

The Economic Impact of the Health Sector on the Newman Memorial Hospital Medical Service Area

Hospitals



Nursing Homes



Community



Physicians, etc.

Other Services



Pharmacies

Oklahoma State Department of Health
Office of Rural Health

Oklahoma Cooperative Extension Service
Oklahoma State University

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Lara Brooks, Assistant Extension Specialist, OSU, Stillwater
Phone: 405-744-6083, Fax: 405-744-9835, Email: lara.brooks@okstate.edu

Brian Whitacre, Assistant Professor and Extension Economist, OSU, Stillwater
405-744-6083

Stan Raltsin, Area Extension Rural Development Specialist, OSU, Enid
580-237-7677

Lynda Latta, Ellis County Extension Agent, Arnett
580-885-7775

Corie Kaiser, Health Consultant, Oklahoma Center for Rural Health, Oklahoma City
405-945-9197

Val Schott, Director, Oklahoma Center for Rural Health, Oklahoma City & Tulsa
405-945-9197

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Medical facilities have a tremendous medical and economic impact on the community in which they are located. This is especially true with health care facilities, such as hospitals and nursing homes. These facilities not only employ a large number of people and have a significant payroll, but they also draw a large number of people from rural areas that need medical services into the community. The overall objective of this study is to measure the economic impact of the health sector on the Newman Memorial Hospital medical service area. The specific objectives of this report are to:

1. Review economic trends of the health sector for the U.S. and Ellis County;
2. Identify population for the medical service area of Newman Memorial Hospital;
3. Summarize the direct economic activities of the health sector;
4. Review concepts of community economics and multipliers; and
5. Estimate the secondary and total impacts of the health sector on the Newman Memorial Hospital medical service area.

No recommendations will be made in this report.

Health Services and Rural Development

The nexus between health care services and rural development is often overlooked. At least three primary areas of commonality exist. A strong health care system can help attract and maintain business and industry growth, and attract and retain retirees. A strong health care system can also create jobs in the local area. The following section looks at how the health care sector impacts these areas

Services that Impact Rural Development

Type of Growth	Services Important to Attract Growth
Industrial and Business	Health and Education
Retirees	Health and Safety

Business and Industry Growth

Studies have found that quality-of-life (QOL) factors are playing a dramatic role in business and industry location decisions. Among the most significant of the QOL variables are health care services, which are important for at least three reasons.

First, as noted by a member of the Board of Directors of a community economic development corporation, the presence of good health and education services is imperative to industrial and business leaders as they select a community for location. Employees and participating management may offer strong resistance if they are asked to move into a community with substandard or inconveniently located health services.

Secondly, when a business or industry makes a location decision, it wants to ensure that the local labor force will be productive, and a key factor in productivity is good health. Thus, investments in health care services can be expected to yield dividends in the form of increased labor productivity.

The cost of health care services is the third factor that is considered by business and industry in development decisions. Research shows that corporations take a serious look at health care costs in determining site locations. Sites that provide health care services at a lower cost are given higher consideration for new industry than sites with much higher health care costs.

Health Services and Attracting Retirees

A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing can be a significant source of income for the local

economy. Many rural areas have environments (e.g., moderate climate and outdoor activities) that enable them to be in a good position to attract and retain retirees. The amount of spending embodied in this population, including the purchasing power associated with Social Security, Medicare, and other transfer payments, is substantial. Additionally, middle and upper income retirees often have substantial net worth. Although the data are limited, several studies suggest health services may be a critical variable that influences the location decision of retirees. For example, one study found that four items were the best predictors of retirement locations: safety, recreational facilities, dwelling units, and health care. Another study found that nearly 60 percent of potential retirees said health services were in the “must have” category when considering a retirement community. Only protective services were mentioned more often than health services as a “must have” service.

Health Services and Job Growth

A factor important to the success of rural economic development is job creation. *The health care sector is an extremely fast growing sector, and based on the current demographics, there is every reason to expect this trend to continue.* Data in **Table 1** provide selected health expenditures and employment data for the United States. Several highlights from the national data are:

- In 1970, health care services as a share of the national gross domestic product (GDP) were 7.2 percent. This increased to 16.0 percent in 2006;
- Per capita health expenditures increased from \$356 in 1970 to \$7,026 in 2006;
- Employment in the health sector increased almost 313.0 percent from 1970 to 2006; and
- Annual increases in employment from 2003 to 2006 ranged from 2.0 percent to 2.3 percent.

In addition, the Bureau of Labor Statistics projects substantial increases in health care expenditures from 2008 through 2017. In fact, the U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services predict that health care expenditures will account for 18.4 percent of GDP by 2014 and increase to 19.5 percent of GDP in 2017. Per capita health care expenditures are projected to increase to \$11,043 in 2014 and to \$13,101 in 2017. Total health expenditures are projected to increase to almost \$4.3 trillion in 2017.

