology | - | - | - | 0.20 | 0.20 | 0.50 | 0.50 | 0.40 | 0.40 | (0.10) | (0.10) |
| Pediatric Psychiatry | - | - | - | 0.45 | 0.45 | 1.90 | 2.00 | 0.80 | 0.90 | (1.10) | (1.10) |
| Other Pediatric Subspecialties | - | - | - | 0.89 | 0.89 | 3.40 | 3.70 | 1.60 | 1.70 | (1.80) | (2.00) |
| Total | - | - | - | 1.7 | 1.7 | 5.8 | 6.2 | 3.0 | 3.2 | (2.8) | (3.0) |
| Total Physicians | 170.6 | 73.6 | 68.8 | 130.3 | 142.2 | 238.4 | 253.8 | 257.5 | 274.5 | 19.1 | 20.7 |

Sources: www.arf.hrsa.gov, US Dept. of Health and Human Serv. Physician Supply and Demand Projections

Observations

Based on the statistical analysis of physician need presented in *Exhibit 23*, physician shortages appear to exist in several physician classifications. Most notable are the physician shortages in the surgical specialties and hospital-based care. Orthopedic surgery is showing a need for approximately five physicians and approximately seven emergency physicians are needed. While the statistical analysis does show a calculated excess of 26 general and family practice physicians, the corresponding demand for physicians in the internal medicine and pediatric offsets a portion of that excess. Another item to consider to discount this excess is the fact that the age of the physicians has not been considered in this analysis. Freeman considers the area to have a shortage of physicians in this category because they estimate which physicians are likely to retire in the near future and recruit based on anticipated retirements. For some specialties, it takes 2-3 years advanced recruiting work before a physician's first date of work in the service area. Freeman is often recruiting for anticipated physician supply 1-3 years from the current date. The analysis of the primary care physician groups appears to suggest that general and family practice physicians are attempting to satisfy current demand for internal medicine and pediatric physicians; with the overall demand for primary care physicians being satisfied. A significant opportunity to meet unmet need appears to exist within the psychiatry physician group with an unmet need of approximately five physicians. It is expected to see this as an increased need going forward in the aftermath of the catastrophic event of the May 22, 2011, tornado.

Additionally, *Exhibits 14.1, 15.1 and 16.1* support the observation that a general physician shortage exists for the community. All counties within the community reflect physician to population ratios less than the national benchmark with physician-to-population ratios of 1,372: for Jasper County, 5,598:1 for Newton County and 4,236:1 for Cherokee County. With the increase in population overall and specifically age categories 0-18, and 65 and over, seen in *Exhibit 2.1*, the shortages identified for pediatrics, OB/GYN and internal medicine appear to be in line.

This conclusion agrees with *Exhibit 24*, which identifies shortage of physicians as one of the community's top ranking health needs. The following are resources or programs Freeman Joplin has that may help address this need:

- To help ensure that the community has enough physicians to serve its needs, Freeman invests \$1 million per year to recruit physicians and help them start their practices.
- Many people don't have a primary care physician. Freeman Urgent Care offers patients without a doctor access to treatment by board-certified physicians, X-rays, referrals and other services through convenient walk-in clinics, open seven days a week.
- As a teaching hospital, Freeman offers Graduate Medical Education residency programs in internal medicine, emergency medicine and otolaryngology. Many of the doctors who graduate from these programs stay in the Joplin area and set up private practices to care for patients in the community.
- A grant has enabled Freeman to offer four additional internal medicine residency positions to the Graduate Medical Education program to help meet the community's need for primary care physicians.
- The Freeman service area has been determined to be "underserved" in terms of both behavioral health and health professionals. Through Ozark Center, Freeman recently introduced a psychiatric residency program to train psychiatrists and bring them to the community.

- Through a Start Grant, Freeman works with nurse preceptors and preceptees to ensure that new nurses get the support they need to experience success on the job. The goal of this program is to improve the retention of nursing staff.
- Freeman Health Academy, the first program of its kind in the community, gives students the opportunity to learn about healthcare careers from Freeman physicians and staff. Designed for middle school students, the program seeks to make healthcare careers more obtainable for youths by helping them make the right high school class choices and encouraging them to graduate from high school.
- Through the Annual Medical Staff Development Plan, Freeman analyzes demographic information and compares it to national benchmarks to ensure the health system has an adequate number of physicians to meet community needs.

Key Informant Interviews

Interviewing key informants (community stakeholders that represent the broad interests of the community with knowledge of or expertise in public health) is a technique employed to assess public perceptions of the county's health status and unmet needs. These interviews are intended to ascertain opinions among individuals likely to be knowledgeable about the community and influential over the opinions of others about health concerns in the community.

Methodology

Interviews with 25 key informants were conducted over nine dates in July, August and September 2012. Informants were determined based on their a) specialized knowledge or expertise in public health, b) their affiliation with local government, schools and industry or c) their involvement with underserved and minority populations.

A representative from the Hospital contacted all individuals nominated for interviews. If the respective key informant agreed to an interview, an interview time and place was scheduled. Most of the interviews were conducted at the Freeman Business Center. In some instances, interviews were conducted over the phone.

All interviews were conducted using a standard questionnaire. A copy of the interview instrument is included in the Appendices. A summary of their opinions is reported without judging the truthfulness or accuracy of their remarks. Community leaders provided comments on the following issues:

- Health and quality of life for residents of the community
- Barriers to improving health and quality of life for residents of the community
- Opinions regarding the important health issues that affect Jasper, Newton and Cherokee County residents and the types of services that are important for addressing these issues
- Delineation of the most important health care issues or services discussed and actions necessary for addressing those issues

Interview data was initially recorded in narrative form. Themes in the data were identified and representative quotes have been drawn from the data to illustrate the themes. Informants were assured that personal identifiers such as name or organizational affiliations would not be connected in any way to the information presented in this report. Therefore, quotes included in the report may have been altered slightly to preserve confidentiality.

This technique does not provide a quantitative analysis of the leaders' opinions, but reveals community input for some of the factors affecting the views and sentiments about overall health and quality of life within the community.

Key Informant Profiles

Key informants from the community (see the Appendices for a list of key informants) worked for the following types of organizations and agencies:

- Social service agencies
- Local school system and community college
- Local city and county government
- Public health agencies
- Industry
- Faith community
- Medical providers

Key Informant Interview Results

The interview questions for each key informant were identical. The questions on the interview instrument are grouped into four major categories for discussion:

1. General opinions regarding health and quality of life in the community
2. Underserved populations and communities of need
3. Barriers
4. Most important health and quality of life issues

A summary of the leaders' responses by each of these categories follows. Paraphrased quotes are included to reflect some commonly held opinions and direct quotes are employed to emphasize strong feelings associated with the statements. This section of the report summarizes what the key informants said without assessing the credibility of their comments.

1. General Opinions Regarding Health and Quality of Life in the Community

The key informants were asked to rate the health and quality of life in their respective county. They were also asked to provide their opinion whether the health and quality of life had improved, declined or stayed the same over the past few years. Lastly, key informants were asked to provide support for their answers.

Most of the key informants rated the health and quality of life in their county as "fair," or "5 on a scale of 1 to 10" or better. Responses really varied with some opinions saying the community was unhealthy and some saying it was excellent. Interviewees repeatedly noted that there were extreme diversities in health and quality of life for certain residents within the community with lack of preventative care and health habits being the biggest issues. In the rebound from a major catastrophic event that was the tornado in May 2011, mental health has become an emerging urgent need. Economic circumstances and culture are seen to contribute largely to the dichotomy between the healthy and unhealthy.

When asked whether the health and quality of life had improved, declined or stayed the same, there was a very mixed response. Seven key informants noted that health and quality of life had declined over the last few years, 10 noted it had improved and the rest noted either no change or only a very slight change in either direction.

Key informants noted that expanded services at Freeman Health System and other medical providers contributed to the overall improvement of health and quality of life in the community. Also noted was a coordinated effort and focus on community health education. Examples of this effort include a) the Health Collaboration, b) legislation for healthier food and health education at schools and c) new walking trails being constructed. Several key informants mentioned the community clinic and FQHC were big assets to the community in regards to improving access to health services. The fact that the emergency department is overused and urgent care is only open for a limited number of hours was repeatedly mentioned as a negative. Key informants would like to see the hours expanded at the urgent care; additionally, many suggested the system provide additional specialty care like allergy, pediatric specialties and dermatology.

Overall, key informants value the Hospitals' impact on community health and recognize the Hospital as an asset to the community. The regional culture/upbringing, geography and cost of healthcare were generally seen as the reasons behind poor health and poor quality of life. Lack of access was seen as an issue for certain populations. There were some negative and positive comments regarding the overall health and community life.

“The culture is pervasive. The community has poverty, poor food choices, inability to purchase quality foods, poor diet and teen pregnancies. Access to care is an issue due to transportation, distance and affordability. Being uninsured is probably the #1 reason that people aren't getting health care. Dental care is neglected. People wait until there is an emergency, hence emergency services are over used.”

“There are good health systems. ACCESS functions well with other providers. There are tight economic conditions. The hospitals are bitter rivals. People do not pay attention to their physical well-being. There is a high number of uninsured. It is hard to retain and recruit specialty physicians. The ER is over-utilized.”

“Excellent! Over 500,000 are served by healthcare services in Joplin. There are very high quality services provided by the over 500 physicians in the area.”

“Southeast Kansas is the second least healthy part of the state. The area has a long history of generational poverty since the mining industry decline. Many individuals have high blood pressure, lead levels, diabetes and basic health care access issues.”

2. Underserved Populations and Communities of Need

Key informants were asked to provide their opinions regarding specific populations or groups of people whose health or quality of life may not be as good as others. We also asked the key informants to provide their opinions as to why they thought these populations were underserved or in need. We asked each key informant to consider the specific populations they serve or those with which they usually work. They identified primarily the rural population and the lower income populations as having the largest needs.

Respondents identified three main areas of need: preventative care and associated education, health habits and associated education, and mental health. A high concentration in a population of elderly people contributes to the rise in health care costs. This in turn causes economic strain for the

community, and especially the elderly that need the increased care. When the elderly and others like those in the “laboring” class have to choose between eating and paying for their care, this adds to the poverty population and puts more demand on local charities and community center. These people in rural areas have another layer of complexity with a transportation need to get the medical care they need. With limited resources, and the high demand of needs from the elderly, it increase the difficulty of providing quality care to the population as a whole. Those that avoid their health problems because of these issues and only seek care in emergent situations increase the strain on medical facilities.

The key informants were asked what could improve the health and quality of life in the area. The main responses were based on ideas for education and providing the community with ways to improve their health habits. The following were included:

- Educating the population on the importance of eating well, seeing a physician regularly, and diet and exercise
- Incentives for people to become motivated to improve their habits
- Battle the marketing of fast food chains and convenience foods
- Provide more parks and trails to provide recreation opportunities for the community
- Education about free health programs, reduced cost programs, and OATS transportation available for the community
- Make it easier to get in to see a doctor for preventative care

“The tornado created a large difference between now and 15 months ago. Many people are now homeless, living with family, friends or church. They aren’t worrying much about their health, but more if they will have food. Not because of age, but because they are not sure what to do or how to get help. We have seen an increase in mental health needs as people begin to realize they need help.”

“Children may not receive the education on health habits as the parents don’t practice it or know.”

“Increase for mental health services due to recent tornado. Many times after an event like this it is well over 365 days before someone realizes they need the mental health care to address their issues.”

“Area has provided increased wellness programs, onsite assessments through health insurance, and people are addressing issues earlier and more aware of how to handle them. Schools do various screenings for students – vision, dental, hearing and weight. There has also been a focus to eat right and exercise.”

“Certain financial barriers prevent indigent from seeking care when needed other than through the ED. As the indigent either aren’t going to pay or are on Medicaid, there isn’t any incentive for them to schedule a physician office visit vs. presenting to the ED.”

3. Barriers

The key informants were asked what barriers or problems keep community residents from obtaining necessary health services in their community. Responses from key informants included education, culture, access to care, lack of specialists in the area and affordability of care.

Lack of education and communication surrounding health issues and the availability of health resources is seen as a primary barrier to health services. Education surrounding access to health services for the newly uninsured or underinsured persons is also identified as a community need. The overall perception is that people do not understand how to access but also may not be motivated to make the necessary changes to improve their lives. There is also a sense that health agencies do not cooperate and work together in offering services, although there has been a perceived change regarding that after the tornado. Several respondents feel another community need would be to provide more outlets for exercise and health community activities.

Some respondents believe that access to care due to living in a rural community shouldn't be a deterrent if people were told about the OATS bus. OATS is public transportation in rural areas. Those interviewed believe it is difficult to reach out to isolated or marginalized people in the community.

As previously noted, people's attitudes and culture, surrounding health and lifestyle choices, are seen as a barrier. Bad habits are passed down from generation to generation and there are not enough resources or motivators to bring about a change. Issues are only dealt with as a "last resort" situation.

"Really have to try to be active in our community. There isn't a lot of access to trails, etc."

"Resources, cost of equipment and technology are seen as a barrier. Less invasive procedures for the same problems are done in places like St. Louis with shorter recovery times."

"Must educate the public on importance of preventative care."

"Many programs are available. The individuals may not be aware they qualify for the free or reduced care."

"Housing has been a challenge recently due to the tornado."

4. Most important Health and Quality of Life Issues

Key informants were asked to provide their opinion as to the most critical health and quality of life issues facing the community. The issues identified most frequently were:

1. Health education (access and healthy living/preventative care)
2. Obesity and lack of physical activities
3. Drug abuse and smoking

Other issues that were reported are a lack of after-hours urgent care facilities and a lack of mental health providers. Teenage pregnancy and transportation were also mentioned as concerns impacting the community.

Key Findings

A summary of themes and key findings provided by the key informants follows:

- Information and education on health issues is a problem. There is a significant need to inform, educate and counsel specific categories of the community.
- There is a lack of access for mental health services.
- Drug and alcohol abuse are seen as a health and quality of life issue.
- Transportation may be an issue for low income and rural residents.
- Abuse of prescription drugs through excess prescribing and fraudulent activities has become a problem.
- There is a significant need for after hour nonemergent care.
- Overuse of emergency room services is a problem which is related to a large portion of the population not seeking preventative care. This could be due to affordability, lack of motivation, lack of education, lack of transportation and other variables.

Community Health Input Questionnaire

The Hospital circulated community health questionnaires in order to gather broad community input regarding health issues. The input process was launched in July 2012 and was closed on November 20, 2012.

The Community Health Questionnaire broad survey was intended to gather information regarding the overall health of the community. The results are intended to provide information on different health and community factors. Requested community input included demographics and socioeconomic characteristics, behavioral risk factors, health conditions and access to health resources.

Methodology

A web-based tool, Question Pro, was utilized to conduct the community input process. Electronic questionnaires were circulated to the residents of the community. Results from this survey are used for analysis in both this report as well as the Freeman Hospital Neosho Community Health Needs Assessment report.

There were 219 questionnaires completed and returned. Sociodemographic characteristics such as age, education, income and employment status were fairly comparable to the most recent census data. Over 75 percent of the questionnaire respondents were female which is more than the 51 percent of the population that is female in the community. Additionally, representation of those individuals 66 and older is less than that reported in the latest census data.

Community Health Input Questionnaire

The instrument used for this input process was based largely on the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS), as well as various other public health surveys and customized questions. The final instrument was developed by Freeman representatives in conjunction with BKD.

Community Health Input Results

The questionnaire was quite detailed in nature, including many specific questions regarding general health, satisfaction with specific and general providers and demographic information. A compilation of the actual results are included in the Appendices to allow for a detailed analysis. Health needs indicated include:

- ***Assessment of Personal Health***

When asked to assess their personal health status, 26.7 percent of the respondents described their health as being “excellent,” while 63.6 percent stated that their overall health was “good.”

When asked to rate their community as a “healthy community”, less than 10 percent of the respondents indicated their community was healthy or very healthy. More than 36 percent of the respondents indicated their community was unhealthy or very unhealthy.

- ***Health Care Access Issues***

Over 42 percent of the respondents reported having health insurance with over 88 percent of health insurance being provided through the employer. Health care access issues are primarily related to costs. Respondents noted the following reasons for not receiving medical care:

1. Deductible or co-pay was too high
2. The health care provider’s hours did not fit their schedule
3. Their health insurance did not cover, approve, or pay for what they needed

Nearly 16 percent of respondents noted they did not receive medical care because they were unable to schedule an appointment when needed.

- ***Lifestyle Behavioral Risk Factors***

Proper diet and nutrition seem to be a challenge as only 7.96 percent of the respondents report eating the daily recommended servings of fruits and vegetables; 25.36 percent of the respondents report that they never exercise. However, 12.87 percent report exercising at least 30 minutes five days per week. Nearly nine percent of the respondents always smoke cigarettes. Use of seat belts is high (over 86 percent) and when applicable, respondents’ children use seat belts and/or child safety seats.

- ***Social and Mental Health***

Nearly 14 percent of the respondents reported always being stressed out, with over 78 percent responding that they were sometimes stressed out. Over 32 percent of the respondents rated their stress level as High or Very High. Over 17 percent of the respondents reported that they did less than they would like because of mental health or emotional issues.

Nearly 30 percent surveyed who reported that their current employment is stressful, while over 24 percent reported that finances are stressful. Nearly 58 percent of the respondents worry about losing their job.

What do Citizens say About the Health of their Community?

The five most important “health problems:”

1. Obesity (adult)
2. Heart disease and stroke
3. Obesity (child)
4. Cancer and diabetes
5. High blood pressure

The three most “risky behaviors:”

1. Drug abuse
2. Tobacco use/second hand smoke
3. Alcohol use and poor eating habits

The five most important factors for a “healthy community:”

1. Affordable and available health care
2. Clean and safe environment
3. Health behaviors and lifestyles
4. Good schools
5. Affordable and available healthy food sources

Prioritization of Identified Health Needs

The Hospital has accomplished much over the past several years and continues to work on the development and implementation of programs and initiatives that work toward the improvement of community health and wellness. Primary and secondary data from this assessment process will be a valuable resource for future planning. The community input findings obtained through interviews and the community input questionnaire should be especially useful in understanding residents’ health needs. The findings provide the Hospital a lot of information to act on. In order to facilitate prioritization of identified health needs, a ranking and prioritization process was used and is described in below exhibit.

Analysis of community health information, key informant interviews and the community health input questionnaire were all used to assess the health needs of the community in *Exhibit 24*:

Exhibit 24
Freeman Hospital Joplin
Ranking of Community Health Needs

| Health Problem | Ability to evaluate and measure outcomes based on data | How many people are affected by the issue? | What are the | | Sub Total | Ability of the Hospital to Impact Change | Total Score |
|---|--|--|--|-----------------------------|-----------|--|-------------|
| | | | consequences of not addressing this problem? | Prevalence of common themes | | | |
| Diseases of the Heart | 4 | 4 | 4 | 4 | 16 | 12 | 28 |
| Obesity | 4 | 4 | 4 | 4 | 16 | 12 | 28 |
| Cancer | 4 | 4 | 3 | 3 | 14 | 12 | 26 |
| Shortage of Physicians | 3 | 4 | 3 | 3 | 13 | 12 | 25 |
| Uninsured Residents | 3 | 3 | 3 | 3 | 12 | 12 | 24 |
| Tobacco Use | 4 | 4 | 3 | 4 | 15 | 9 | 24 |
| Mental Health | 4 | 4 | 3 | 3 | 14 | 9 | 23 |
| Substance Abuse | 4 | 3 | 3 | 4 | 14 | 9 | 23 |
| Children in Poverty | 4 | 4 | 3 | 2 | 13 | 9 | 22 |
| Access to Healthy Foods | 2 | 4 | 3 | 3 | 12 | 6 | 18 |
| Diabetes | 4 | 3 | 3 | 2 | 12 | 6 | 18 |
| Respiratory | 4 | 3 | 3 | 2 | 12 | 6 | 18 |
| Access to Recreational Facilities/Limited Physical Activity | 2 | 3 | 3 | 3 | 11 | 6 | 17 |
| Access to Specialists | 3 | 4 | 2 | 2 | 11 | 6 | 17 |
| Affordable Healthcare | 3 | 4 | 3 | 3 | 13 | 3 | 16 |
| Diabetic Screening | 3 | 2 | 2 | 1 | 8 | 6 | 14 |
| Teen Birth Rate | 4 | 3 | 2 | 2 | 11 | 3 | 14 |
| Low Birth Weight | 3 | 2 | 1 | 1 | 7 | 6 | 13 |
| Motor Vehicle Crashes | 3 | 3 | 3 | 1 | 10 | 3 | 13 |
| Sexually Transmitted Disease | 4 | 3 | 2 | 1 | 10 | 3 | 13 |
| Transportation | 2 | 3 | 3 | 1 | 9 | 3 | 12 |
| Dental Health | 2 | 2 | 2 | 1 | 7 | 3 | 10 |

Health needs were ranked based on five factors:

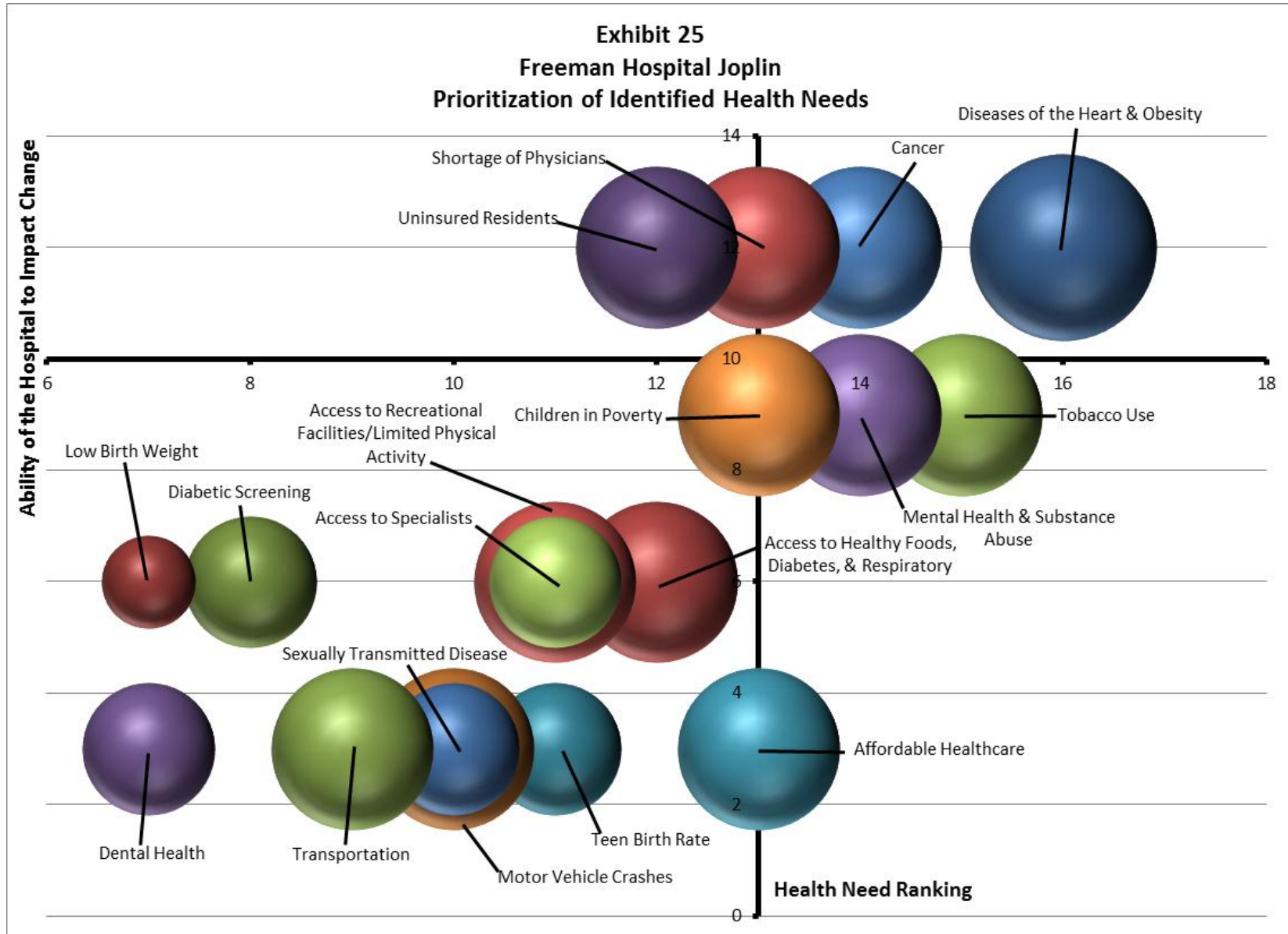
1. The ability of the Hospital to evaluate and measure outcomes.
2. How many people are affected by the issue or size of the issue?
3. What are the consequences of not addressing this problem?
4. Prevalence of common themes.
5. The Hospital’s ability to impact change.

