



Nebraska Rural Health Works Health Economic Profile for Knox County, Nebraska

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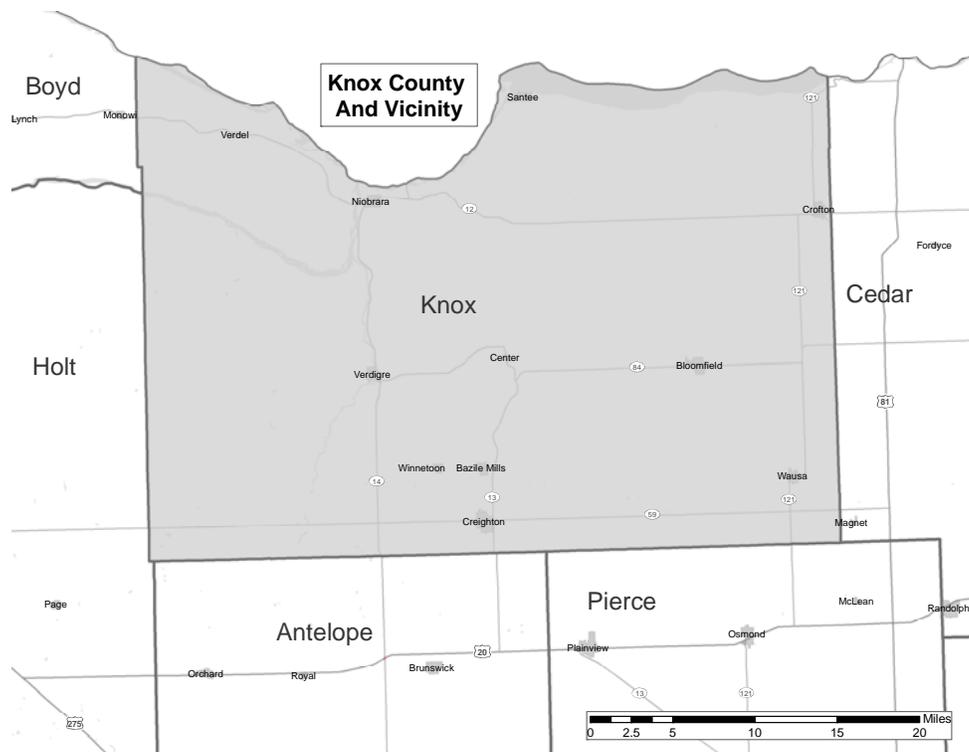
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Executive Summary on the Economic Impact of the Health Care Sector

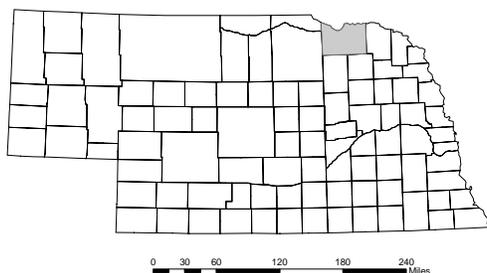
- ◆ One job created in the health care sector of Knox County would lead to the creation of another 0.26 job in other sectors of the county's economy.
- ◆ One dollar of income earned in the health care sector of Knox County would lead to another \$0.19 of income earned in other sectors of the county's economy.
- ◆ One dollar spent in the health care sector of Knox County would lead to another \$0.31 spent in other sectors of the county's economy.
- ◆ The overall job creation due to health care (directly and indirectly) in Knox County is estimated at 457 jobs, which accounts for 10.4% of the county's total employment.
- ◆ The overall income earned due to health care (directly and indirectly) in Knox County is estimated at \$11.7 million, which accounts for 10.9% of the county's total income.
- ◆ The overall spending due to health care (directly and indirectly) in Knox County is estimated at \$31.32 million, which accounts for 6.4% of the county's total economic output.

I. GEOGRAPHY

Knox County is located along the Northeast border of Nebraska. The county has a total of 1,108.12 square miles with a population density of 8.5 people per square mile (Nebraska: 22.3 per square mile). The county seat of Knox County is Center, Nebraska.



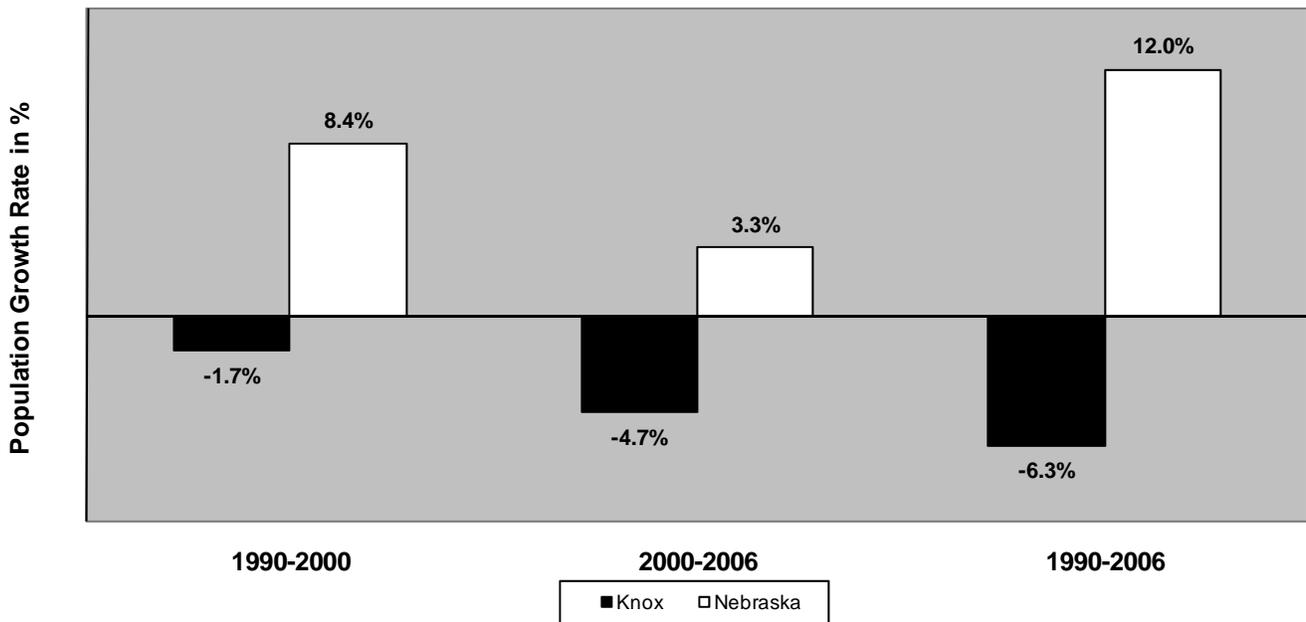
Knox County, Nebraska



II. POPULATION

The population for Knox County was 8,935 in 2006. The county experienced a negative population change of 6.3% (compared to +12.0% statewide) during 1990-2006 (Figure 1). The white population represented the majority of county's population in 2006 (91.6% vs. 91.8% statewide, Table 1). In addition, the county's population is older than the state's, with the elderly (aged 65+) representing 22.2% (compared to 13.9% statewide) of the population in 2006 (Table 2).