Table 1
United States Health Expenditures and Employment Data
1970-2006; Projected for 2008, 2011, 2014 & 2017

United States Data					
Year	Total Health Expenditures (\$Billions)	Per Capita Health Expenditures (\$)	Health as % of GDP (%)	Health Sector Employment (000)	Ave. Yrly. Increase in Employment (%)
1970	\$74.9	\$356	7.2%	3,052 ^a	
1980	253.4	1,100	9.1%	5,278 ^a	7.3%
1990	714.0	2,813	12.3%	7,814 ^a	4.8%
2000	1,353.6	4,790	13.8%	10,858 ^a	3.9%
2001	1,469.6	5,148	14.5%	11,188 ^a	3.0%
2002	1,603.4	5,560	15.3%	11,536 ^a	3.1%
2003	1,732.4	5,952	15.8%	11,817 ^b	N/A
2004	1,852.3	6,301	15.9%	12,055 ^b	2.0%
2005	1,973.3	6,649	15.9%	12,314 ^b	2.1%
2006	2,105.5	7,026	16.0%	12,602 ^b	2.3%
Projections					
2008	2,394.3	7,868	16.6%		
2011	2,905.1	9,322	17.4%		
2014	3,523.6	11,043	18.4%		
2017	4,277.1	13,101	19.5%		

SOURCES: Bureau of Labor Statistics; 2008 Bureau of Economic Analysis; 2008 Centers for Medicare & Medicaid Services, National Health Expenditures 1970-2006 and National Health Expenditure Projections 2007-2017 (<http://www.cms.hhs.gov/NationalHealthExpendData> [March 2008]).

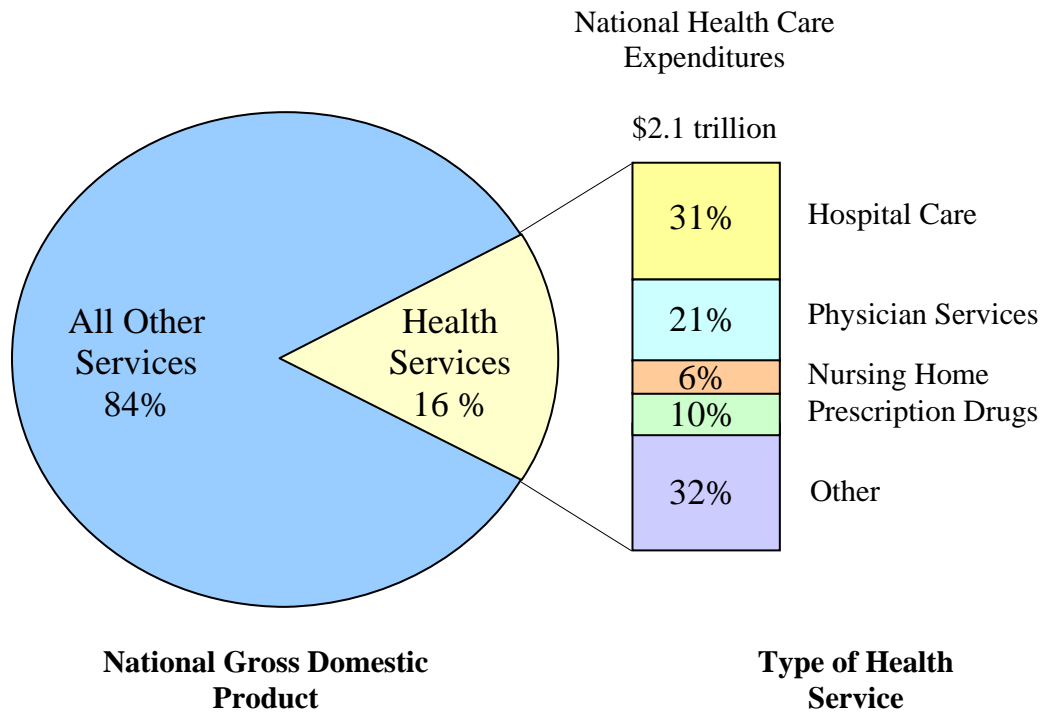
N/A - Not Available.

^a Based on Standard Industrial Classification (SIC) codes for health sector employment.

^b Based on North American Industrial Classification System (NAICS) for health sector employment.

Figure 1 illustrates 2006 health expenditures by percent of gross domestic product and by type of health service. The largest health service type was hospital care, representing 31.0 percent of the total. The next largest type of health services was physician services with 21.0 percent of the total.

Figure 1
National Health Expenditures
As a Percent of Gross Domestic Product
and by Health Service Type, 2006



Ellis County Economic Trends

Data relative to the health sector for Ellis County are provided in **Table 2**. Data in **Table 2** are from the U. S. Census Bureau County Business Patterns, based on the North American Industry Classification System (NAICS). The table is based on employment and payroll for both health services and total county services and health services as a percent of total county services for Ellis County. Also, health services for the state of Oklahoma are illustrated as a percent of total state employment and payroll for comparison to the county data. This table states how health services have changed over time. Health services employment in Ellis County decreased 20.5 percent from 224 employees in 1999 to 178 employees in 2006 (**Table 2**). During the same time period, the total county employment increased 0.7 percent. County health services employment as a percent of total county employment decreased from 30.6 percent in 1999 to 24.2 percent in 2006, while the state health services employment as a percent of total state employment increased from 14.2 percent in 1999 to 15.1 percent in 2006. The county saw a decrease of 6.4 percent over this seven year period, while the state grew 0.9 percent.