Health needs were then prioritized and charted on *Exhibit 25* taking into account their overall ranking, the degree to which the Hospital can impact long-term change and the identified health needs impact on overall health.

Utilizing the statistical value (10) as the horizontal axis, the overall ranking based on sub total score was plotted on *Exhibit 25*. Next, each identified health need was assigned a value by Hospital management between 1 and 12 representing the perceived degree of impact the Hospital has on changing health outcomes related to the identified health need. Utilizing the statistical value (13) as the vertical axis, this value was charted.

Lastly, each health need was evaluated and assigned a rating between 1 and 4 regarding the health needs consequences on not being addressed. Those health needs receiving the highest rating are represented by the largest spheres.

The graphical representation included on *Exhibit 25* is intended to aid in identifying health priorities for the organization. By addressing those needs in the upper right quadrant, overall community health will likely improve as these needs have the greatest impact on overall health and the Hospital is more likely to influence a positive impact on these needs.



Considerations for Meeting Identified Health Needs

After compiling and analyzing all of the data in this assessment, we recommend that management consider the following benchmarking, targets, ideas and strategies in its implementation strategy plans. Some of the strategies will address multiple needs. These lists are not intended to be exhaustive and do not imply there is only one way to address the identified health needs.

Diseases of the Heart

Diseases of the heart is the highest ranked health need in the community. Changes in this area can have a high impact to the overall health of the community.

Hypertension prevention includes following a healthy eating pattern, reducing salt and sodium in the diet, maintaining a healthy weight, being physically active, limiting alcohol intake and quitting smoking if a smoker. Research has shown that following a healthy eating plan can both reduce the risk of developing high blood pressure and lower an already elevated blood pressure. To reduce salt and sodium in the diet, it is best to reduce intake to the recommendation of less than 2.4 grams (2,400 milligrams) of sodium a day. Being overweight increases the risk of developing high blood pressure. Blood pressure rises as body weight increases. Lack of physical activity, poor dietary choices and obesity are linked with the increased risk of several medical conditions in addition to diseases of the heart. Physical activity can help reduce blood pressure as well as reduce the risk of other types of heart disease.

Exhibit 26
Freeman Hospital Joplin
Diseases of the Heart
Leading Health Indicators

| County | County Health Rankings | | Healthy People 2020 Targets |
|--|-----------------------------|--------------|-----------------------------|
| | Freeman Joplin Community | US Benchmark | |
| Reduce coronary heart disease deaths per 100,000 persons | | | |
| | Cause of Death Rates | | |
| Jasper County | 295.3 | 192.9 | 100.8 |
| Newton County | 257.9 | 192.9 | 100.8 |
| Cherokee County | 364.7 | 192.9 | 100.8 |
| Increase the proportion of adults with hypertension whose blood pressure is under control | | | |
| County | N/A | N/A | 61.2% |
| Increase proportion of adults who have had their blood cholesterol checked within the preceding 5 years | | | |
| County | N/A | N/A | 82.1% |

Community and US Benchmark Source: County Health Rankings

Strategies that address this priority area should consider the following:

- A community-wide fitness initiative led by the Hospital focusing on fitness, nutrition and physical activity.
- Community education about the available options for outdoor physical fitness.
- Education on nutrition and cooking for health hearts.

Freeman Joplin has the following resources or programs that may help address this need:

- Freeman Heart & Vascular Institute provides the people of southwest Missouri, southeast Kansas, northeast Oklahoma and northwest Arkansas with lifesaving care close to home. The Institute continually examines the latest medical studies to provide patients the most up-to-date information and research in clinical trials. Patients benefit by gaining access to new research treatments and therapies before they become widely available to the mass market.
- Freeman provides education to emergency medical technicians employed by area land and air ambulance services to show them how their efforts to shave minutes off transport time can help save patients' lives.
- Beginning in July 2013, a new cardiologist will see patients in new outreach clinics in Miami, Oklahoma, and Pittsburg, Kansas, extending Freeman's heart care services to people in additional outlying communities.
- Freeman is looking into the purchase of a mobile stress-test unit, improving wellness by making it more convenient for people to obtain prevention and detection services.
- Freeman Screen Team offers many free or low-cost health screenings throughout the year that can detect a wide range of conditions, including heart disease and vascular problems.

Obesity

Adult obesity is ranked among the highest health needs in the community. Changes in this area can have a high impact to the overall health of the community.

Diet and body weight are related to health status. Good nutrition is important to the growth and development of children. A healthful diet also helps Americans reduce their risks for many health conditions. Lack of physical activity, poor dietary choices and obesity are linked with the increased risk of several medical conditions.

**Exhibit 27
Freeman Hospital Joplin
Obesity
Leading Health Indicators**

| | County Health Rankings | | Healthy People 2020 Targets |
|-----------------|--------------------------|--------------|--|
| | Freeman Joplin Community | US Benchmark | |
| County | Adult Obesity | | Reduce the proportion of adults who are obese |
| Jasper County | 33.00% | 25.00% | 30.5% |
| Newton County | 33.00% | 25.00% | 30.5% |
| Cherokee County | 36.00% | 25.00% | 30.5% |
| County | | | Reduce the proportion of children and adolescents aged 2 to 19 years who are considered obese |
| | N/A | N/A | 14.5% |
| County | | | Increase the contribution of total vegetables to the diets of the population aged 2 years and older |
| | N/A | N/A | 1.1 cup equivalent per 1000 calories |

Community and US Benchmark Source: County Health Rankings

Recommendations to improve the obesity rate are as follows:

- A community-wide fitness initiative led by the Hospital focusing on fitness, nutrition and physical activity.
- Engaging local park boards for more community activities.

Freeman Joplin has the following resources or programs that may help address this need:

- To promote fitness for families and individuals, Freeman provides ongoing support to the Joplin Family YMCA South. The facility opened in 2001 on land owned by Freeman.
- Freeman supports a number of school sport teams to support the athletic endeavors of the youth of the communities it serves.
- Freeman organizes the annual Freeman Family 5K Run each year, a public event that encourages families to participate in physical activities together.
- Since signing the Health Food in Healthcare Pledge in December 2010, Freeman has increased the amount of fresh, locally and regionally grown foods served within the health system. Freeman meals are aligned with United States Department of Agriculture Dietary Guidelines and feature right-size food portions. The purchase of broilers, steamers and additional salad bars maximizes nutritious food options, including whole grains, fruits and vegetables. Also, Freeman cafeterias display nutrition information for menu items to help patients, employees and visitors make informed dietary decisions.

- Train 2 Run (T2R), offered through Freeman Rehabilitation & Sports Center, is a functional strength-training program teaching experienced runners smarter and more efficient ways to prepare for running. T2R teaches people how to stay healthy and injury-free so they can run longer and with greater success.
- Freeman Screen Team travels throughout the communities served by the health system, offering many free or low-cost health screenings throughout the year that can detect a wide range of conditions, including obesity and diabetes.
- In cooperation with the breastfeeding coalition of Southwest Missouri, Freeman participates in a program to promote breastfeeding. Research indicates that breast-fed babies have a lower risk of obesity than formula-fed babies.
- As the largest employer in the area, Freeman helps reduce obesity levels by encouraging wellness among its more than 4,000 employees.
 - Employees participating in the Freeman wellness program receive a \$260 reduction in health insurance costs for maintaining or improving wellness scores.
 - Freeman provides each benefits-eligible employee with an annual health screening valued at more than \$500 that includes weight and body fat analysis free of charge.
 - Freeman sponsors an employee softball team.
 - Freeman encourages employees to participate in the yearly Corporate Challenge, a sporting contest sponsored by the area Joplin Family YMCA.

Cancer

Cancer as a leading cause of death is only 2nd to Heart Disease in all counties of the defined community for the Hospital. The most common risk factors for cancer are growing older, tobacco use, sunlight, ionizing radiation, certain chemicals and other substances, some viruses and bacteria, certain hormones, family history of cancer, alcohol use, poor diet, lack of physical activity and being overweight. Although cancer may strike at any age, it is more commonly a disease of middle and older age. In 2008, 12,497 Missouri residents died from cancer, accounting for 22.2 percent of all deaths in Missouri.

Many cancers are preventable by reducing risk factors. Other cancers can be prevented by getting vaccinated against human papillomavirus and hepatitis B virus. Screening is effective in identifying some types of cancers including breast cancer, cervical cancer and colorectal cancer. It is critical to assess whether people understand and remember the information they receive about cancer screening. Research shows that a recommendation from a health care provider is the most important reason patients cite for having cancer screening tests.

**Exhibit 28
Freeman Hospital Joplin
Cancer
Leading Health Indicators**

| County Health Rankings | | Healthy People | |
|--------------------------|--------------------------|--|-------|
| Freeman Joplin Community | US Benchmarks | 2020 Targets | |
| County | Cancer Death Rate | Reduce the overall cancer death rate | |
| Jasper County | 196.5 | 185.9 | 160.6 |
| Newton County | 200.3 | 185.9 | 160.6 |
| Cherokee County | 257.2 | 185.9 | 160.6 |
| County | | Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines | |
| | N/A | N/A | 70.5% |
| County | | Increase the proportion of women who receive a breast cancer screening based on the most recent guidelines | |
| | N/A | N/A | 81.1% |

Community and US Benchmark Source: County Health Rankings

Strategies that address this priority area should consider the following:

- Provision of increased clinical preventive services
- Logistical factors such as transportation
- The challenges faced by the elderly population should be considered

Freeman Joplin has the following resources or programs that may help address this need:

- Freeman Cancer Institute provides physical and emotional care for patients and families dealing with cancer. Operating on belief that patients are more than just their cancer symptoms, the staff treats patients like family and offers the best individualized care throughout the patient’s cancer journey. The Institute participates in clinical trials to provide patients the most up-to-date information and research. Patients benefit by gaining access to new research treatments and therapies before they become widely available to the mass market. The institute helps cancer patients who can’t afford cancer drugs obtain the medications they so desperately need. A dedicated social worker seeks out resources, such as pharmaceutical donations or funding to pay for prescriptions. The Institute provides space in its offices for the American Cancer Society through which patients obtain many services that help ease their burden and provide relief.
- The Freeman cancer care team uses the most advanced technology available to treat and overcome cancer. An on-site radiation oncology clinic provides patients with convenient access to treatment.
- To help meet the needs of cancer patients in northeast Oklahoma, Freeman offers cancer services through an outreach clinic in Grove, Oklahoma.

- After the 2011 Joplin tornado, some Joplin cancer physician decided not to rebuild and reopen their practices. To help meet the community's increased need for cancer specialists, Freeman recruited two new oncologists/hematologists who joined the Freeman cancer care team in July 2012.
- Wes & Jan House Women's Pavilion at Freeman Women's Center in Joplin offers digital mammography technology to provide patients with the best breast cancer detection services available.
- To help curb lung cancer, Freeman has a tobacco-free policy that it enforces on all campuses. Additionally, through its behavioral health division, Ozark Center, Freeman offers smoking cessation classes periodically throughout the year. Ozark Center also works with parents to teach them not to smoke in front of children.

Health Issues of Uninsured Persons, Low-Income Persons and Minority Groups

Certain key informants were selected due to their positions working with low-income and uninsured populations. Several key informants were selected due to their work with minority populations. Based on information obtained through key informant interviews and the community health input questionnaire, the following chronic diseases and health issues were identified:

- Uninsured/low income population
 - ✓ Access to specialists
 - ✓ Dental care
 - ✓ Mental and emotional health
 - ✓ Substance abuse
- Hispanic population
 - ✓ Dental care
 - ✓ Prenatal care
 - ✓ Access to care due to not having legal status
 - ✓ Health insurance coverage

Freeman Joplin has the following resources or programs that may help address the needs of uninsured residents as well as children in poverty:

- Freeman offers patients without insurance a 30 percent discount on hospital services.
- Through US Bank, Freeman offers low-interest payment plans to help patients meet their financial obligations.
- Following denial of any available government assistance program, patients may qualify for Freeman Financial Assistance. Based on the patient's ability to pay, this program reduces hospital bills on a sliding scale, in some cases, all the way down to zero.
- The Adult Medicine Clinic at Freeman East treats patients who cannot afford to visit a doctor. The clinic is staffed by resident physicians under the guidance of Freeman Graduate Medical Education faculty.

- Freeman provides emergency treatment to patients, regardless of their ability to pay.
- Community Clinic of Joplin and Access Family Care provide free or low-cost healthcare services to indigent portions of the community. Depending on the situation, Freeman staff members volunteer at these clinics or Freeman pays them to work for the community through these organizations.
- For 21 years, Freeman Orthopedics & Sports Medicine and Freeman Rehabilitation Services have provided free annual preseason physical exams for athletes attending area schools and colleges. These physicals provide comprehensive evaluation and assessment to athletes participating in a sanctioned sport in a school-based program; through the area's parks and recreation departments, YMCAs, or local leagues; or in training to compete in a specific event, such as a marathon or triathlon. Freeman provides this service to hundreds of athletes each year, regardless of whether or not they have health insurance.
- Freeman financial counselors help patients apply for Medicaid benefits.
- Through the Chaplains Fund, Freeman offers help to patients upon dismissal from the hospital. This fund helps patients obtain prescription medications before they go home. Additionally, patients who have no way home from the hospital may receive help with transportation expenses through the Chaplains Fund.
- Freeman helps women who can't afford mammograms through the Helping Friends Mammogram Fund, administered by Freeman Foundation.
- Working with Freeman Foundation, Bill & Virginia Leffen Center for Autism awards scholarships for preschool children needing autism services, regardless of whether or not they have health insurance.
- In collaboration with Joplin Public Schools, Freeman works to enhance educational opportunities for children through Bright Futures, an initiative focused on improving the lives of Joplin students. Freeman participates in this initiative through a partnership supporting various schools by helping with events, functions, and other needs of students and teachers. Freeman also sponsors the Together Reaching Every Kid project, in which members of the community volunteer their time to tutor students after school to improve student achievement in reading and math.
- Joplin Public Schools children in prekindergarten through fifth grade, 372 students have been identified as living in homes where food insecurity is a problem. While these students receive two meals a day at school, they often go hungry on weekends. To help alleviate this problem, Freeman supports the Joplin Schools Foundation Backpack Program, which provides a backpack full of healthy snacks for at-risk children to take home on weekends. Additionally, proceeds from the annual Freeman Family 5K Run benefit the Backpack Program.
- Freeman Family Christmas provides gifts and food for families in need during the holidays. Freeman organizes the event each year, and last year Freeman employees donated \$10,000 and contributed thousands more in gifts and food, helping 96 families.
- Bill and Virginia Leffen Center for Autism provides scholarship assistance to families with limited financial resources.

APPENDICES

Acknowledgements

The project Steering Committee was the convening body for this project. Many other individuals including community residents, key informants and community-based organizations contributed to this community health needs assessment.

Project Steering Committee

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Steve Graddy, Chief Financial Officer
Mike Leone, Contoller
Anne Windsor, Director of Accounting
Wes Braman, VP of Business Development
Brooke Haneborg, Director of Marketing

Key Informants

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Gary Roark, Director, Newton County Emergency Management
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Dan Pekarek, Director, Joplin Health Department
Robert Poole, Director of Admissions, CHC of SE KS
Neal McDonald, Contoller, O & F Machine

KEY INFORMANT INTERVIEW PROTOCOL

KEY INFORMANT INTERVIEW

Community Health Needs Assessment for:

Freeman Health SystemInterviewer's Initials: AMWDate: 7/25/2012 Start Time: 2:00 End Time: 3:00

Name: _____ Title: _____

Agency/Organization: _____

of years living in ___ County: _ # of years in current position: _

E-mail address: _____

Introduction: Good morning/afternoon. My name is [Andy Williams]. Thank you for taking time out of your busy day to speak with me. I'll try to keep our time to approximately 40 minutes, but we may find that we run over – up to 50 minutes total - once we get into the interview. (Check to see if this is okay).

[Freeman Health] is gathering local data as part of developing a plan to improve health and quality of life in Jasper/Newton County. Community input is essential to this process. A combination of surveys and key informant interviews are being used to engage community members. You have been selected for a key informant interview because of your knowledge, insight, and familiarity with the community. The themes that emerge from these interviews will be summarized and made available to the public; however, individual interviews will be kept strictly confidential.

To get us started, can you tell me briefly about the work that you and your organization do in the community?

Thank you. Next I'll be asking you a series of questions about health and quality of life in Jasper County. As you consider these questions, keep in mind the broad definition of health adopted by the World Health Organization: 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity,' while sharing the local perspectives you have from your current position and from experiences in this community.

Questions:

1. In general, how would you rate health and quality of life in Jasper County?
2. In your opinion, has health and quality of life in Jasper County improved, stayed the same, or declined over the past few years?
3. Why do you think it has (based on answer from previous question: improved, declined, or stayed the same)?
4. What other factors have contributed to the (based on answer to question 2: improvement, decline OR to health and quality of life staying the same)?

5. Are there people or groups of people in Jasper County whose health or quality of life may not be as good as others?

a. Who are these persons or groups (whose health or quality of life is not as good as others)?

b. Why do you think their health/quality of life is not as good as others?

6. What barriers, if any, exist to improving health and quality of life in Jasper County?

7. In your opinion, what are the most critical health and quality of life issues in Jasper County?

8. What needs to be done to address these issues?

9. In your opinion, what else will improve health and quality of life in Jasper County?

10. Is there someone (who) you would recommend as a “key informant” for this assessment?

11. In your opinion, what is the biggest asset of the community?
N/A

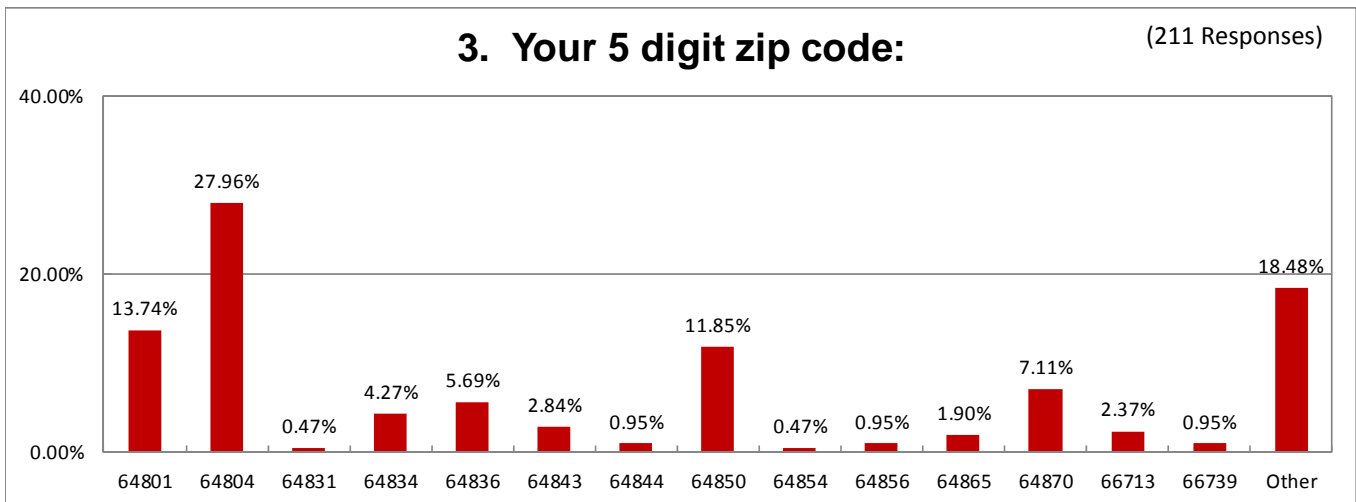
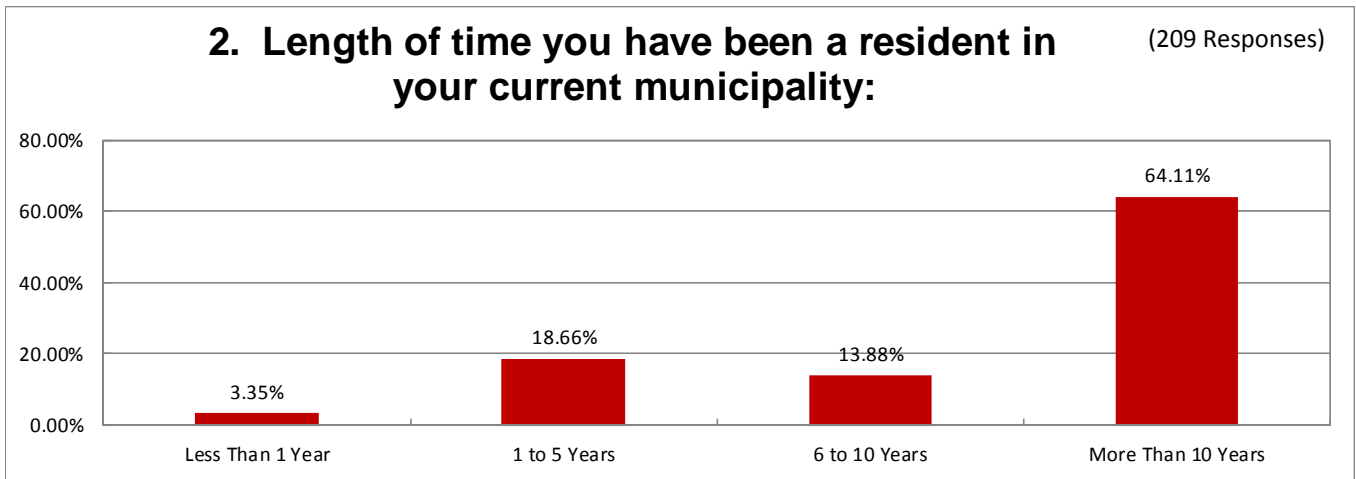
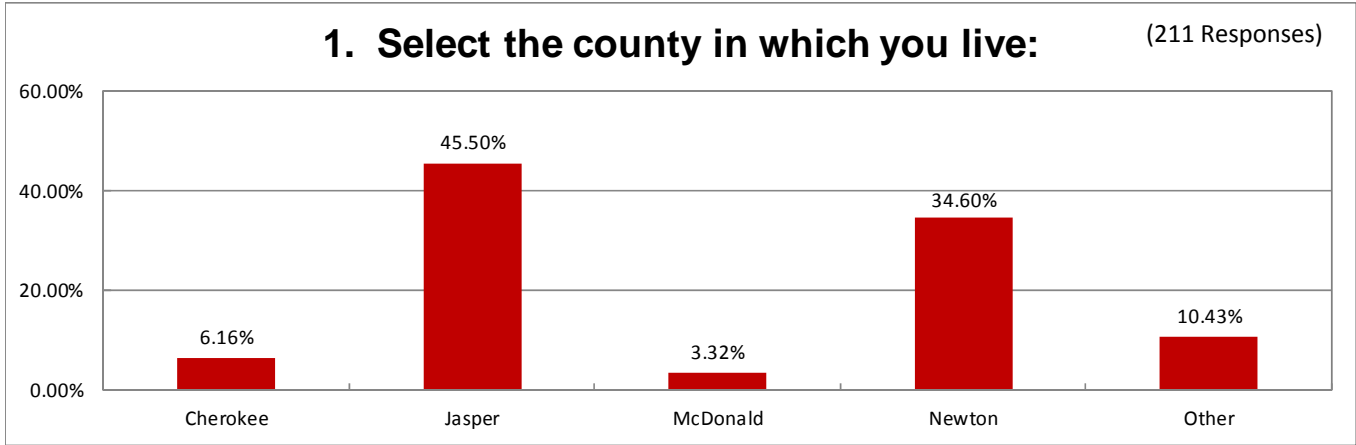
12. Do you have any thoughts on environmental issues which may impact the community health?
N/A

