



Nebraska  
Center  
For  
Rural  
Health  
Research

---

# Nebraska Rural Health Works Health Economic Profile for Boone County, Nebraska

---

Prepared by  
Li-Wu Chen, Ph.D., Project Director  
Michelle Mason, M.A., Health Data Analyst  
Liyan Xu, M.S., Health Data Analyst  
Daniel Hummel, B.A., Graduate Assistant

December 2008

## Executive Summary on the Economic Impact of the Health Care Sector

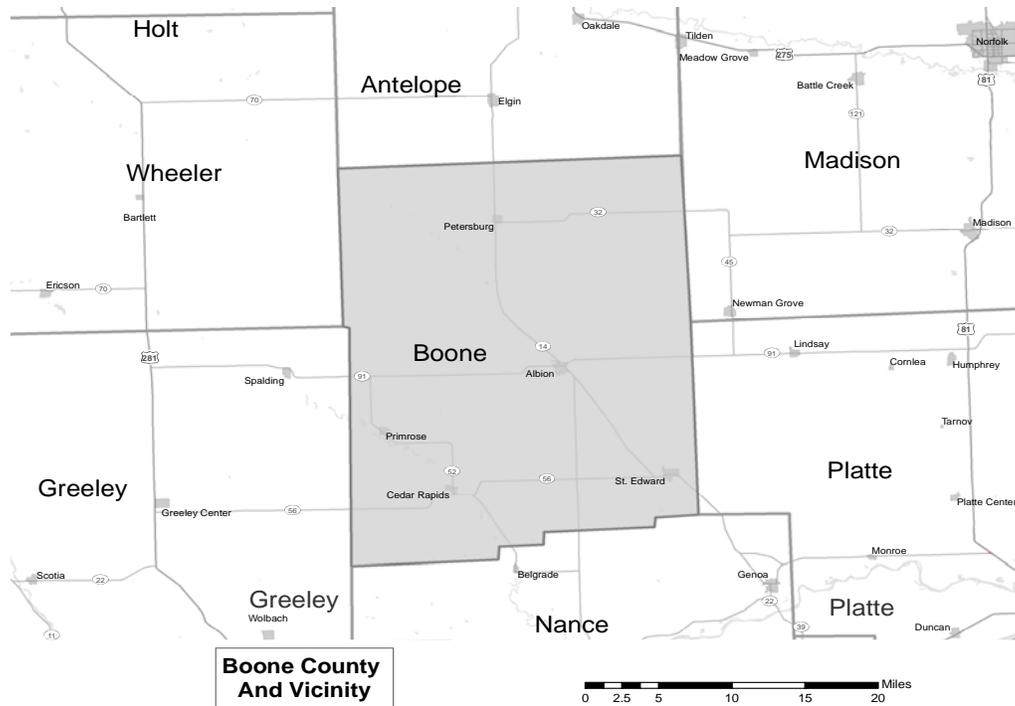
- ◆ One job created in the health care sector of Boone County would lead to the creation of another 0.27 job in other sectors of the county's economy.
- ◆ One dollar of income earned in the health care sector of Boone County would lead to another \$0.17 of income earned in other sectors of the county's economy.
- ◆ One dollar spent in the health care sector of Boone County would lead to another \$0.27 spent in other sectors of the county's economy.
- ◆ The overall job creation due to health care (directly and indirectly) in Boone County is estimated at 506 jobs, which accounts for 13.3% of the county's total employment.
- ◆ The overall income earned due to health care (directly and indirectly) in Boone County is estimated at \$14.34 million, which accounts for 14.7% of the county's total income.
- ◆ The overall spending due to health care (directly and indirectly) in Boone County is estimated at \$36.61 million, which accounts for 8.8% of the county's total economic output.

Report Number  
PR08-04

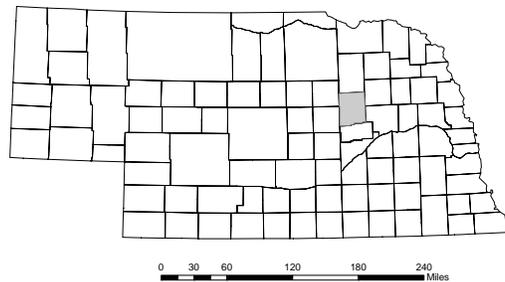
University of Nebraska Medical Center  
Nebraska Center for Rural Health Research  
in partnership with  
Nebraska Office of Rural Health  
and  
Nebraska Hospital Association

## I. GEOGRAPHY

Boone County is located in the East Central region of Nebraska. The county has a total of 686.7 square miles with a population density of 9.1 people per square mile (Nebraska: 22.3 per square mile). The county seat of Boone County is Albion, Nebraska.