The county health services payroll saw significant increases over time. Ellis County's health services payroll grew 37.4 percent from about \$4.2 million in 1999 to about \$5.75 million in 2006; this compares to an increase of 57.1 percent for the total county payroll (**Table 2**). Ellis County's health services payroll is increasing at a faster rate than the state's health services payroll. County health services payroll as a percent of total county payroll decreased from 33.2 percent in 1999 to 29.0 percent in 2006.

Table 2
Newman Memorial Hospital
Employment and Payroll for County Business Patterns*
Ellis County and the State of Oklahoma

Based on NAICS ¹	Employment			
	Health Services Employment	Total County Employment	Hlth Svcs as a % of Total County Employment	Hlth Svcs as a % of Total State
1999	224	732	30.6%	14.2%
2000	187	661	28.3%	14.1%
2001	175	620	28.2%	14.3%
2002	183	670	27.3%	15.1%
2003	194	698	27.8%	15.2%
2004	187	689	27.1%	15.4%
2005	182	751	24.2%	15.4%
2006	178	737	24.2%	15.1%
% Change '99 - '06	-20.5%	0.7%		

Based on NAICS ¹	Payroll			
	Health Services Payroll	Total County Payroll	Hlth Svcs as a % of Total County Payroll	Hlth Svcs as a % of Total State Payroll
1999	4,184	12,599	33.2%	14.1%
2000	4,121	12,268	33.6%	14.0%
2001	4,298	13,604	31.6%	14.5%
2002	4,704	13,939	33.7%	15.2%
2003	4,925	16,079	30.6%	15.2%
2004	5,069	17,147	29.6%	15.7%
2005	4,984	20,011	24.9%	15.5%
2006	5,750	19,796	29.0%	15.1%
% Change '99 - '06	37.4%	57.1%		

Source: U.S. Census Bureau, County Business Patterns; 1999-2006 data (www.census.gov [October 2008]).

¹ The Health Care and Social Assistance NAICS sector comprises establishments providing health care and social assistance for individuals. The sector includes both health care and social assistance because it is sometimes difficult to distinguish between the boundaries of these two activities. Industries in this sector are arranged on a continuum starting with those establishments providing medical care exclusively, continuing with those providing health care and social assistance, and finally finishing with those providing only social assistance. The services provided by establishments in this sector are delivered by trained professionals. All industries in the sector shared this commonality of process, namely, labor inputs of health practitioners or social workers with the requisite expertise. Many of the industries in the sector are defined based on the educational degree held by the practitioners included in the industry.

* Data from County Business Patterns exclude self-employed persons, employees of private households, railroad employees, agricultural production workers, and for most government employees (except for those working in wholesale liquor establishments, retail liquor stores, Federally-chartered savings institutions, Federally-chartered credit unions, and hospitals).

Basic economic indicators of the Ellis County economy are illustrated in **Table 3**. Based on Bureau of Economic Analysis data, the 2006 per capita income for Ellis County of \$26,238 is lower than the per capita income for the state of Oklahoma and the United States.

Table 3
Economic Indicators for Ellis County,
the State of Oklahoma and the Nation

Indicator	County	State	U.S.
Total Personal Income (2006)	\$100,359,000	\$115,881,184,000	\$10,968,393,000,000
Per Capita Income (2006)	\$26,238	\$32,391	\$36,714
Employment (2007)	2,240	1,732,703	146,046,667
Unemployment (2007)	63	74,739	7,077,667
Unemployment Rate (2007)	2.8%	4.3%	4.6%
Employment (July 2008)	2,579	1,736,679	154,603,000
Unemployment (July 2008)	59	71,672	8,784,000
Unemployment Rate (July 2008)	2.3%	4.1%	5.7%
Percentage of People in Poverty (2005)	12.9%	16.4%	13.3%
Percentage of Under 18 in Poverty (2005)	20.6%	23.0%	18.5%
Transfer Dollars (2006)	\$24,838,000	\$19,836,764,000	\$1,612,935,000,000
Transfer Dollars as Percentage of Total Personal Income (2006)	24.7%	17.1%	14.7%

SOURCES: 2008 Bureau of Labor Statistics; 2008 Bureau of Economics Analysis; 2008 U.S. Census Bureau.

According to the Bureau of Labor Statistics, the unemployment rate for Ellis County was 2.8 percent for 2007, which was the lower than the state (4.3 percent) and the national (4.6 percent) rates. Moreover, in July 2008, the unemployment rate for Ellis County had decreased to 2.3 percent, which was again lower than the state (4.1 percent) and the nation (5.7 percent).