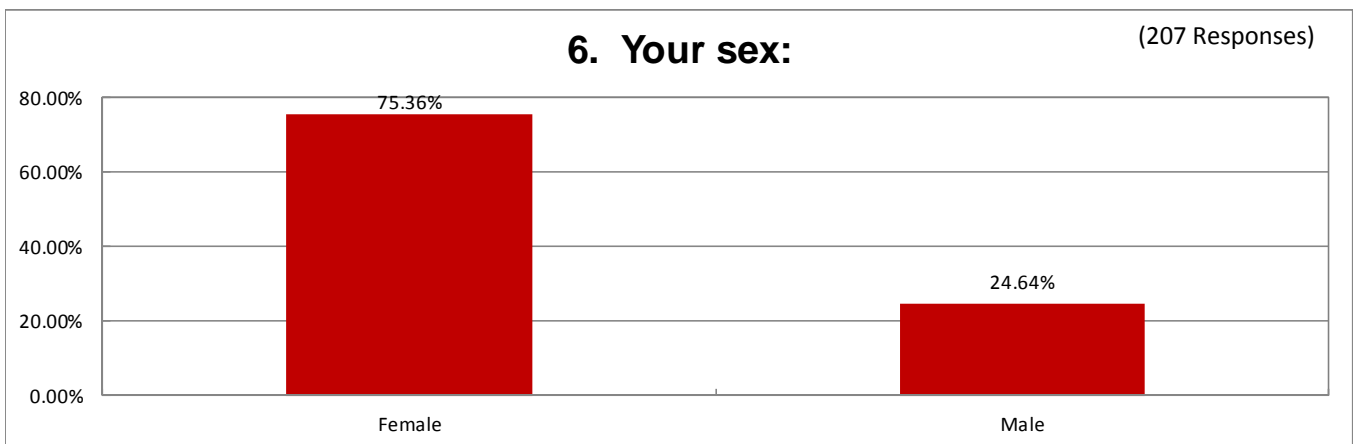
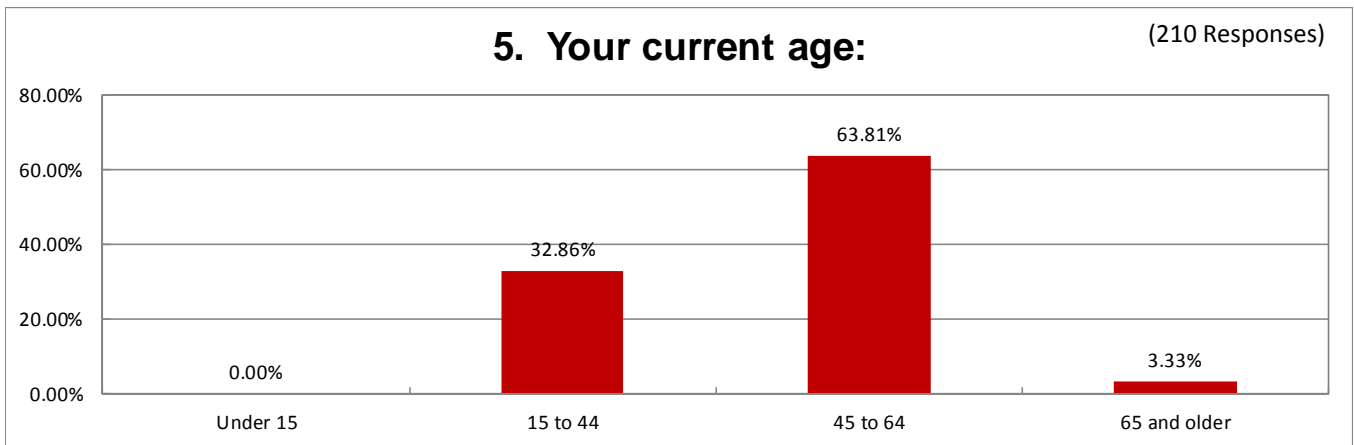
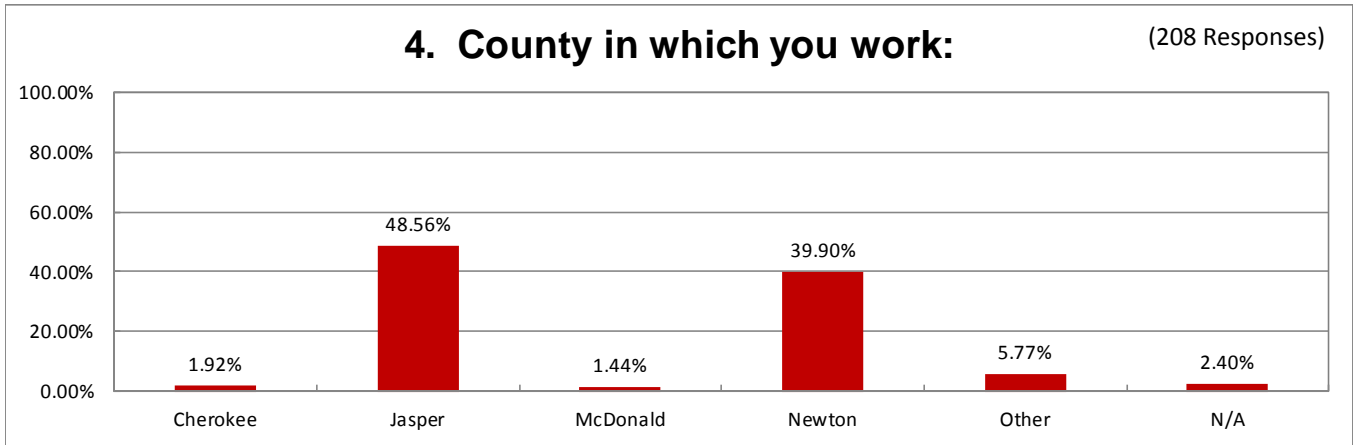
Close: Thanks so much for sharing your concerns and perspectives on these issues. The information you have provided will contribute to develop a better understanding about factors impacting health and quality of life in Jasper County. Before we conclude the interview,

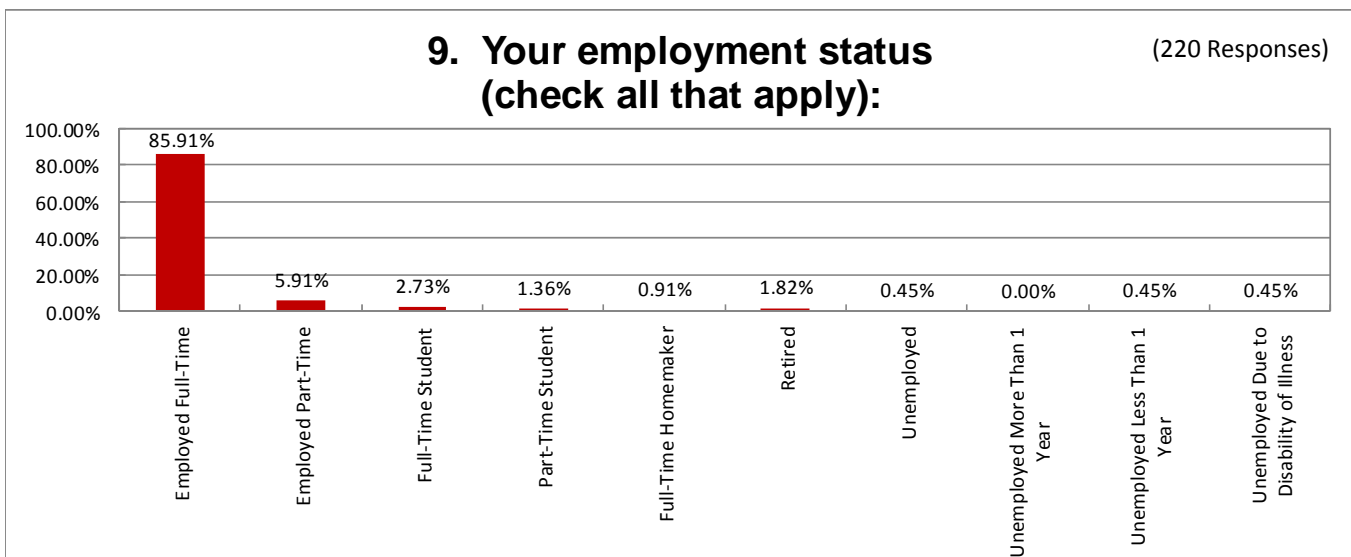
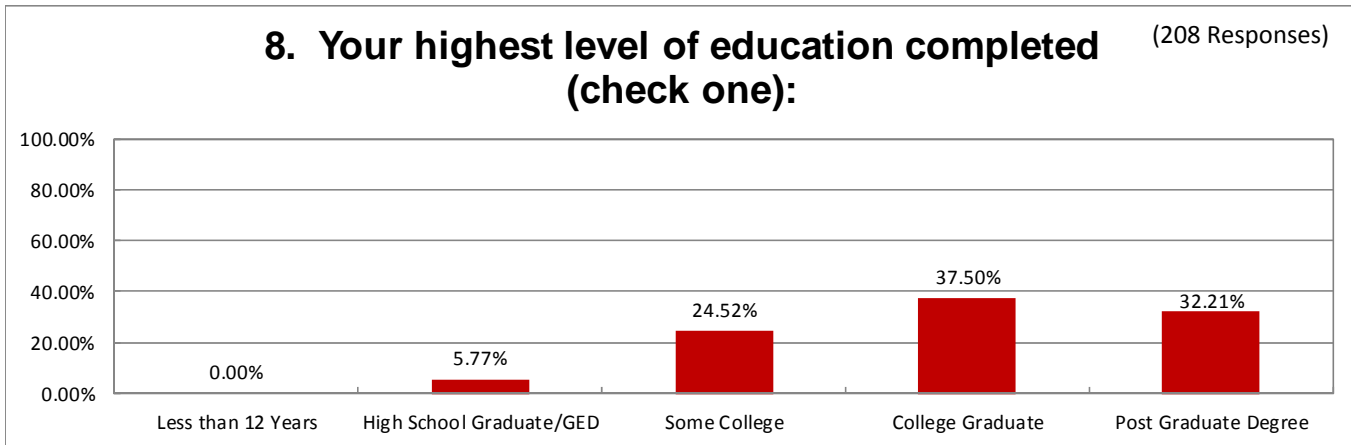
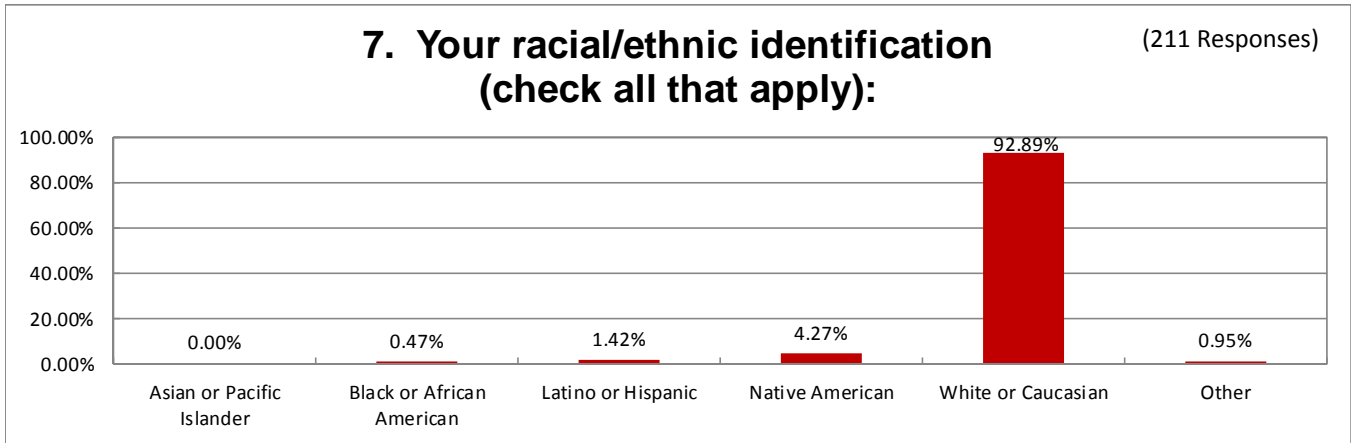
Is there anything you would like to add?

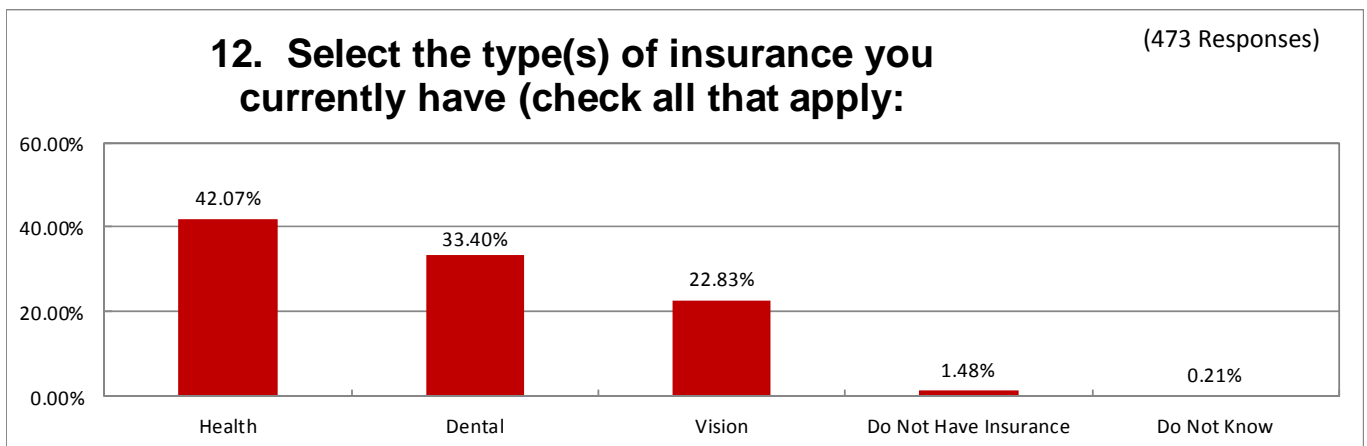
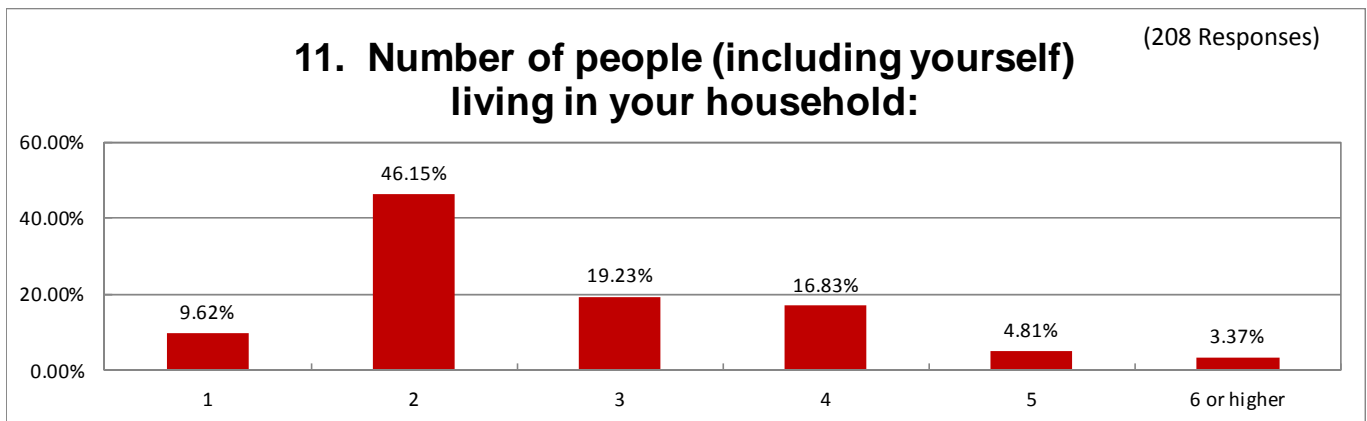
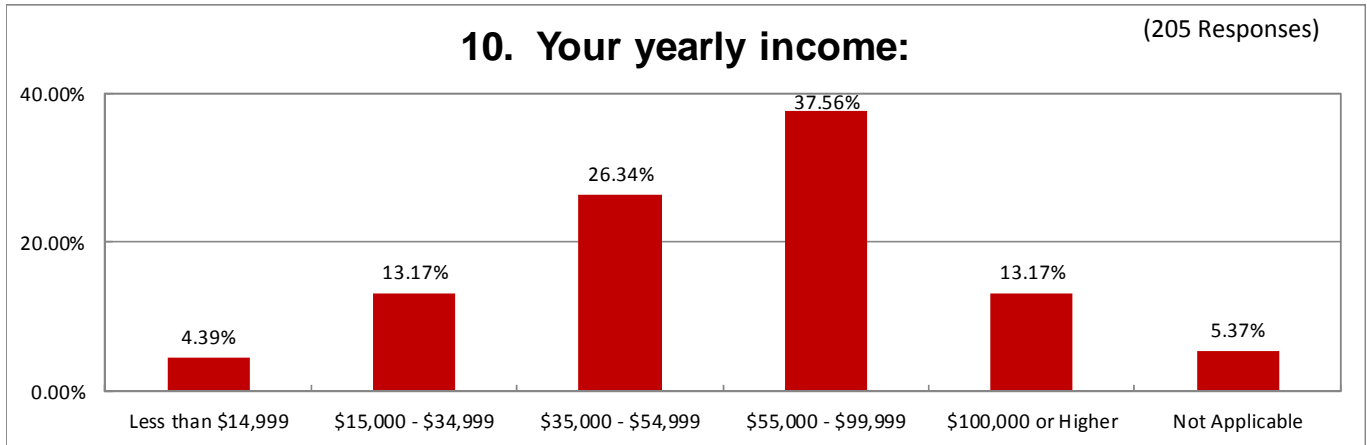
As a reminder, summary results will be made available by the **Freeman Health** and used to develop a community-wide health improvement plan. Should you have any questions, please feel free to contact Mike Leone, Controller at **Freeman Health**. Thanks once more for your time. It’s been a pleasure to meet you.

COMMUNITY HEALTH INPUT QUESTIONNAIRE DETAIL RESULTS

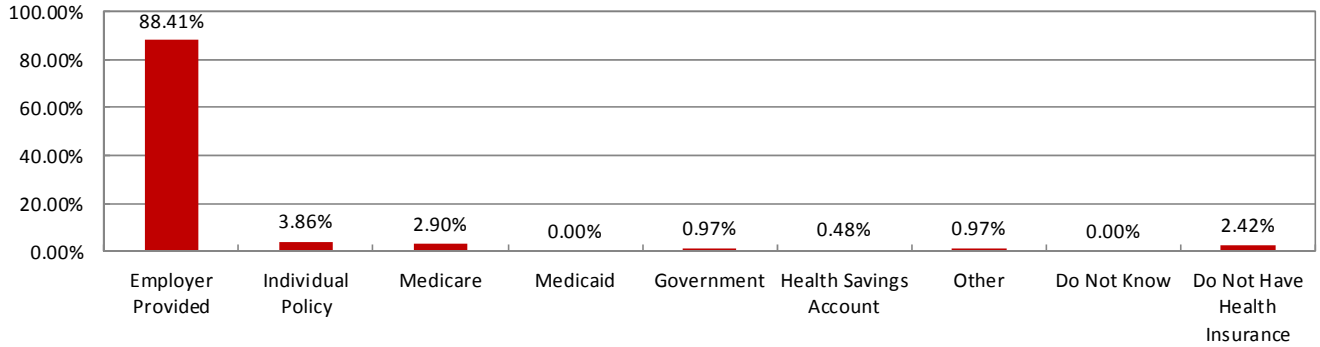




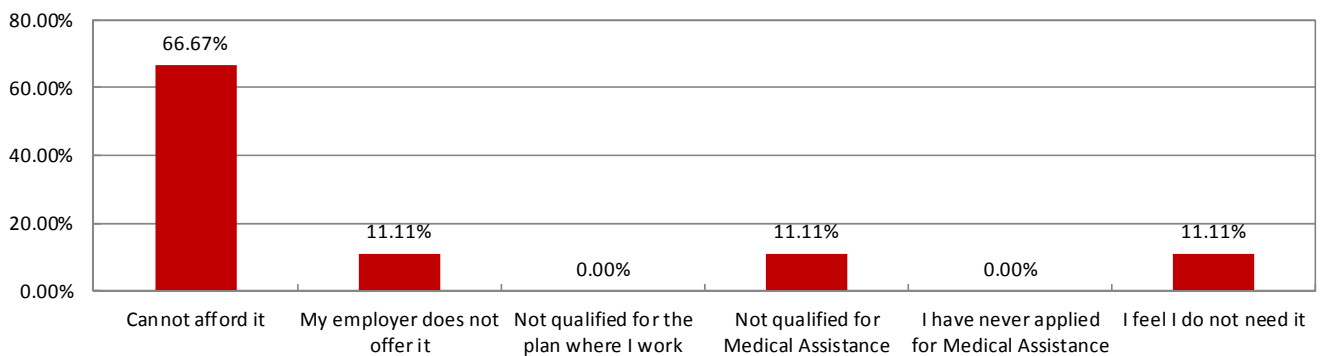




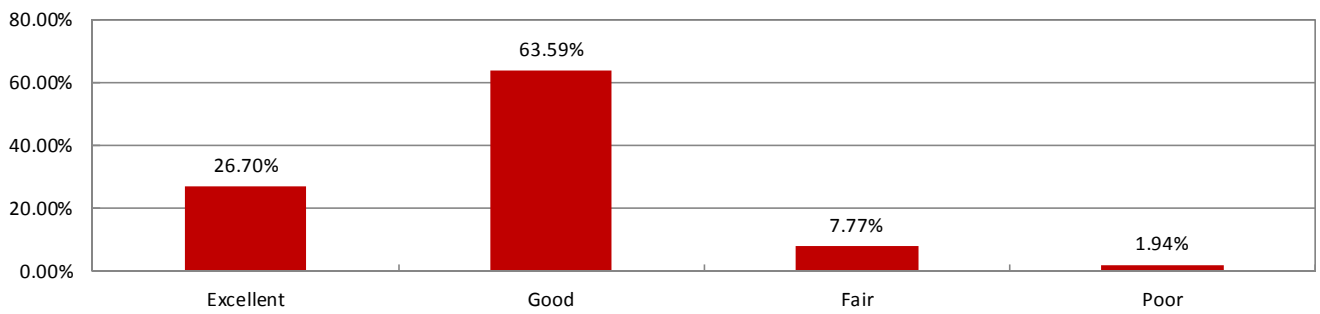
13. Select your current source of health insurance: (207 Responses)