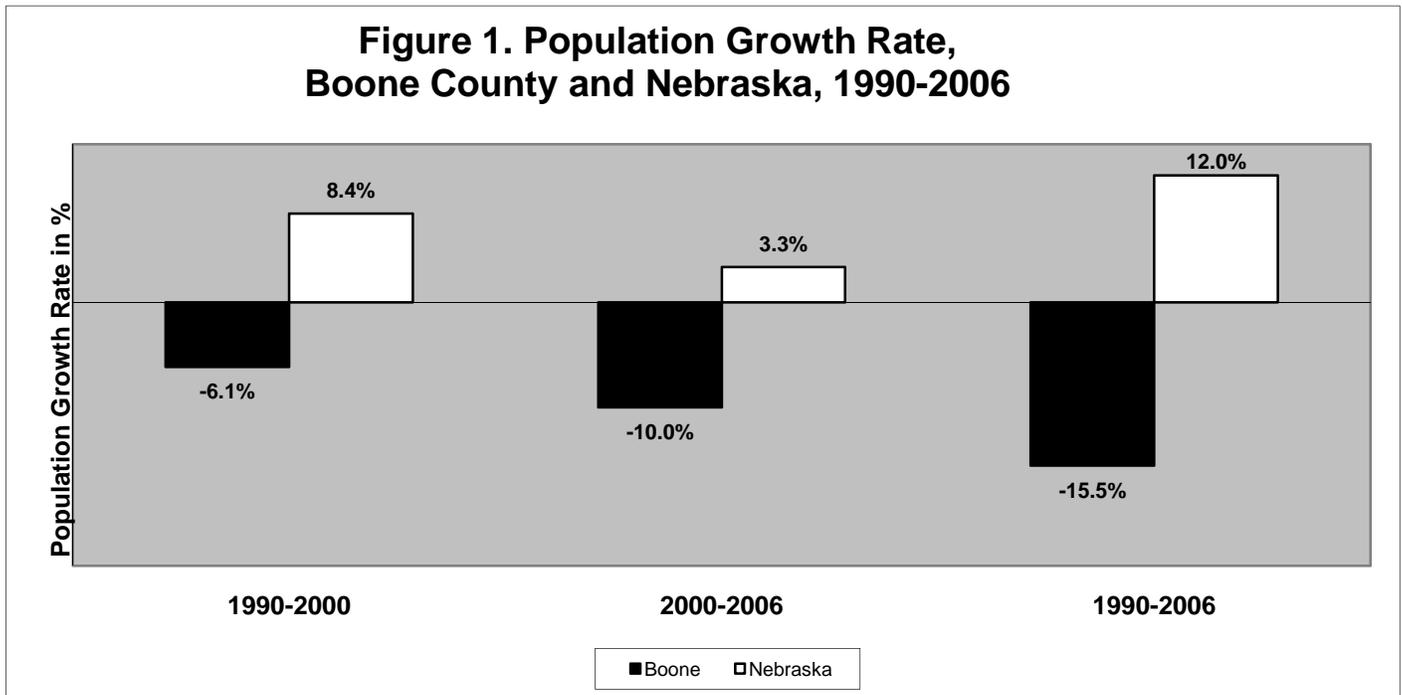
Boone County, Nebraska



## II. POPULATION

The population for Boone County was 5,668 in 2006. The county experienced a negative population change of -15.5% (compared to +12.0% statewide) during 1990-2006 (Figure 1). The county's minority population has decreased amongst some groups and slightly increased amongst others, particularly the Hispanic population. The white (non-Hispanic) people still represented the great majority of county population in 2006 (99.8% vs. 91.8% statewide, Table 1). In addition, the county's population is older than the state's, with the elderly (aged 65+) representing 20.1% (compared to 13.9% statewide) of the population in 2006 (Table 2).

**Figure 1. Population Growth Rate,  
Boone 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 Boone County and Nebraska, 2000 and 2006**

	Boone County 2000	Nebraska 2000	Boone County 2006	Nebraska 2006
<b>White</b>	99.2% (6,212)	89.6% (1,533,261)	99.8% (5,625)	91.8% (1,624,120)
<b>Black</b>	0.0% (3)	4.0% (68,541)	0.0% (2)	4.4% (77,379)
<b>American Indian Eskimo and Aleut</b>	0.0% (3)	0.9% (14,896)	0.0% (0)	1.0% (17,276)
<b>Asian or Pacific Islander</b>	0.1% (4)	1.3% (22,204)	0.0% (1)	1.7% (30,454)
<b>Other Race</b>	0.3% (19)	2.8% (47,845)	0.1% (7)	1.1% (20,321)
<b>Hispanic*</b>	0.9% (56)	5.5% (94,425)	1.1% (62)	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 Boone County and Nebraska, 2000 and 2006**

Age	Boone County 2000	Nebraska 2000	Boone County 2006	Nebraska 2006
<b>0-4</b>	5.9% (370)	6.8% (117,048)	5.1% (290)	7.1% (125,258)
<b>5-24</b>	28.2% (1,762)	29.7% (507,619)	28.8% (1,623)	28.0% (495,930)
<b>25-64</b>	45.6% (2,852)	49.9% (854,401)	46.0% (2,592)	51.1% (903,564)
<b>65-84</b>	17.1% (1,070)	11.6% (198,242)	15.9% (894)	11.5% (202,653)
<b>85+</b>	3.3% (205)	2.0% (33,953)	4.2% (234)	2.4% (42,308)
<b>TOTAL</b>	100.0% (6,259)	6.8% (1,711,263)	100.0% (5,635)	100.0% (1,768,331)