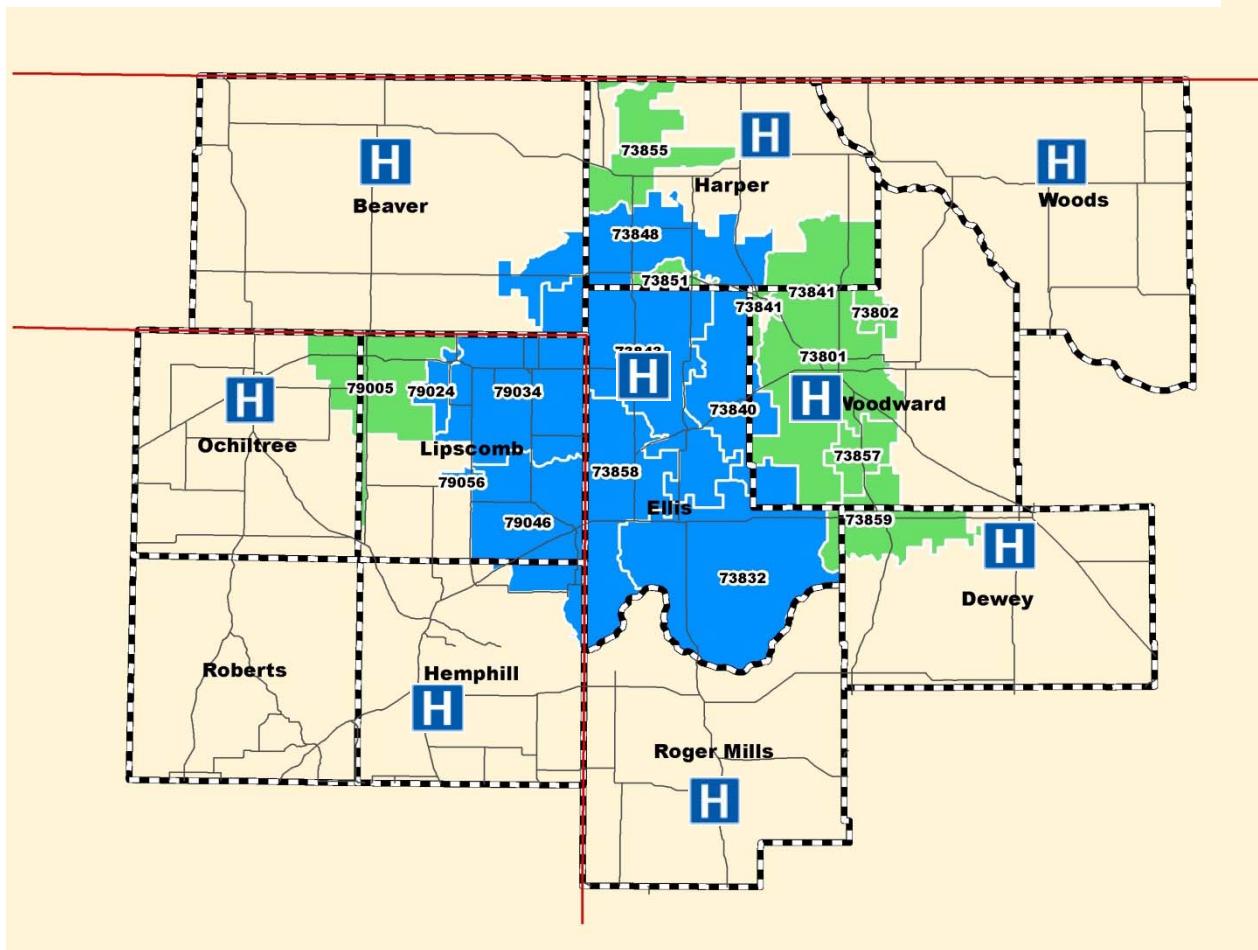
Also, the number of people employed in Ellis County increased 15.1 percent from 2007 to July 2008, while the number of people unemployed decreased 6.3 percent during that same time period.

From the U. S. Census Bureau, the percent of people in poverty in Ellis County was 12.9 percent in 2005, as compared to 16.4 percent for the state and 13.3 percent nationally. The percentage of people under age 18 in poverty in 2005 followed similar trends, with Ellis County being lower than the state but slightly higher than the nation. Another economic indicator is the percent of personal income that is from transfer payments. Based on Bureau of Economic Analysis data, Ellis County had 24.7 percent of total personal income from transfer payments, which is higher than both the state and the nation. Transfer payments represent that portion of total personal income whose source is state and federal funds. These typically include social security, Medicare, and retirement / disability payments.

Demographic Trends for the Newman Memorial Hospital Medical Service Area and Ellis County

The Newman Memorial Hospital medical service area is delineated in **Figure 2**. The primary medical service area is the immediate area surrounding Shattuck including the zip code areas of Shattuck, 73858; Arnett, 73832; Gage, 73843; Fargo, 73840; Laverne, 73848; Follett, TX, 79034; Darrouzett, TX, 79024; and Higgins, TX, 79046. According to the U.S. Census Bureau, the 2000 census population of this primary medical service area was 7,350 (**Table 4a**). Newman Memorial Hospital also serves a secondary medical service area, which consists of the zip code areas of Fort Supply, 73841; May, 73851; Sharon, 73857; Vici, 73859; Woodward, 73801; Rosston, 73855; and Booker, TX, 79005. According to the U.S. Census Bureau, the 2000 census population of this secondary medical service area was 18,884 (**Table 4a**).