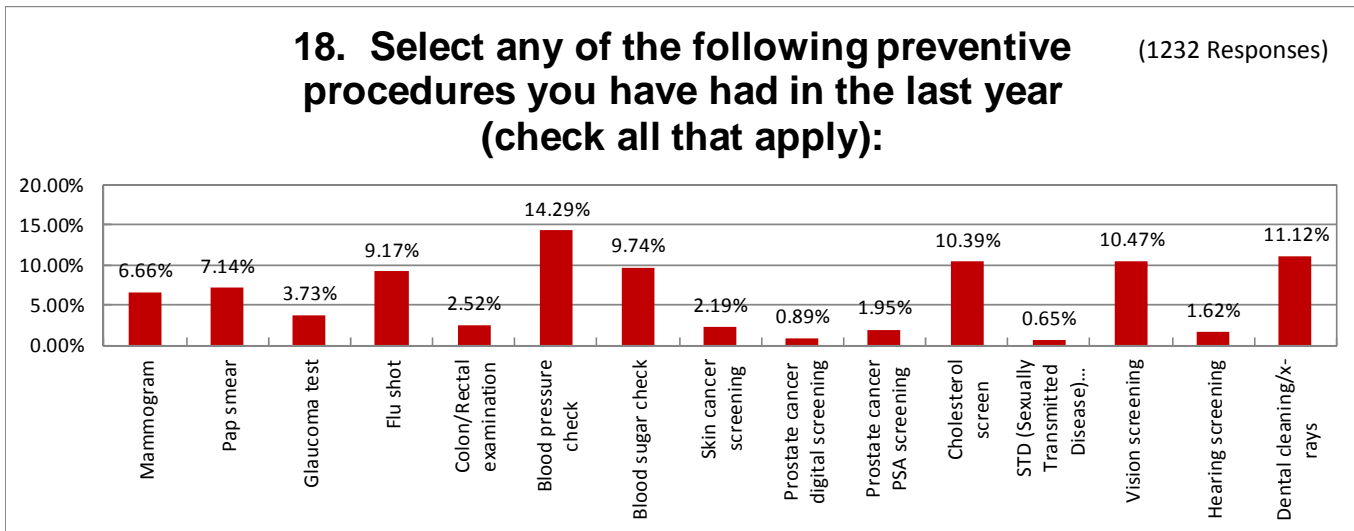
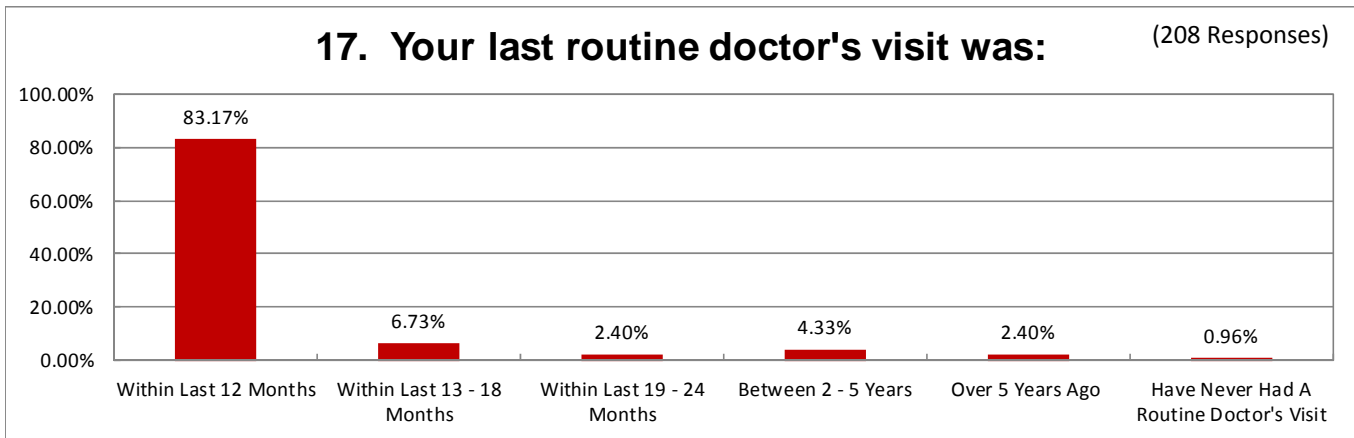
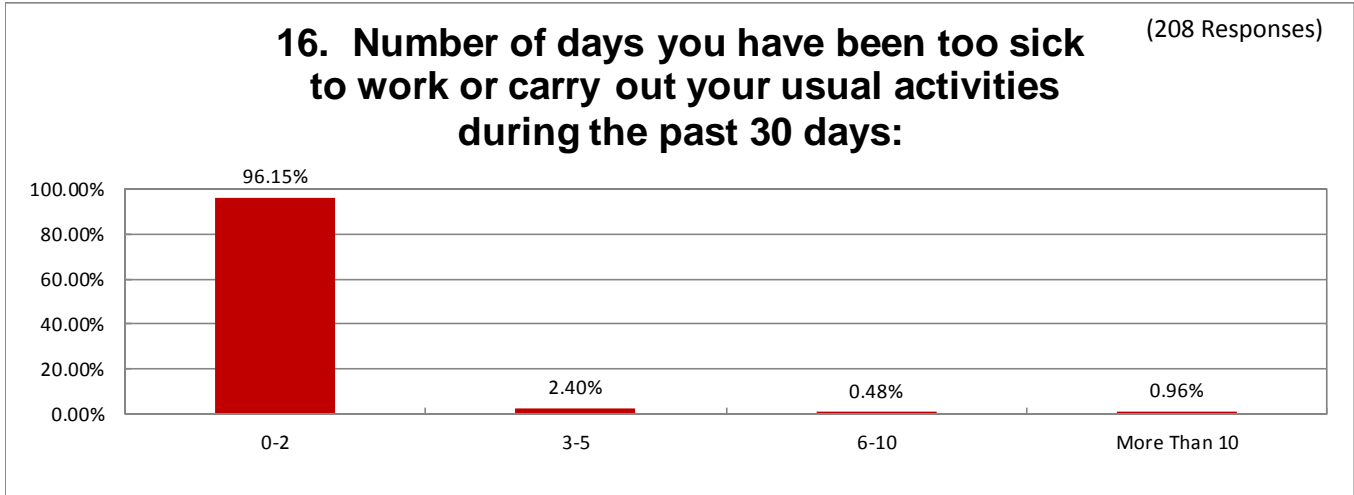


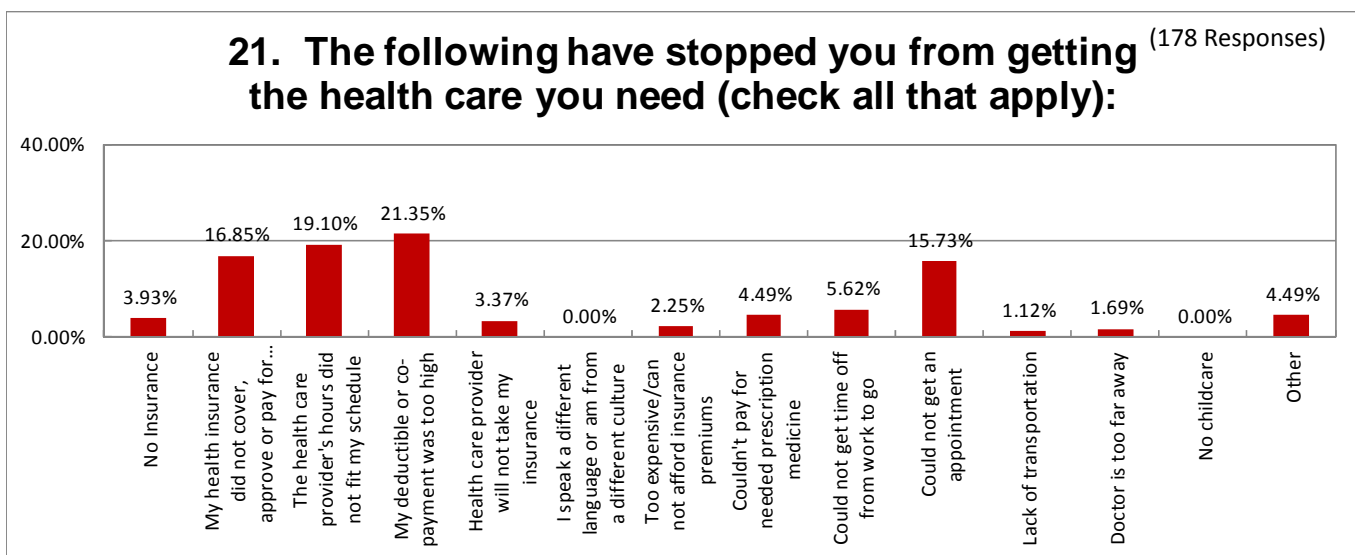
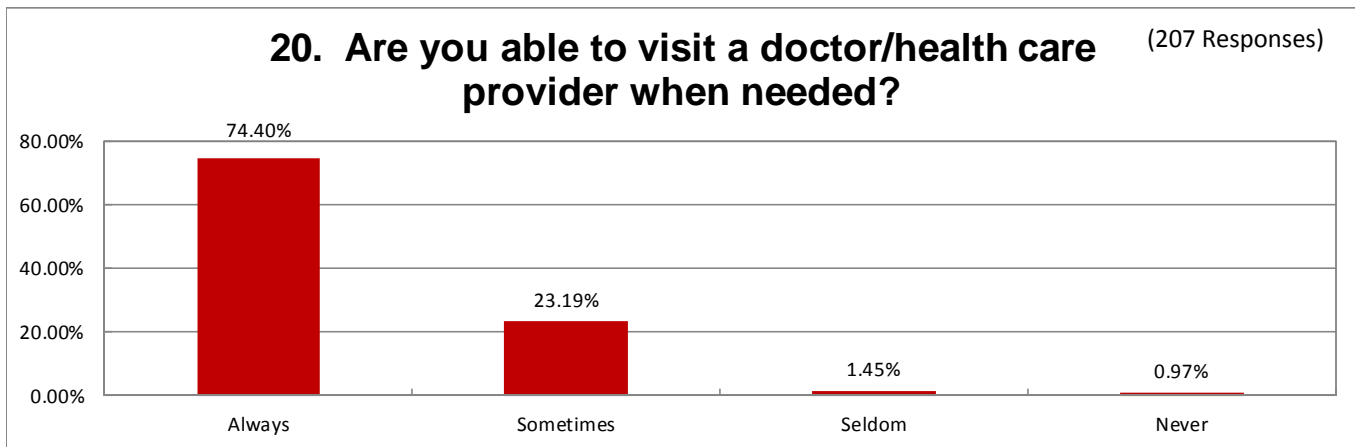
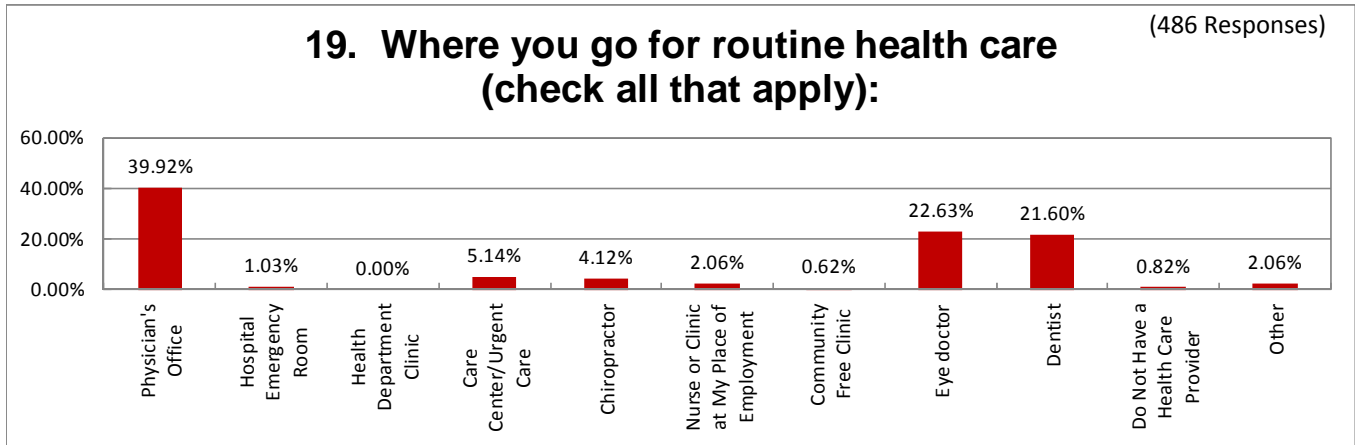
14. If you do not have health insurance, why not? (9 Responses)

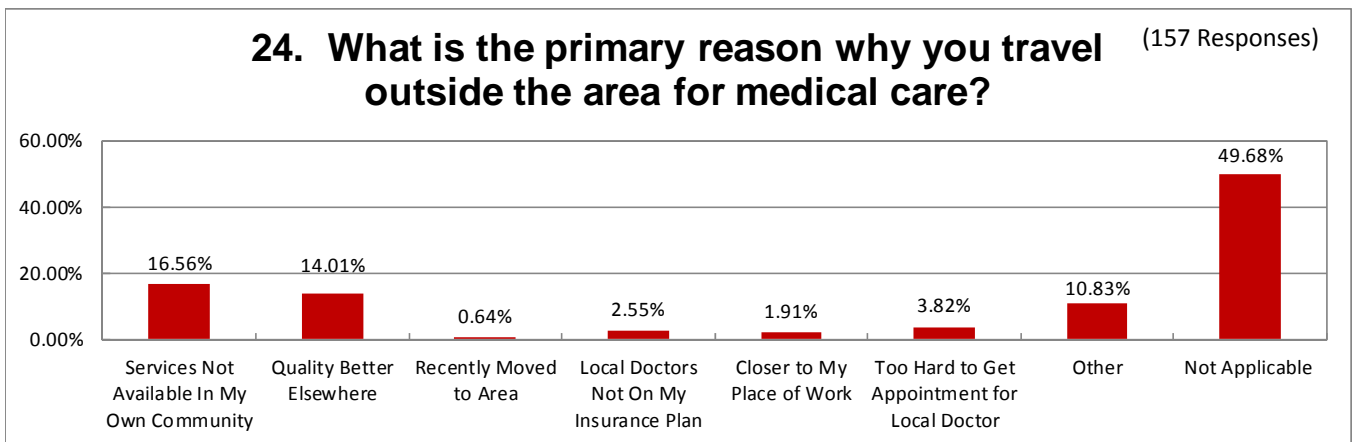
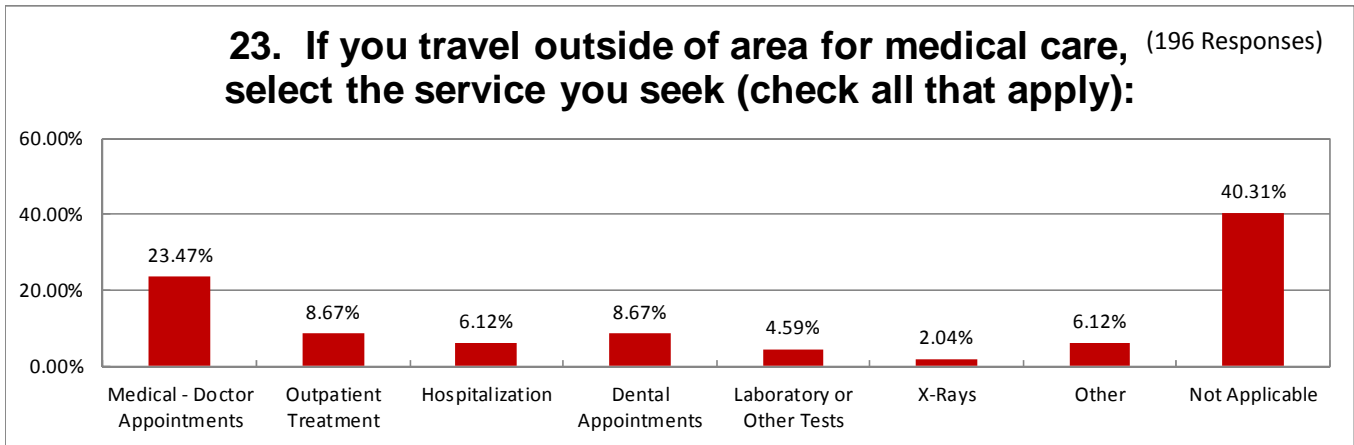
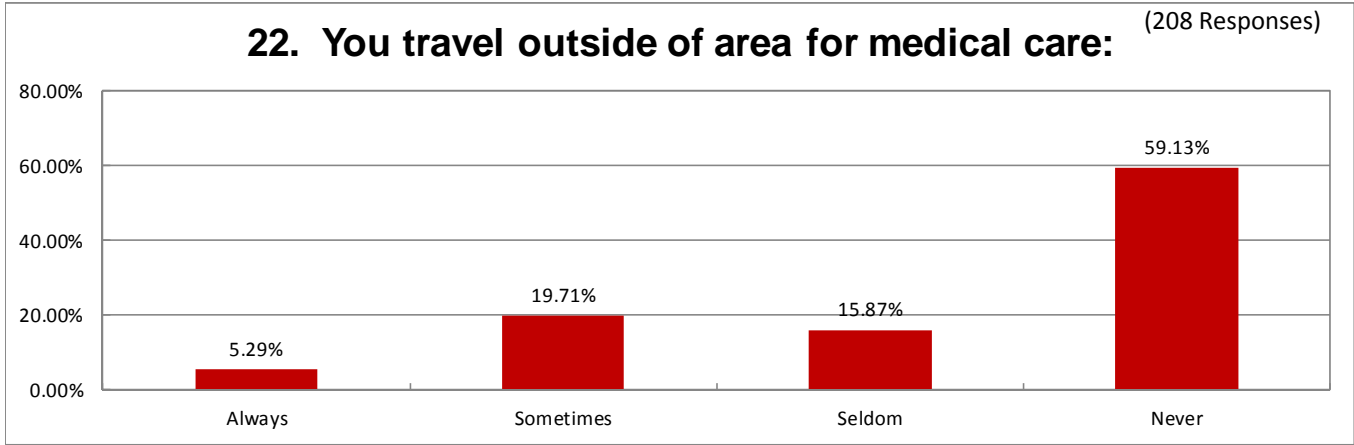


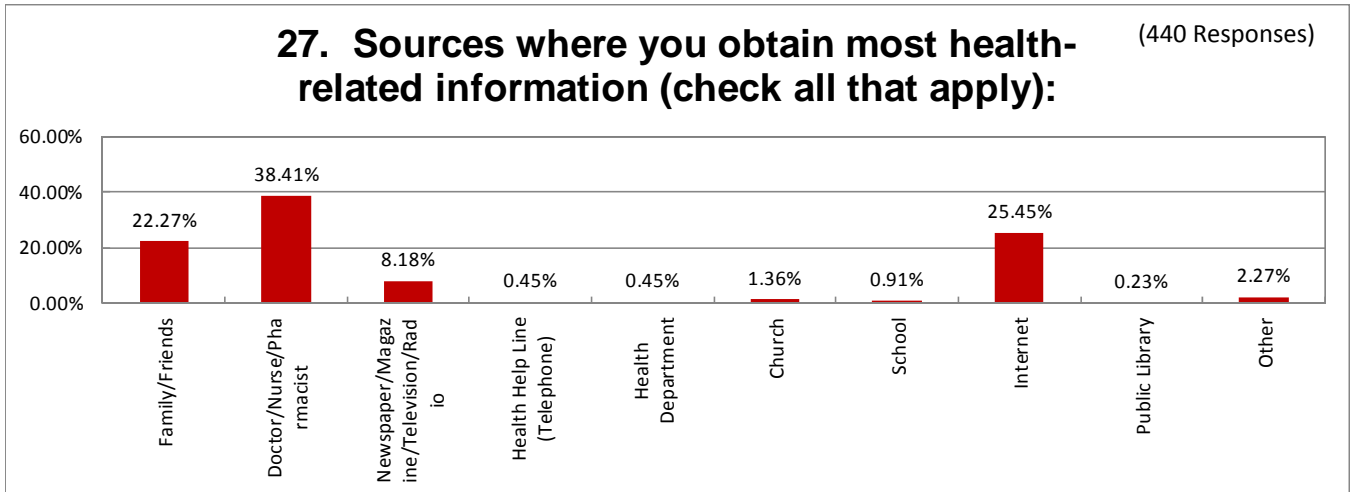
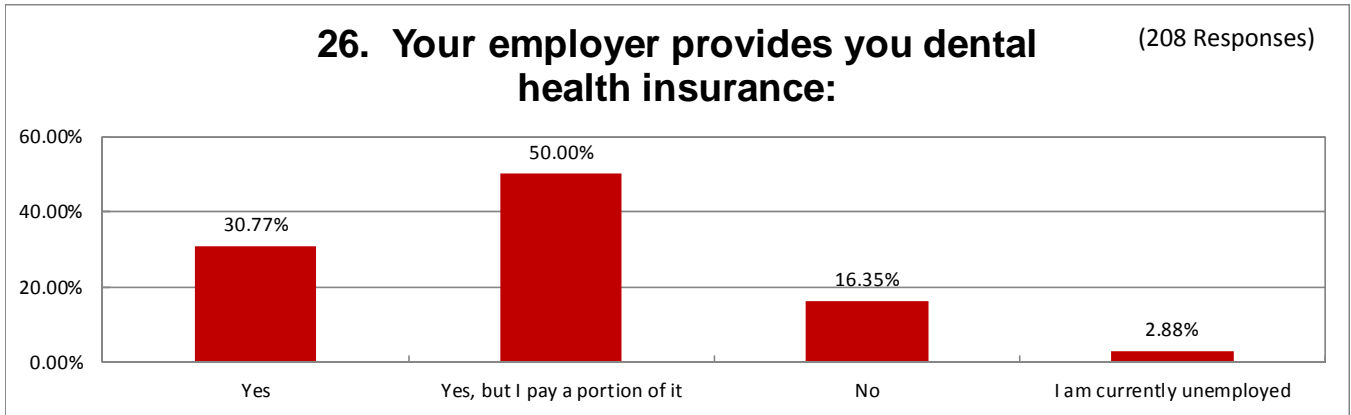
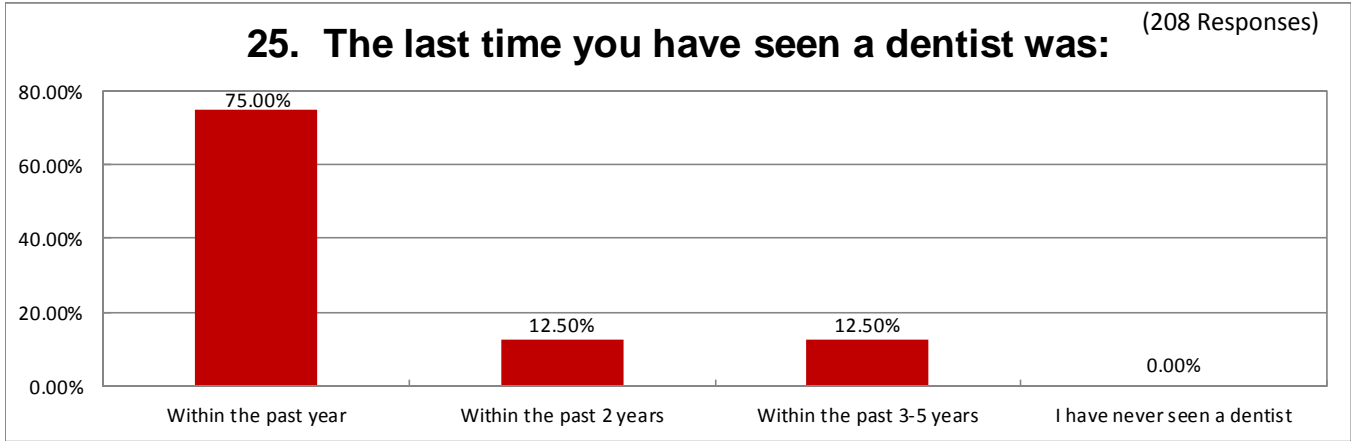
15. In general, how would you rate your current health status? (206 Responses)