Figure 1. Population Growth Rate, Knox County and Nebraska, 1990-2006



Sources: U.S. Bureau of the Census. Census 1990 and Census 2000, Summary Tape File 1. <http://factfinder.census.gov>. 2006 population: 2006 Estimates 2011 project by Geolytics Inc.

Table 1. Population by Race for Knox County and Nebraska, 2000 and 2006

	Knox County 2000	Nebraska 2000	Knox County 2006	Nebraska 2006
White	91.6% (8,589)	89.6% (1,533,261)	91.6% (8,181)	91.8% (1,624,120)
Black	0.1% (8)	4.0% (68,541)	0.1% (10)	4.4% (77,379)
American Indian Eskimo and Aleut	7.1% (667)	0.9% (14,896)	7.6% (683)	1.0% (17,276)
Asian or Pacific Islander	0.2% (19)	1.3% (22,204)	0.6% (57)	1.7% (30,454)
Other Race	0.3% (32)	2.8% (47,845)	0.0% (2)	1.1% (20,321)
Hispanic*	0.9% (85)	5.5% (94,425)	1.5% (134)	7.5% (131,904)

* Hispanic individuals were allowed to identify race alone or in combination with one or more other races, therefore totals will be more than 100
 Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, Summary Tape File 1. <http://factfinder.census.gov>. 2006 population: 2006 Estimates 2011 project by Geolytics Inc.

Table 2. Population by Age for Knox County and Nebraska, 2000 and 2006

Age	Knox County 2000	Nebraska 2000	Knox County 2006	Nebraska 2006
0-4	5.7% (539)	6.8% (117,048)	5.7% (508)	7.1% (125,258)
5-24	25.3% (2,372)	29.7% (507,619)	26.6% (2,381)	28.0% (495,930)
25-64	45.8% (4,296)	49.9% (854,401)	45.6% (4,070)	51.1% (903,564)
65-84	19.4% (1,821)	11.6% (198,242)	17.8% (1,588)	11.5% (202,653)
85+	3.7% (346)	2.0% (33,953)	4.4% (390)	2.4% (42,308)
TOTAL	100.0% (9,374)	100.0% (1,711,263)	100.0% (8,935)	100.0% (1,768,331)

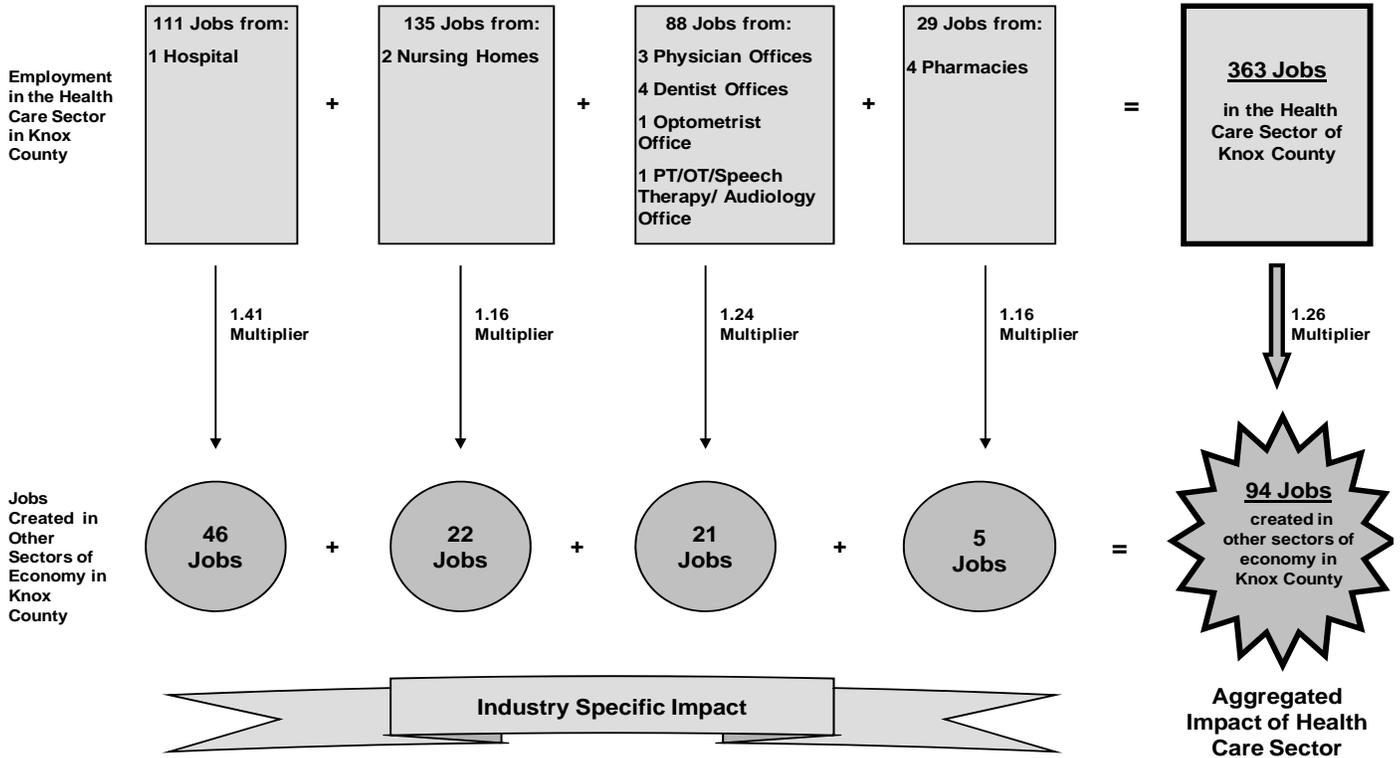
Source: U.S. Bureau of the Census, Census 2000, Summary Tape File 1. <http://factfinder.census.gov>. 2006 population: 2006 Estimates 2011 project by Geolytics Inc.