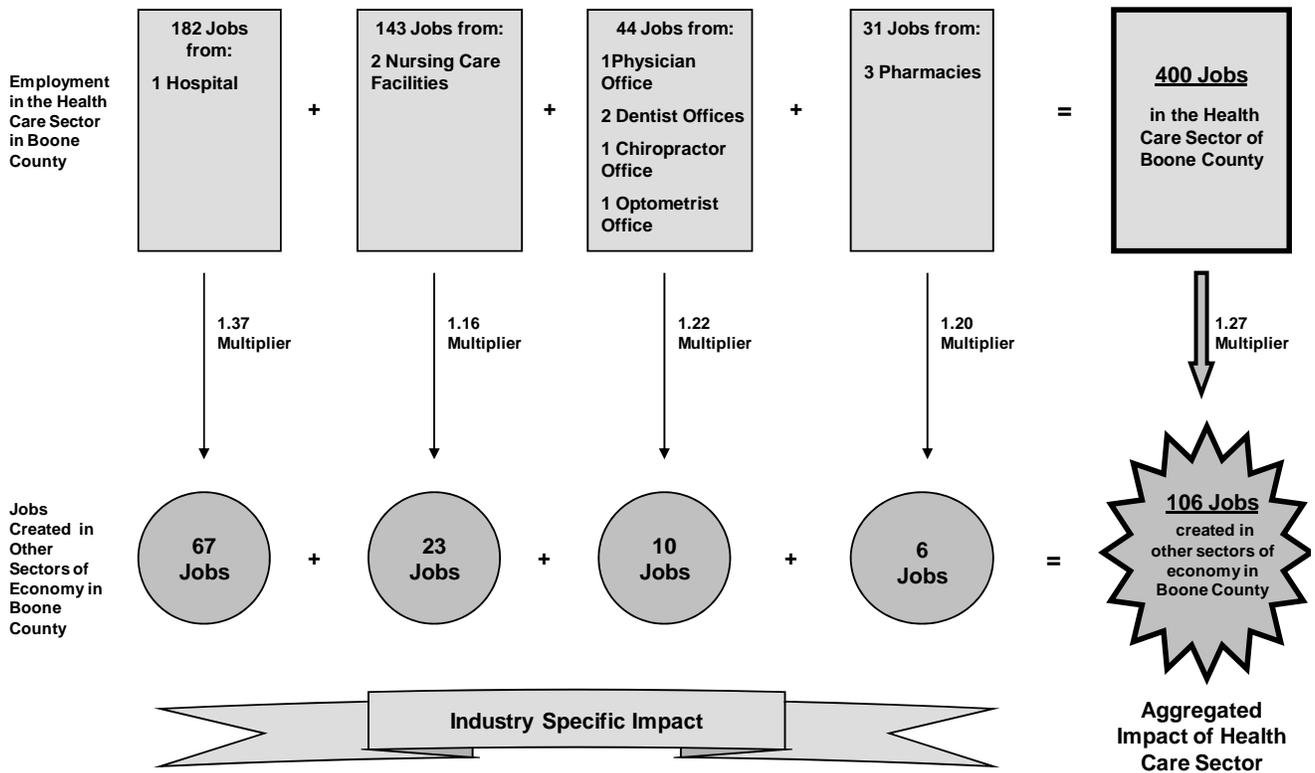
Source: U.S. Bureau of the Census, Census 2000, Summary Tape File 1. <http://factfinder.census.gov>. 2006 population: 2006 Estimates 2011 project by Geolytics Inc

### III. ECONOMIC IMPACT OF THE HEALTH CARE SECTOR

Health Care and Social Assistance is the largest employer within Boone County, followed by retail trade, wholesale trade, accommodation and food services, and transportation and warehousing. The health care sector of Boone County includes one hospital, two nursing care facilities, two dentist offices, one chiropractor office, one physician office, one optometrist office, and three pharmacies.

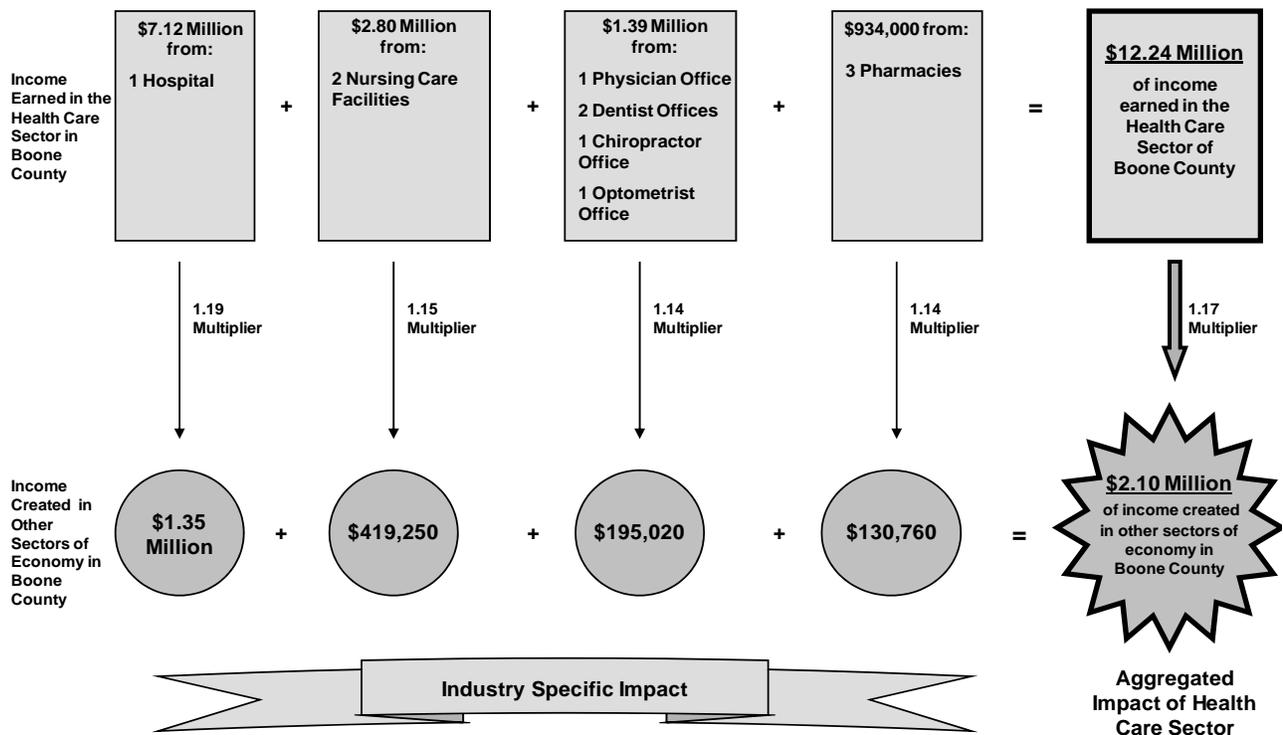
- ◆ The 400 jobs in the health care sector of Boone County created (through a 1.27 multiplier) another 106 jobs in other sectors of the county's economy (Figure 2). Therefore, the combined effect represents 13.3% of the county's total employment (i.e., 506 out of 3,804 jobs).
- ◆ The \$12.24 million of income earned in the health care sector of Boone County has created (through a 1.17 multiplier) another \$2.10 million of income in other sectors of the county's economy (Figure 3). Therefore, the combined effect represents 14.7% of the county's total income (i.e., \$14.34 million out of \$97.47 million).
- ◆ The \$28.79 million spent in the health care sector of Boone County created (through a 1.27 multiplier) another \$7.81 million of spending in other sectors of the county's economy (Figure 4). Therefore, the combined effect represents 8.8% of the county's total economic output (i.e., \$36.61 million out of \$414.77 million).