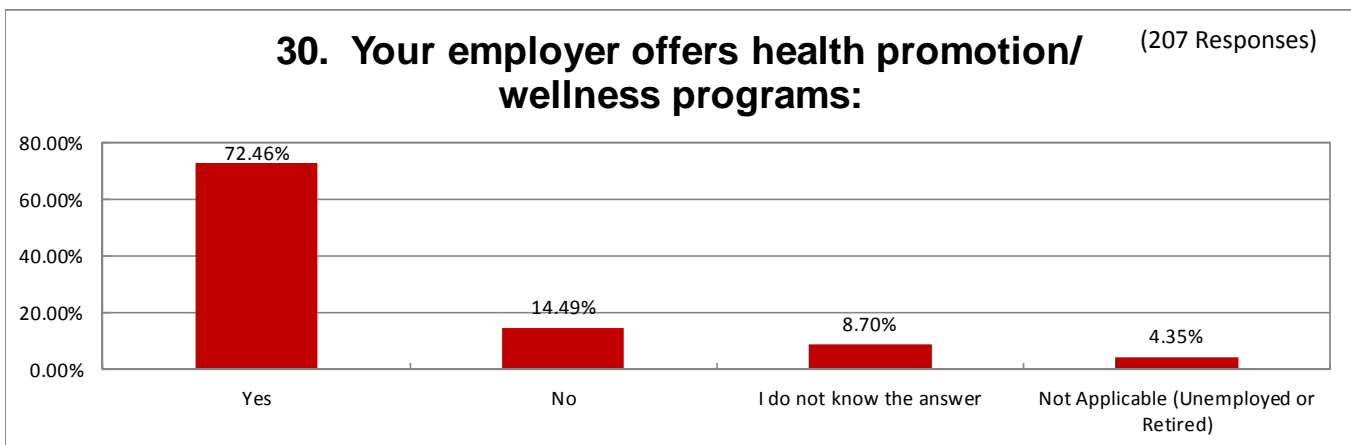
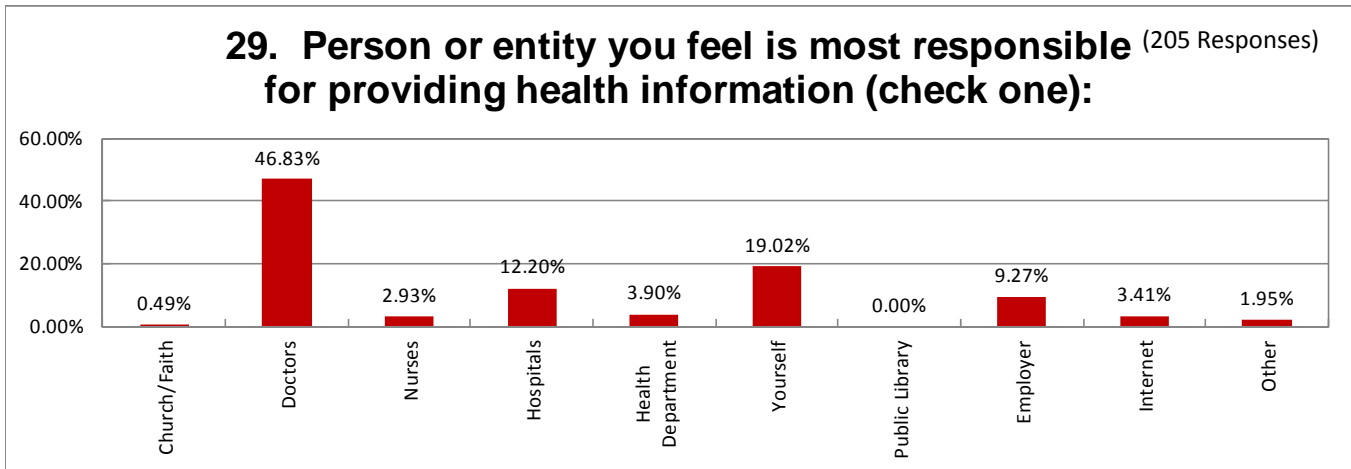
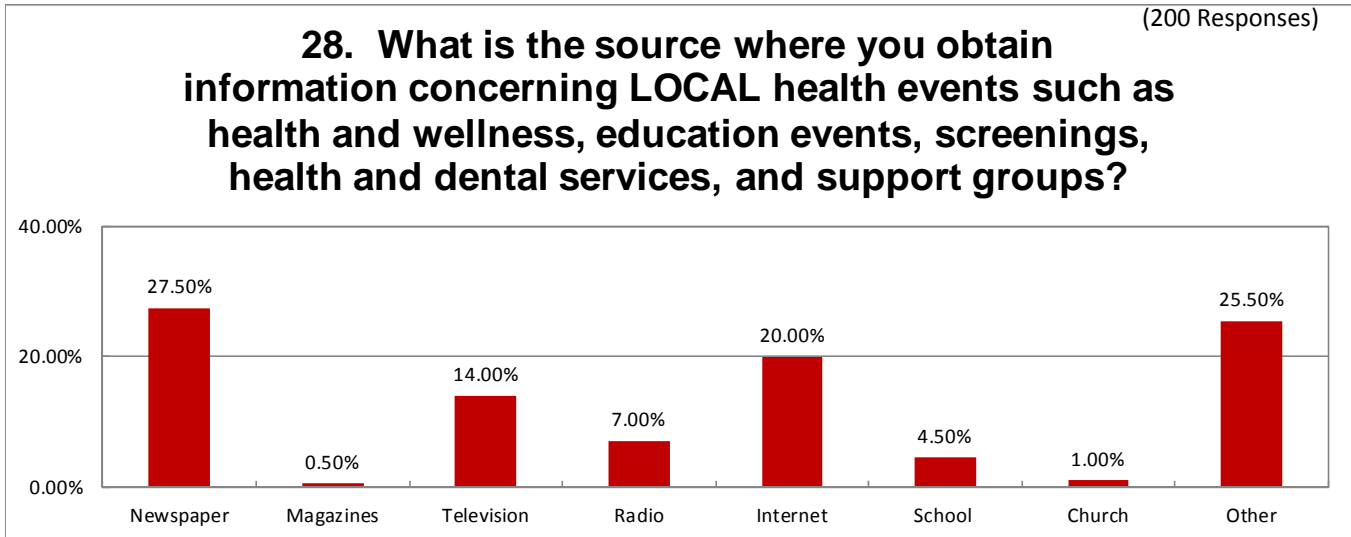


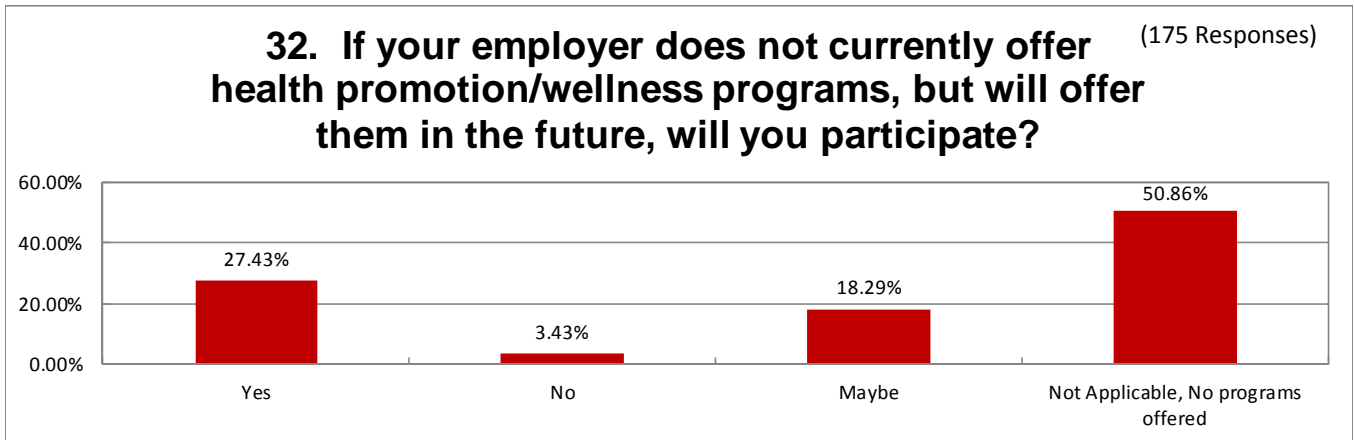
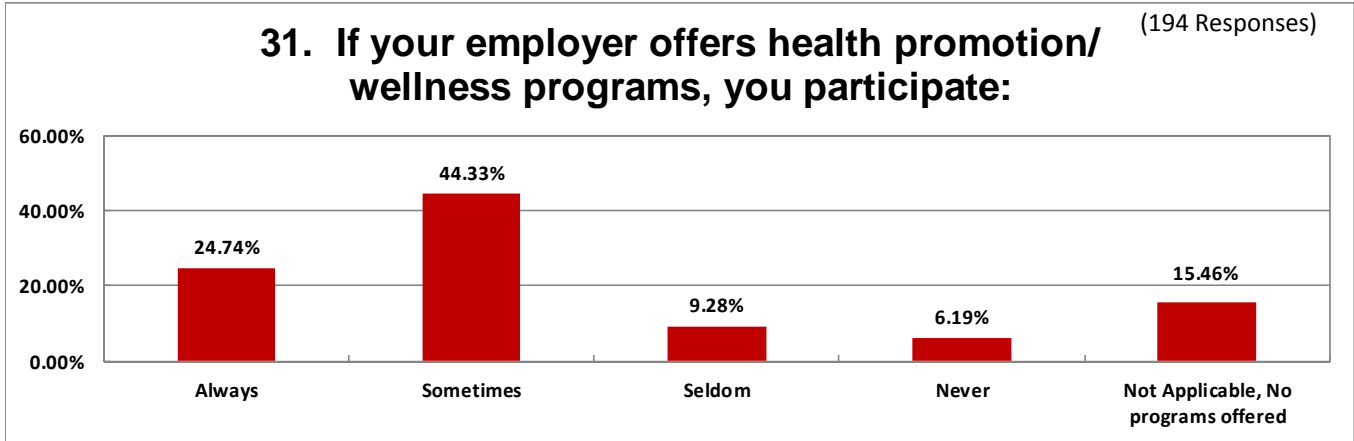




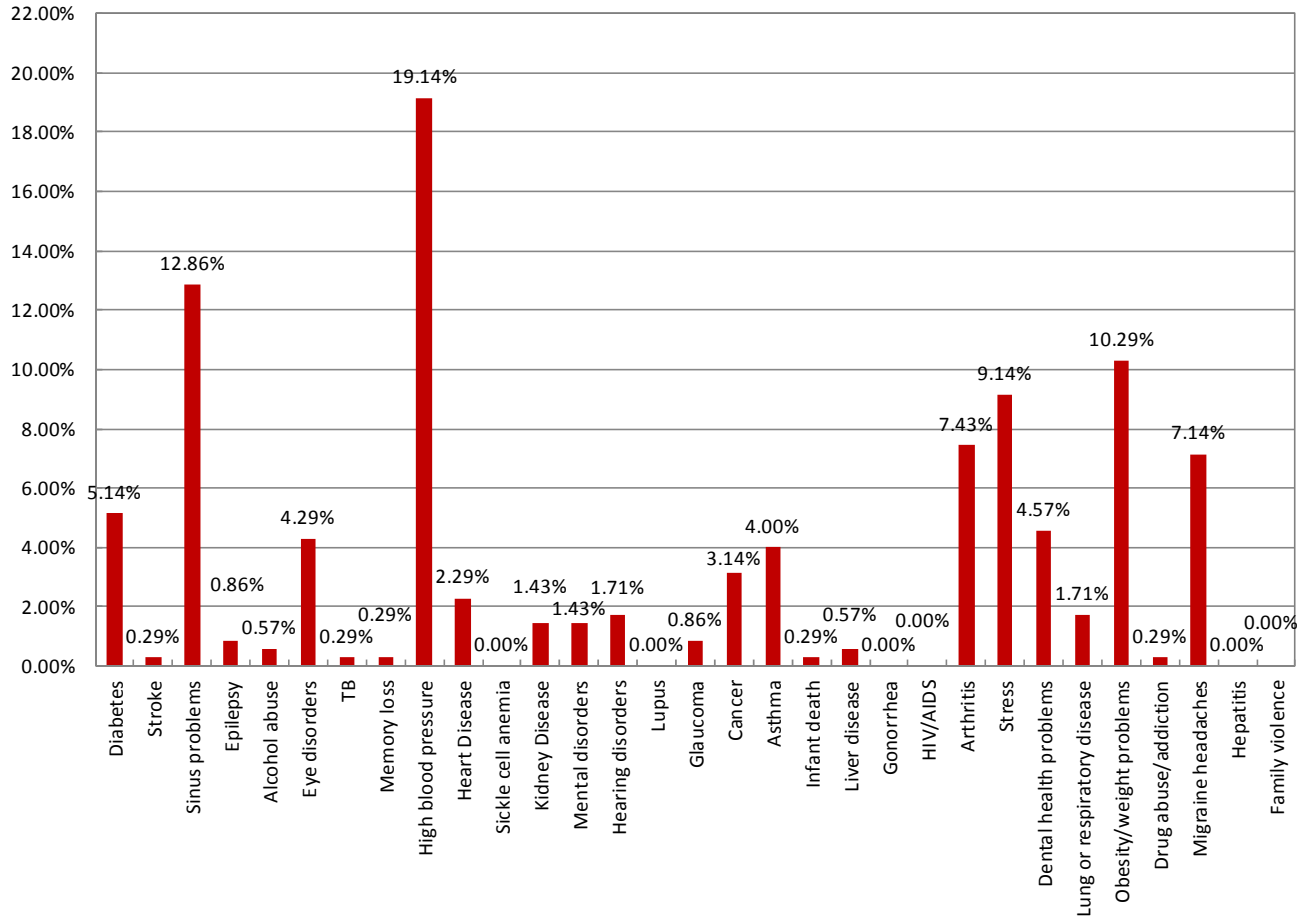




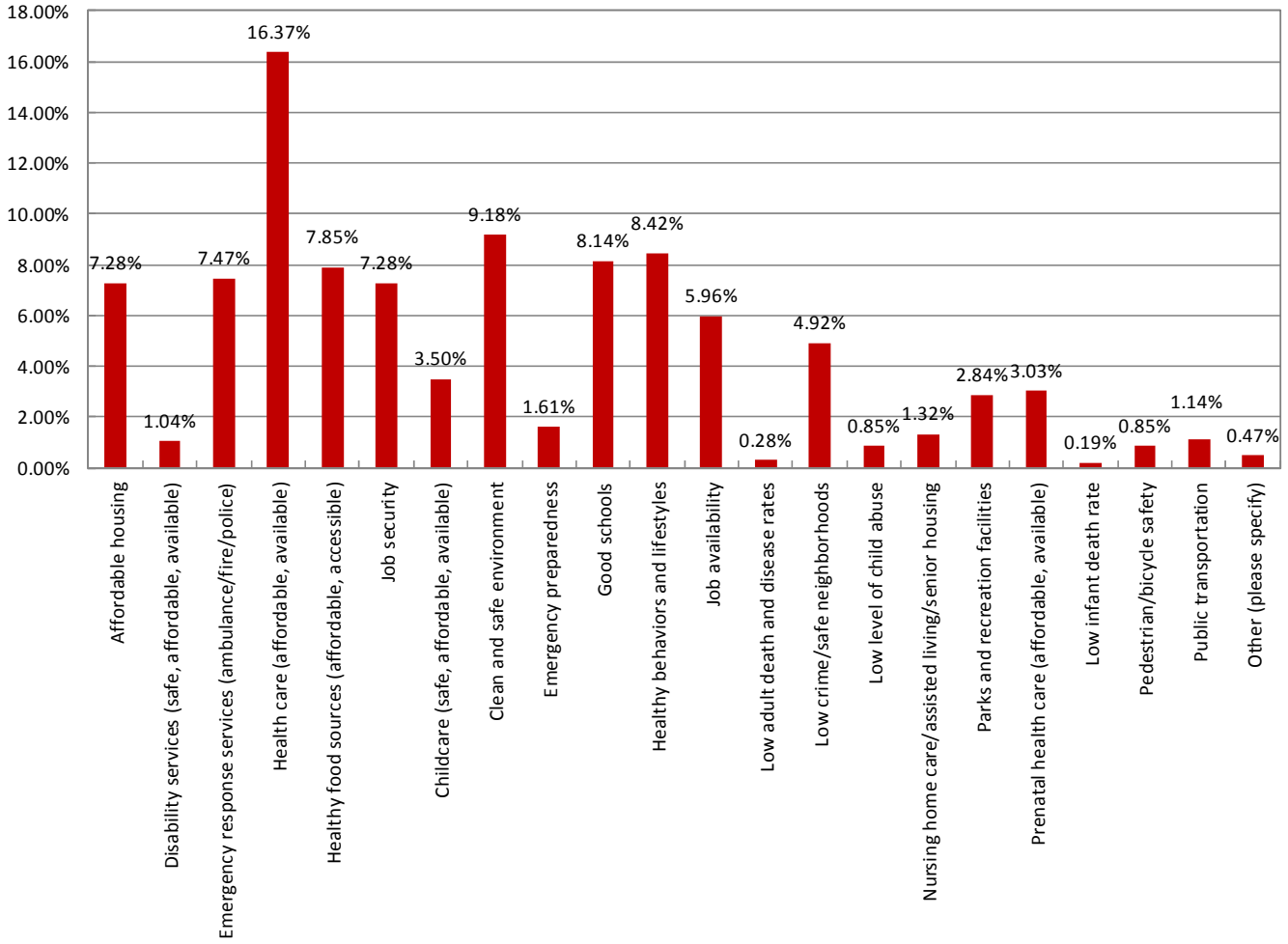




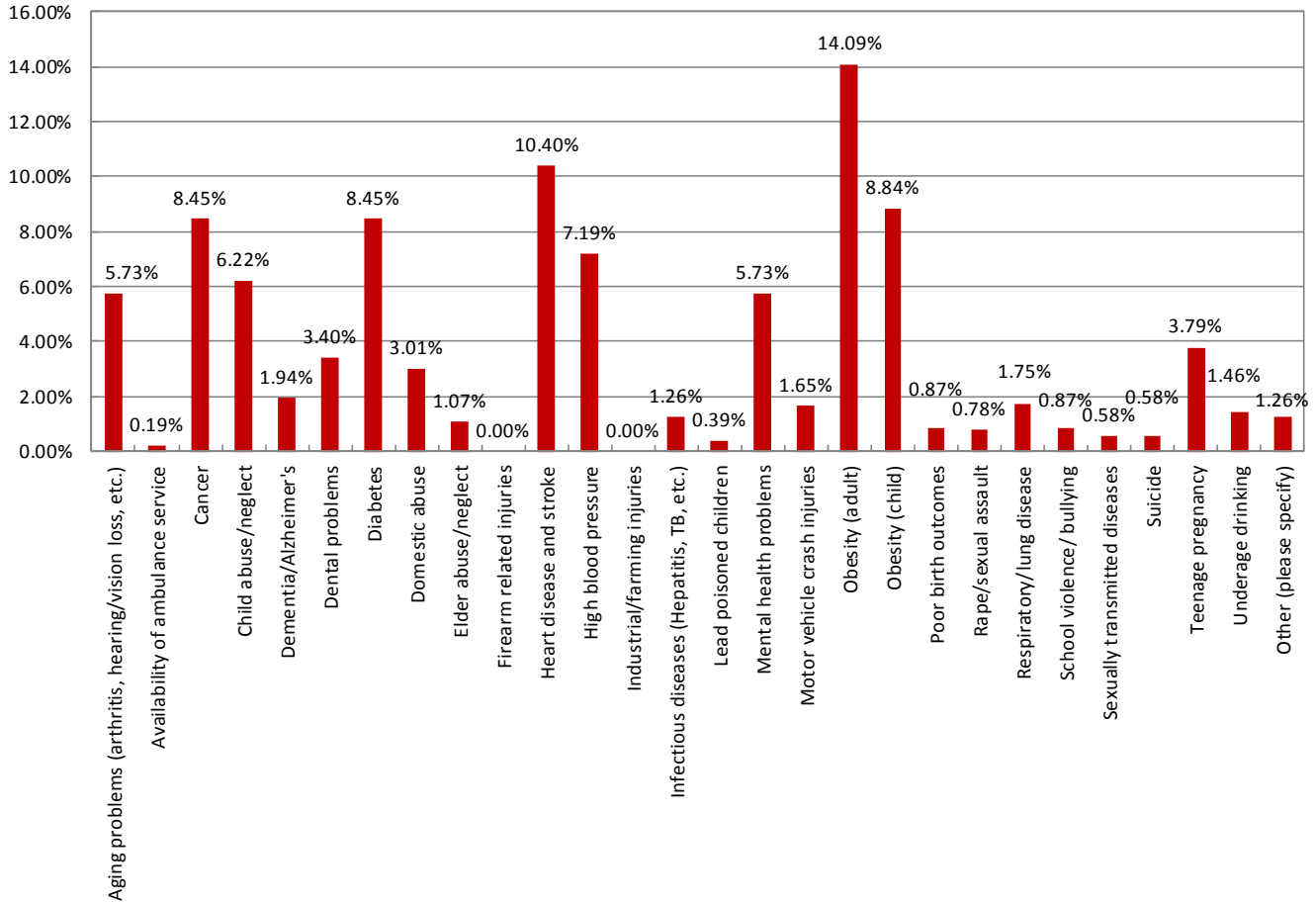
33. Please check if you have been diagnosed by a doctor with any of the following (check all that apply): (350 Responses)



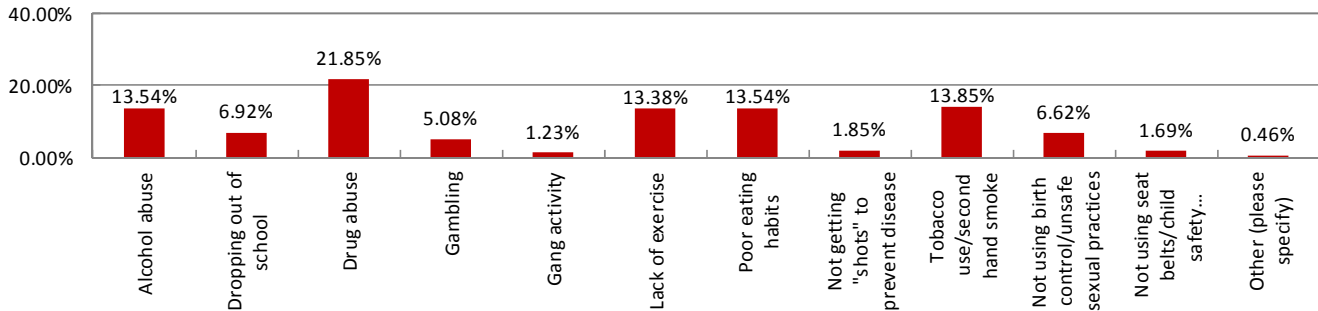
34. In the following list, please mark what you think are the FIVE MOST IMPORTANT FACTORS FOR A "HEALTHY COMMUNITY". (Those factors that most improve the quality of life in a community). CHECK ONLY FIVE: (1057 Responses)