III. ECONOMIC IMPACT OF THE HEALTH CARE SECTOR

Retail trade is the largest employer within Knox County, followed by health care and social assistance, wholesale trade, finance and insurance, and accommodation and food services. The health care sector of Knox County includes one hospital, two nursing and residential care facilities, three physician offices, four dentist offices, one optometrist office, one office of physical/occupational/speech/audiology therapy, and four pharmacies.

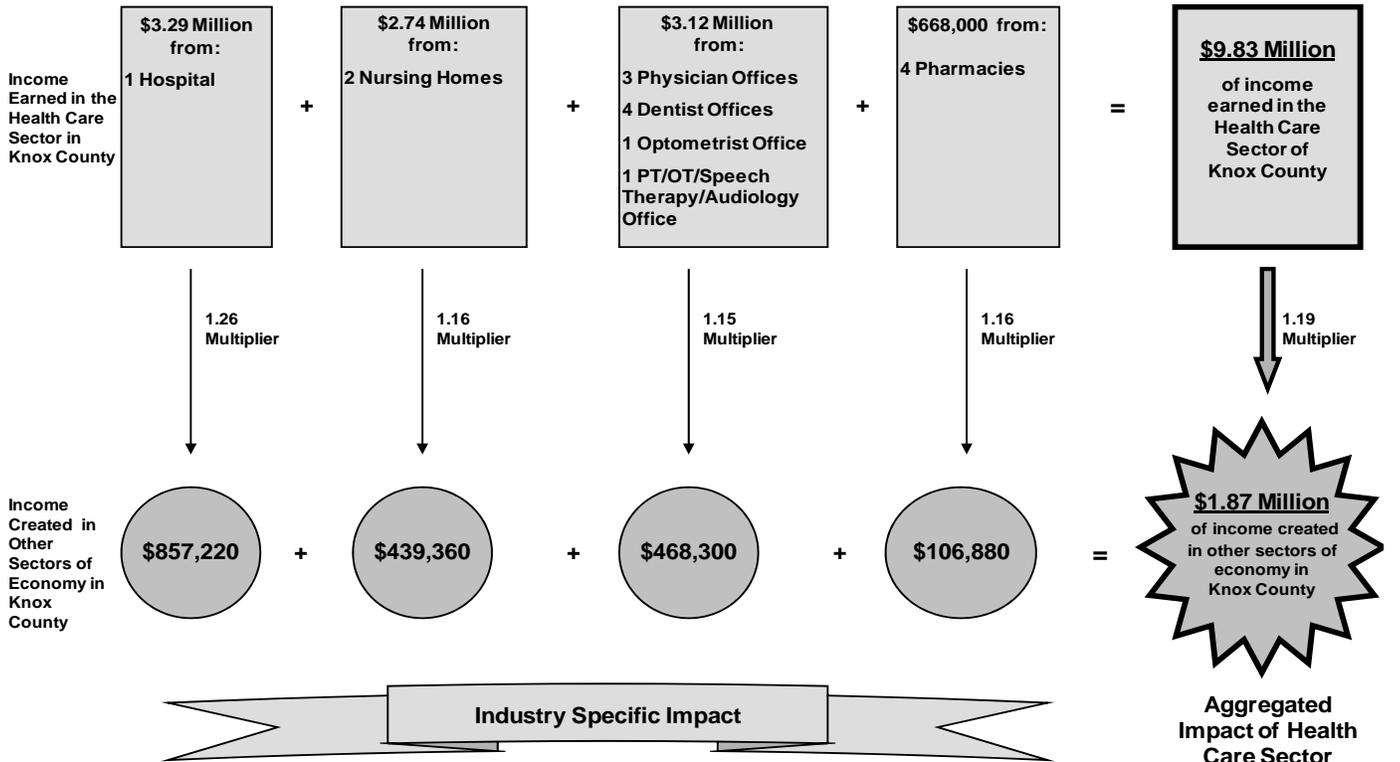
- ◆ The 363 jobs in the health care sector of Knox County created (through a 1.26 multiplier) another 94 jobs in other sectors of the county's economy (Figure 2). Therefore, the combined effect represents 10.4% of the county's total employment (i.e., 457 out of 4,408 jobs).
- ◆ The \$9.8 million of income earned in the health care sector of Knox County has created (through a 1.19 multiplier) another \$1.9 million of income in other sectors of the county's economy (Figure 3). Therefore, the combined effect represents 10.9% of the county's total income (i.e., \$11.7 million out of \$106.5 million).
- ◆ The \$23.8 million spent in the health care sector of Knox County created (through a 1.31 multiplier) another \$7.5 million of spending in other sectors of the county's economy (Figure 4). Therefore, the combined effect represents 6.4% of the county's total economic output (i.e., \$31.3 million out of \$492.1 million).

Figure 2. The Economic Impact of the Health Care Sector on Employment in Knox County, Nebraska