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



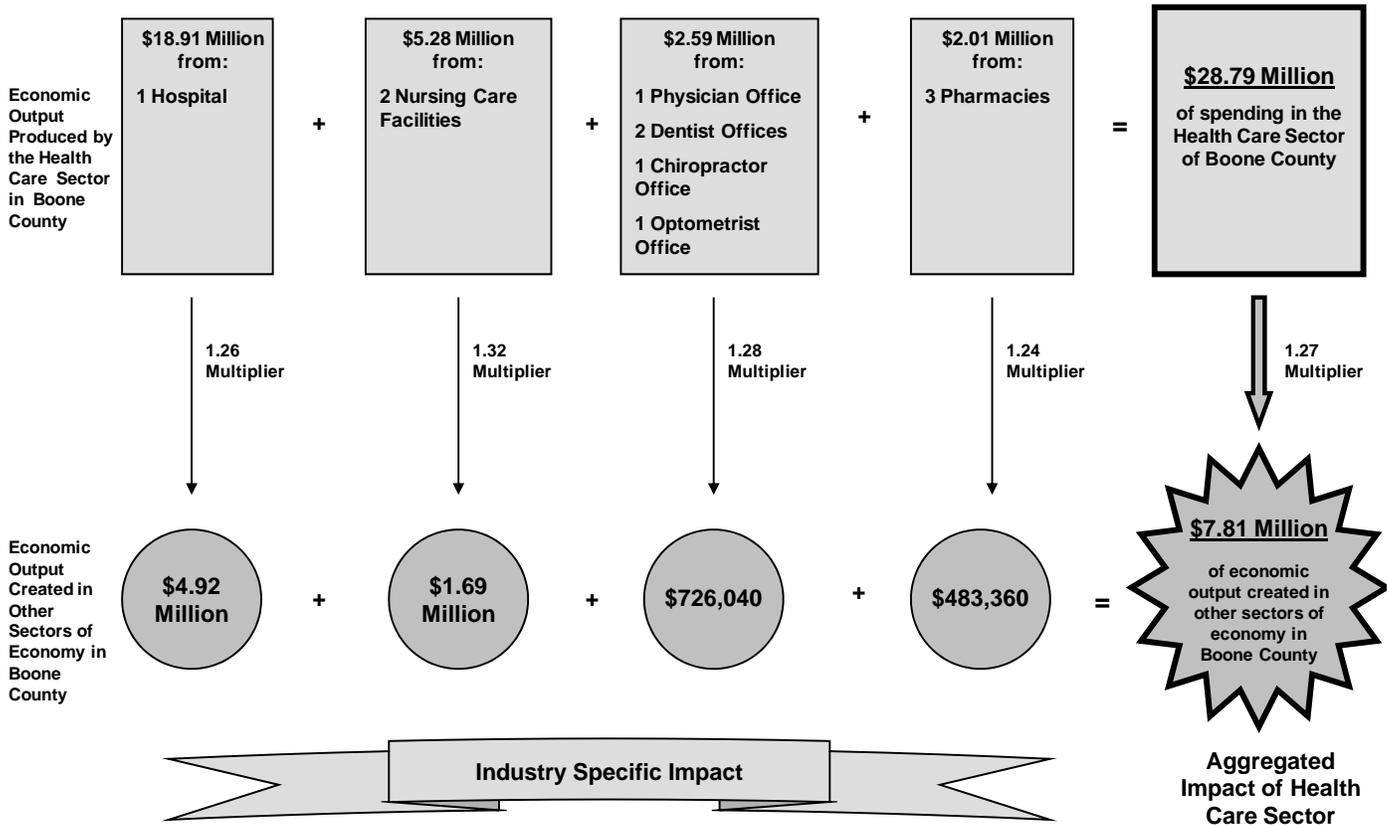
Sources: IMPLAN Data 2006. Minnesota IMPLAN Group, Inc. 2003; U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>; Nebraska Department of Health and Human Services facility rosters, 2008

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



Sources: IMPLAN Data 2006. Minnesota IMPLAN Group, Inc. 2003; U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>; Nebraska Department of Health and Human Services facility rosters, 2008