**Figure 2
Newman Memorial Hospital Medical Service Area**



- Primary Medical Services Area
- Secondary Medical Services Area

City	County	Hospital	No. of Beds
Beaver	Beaver	Beaver County Memorial Hospital	24
Seiling	Dewey	Seiling Municipal Hospital	18
Shattuck	Ellis	Newman Memorial Hospital	79
Buffalo	Harper	Harper Co. Community Hospital	25
Canadian, TX	Hemphill	Hemphill County Hospital	19
Perryton, TX	Ochiltree	Ochiltree General Hospital	25
Cheyenne	Roger Mills	Roger Mills Memorial Hospital	15
Woodward	Woodward	Woodward Regional Hospital	87
Alva	Woods	Share Medical Center	37

Since the U. S. Census Bureau only has zip code population for the 2000 census year, another source for more current populations by zip code was researched. ESRI, a company specializing in geographic information systems software, has illustrated zip code populations for the 2000 census year and projected zip code populations for 2007 and 2012. The zip code populations do not match exactly due to a variance in zip code boundaries and based on the methodology for determining population by zip code.

Table 4a
Population of Newman Memorial Hospital
Medical Service Area

Population by	City	Populations			
		2000 Census	2000 ESRI	2007 ESRI	2012 ESRI
<i>Primary Medical Service Area</i>					
73858	Shattuck	1,618	1,654	1,689	1,712
73832	Arnett	988	1,232	1,178	1,158
73843	Gage	906	536	566	583
73840	Fargo	906	653	634	627
73848	Laverne	1,616	1,932	1,827	1,759
79034	Follett, TX	577	878	896	917
79024	Darrouzett, TX	349	n/a	n/a	n/a
79056	Lipscomb, TX	46	44	46	47
79046	Higgins, TX	580	628	652	672
Total		7,350	7,557	7,488	7,475
	% Change from 2000 ESRI			-0.9%	-1.1%
<i>Secondary Medical Service Area</i>					
73841	Ft. Supply	967	1,211	1,416	1,419
73851	May	78	72	68	64
73857	Sharon	503	1,200	1,266	1,307
73859	Vici	1,295	1,211	1,189	1,180
73801	Woodward	14,327	13,73	14,083	14,287
73855	Rosston	186	222	208	198
79005	Booker, TX	1,528	1,507	1,584	1,635
Total		20,216	20,77	21,396	21,656
	% Change from 2000 ESRI			3.0%	4.1%

However, when comparing the 2000 census and the 2000 ESRI data, total populations for the medical service area do not vary considerably. The ESRI projection of the primary medical service area shows an decrease in population of 0.9 percent from 2000 to 2007 and 1.1 percent decrease from 2000 to 2012 (**Table 4a**). It should also be noted that the population for the town of Darrouzett, TX was unavailable in the ESRI data.

Table 4b also shows population trends for the state of Oklahoma, Ellis County, and numerous cities in the primary and secondary medical service are of Newman Memorial Hospital for the years 1990, 2000, and 2007. From 1990 to 2000, Ellis County had a population decline of 9.38 percent. The state experienced a population growth of 9.70 percent. Rosston, Fargo, and Booker, TX, all experienced an increase in population from 1990 to 2000. However, the other towns and cities in the primary medical service area experienced a decline in population. Rosston experienced the largest growth in population with a 22.22 percent increase from 1990 to 2000. Fargo followed with a population growth of 9.03, and Booker, TX, experienced an increase of 6.39 percent during the same time period. From 2000 to 2007, Ellis County saw a population decline of 4.02 percent. The state of Oklahoma at experienced an increase of 1.84 percent. Sharon, Woodward, Fort Supply, and Higgins, TX, all experienced an increase during this same time period. Sharon had the highest growth of 4.92 percent, and Woodward followed with a growth of 2.98 percent. Fort Supply experienced an increase of 2.13 percent, and Higgins, TX, report an increase of 0.71 percent for this same time period. It should also be noted that the population for the town of Lipscomb, TX was unavailable in the Census 1990 data and Census 2007 estimates data.

Table 4b
Population Trends for Muskogee County and the State of Oklahoma

	Medical Service Area				
	1990	2000	2006	% Change	% Change
	Census	Census	Estimate	1990-2000	2000-2006
State of Oklahoma	3,145,585	3,450,654	3,617,316	<u>9.70%</u>	<u>4.83%</u>
Ellis County	4,497	4,075	3,911	<u>-9.38%</u>	<u>-4.02%</u>
<i>Population by City</i>					
Arnett	547	520	492	-4.94%	-5.38%
Booker, TX	1,236	1,315	1,304	6.39%	-0.84%
Darrouzett, TX	343	303	292	-11.66%	-3.63%
Gage	473	429	400	-9.30%	-6.76%
Fargo	299	326	316	9.03%	-3.07%
Follett, TX	441	412	404	-6.58%	-1.94%
Ft. Supply	369	328	335	-11.11%	2.13%
Higgins, TX	464	425	428	-8.41%	0.71%
Laverne	1,269	1,097	995	-13.55%	-9.30%
Lipscomb, TX	n/a	44	n/a	n/a	n/a
May	42	33	31	-21.43%	-6.06%
Rosston	54	66	62	22.22%	-6.06%
Sharon	108	122	128	12.96%	4.92%
Shattuck	1,454	1,274	1,213	-12.38%	-4.79%
Vici	751	668	617	-11.05%	-7.63%
Woodward	12,340	11,853	12,206	-3.95%	2.98%
Cities Total	<u>20,190</u>	<u>19,215</u>	<u>19,223</u>		