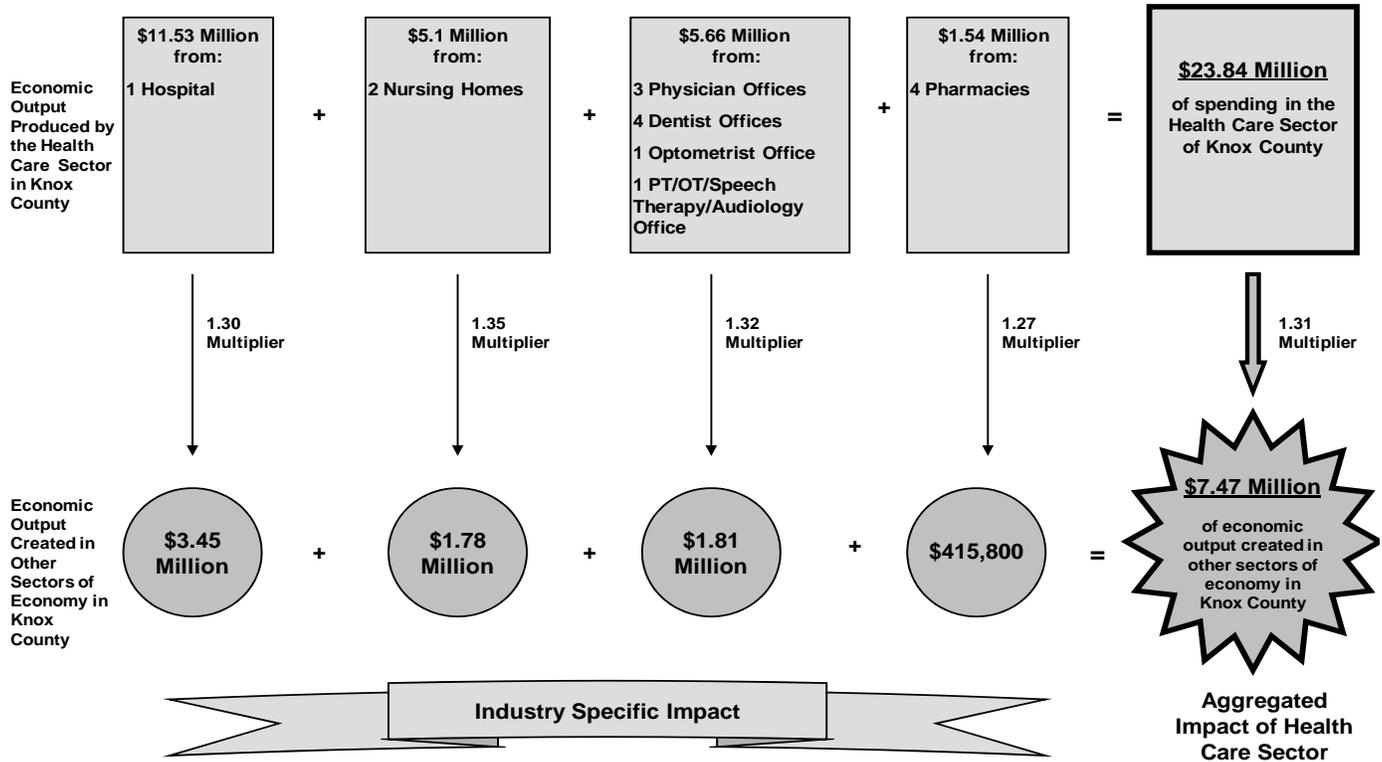
Sources: IMPLAN Data 20006 Minnesota IMPLAN Group, Inc. 2003. U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>.

Figure 3. The Economic Impact of the Health Care Sector on Income in Knox County, Nebraska



Sources: IMPLAN Data 20006 Minnesota IMPLAN Group, Inc. 2003. U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>.

Figure 4. The Impact of the Health Care Sector on Economic Output in Knox County, Nebraska

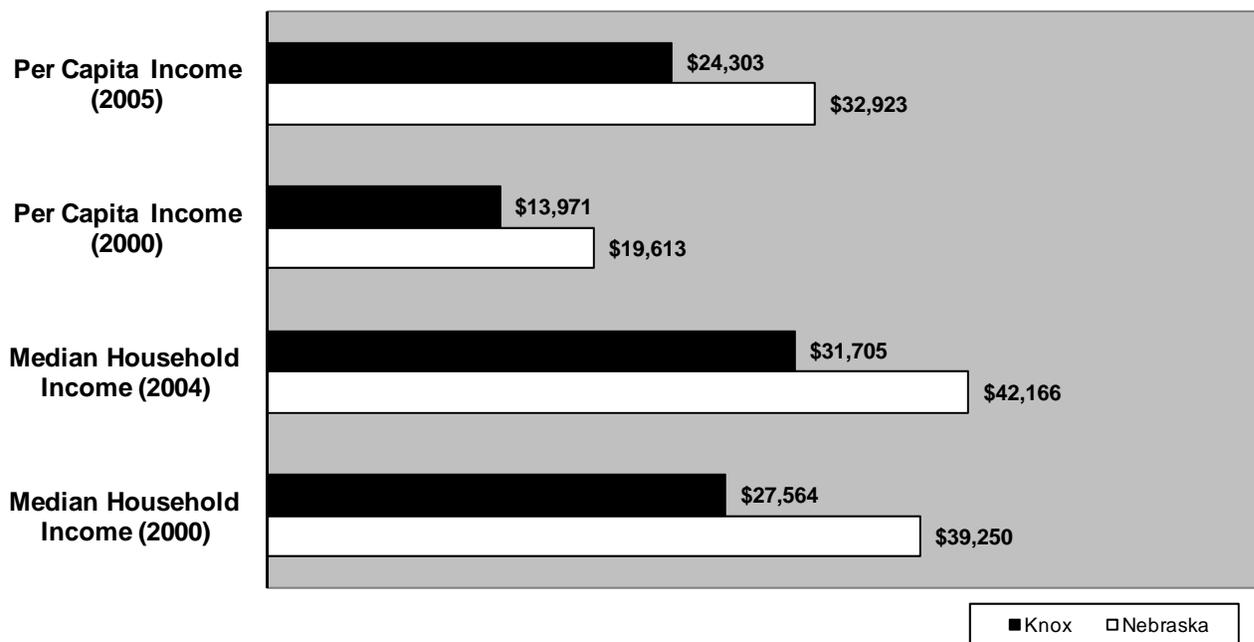


Sources: IMPLAN Data 20006 Minnesota IMPLAN Group, Inc. 2003. U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>.