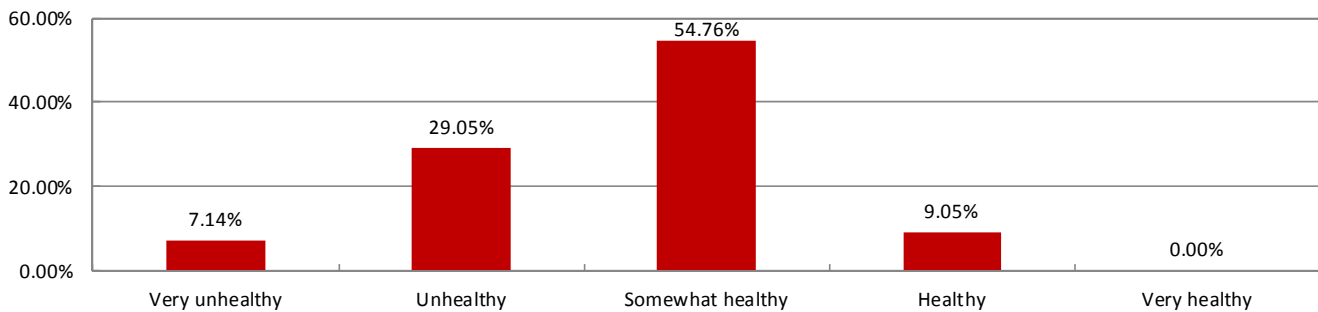
35. In the following list, please mark what you think are the FIVE MOST IMPORTANT "HEALTH PROBLEMS" in our community. (Those problems which have the greatest impact on overall community health). CHECK ONLY FIVE: (1029 Responses)



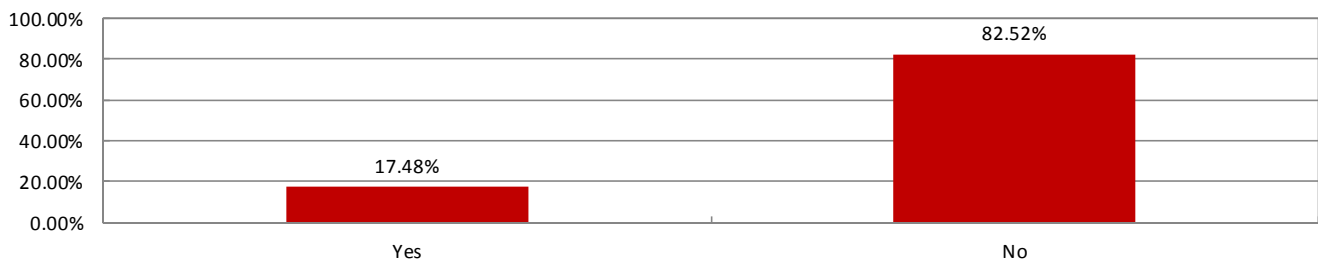
36. In the following list, please mark what you think are the THREE MOST IMPORTANT "RISKY BEHAVIORS" in our community. (Those behaviors which have the greatest impact on overall community health). CHECK ONLY THREE (3): (650 Responses)

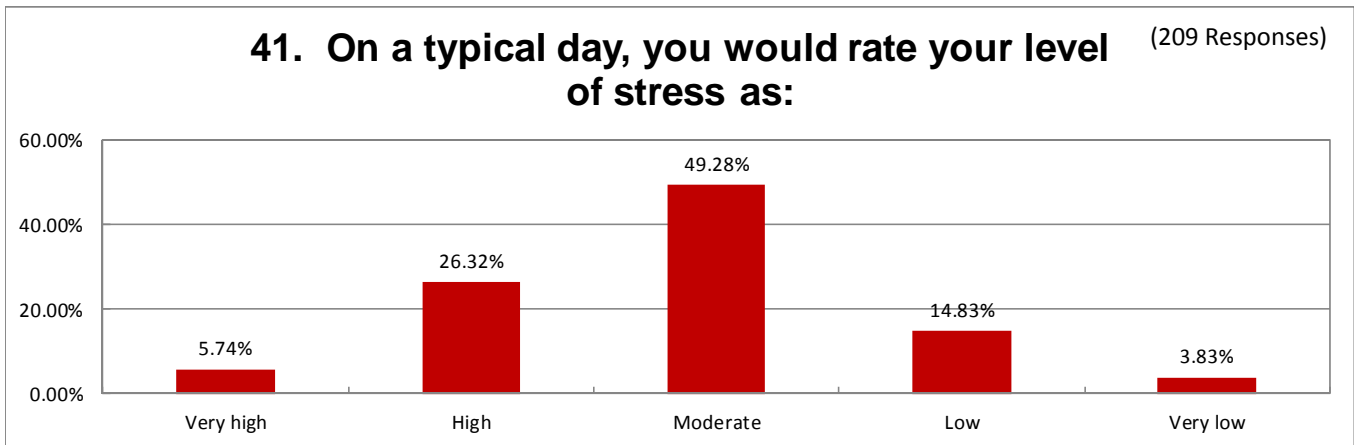
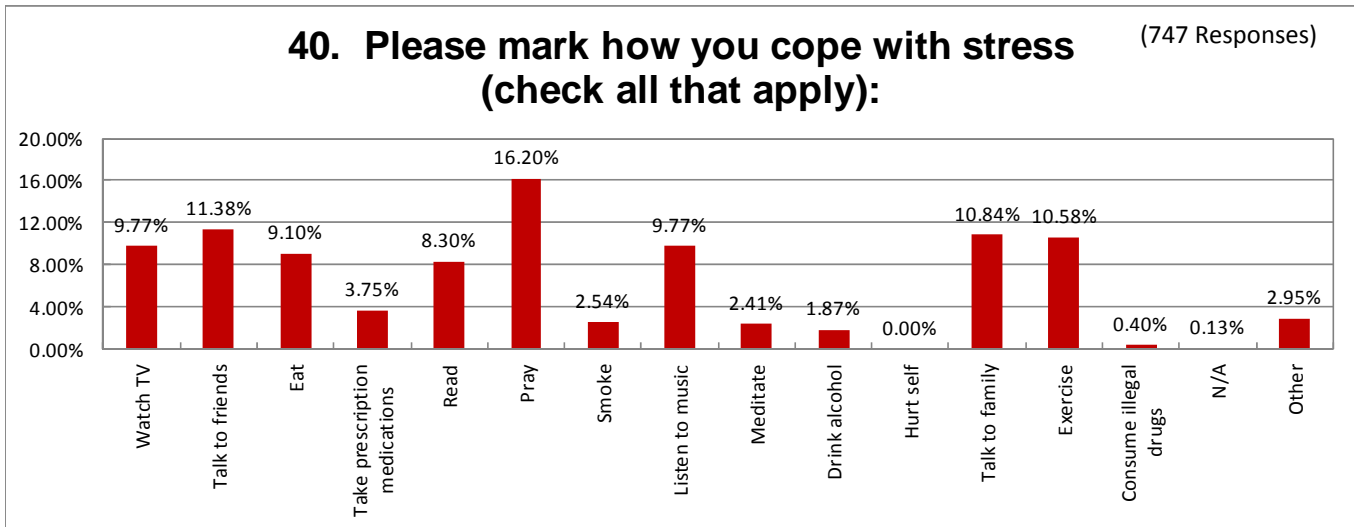
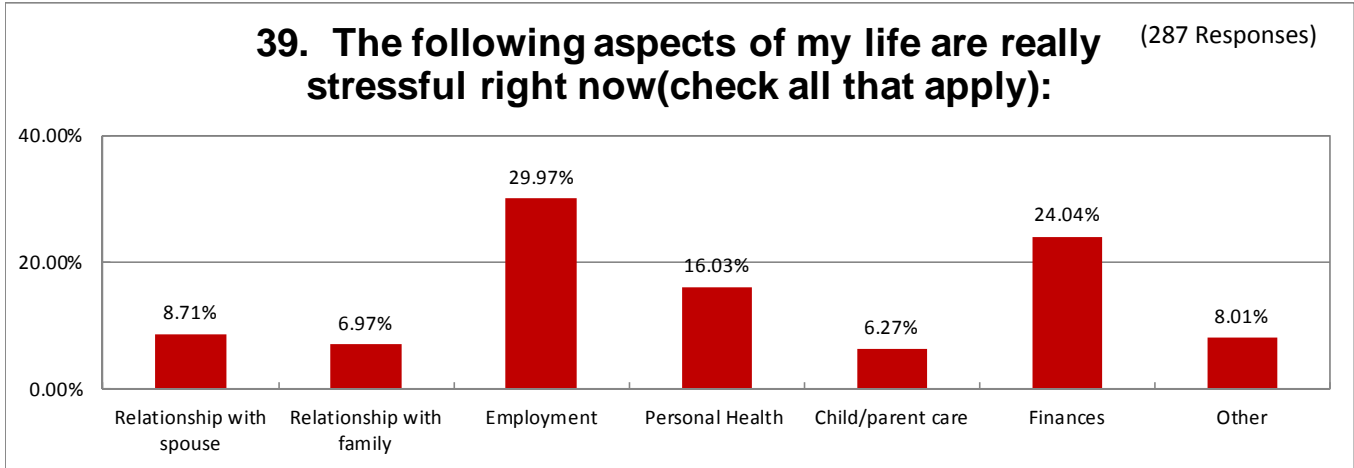


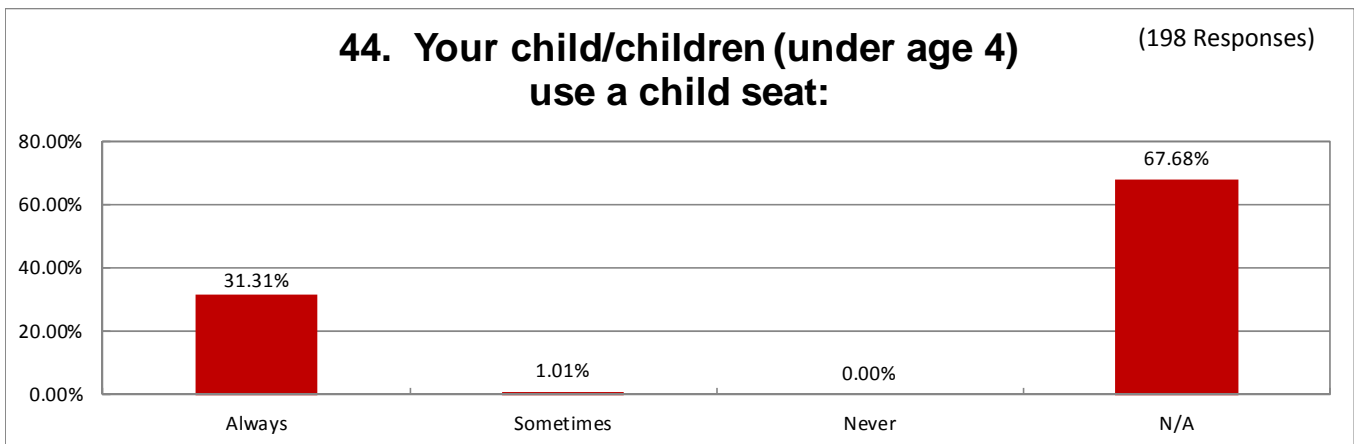
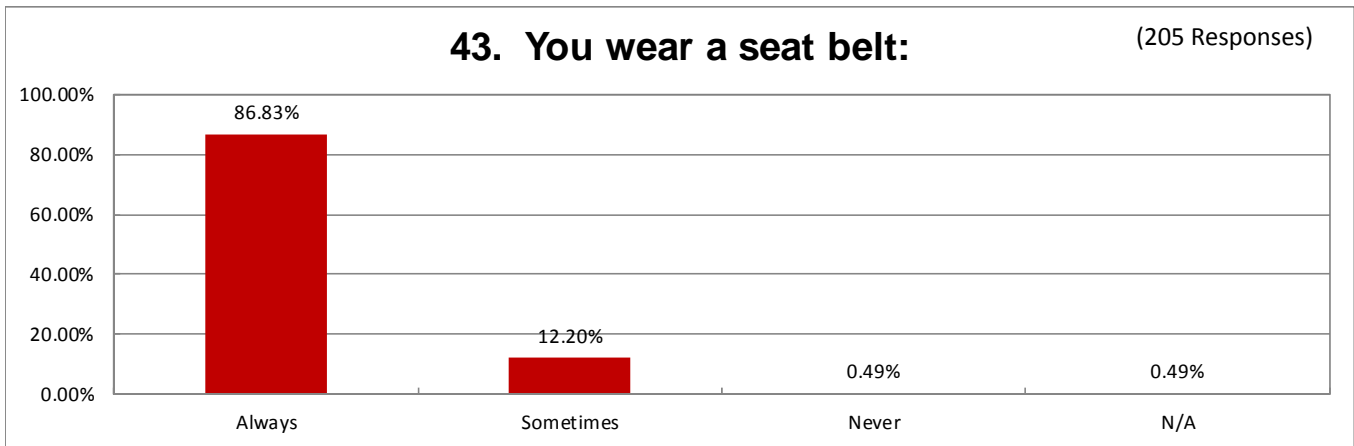
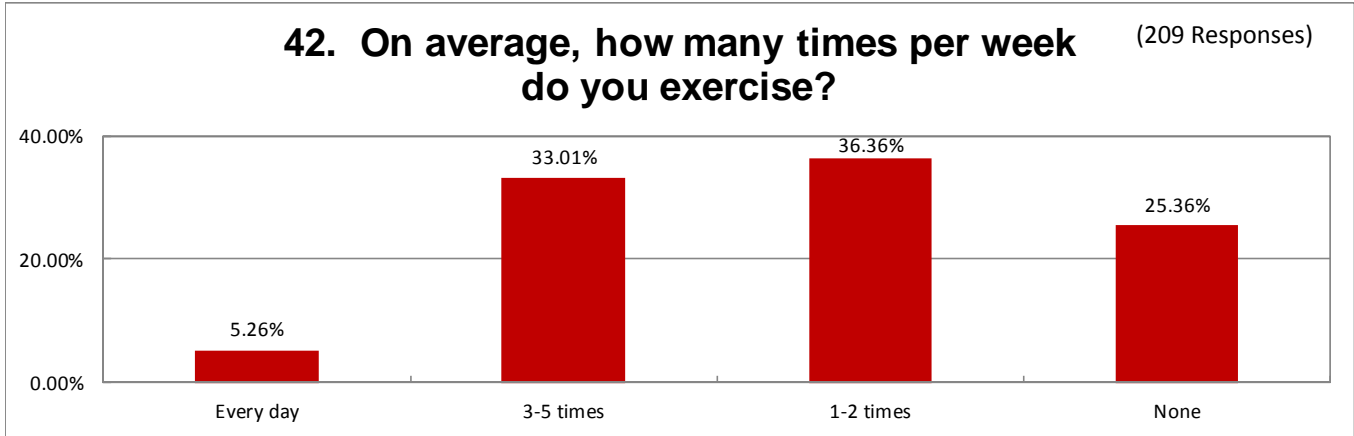
37. Please mark how you would rate your community as a "Healthy Community": (210 Responses)

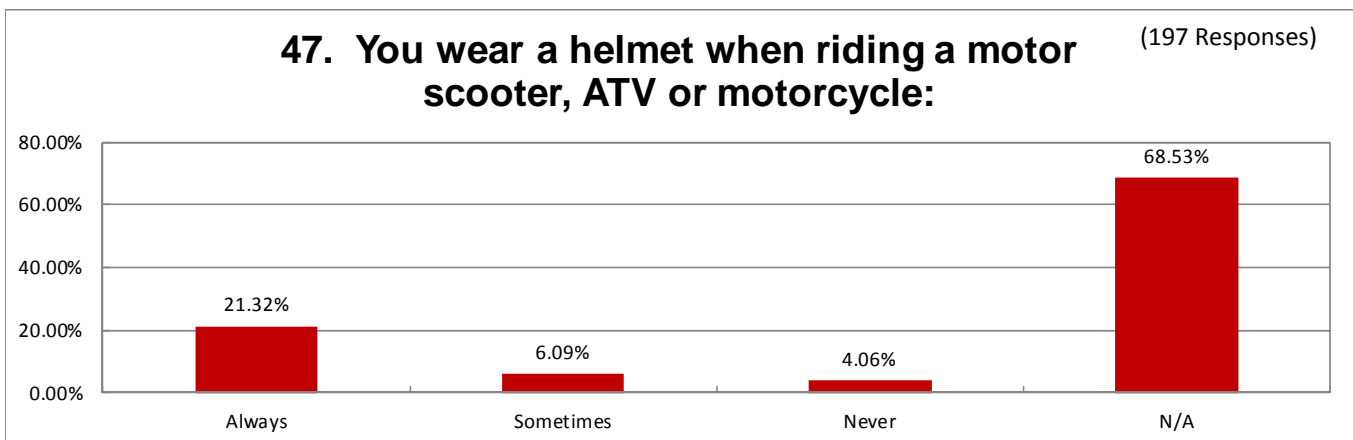
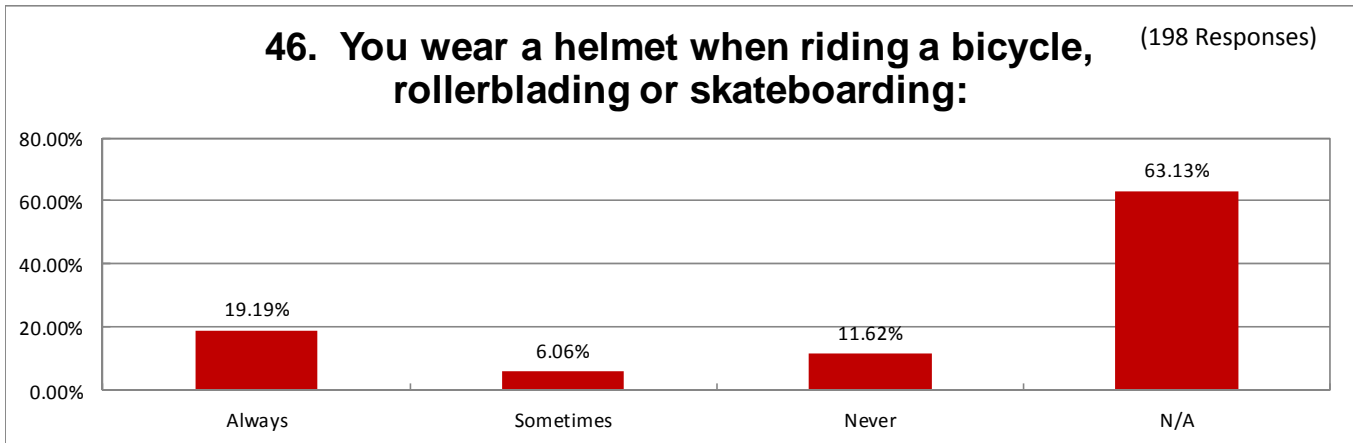
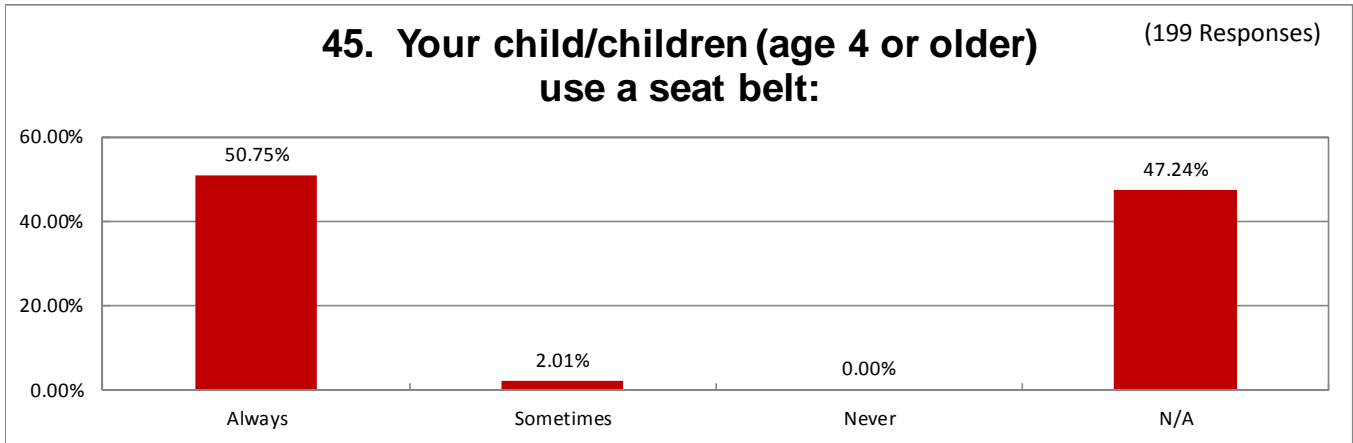


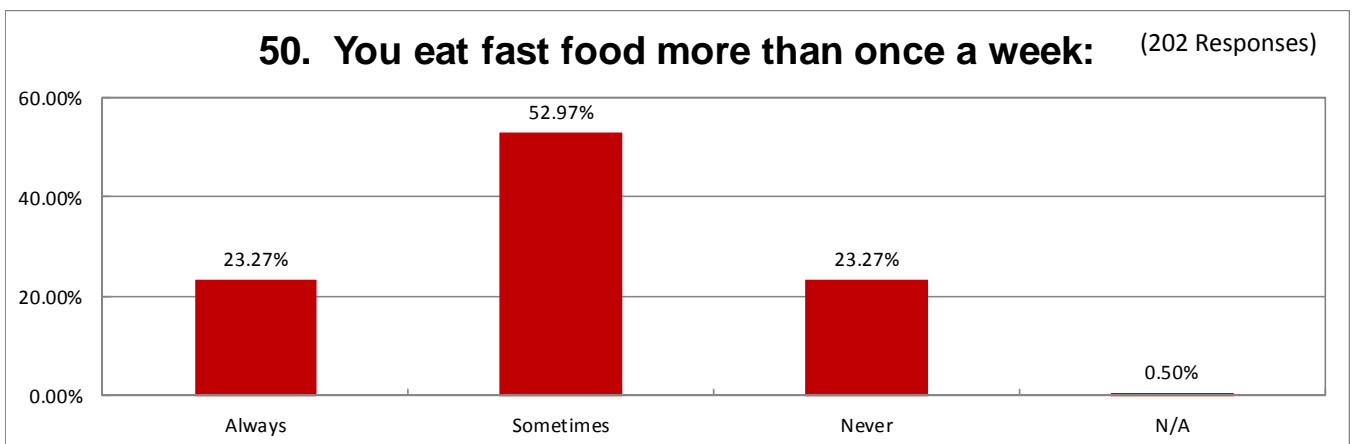
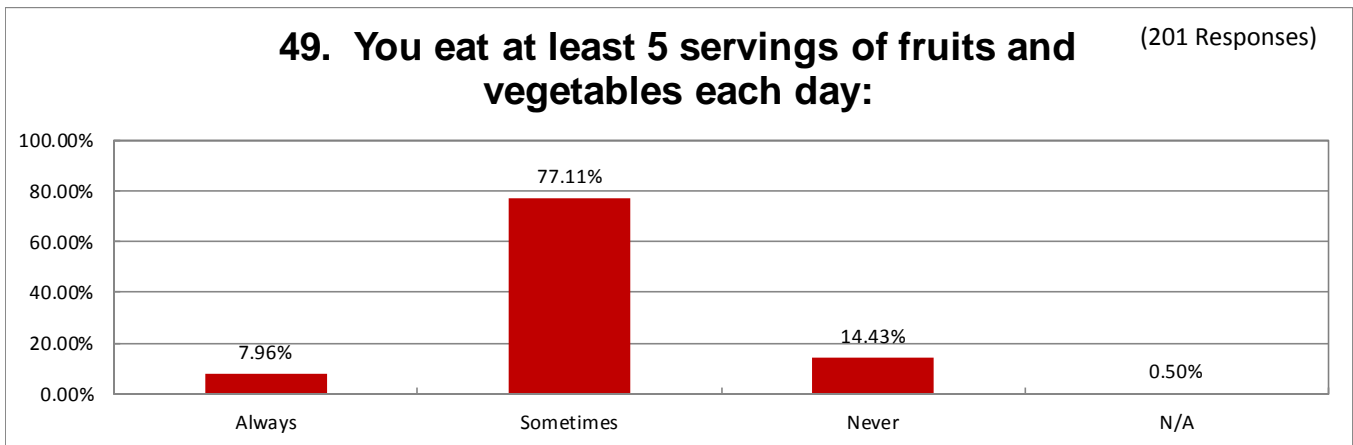
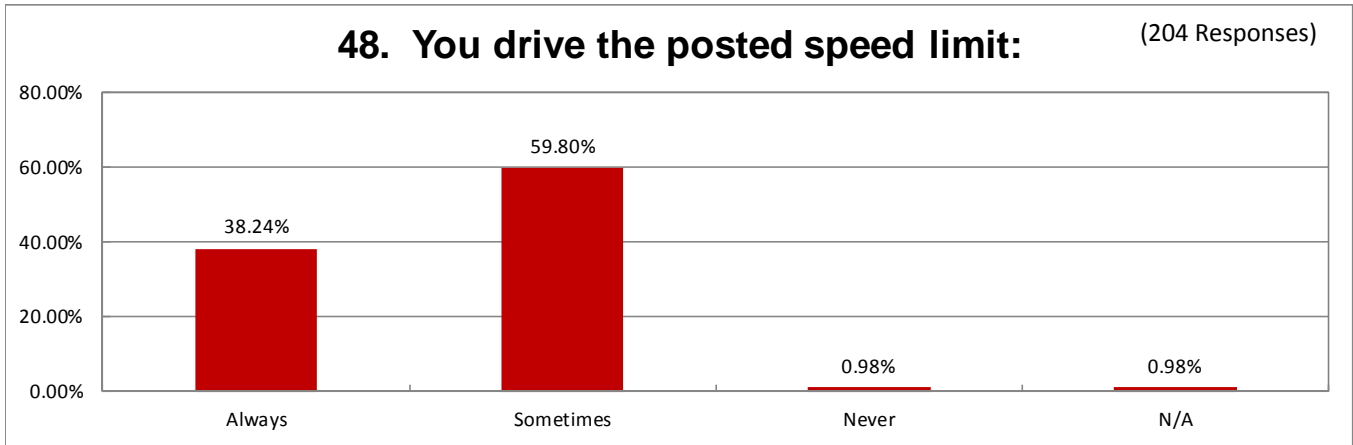
38. Please think about your daily activities during the past 4 weeks. You did less than you would have liked to due to mental or emotional problems: (206 Responses)