SOURCE: Population data from the U.S. Bureau of Census, 1990, 2000; U. S. Bureau of the Census, Population Estimates Branch, 2006; Community Sourcebook of Zip Code Demographics, 20th Edition, 2006, ESRI, ESRI 2000 census population and 2006 and 2011 projected populations. n/a ESRI data not available for town

Tables 5 and 6 offer further detail about the demographic trends of Ellis County. **Table 5** presents the breakdown by age group for Ellis County and the State of Oklahoma from the census years 1990 and 2000 and the 2007 census estimates. The lowest age group, age 0-14, experienced a decrease from 1990-2000. However, the 2007 population estimates show that this age group has slightly increased from 2000-2007. The age group of 45-64, however, has seen a consistent increase over time. In Ellis County, those age 45-64 made up 20 percent of the total

population in 1990, and this went up to 29.7 percent in 2007. This same trend holds true for the state of Oklahoma as well.

Table 6 shows the race and ethnic group percentages for Ellis County and the state of Oklahoma for the census years 1990 and 2000 and the 2007 census estimates. The state has experienced a significant increase in people of Hispanic origin, increasing from 2.7 percent in 1990 to 7.2 percent in 2007. Ellis County has not had the same experience. Ellis County actually experienced a decrease in their Hispanic origin population from 1990-2000. In 1990, those of Hispanic origin made up 3.1 percent of the population. However, in 2000, this number had decreased to 2.6 percent. Ellis County's Hispanic origin population has increased from 2000 to 2007.

Table 5
Age Groups -
for Population Numbers and Percent of Total Population
Ellis County and the State of Oklahoma

Age Groups	Ellis County		State of Oklahoma	
	Number	Percent	Number	Percent
1990 Census				
0-14	929	20.7%	702,537	22.3%
15-19	327	7.3%	233,093	7.4%
20-24	136	3.0%	222,766	7.1%
25-44	1,179	26.2%	961,560	30.6%
45-64	899	20.0%	601,416	19.1%
65+	<u>1,027</u>	<u>22.8%</u>	<u>424,213</u>	<u>13.5%</u>
Totals	4,497	100.0%	3,145,585	100.0%
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2000 Census				
0-14	701	17.2%	732,907	21.2%
15-19	289	7.1%	269,373	7.8%
20-24	143	3.5%	247,165	7.2%
25-44	881	21.6%	975,169	28.3%
45-64	1,166	28.6%	770,090	22.3%
65+	<u>895</u>	<u>22.0%</u>	<u>455,950</u>	<u>13.2%</u>
Totals	4,075	100.0%	3,450,654	100.0%
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2007 Estimates				
0-14	689	17.6%	744,594	20.6%
15-19	210	5.4%	253,894	7.0%
20-24	215	5.5%	272,799	7.5%
25-44	797	20.4%	959,592	26.5%
45-64	1,162	29.7%	906,297	25.1%
65+	<u>838</u>	<u>21.4%</u>	<u>480,140</u>	<u>13.3%</u>
Totals	3,911	100.0%	3,617,316	100.0%

SOURCE: U.S. Census Bureau, Census data for 1990 and 2000, estimated population for 2007 (www.census.gov [October 2008]).

Table 6
Race and Ethnic Groups -
for Population Numbers and Percent of Total Population
Ellis County and the State of Oklahoma

Race/Ethnic Groups	Ellis County		State of Oklahoma	
	Number	Percent	Number	Percent
1990 Census				
White	4,281	95.2%	2,583,512	82.1%
Black	2	0.0%	233,801	7.4%
Native American ¹	63	1.4%	252,420	8.0%
Other ²	13	0.3%	75,852	2.4%
Two or more Races ³	n/a	n/a	n/a	n/a
Hispanic Origin ⁴	138	3.1%	86,160	2.7%
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2000 Census				
White	3,864	94.9%	2,721,554	78.9%
Black	2	0.0%	264,235	7.7%
Native American ¹	46	1.1%	275,558	8.0%
Other ²	4	0.1%	50,686	1.5%
Two or more Races ³	51	1.3%	138,621	4.0%
Hispanic Origin ⁴	106	2.6%	179,304	5.2%
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2007 Estimates				
White	3,628	92.8%	2,597,918	71.8%
Black	3	0.1%	278,417	7.7%
Native American ¹	56	1.4%	277,276	7.7%
Other ²	4	0.1%	67,087	1.9%
Two or more Races ³	62	1.6%	138,412	3.8%
Hispanic Origin ⁴	158	4.0%	261,635	7.2%

SOURCE: U.S. Census Bureau, Census data for 1990 and 2000, estimated population for 2007 (www.census.gov [October 2008]).

¹ Native American includes American Indians and Alaska Natives.

² Other is defined as Asian Americans, Native Hawaiians, Pacific Islanders and all others.