IV. SOCIO-ECONOMIC INDICATORS

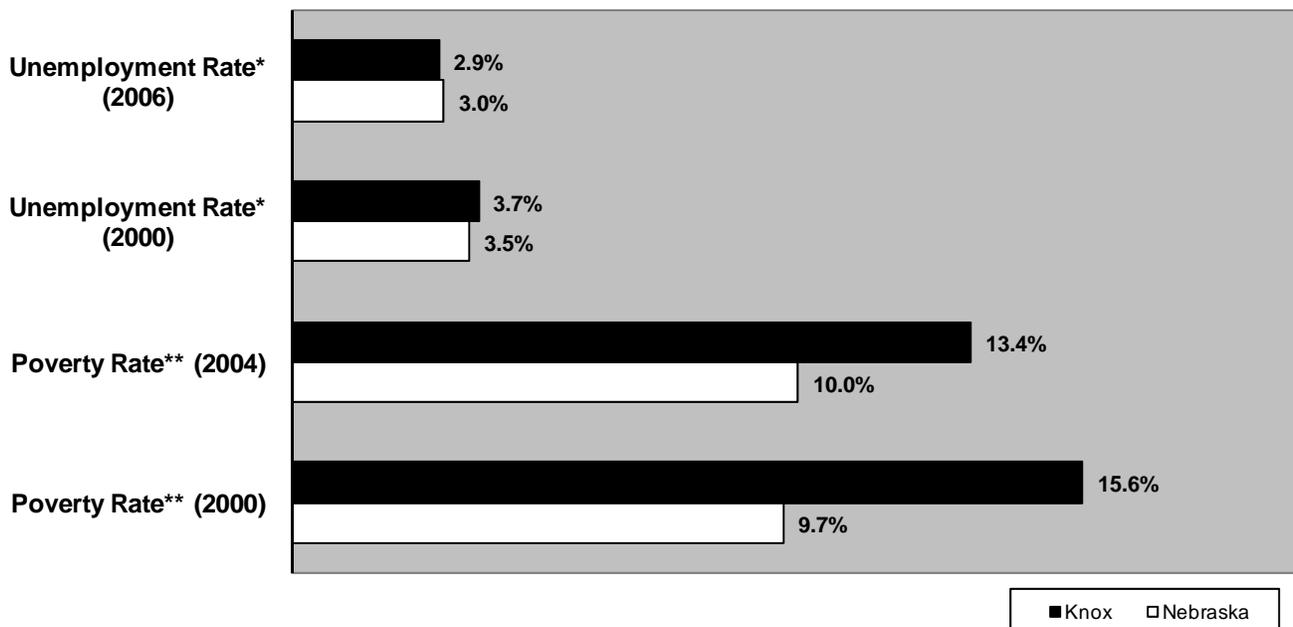
The median household income of the county increased since 2000 by 13.1% to \$31,705 in 2004 (compared to \$42,166 statewide), and the per capita income of the county increased since 2000 by 73.9%, to \$24,303 in 2005 (compared to \$32,923 statewide) (Figure 5). Knox County experienced a slightly lower unemployment rate than the state in 2006 (2.9% vs. 3.0% statewide) and a higher poverty rate than the state in 2004 (13.4% vs. 10.0% statewide) (Figure 6). The county outperformed the state in two of the four social indicators shown in Table 3, with a lower percentage of 7-12th graders who dropped out of school and a lower crime arrest rate per 1,000.

Figure 5. Income for Knox County and Nebraska, 2000, 2004 and 2005



Sources: U.S. Census Bureau, Census 1999, 2004, and 2005, Summary File 3. <http://factfinder.census.gov>. Per capita income: U.S. Department of Commerce Bureau of Economic Analysis. <http://www.bea.gov/bea/regional/reis/drill.cfm>.

Figure 6. Economic Indicators for Knox County and Nebraska, 2000, 2004, and 2006



* Percent of residents aged 16 and older in the labor force that are unemployed.

** Percent of total population living below 100% of the Federal poverty threshold.

Sources: U.S. Census Bureau, Census 2000, 2004, and 2006, Summary File 3. <http://factfinder.census.gov>; U.S. Department of Labor, <ftp://ftp.bls.gov/pub/special.requests/la/laucnty06.txt>.

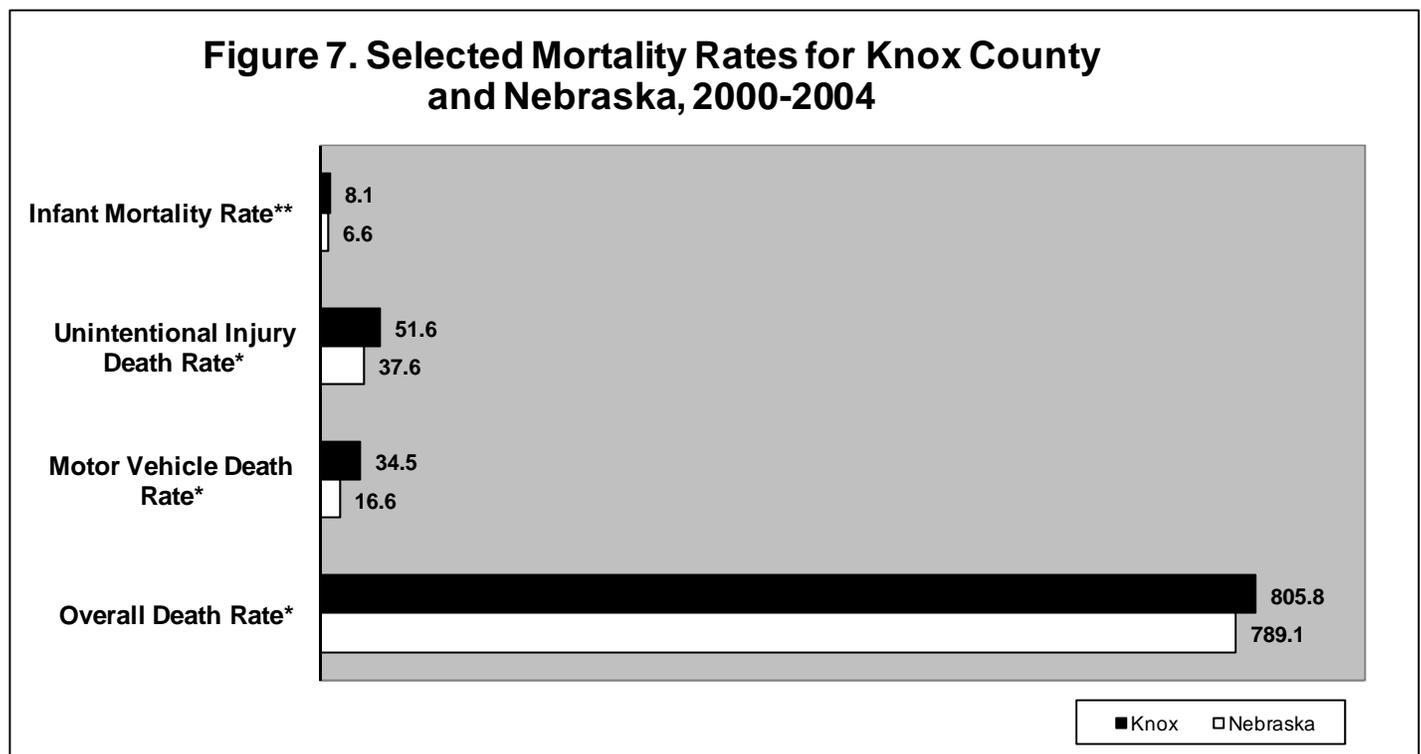
Table 3. Selected Social Indicators for Knox County and Nebraska

	Knox County	Nebraska
Percent of residents aged 25 and older who did not graduate from high school (2000)	18.0%	13.4%
Percent of 7-12th graders who dropped out of school (2003-2004)	1.3%	1.9%
Percent of first births born to unmarried women, younger than 20, with less than a high school education (2000-2004)	9.9%	9.0%
Crime arrest rate per 1,000 population (2004)	15.3	54.2

Sources: U.S. Census Bureau, Census 2000. <http://factfinder.census.gov>; Nebraska Health and Human Services County Profiles. <http://www.hhs.state.ne.us/profiles/index.htm#County>.