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

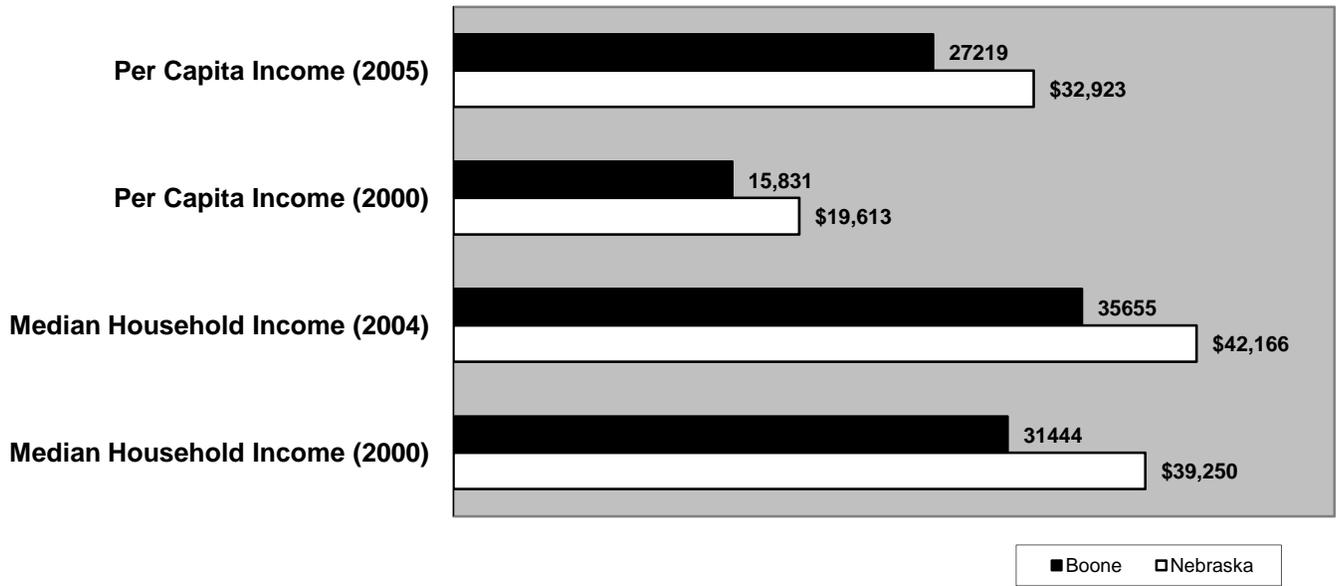


Sources: IMPLAN Data 2006. Minnesota IMPLAN Group, Inc. 2003; U.S. Census Bureau County Business Patterns, 2006. <http://www.census.gov/prod/www/abs/cbptotal.html>; Nebraska Department of Health and Human Services facility rosters, 2008

#### IV. SOCIO-ECONOMIC INDICATORS

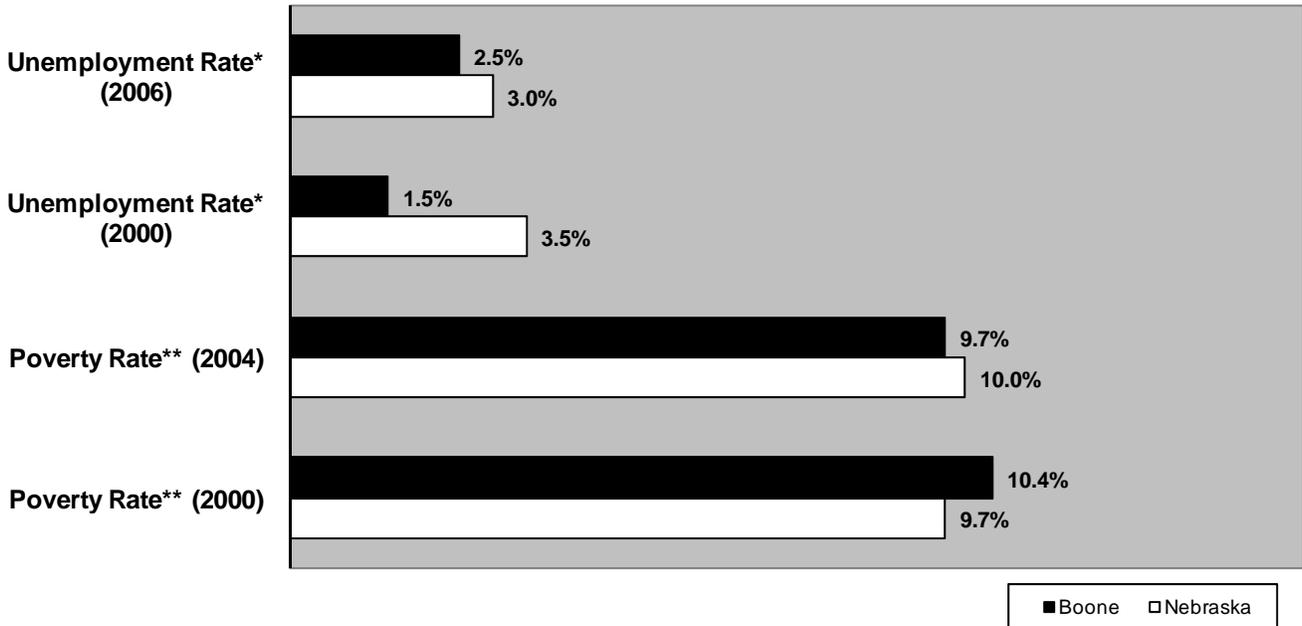
The median household income of the county increased since 2000 by 13.4% to \$35,655 in 2004 (compared to \$42,166 statewide), and the per capita income of the county increased since 2000 by 71.9%, to \$27,219 in 2005 (compared to \$32,923 statewide) (Figure 5). Boone County experienced a lower unemployment rate (2.6% vs. 3.0% statewide) than the state in 2006 and a lower poverty rate (9.7% vs. 10.0% statewide) than the state in 2004 (Figure 6). The county out-performed the state in three of the social indicators shown in Table 3, but had a higher percentage of residents aged 25 and older who did not graduate from high school.