³ Two or more races indicate a person is included in more than one race group.

⁴ Hispanic population is not a race group but rather a description of ethnic origin; Hispanics are included in the five race groups.

n/a - Not available; 1990 census did not report this category

The Direct Economic Activities

The health sector creates employment and payroll impacts, which are important direct economic activities for the Newman Memorial Hospital service area. The health sector is divided into the following six components:

- Hospital
- Physicians, Dentists, and Other Medical Professionals
- Nursing and Protective Care
- Home Health
- Pharmacies
- Other Medical and Health Services

The health sector in the Newman Memorial Hospital medical service area employs 191 full-time and part-time employees and has an estimated payroll of \$9,165,421 (**Table 7**). The health sector in Ellis County is typical of counties of its size, with one hospital, home health and a physical therapy unit included in the hospital, one clinic, one dental office, one optometry office, one nursing home, one EMS service, and two pharmacies.

The Hospital component provides 92 full and part-time jobs with an estimated annual payroll of \$4,215,210 (including benefits¹). The Physicians, Dentists, and Other Medical Professionals component employs 36 total full-time and part-time employees with an estimated annual payroll of \$2,889,175. The Nursing and Protective Care component creates 53 full-time and part-time jobs and an estimated annual payroll of \$1,569,900. The Other Medical and Health Services and Pharmacies component, which one EMS service and two pharmacies employs 10 total full-time and part-time employees and has an estimated annual payroll of \$491,136.

¹ The ratios for benefits are derived from the 2002 Economic Census Data-Oklahoma Health Care and Social Assistance by industry, U.S. Census Bureau.

Table 7

**Direct Economic Activities of the Health Sector
in the Newman Memorial Hospital Medical Service Area**

Component	Full-Time & Part- Time Employment	Total Payroll with Benefits
Hospital Includes Newman Memorial Hospital, Newman Memorial Physical Therapy, and Newman Memorial Home Health	92	\$4,215,210
Physicians, Dentists, & Other Medical Professionals Includes one clinic, one dental office, and one optometry office	36	\$2,889,175
Nursing and Protective Care Includes one nursing homes	53	\$1,569,900
Other Medical & Health Services/Pharmacies One EMS service and two pharmacies	<u>10</u>	<u>\$491,136</u>
Totals	<u>191</u>	<u>\$9,165,421</u>

SOURCE: Local survey and estimates from research.

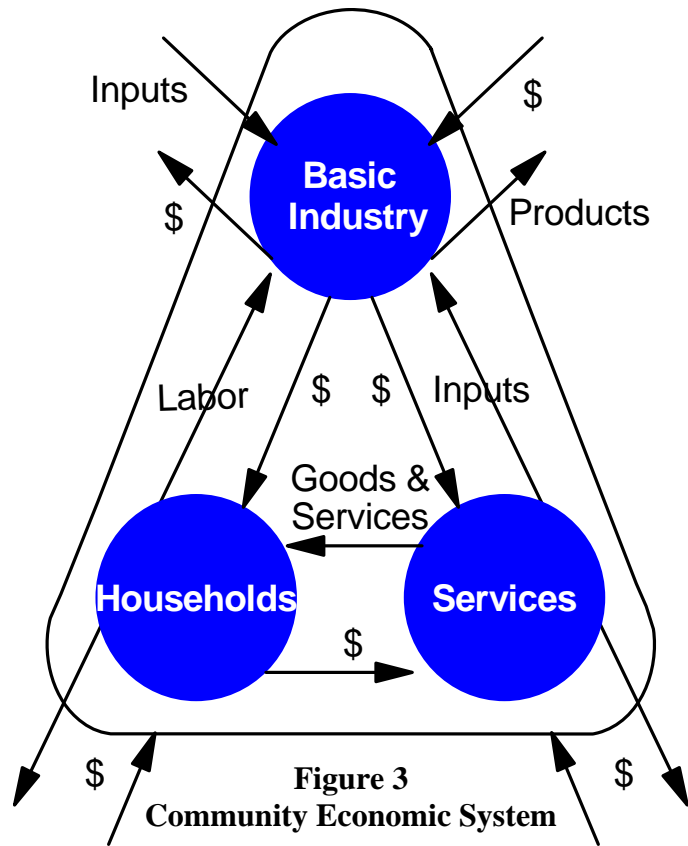
The health sector is vitally important as both a community employer and a source of income to the community's economy. As demonstrated in **Table 7**, the health sector employs a large number of residents.

These residents, along with businesses in the health sector, purchase a large amount of goods and services from businesses in the Newman Memorial Hospital medical service area. These impacts are referred to as secondary impacts or benefits to the economy. Before the secondary impacts of the health sector are discussed, the basic concepts of community economics will be reviewed.