V. HEALTH STATUS INDICATORS

Knox County underperformed the state between 2000 and 2004 in the four selected mortality rate indicators, as shown in Figure 7. Knox County out-performed the state in two of the four selected maternal and child health indicators with a lower low-weight birth rate and a lower percentage of births to adolescents aged 10-17 (Figure 8). Among the top 5 leading causes of death of Knox County residents, the county had a higher rate of death due to heart disease, cerebrovascular disease, and unintentional injuries than the state (Figure 9). Among the top 5 leading causes of hospitalization of Knox County residents between 2003 and 2004, the county had a low hospitalization rate than the state for all causes listed (Figure 10).

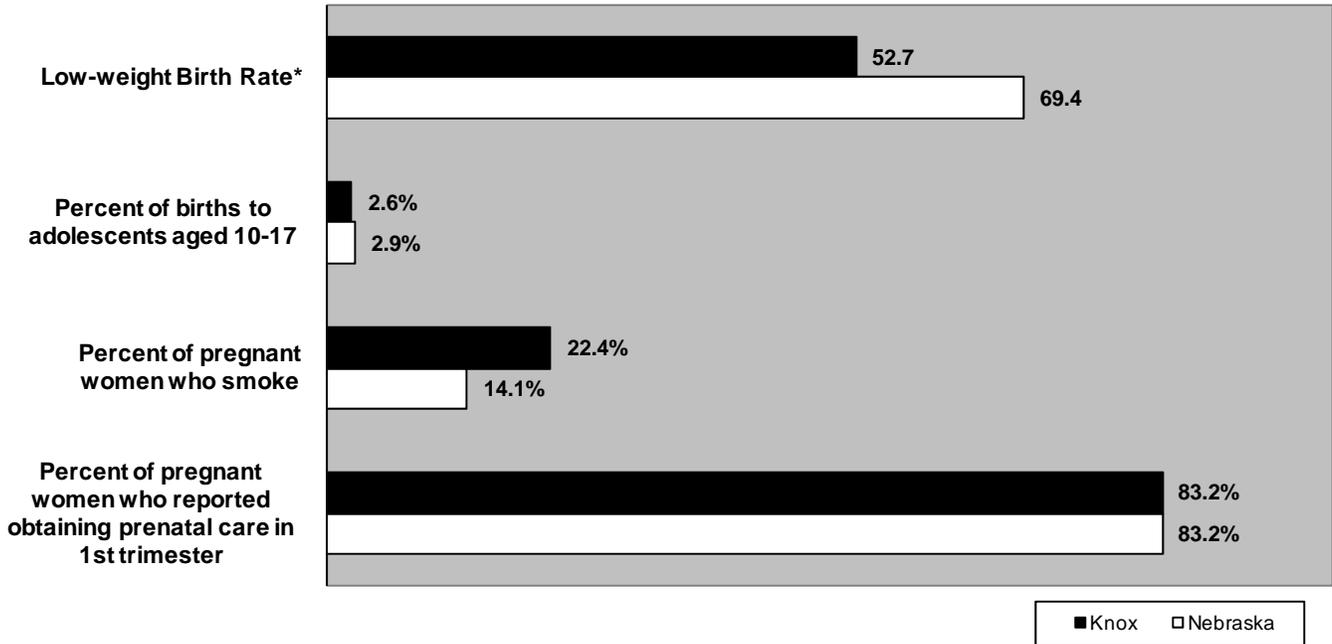


*Number of deaths per 100,000 populations (age-adjusted).

**Number of deaths per 1,000 live births.

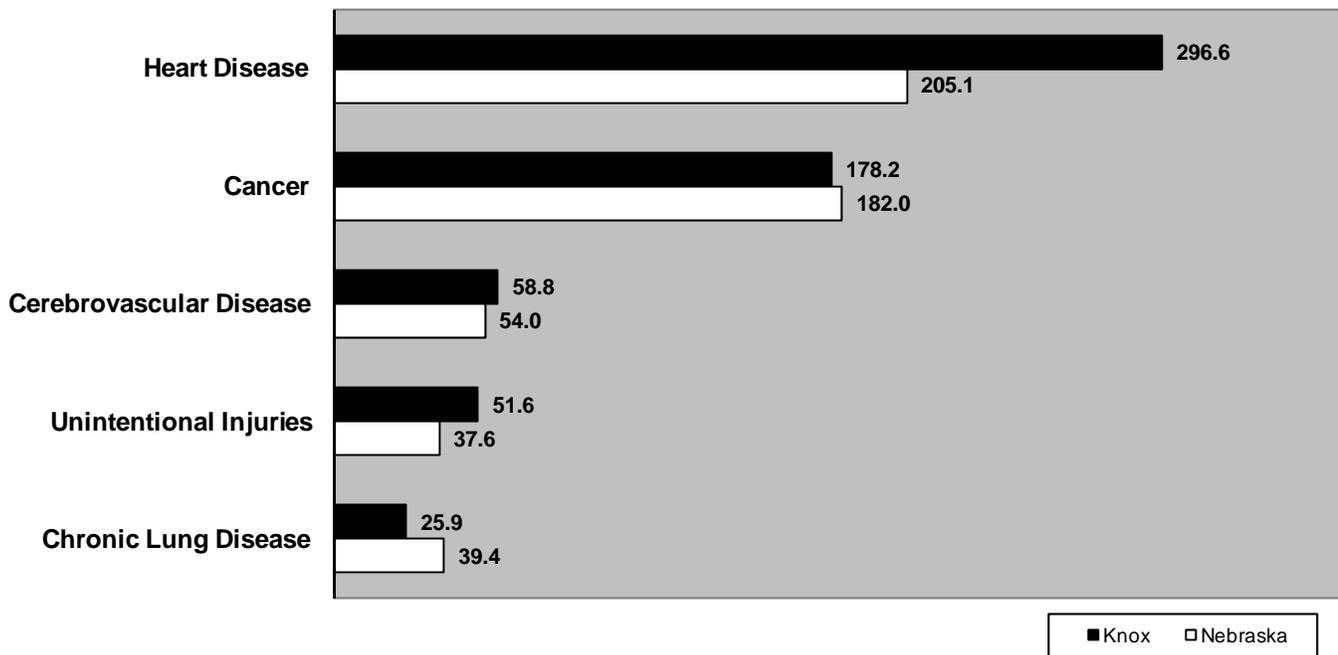
Source: Nebraska Health and Human Services County Profiles. <http://www.hhs.state.ne.us/profiles/index.htm#County>.