**Figure 5. Income for Boone 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 Boone 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 Boone County and Nebraska**

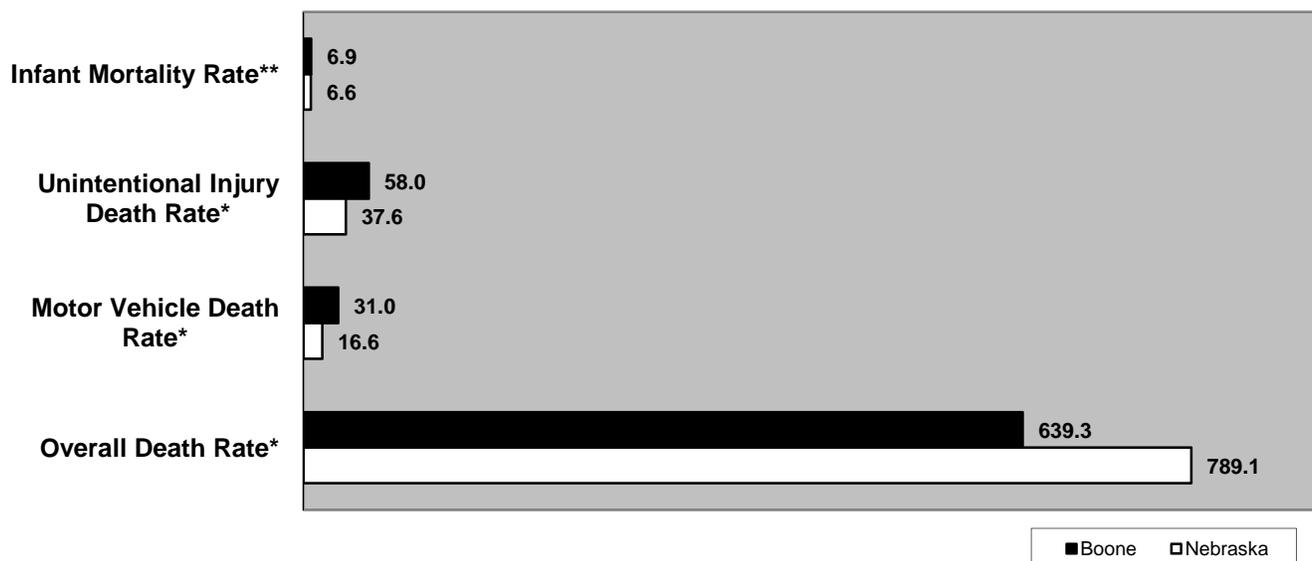
	Boone County	Nebraska
Percent of residents aged 25 and older who did not graduate from high school (2000)	15.6%	13.4%
Percent of 7-12th graders who dropped out of school (2003-2004)	0.3%	1.9%
Percent of first births born to unmarried women, younger than 20, with less than a high school education (2000-2004)	5.7%	9.0%
Crime arrest rate per 1,000 population (2004)	11.8	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

Boone County had a lower overall death rate, but had had a higher motor vehicle death rate, and unintentional injury death rate compared with the state between 2000 and 2004 (Figure 7). Boone County had a lower percentage of pregnant women who smoke, a lower percent of births to adolescents aged 10 to 17, a lower rate of low-weight births, and a higher percentage of pregnant women who reported obtaining prenatal care during their first trimester when compared to the state (Figure 8). Among the top 5 leading causes of death of Boone County residents, the county had a higher mortality rate than the state for unintentional injuries (Figure 9). Among the top 5 leading causes of hospitalization of Boone County residents between 2003 and 2004, the county had a higher hospitalization rate than the state for digestive diseases and musculoskeletal diseases (Figure 10).

**Figure 7. Selected Mortality Rates for Boone County and Nebraska, 2000-2004**

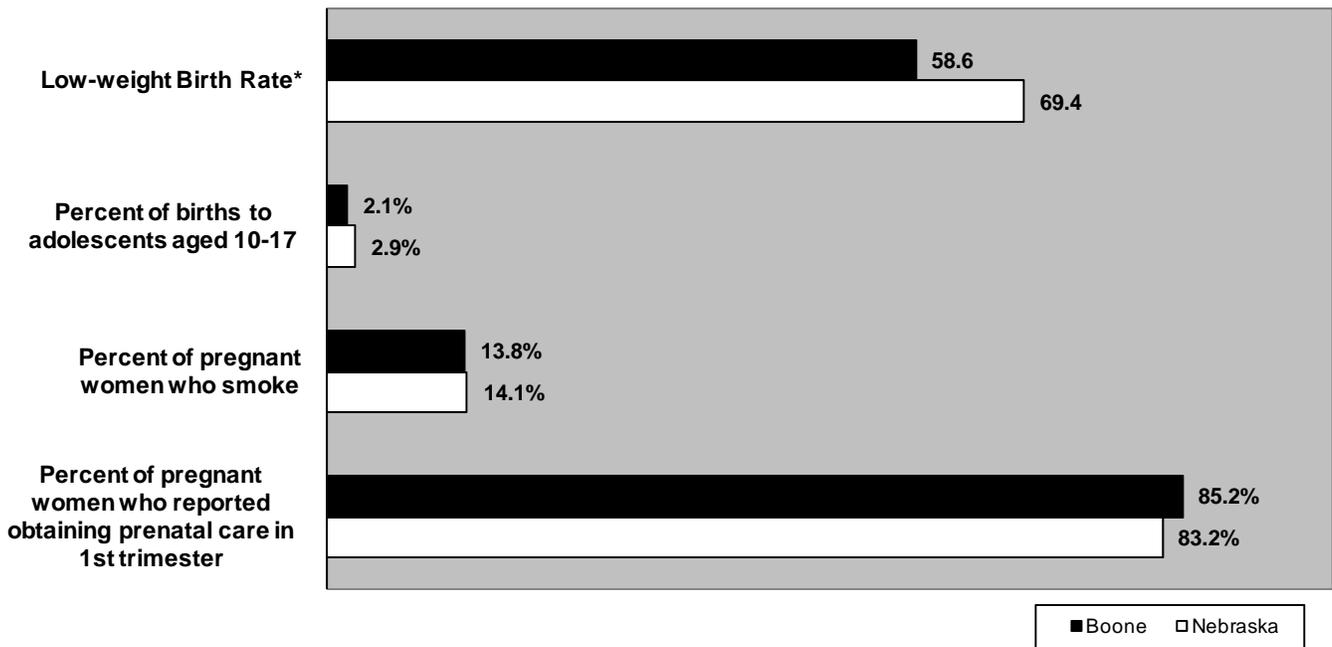


\*Number of deaths per 100,000 populations (age-adjusted).