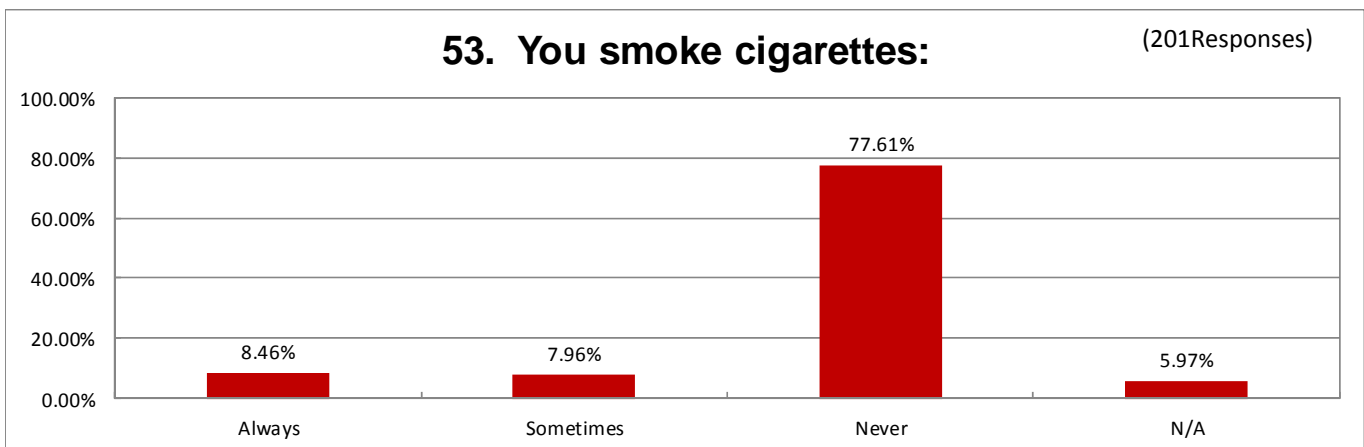
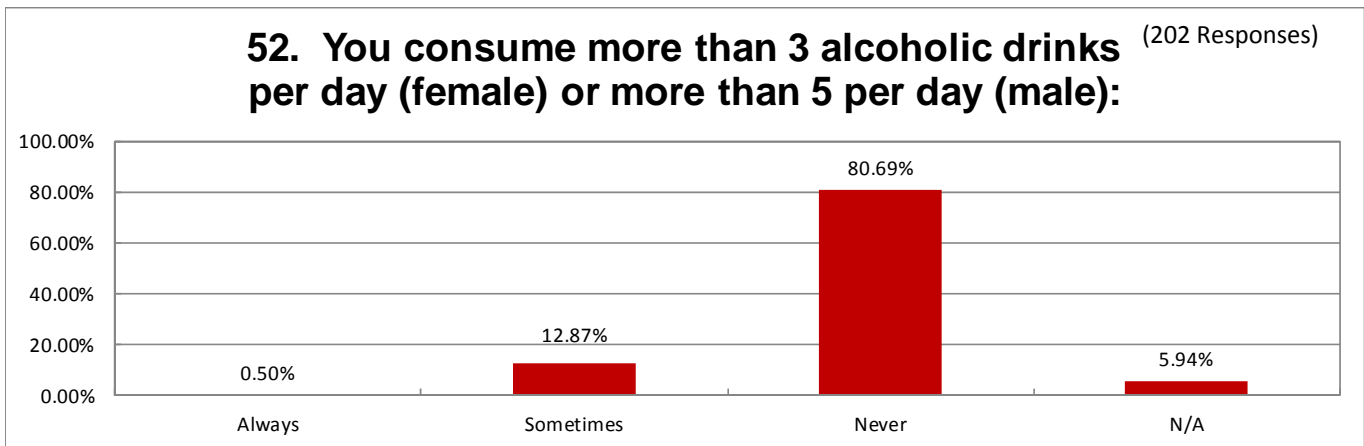
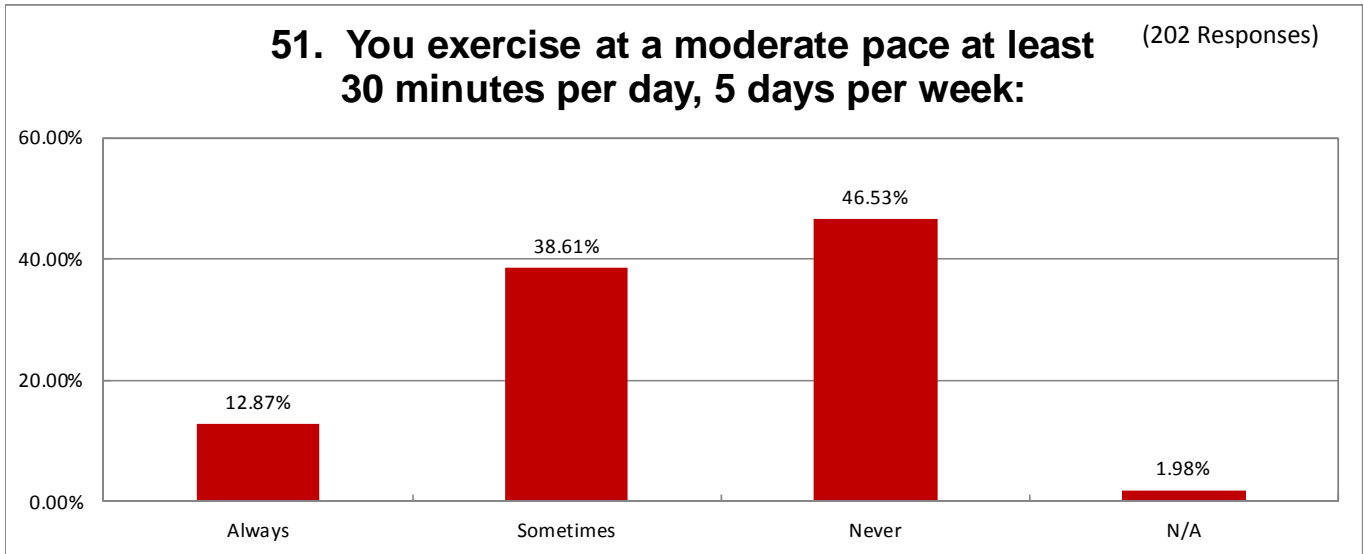


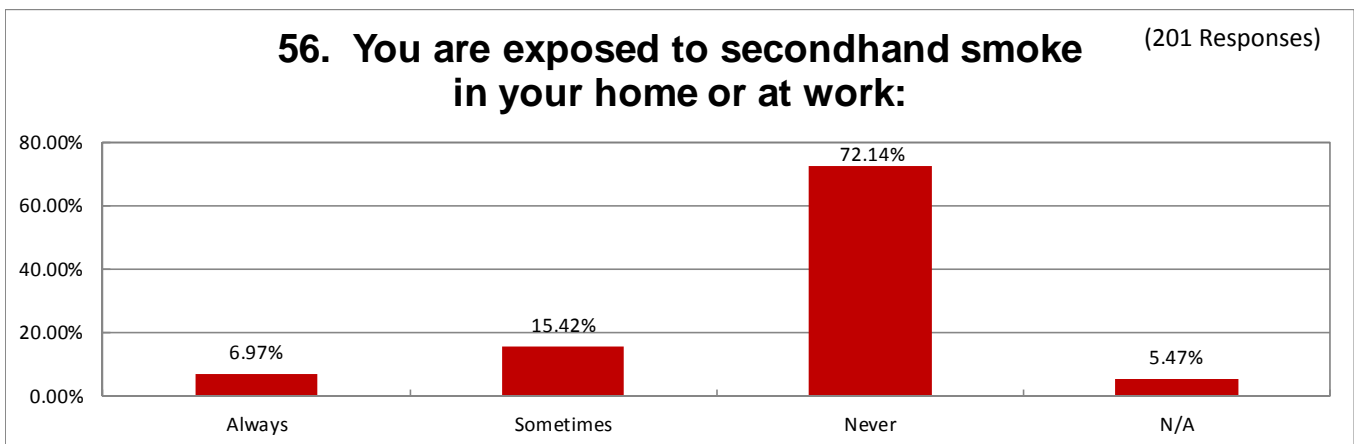
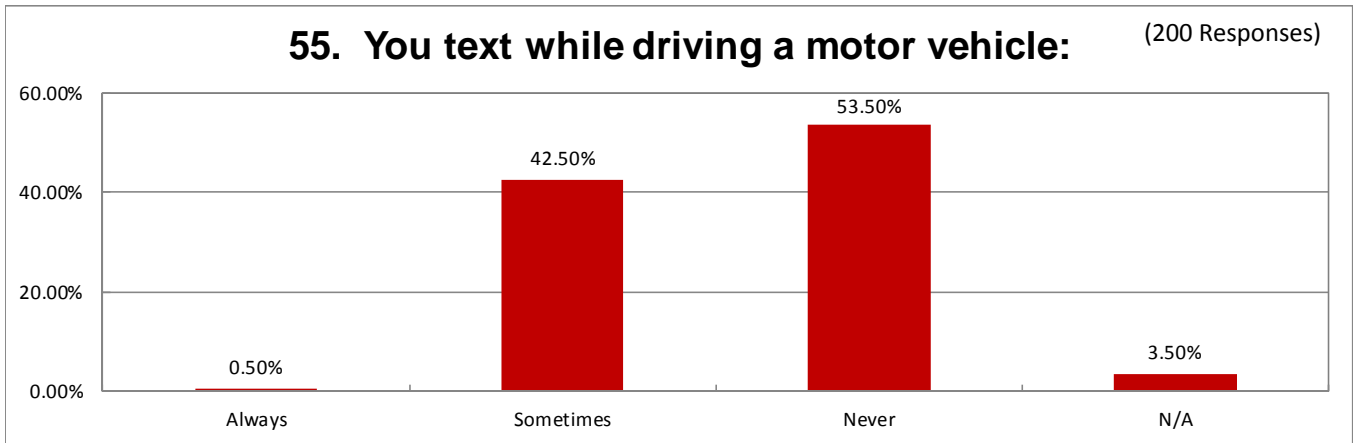
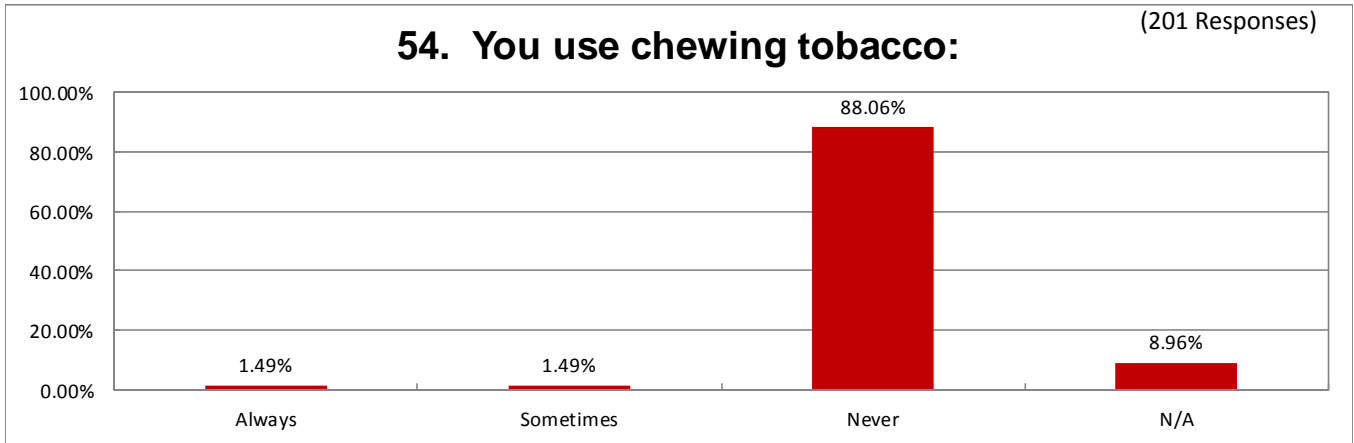


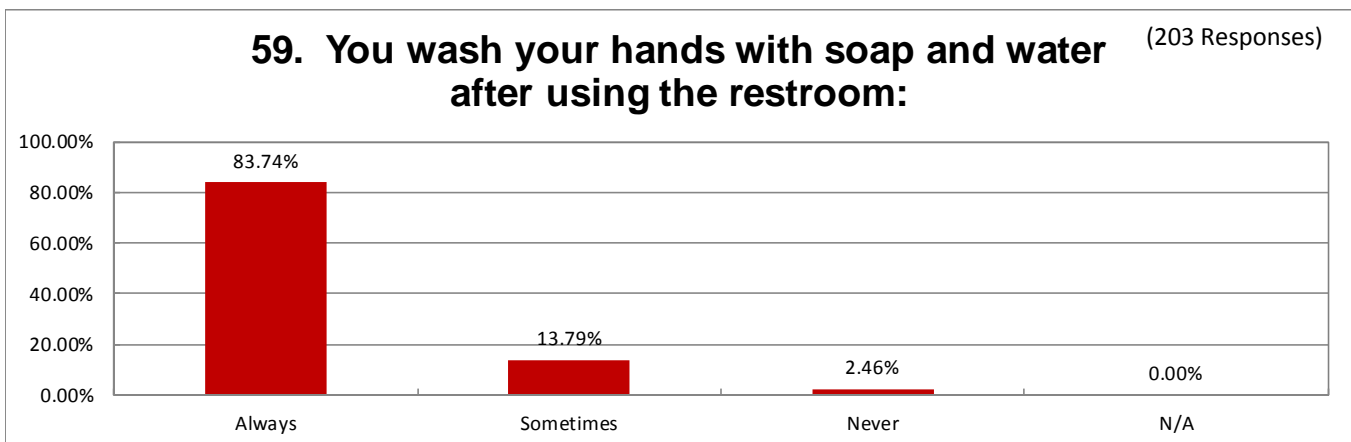
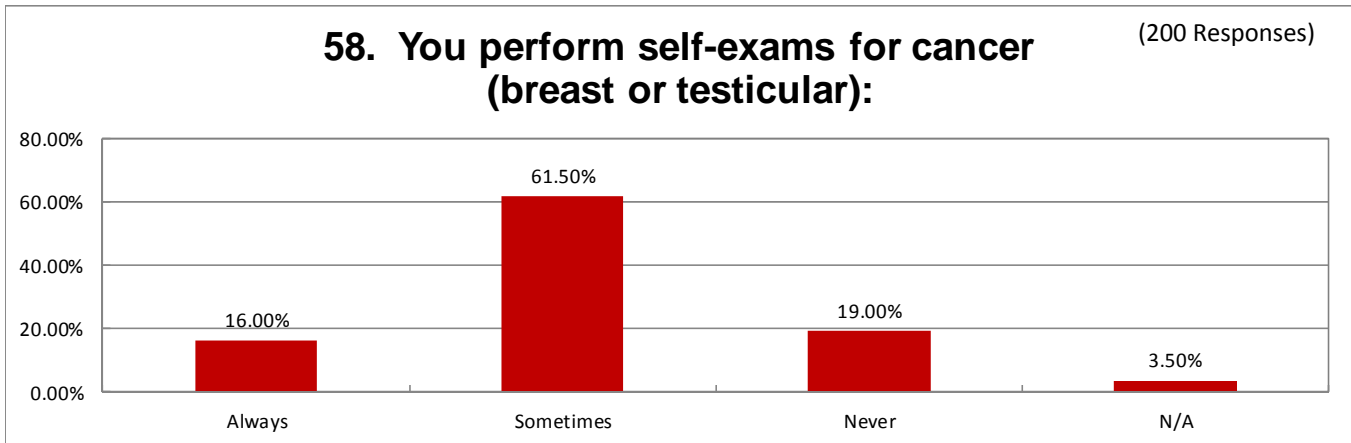
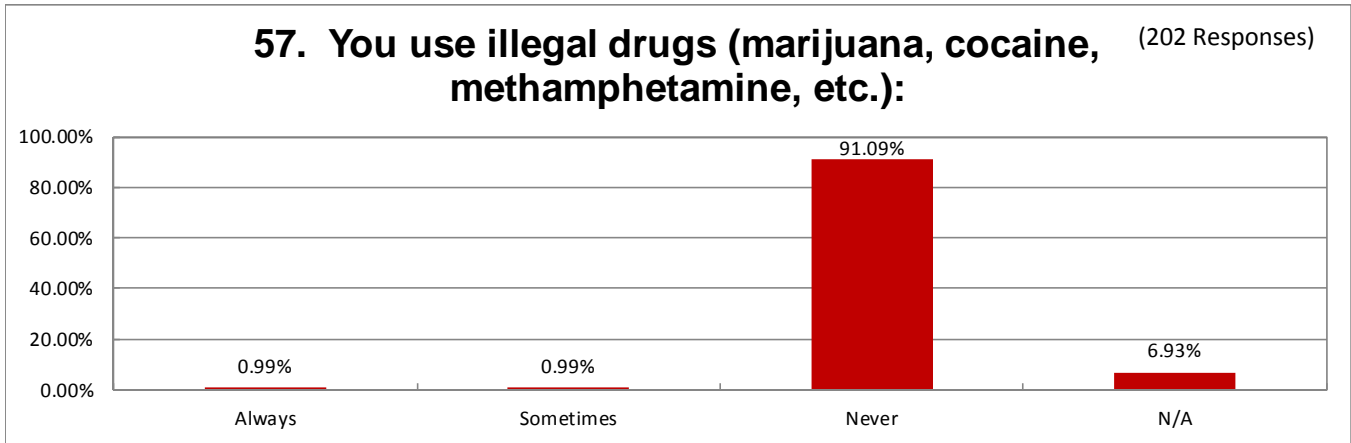


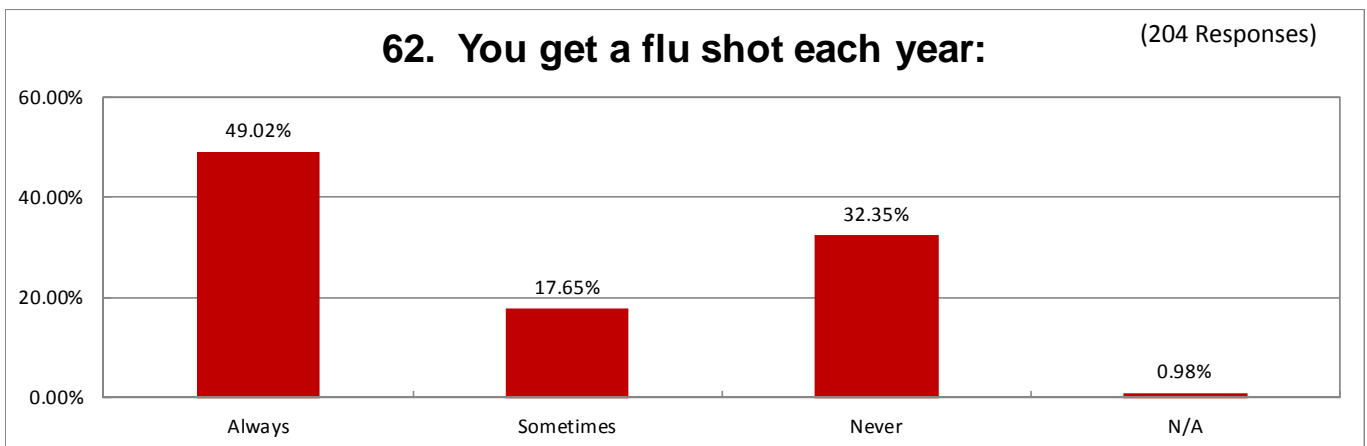
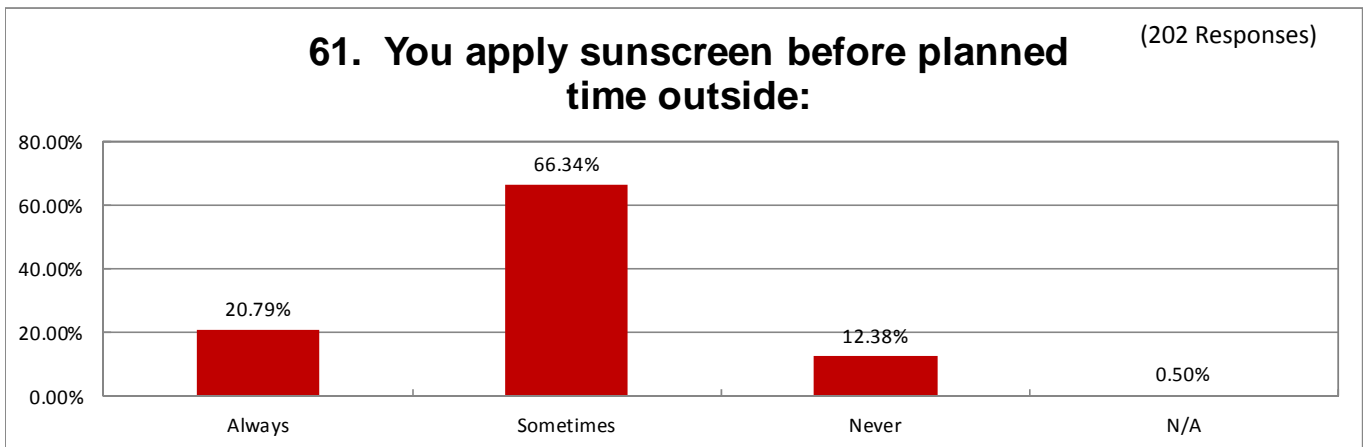
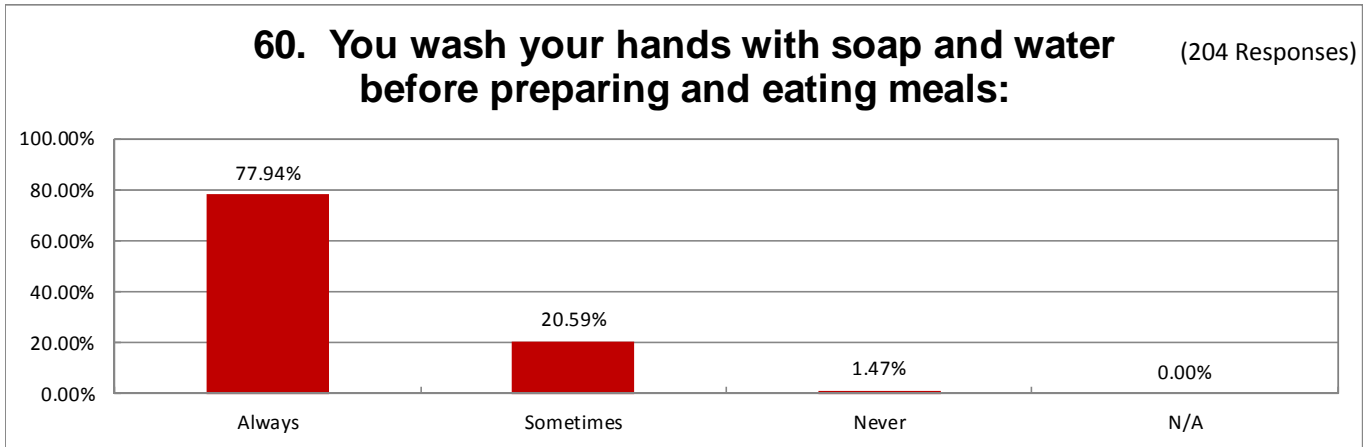