Figure 8. Selected Maternal and Child Health Indicators, Knox County and Nebraska, 2000-2004



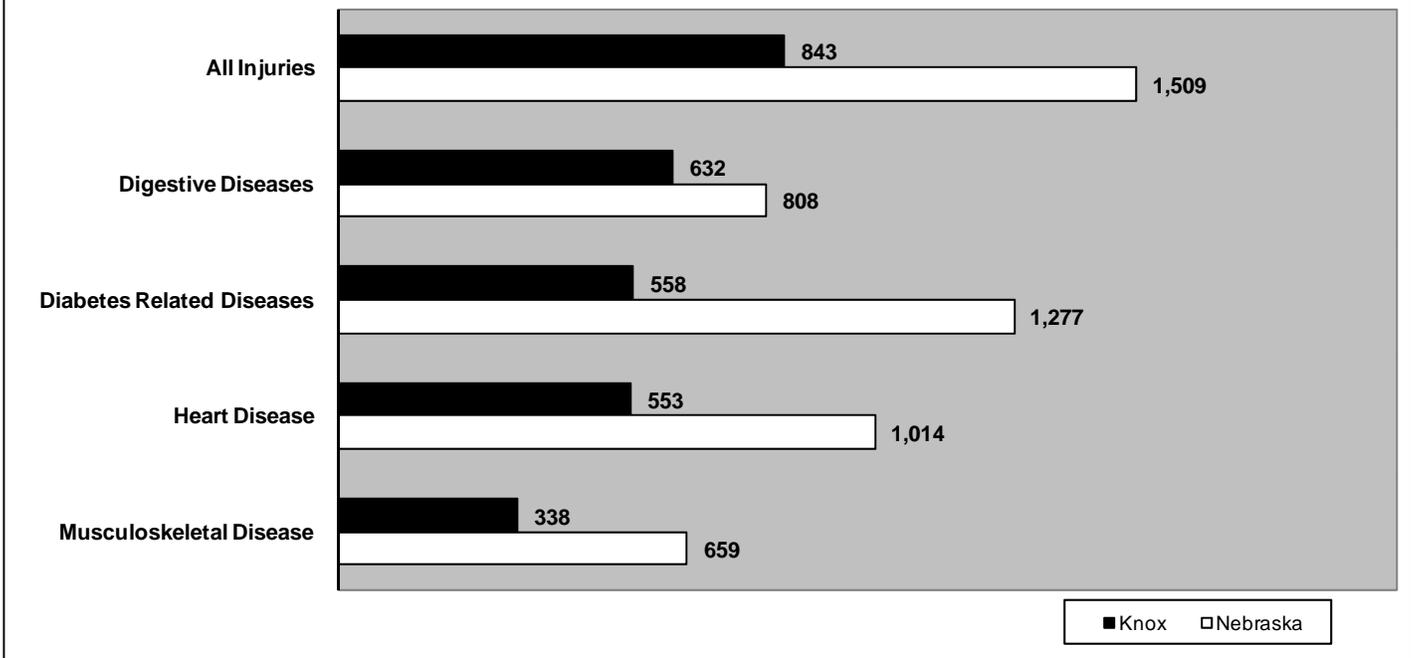
* Number of babies born weighing less than 2500 grams (per 1,000 births).
 Source: Nebraska Health and Human Services County Profiles. <http://www.hhs.state.ne.us/profiles/index.htm#County>.

Figure 9. Top 5 Leading Causes of Death for Knox County and the Corresponding Mortality Rates* for the County and Nebraska, 2000-2004



*Number of deaths per 100,000 population (age adjusted).
 Source: Nebraska Health and Human Services County Profiles. <http://www.hhs.state.ne.us/profiles/index.htm#County>.

Figure 10. Top 5 Leading Causes of Hospitalization* for Knox County and the Corresponding Hospitalization Rates for the County and Nebraska, 2003-2004**