\*\*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>.

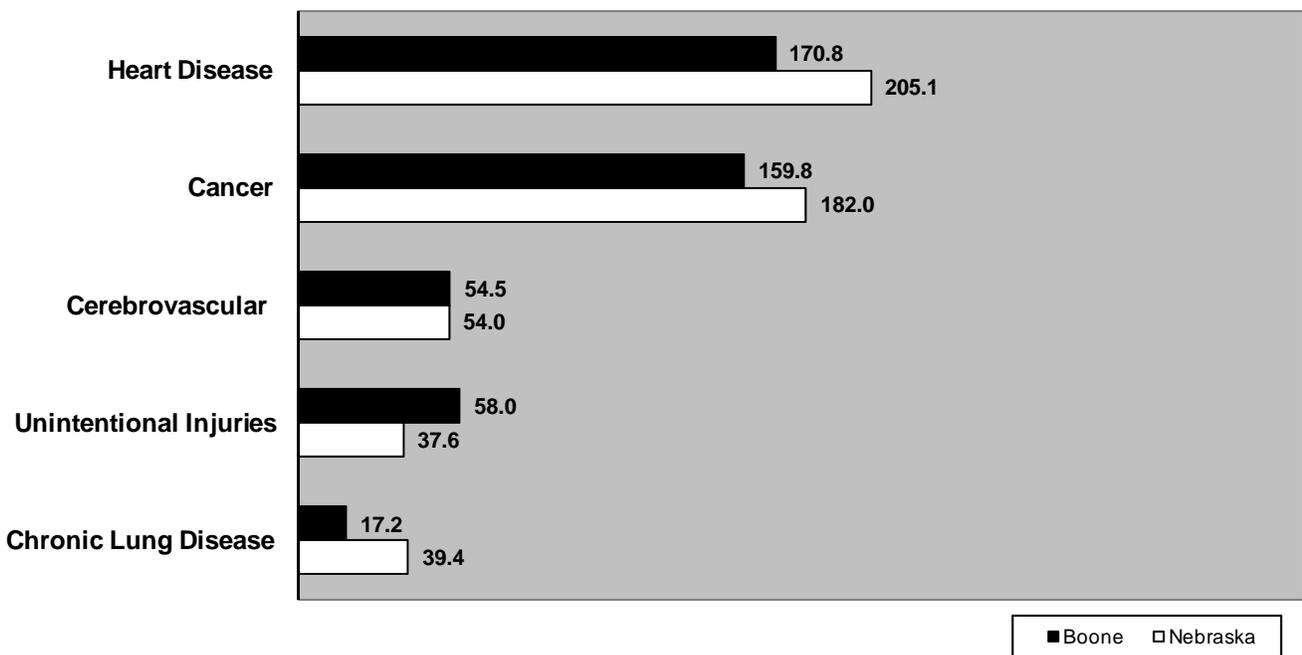
**Figure 8. Selected Maternal and Child Health Indicators, Boone County and Nebraska, 2000-2004**



\* 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>.

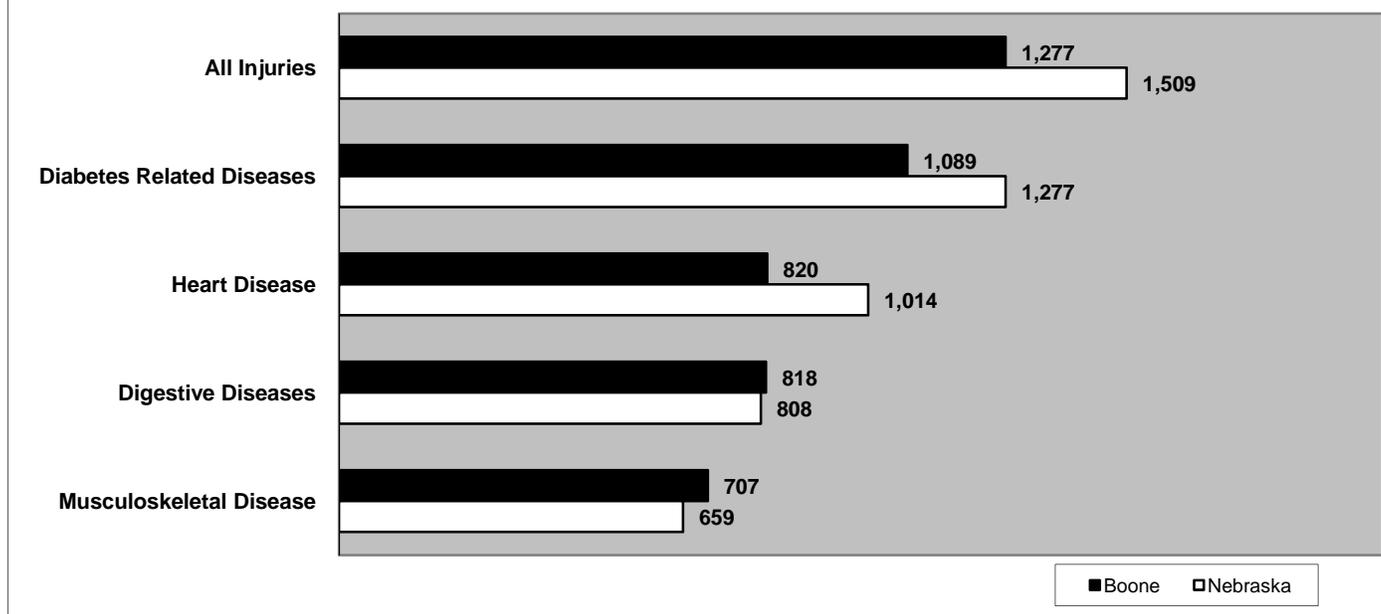
**Figure 9. Top 5 Leading Causes of Death for Boone County and the Corresponding Mortality Rates\* for the County and Nebraska, 2000-2004**