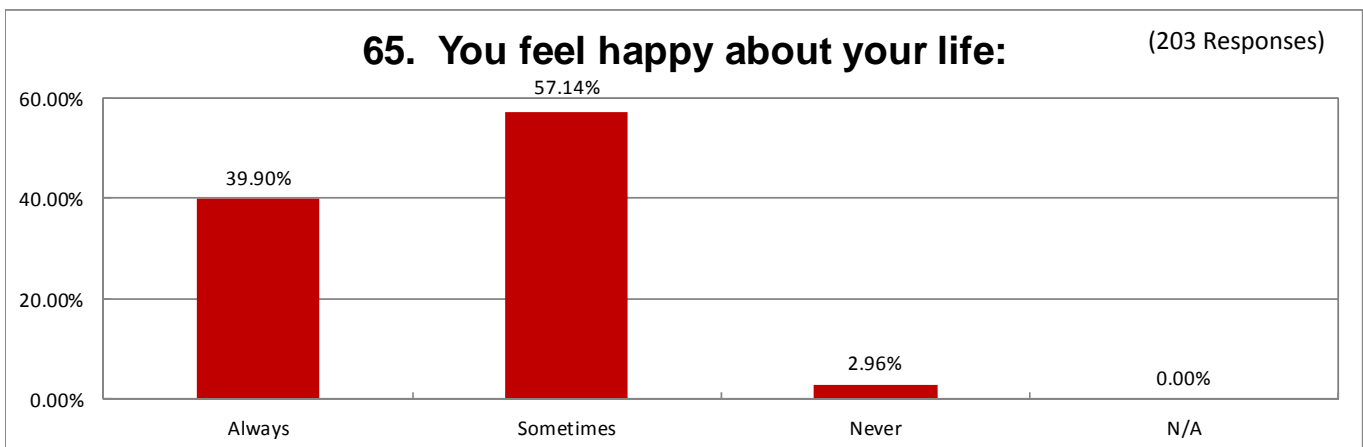
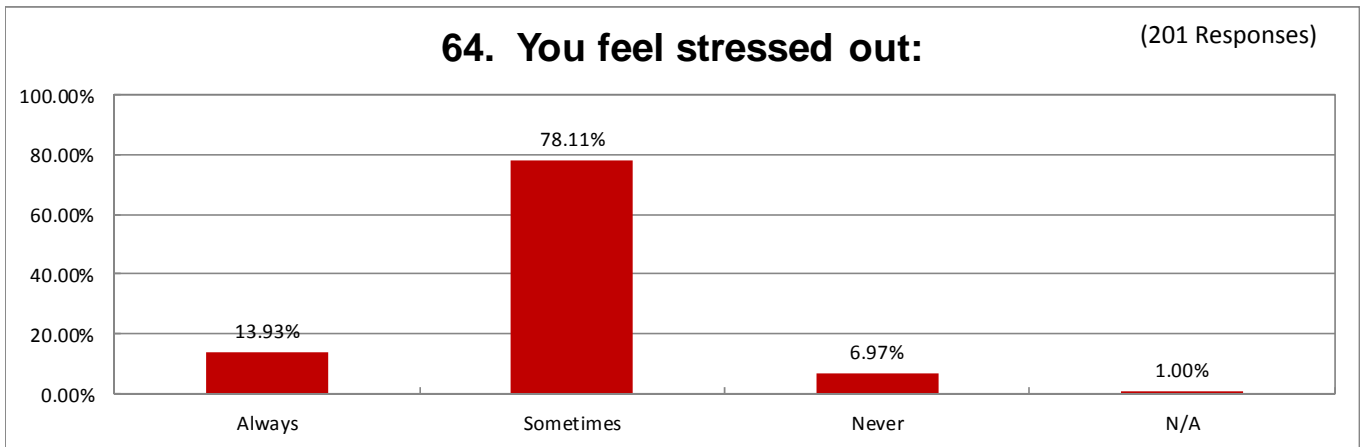
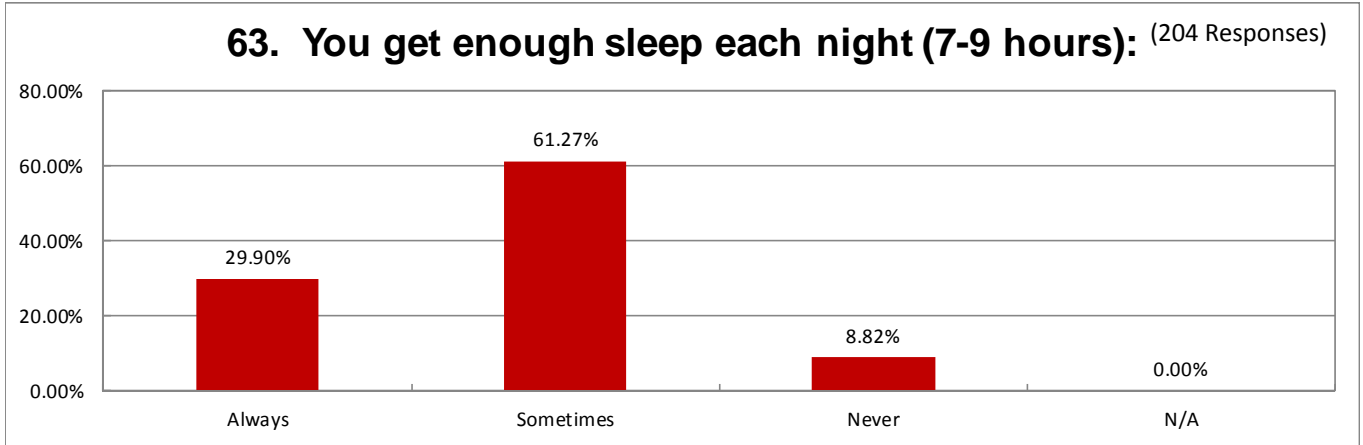


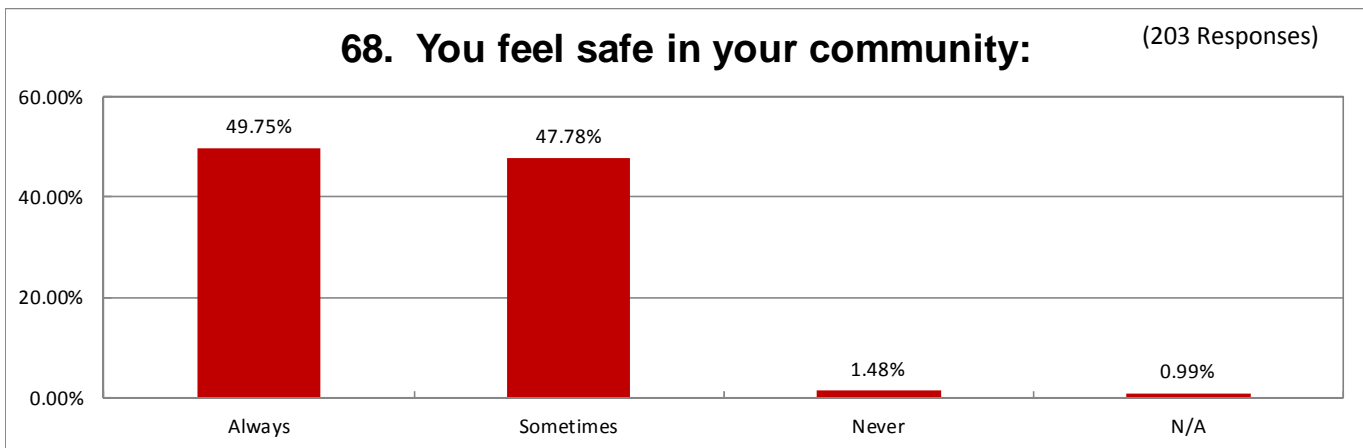
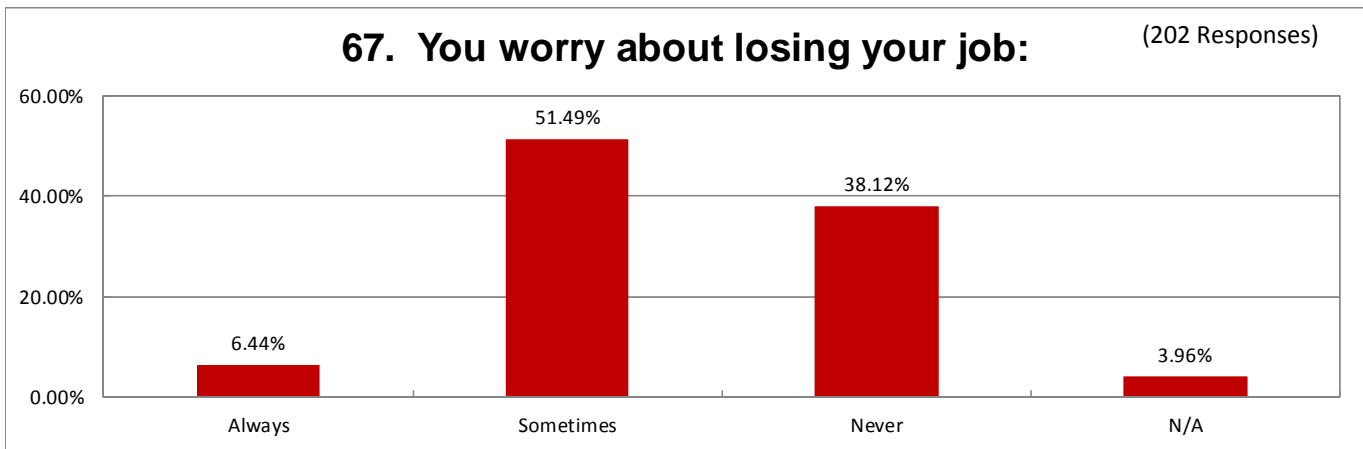
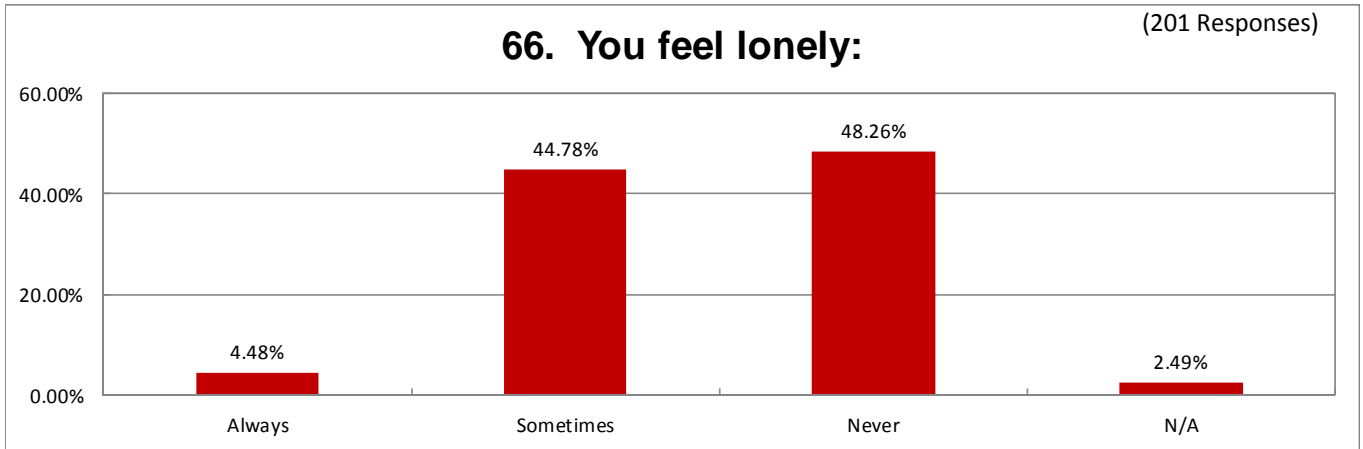


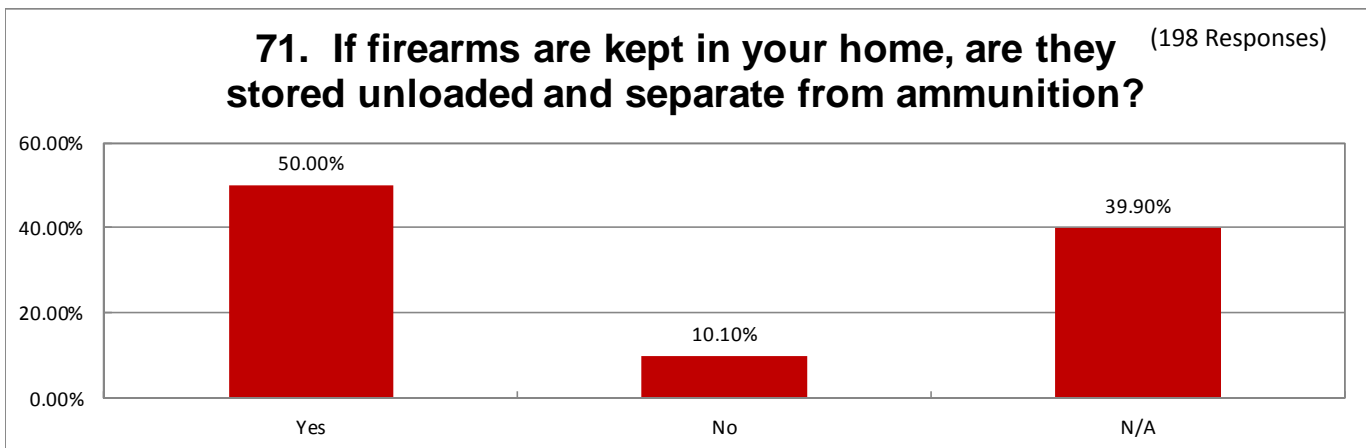
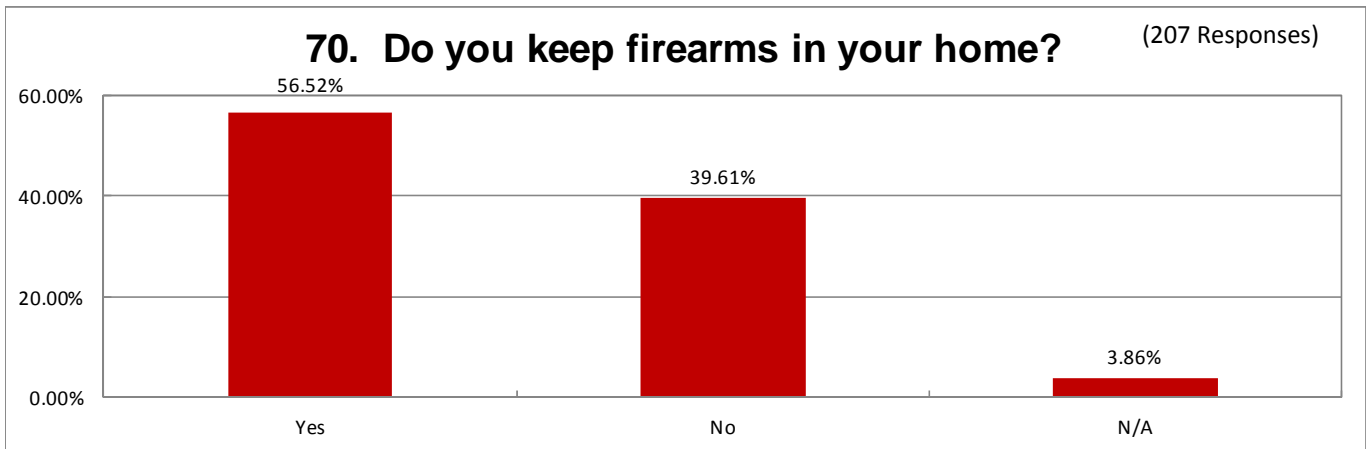
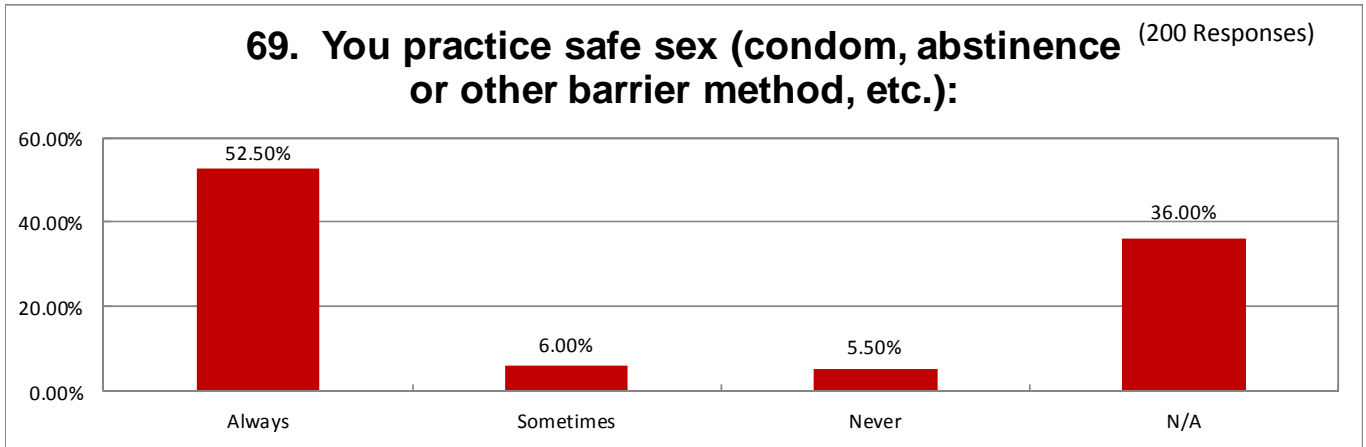


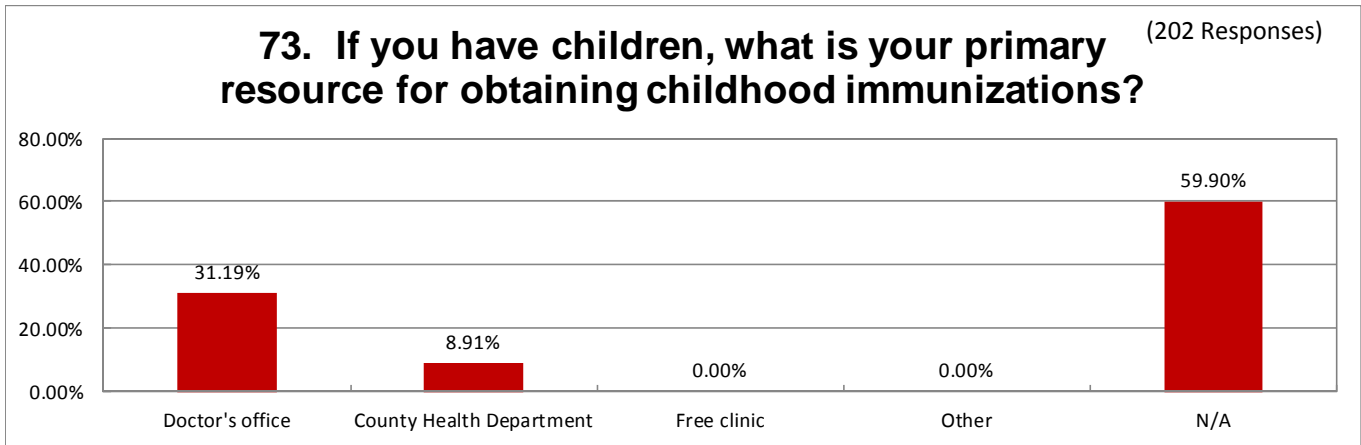
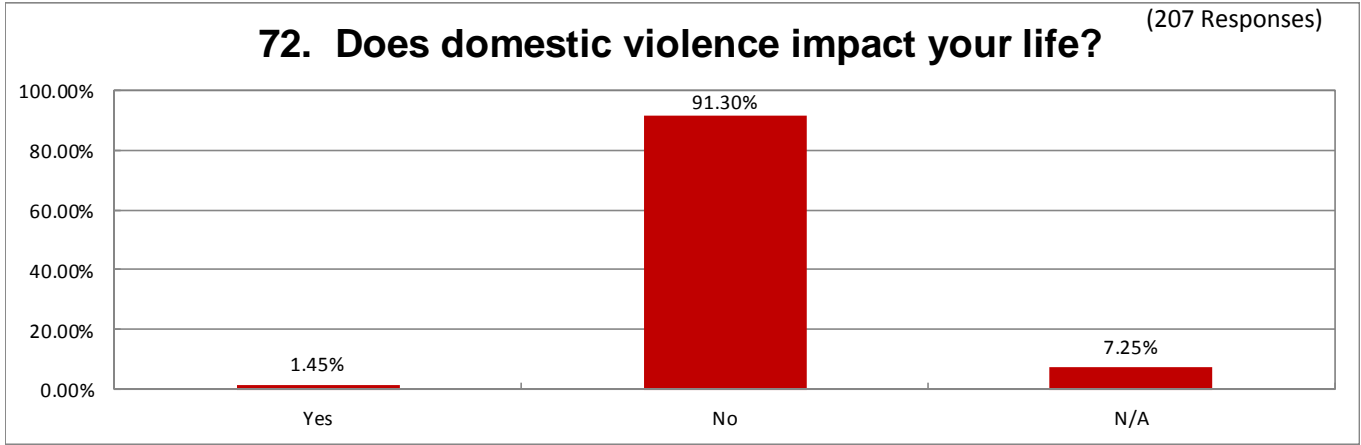












SOURCES

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