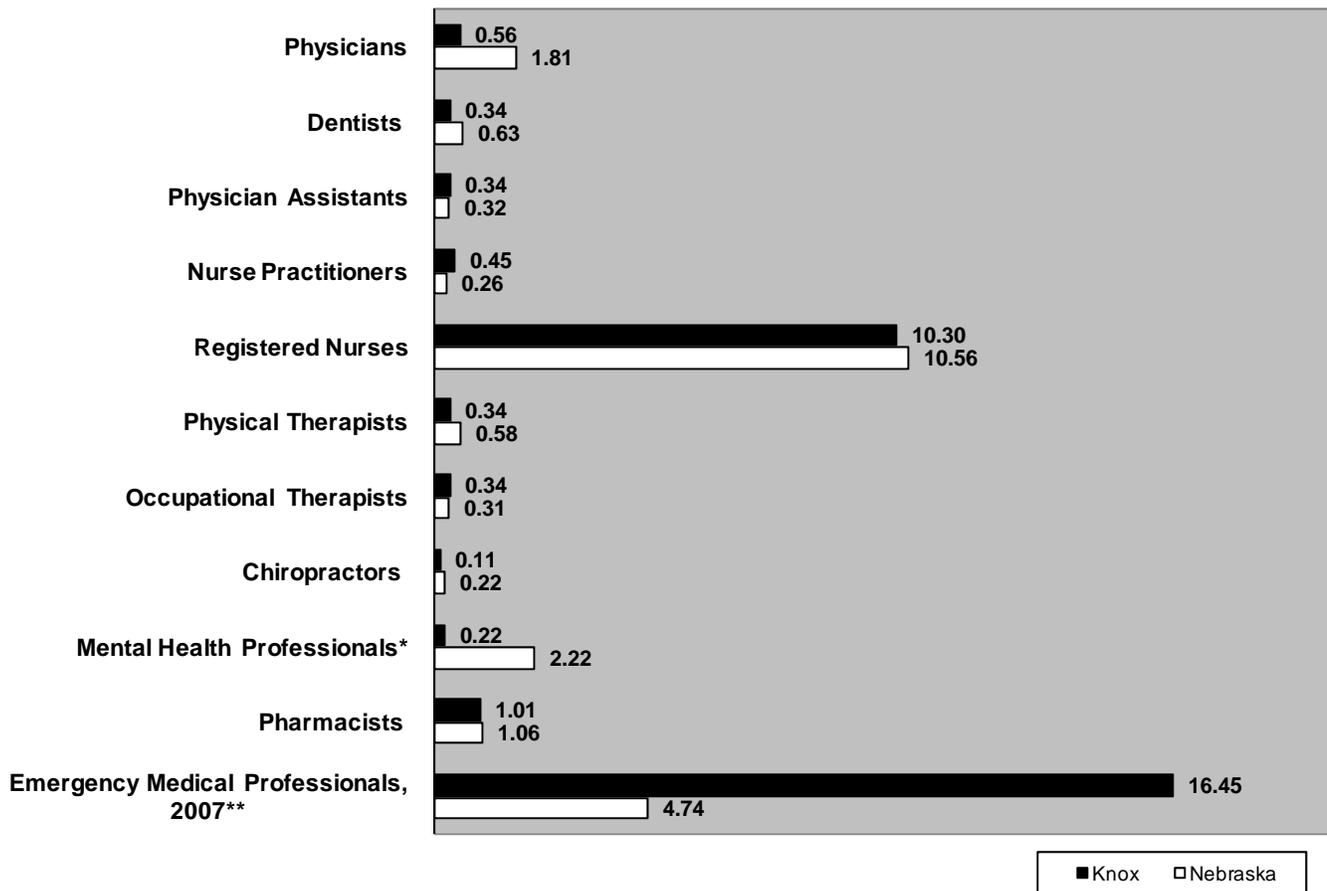
*Hospitalizations for pregnancy and childbirth were excluded from this analysis.

**Defined as the proportion of inpatient hospital discharges to a population within clearly specified geographic boundaries, age adjusted per 100,000 population.
 Source: Nebraska Health and Human Services County Profiles. <http://www.hhs.state.ne.us/profiles/index.htm#County>.

VI. HEALTH CARE PROFESSIONALS

Knox County is federally designated as a mental health professional shortage area and a medically underserved area. The state government has designated Knox County as a health professional shortage area in the specialties of family practice, general surgery, internal medicine, pediatrics, OB/GYN, dental/oral surgery, pharmacy, occupational therapy, and mental health. Knox County has a lower professional-to-population than the state for physicians, dentists, registered nurses, physical therapists, chiropractors, mental health professionals, and pharmacists and a higher professional-to-population ratio than the state for EMS professions, occupational therapists, nurse practitioners, and physician assistants shown in Figure 11.

Figure 11. Number of Practicing Health Professionals Per 1,000 Population, Knox County and Nebraska, 2005



*Mental Health Professionals include Psychiatrists, Licensed Psychologists, Master Social Workers, Certified Professional Counselors, Licensed Mental Health Practitioners, and Marriage and Family Therapists.

** Emergency Medical Professionals include Emergency Medical Technician (EMT) Paramedic, EMT-Intermediate, EMT-Basic, and First Responders.

Source: *The Nebraska Health Information Project: 2006 Databook*. (2007) Nebraska Center for Rural Health Research, University of Nebraska Medical Center

VII. HOSPITAL AND LONG-TERM CARE BEDS

Table 4 shows that Knox County has a lower hospital bed-to-population ratio than the state, but a higher long term care bed-to-population ratio than the state. As a result, the need for hospital inpatient care (for the general public) may not be met within the county.

Table 4. Selected Health Care Facility Bed-to-Population Ratios for Knox County and Nebraska

	Knox County	Nebraska
Number of hospital beds per 1,000 population (2007)	2.57**	3.47*
Number of Long Term Care beds per 1,000 elderly population (65+) 2005	114.1*	73.9*

*Source: *The Nebraska Health Information Project: 2006 Databook*. (2007) Nebraska Center for Rural Health Research, University of Nebraska Medical Center.

**Source: Hospital Roster (11/9/2007), Nebraska Department of Health and Human Services.

Data Notes

Using IMPLAN software and IMPLAN data for Nebraska's five health-related economic subsectors, we predict changes in overall economic activity as a result of change in health care subsectors. The IMPLAN software is based on an economic input-output model. To improve the accuracy of the dataset in order to better estimate health sector impact, we also use information from the U.S. Census Bureau's *County Business Patterns 2006* and the *American Hospital Association Annual Survey Database: Fiscal Year 2006*. Analysis is only performed at the county level.

Acknowledgments

We would like to thank Dennis Berens, at the Nebraska Office of Rural Health, for his enthusiastic support of the Nebraska Rural Health Works Project. We would also like to thank Nicole Van Osdel at the Nebraska Center for Rural Health Research for making the maps.

About the Nebraska Rural Health Works Project

The Nebraska Rural Health Works Project is made possible with the financial support of the Nebraska Office of Rural Health and through additional personnel and resources provided by the College of Public Health at the University of Nebraska Medical Center. The brief reports are designed to inform opinion leaders (from general business, health care, and government) in rural communities about the contribution health care makes to the county economy, both directly and indirectly. We use IMPLAN software, which uses an economic input-output model, to predict changes in overall economic activity as a result of change in the health care sector. In addition to the analysis of the economic impact of the health sector on a specific county, other information, such as demographics, socio-economic and health status indicators, health care professionals and facility bed capacity, are reported for a county.

If you would like to view additional County Profiles for Nebraska, please visit our Nebraska Rural Health Works website: <http://www.unmc.edu/rural/NeRHW>.

If you would like additional information regarding Nebraska's health care financing, health professionals, health status and health care delivery systems, visit the Nebraska Health Information Project website: <http://www.unmc.edu/nebraska>.

County Health Economic Profiles can be prepared upon request. At this time, we only perform analysis at the county level. If you are interested in this project, you can request a profile by contacting the Project Director, Li-Wu Chen, Ph.D. (liwuchen@unmc.edu), or Michelle Lampman, M.A. (mlampman@unmc.edu) at the Nebraska Center for Rural Health Research, College of Public Health, University of Nebraska Medical Center, (402)559-5260.

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