\*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 Boone County and the Corresponding Hospitalization Rates\*\* for the County and Nebraska, 2003-2004**



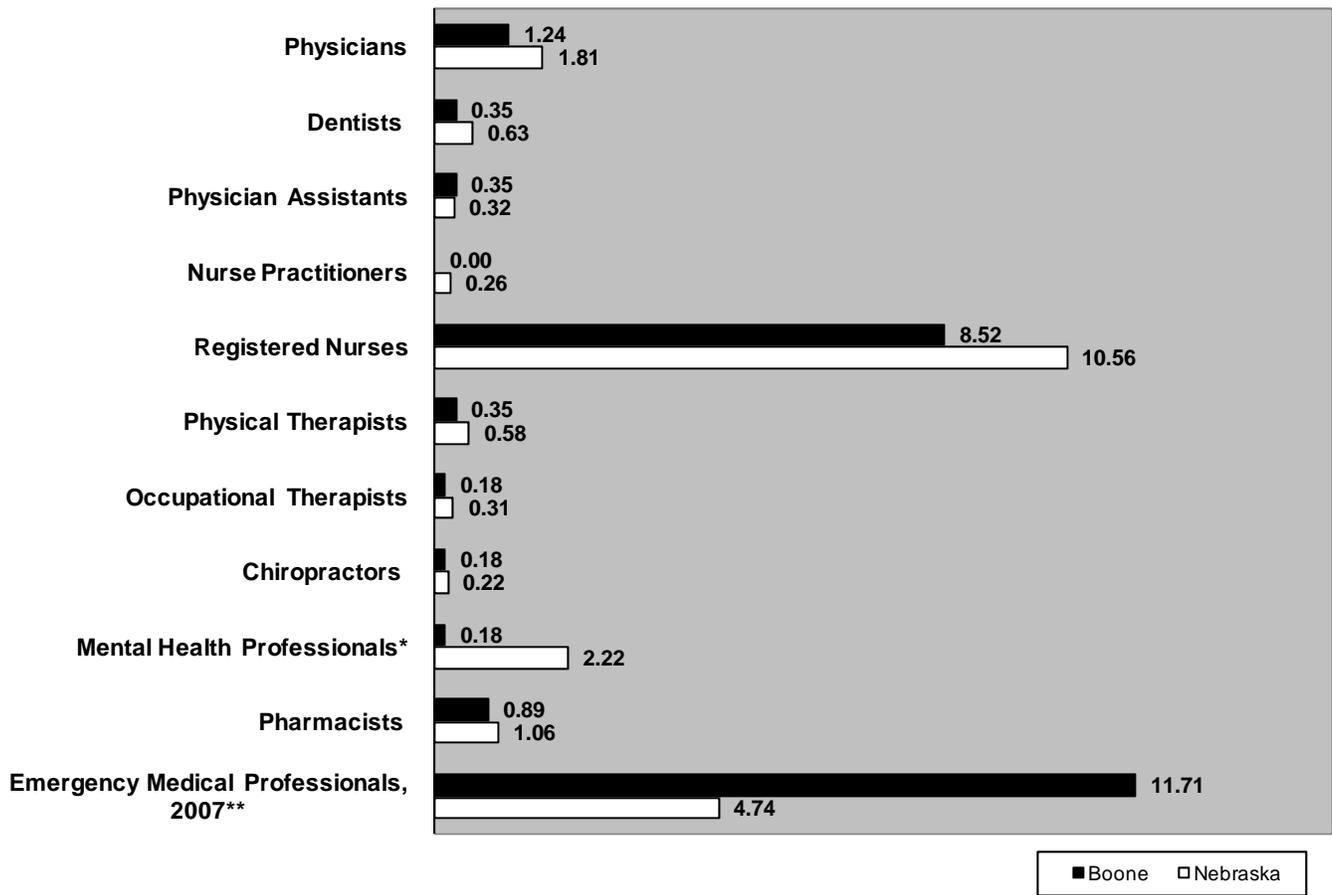
\*Hospitalizations for pregnancy and childbirth were excluded from this analysis.

\*\*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

Boone County is federally designated as a mental health professional shortage area. The state government has designated Boone County as a health professional shortage area in the specialties of family practice, general surgery, internal medicine, pediatrics, OB/GYN, psychiatry, pharmacy, and occupational therapy. Boone County has a higher professional-to-population ratio than the state for Physician Assistants and EMS professionals, but a lower ratio for other health professionals, shown in Figure 11.

**Figure 11. Number of Practicing Health Professionals Per 1,000 Population, Boone 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 Boone County’s hospital has a higher bed-to-population ratio than the state. As a result, the need for hospital inpatient care (for the general public) should be well met within the county.

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

	Boone County	Nebraska
Number of hospital beds per 1,000 population (2007)	4.44**	3.47*
Number of Long Term Care beds per 1,000 elderly population (65+) 2005	95.0*	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](mailto:liwuchen@unmc.edu)), or Michelle Mason, M.A. ([mmason@unmc.edu](mailto:mmason@unmc.edu)) at the Nebraska Center for Rural Health Research, College of Public Health, University of Nebraska Medical Center, (402)559-5260.

---

## The Nebraska Center for Rural Health Research

College of Public Health  
University of Nebraska Medical Center  
984350 Nebraska Medical Center  
Omaha, NE 68198-4350