Basic Concepts of Community Economics and Income and Employment Multipliers

Figure 3 illustrates the major flows of goods, services, and dollars of any economy. The foundations of a community's economy are those businesses that sell some or all of their goods and services to buyers outside of the community. Such a business is a basic industry. The two arrows in the upper right portion of

Figure 3 represent the flow of products out of, and dollars into, a community. To produce these goods and services for "export" outside the community, the basic industry purchases inputs from outside of the community (upper left portion of **Figure 3**), labor from the residents or "households" of the community (left side of **Figure 3**), and inputs from service industries located within the community (right side of **Figure 3**). Households using their



earnings to purchase goods and services from the community's service industries complete the flow of labor, goods, and services in the community (bottom of **Figure 3**). It is evident from the relationships illustrated in **Figure 3** that a change in any one segment of a community's economy will cause reverberations throughout the entire economic system of the community.

Consider, for instance, the closing of a hospital. The services section will no longer pay employees and the dollars flowing into households from these jobs will stop. Likewise, the hospital will not purchase goods from other businesses, and the dollar flow to other businesses will stop. This decreases income in the "households" segment of the economy. Since earnings would decrease, households decrease their purchases of goods and services from businesses within the "services" segment of the economy. This, in turn, decreases the amount of labor and input that these businesses' purchase. Thus, the change in the economic base works its way throughout the entire local economy. The total impact of a change in the economy consists of direct, indirect, and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the closing of a hospital. The impacting business, such as the hospital, changes its purchase of inputs as a result of the direct impact. This produces an indirect impact in the business sectors.

Both the direct and indirect impacts change the flow of dollars to the community's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a community is referred to as an induced impact. A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect. The multipliers used in this report are defined as:

“...the ratio between direct employment (or income), or that employment (or income) used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment (or income).”

An employment multiplier of 3.0 indicates that if one job is created by a new industry, 2.0 jobs are created in other sectors due to business (indirect) and household (induced) spending.

Secondary Impacts of the Health Sector on the Economy of Newman Memorial Hospital

Employment and income multipliers for the area have been calculated by use of the IMPLAN model. This model was developed by the U.S. Forest Service² and allows for the development of multipliers for various sectors of an economy. The employment multipliers for the components of the health sector are shown in **Table 8**, column 3. The employment multiplier for the Hospital component is 1.25. This indicates that for each job in that component, an additional 0.25 jobs are created throughout the area due to business (indirect) and household (induced) spending. The employment multipliers for the other health sector components are also shown in **Table 8**, column 3.

Applying the employment multipliers to the employment for each component yields an estimate of the impact on the economy (**Table 8**, columns 2, 3, and 4). For example, the hospital has a direct employment of 92 full-time and part-time employees; applying the employment multiplier of 1.25 to the employment number of 92 brings the total employment impact of the hospital to 115 employees. The Physicians, Dentists, and Other Professionals component employs 36 people; however, the total impact is 51 employees once the multiplier of 1.40 is applied. The Nursing and Protective Care component employs 53 people directly.

² For complete details of model, see [1], [2], and [3].

Table 8
Newman Memorial Hospital Medical Service Area Health Sector Impact
on Employment and Income, and Retail Sales and Sales Tax

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Health Sectors	Employment			Income			Retail	1 Cent
	Employed	Multiplier	Impact	Income	Multiplier	Impact	Sales	Sales Tax
Hospitals	92	1.25	115	\$4,215,210	1.25	\$5,257,703	\$2,957,458	\$29,575
Physicians, Dentists, & Other Medical Professionals	36	1.40	51	\$2,889,175	1.16	\$3,362,662	\$1,891,497	\$18,915
Nursing and Protective Care	53	1.18	62	\$1,569,900	1.17	\$1,842,617	\$1,036,472	\$10,365
Other Medical & Health Services/Pharmacies	<u>10</u>	<u>1.19</u>	<u>12</u>	<u>\$491,136</u>	<u>1.17</u>	<u>\$576,964</u>	<u>\$324,542</u>	<u>\$3,245</u>
Total	191		240	\$9,165,421		\$11,039,945	\$6,209,969	\$62,100

SOURCE: 2004 IMPLAN database, Minnesota IMPLAN Group, Inc.; Local data for employment, employee compensation and proprietor's income; income estimated based on state average incomes if local data not available

* Based on the ratio between Ellis County retail sales and income (56.25%) – from 2006 County Sales Tax Data and Personal Income Estimates from the Bureau of Economic Analysis.

Applying the multiplier of 1.18, the total employment impact is 62. The Other Medical and Health Services and Pharmacies component has 10 full-time and part-time employees and an employment multiplier of 1.19, for a total employment impact of 12. The total employment impact of the health sector in Newman Memorial Hospital medical service area is estimated to be 240 employees (**Table 8**, total of column 4).

Applying the income multipliers to the income (payroll including benefits) for each of the health sector components yields an estimate of each component's income impact on the Newman Memorial Hospital medical service area (**Table 8**, columns 5, 6, and 7). The income multiplier for the Hospital component is 1.25 (**Table 8**, column 6). This indicates that for each dollar in that component, an additional 0.25 dollars are created throughout the area due to business (indirect) and household (induced) spending. The Hospital component has a total payroll of \$4,215,210; applying the income multiplier of 1.25 brings the total Hospital component income impact to \$5,257,703. The income multipliers for the other health sector components are also shown in **Table 8**, column 6. The Physicians, Dentists, and Other Medical Professionals component has a total income impact of \$3,362,662, based on the application of the income multiplier of 1.16 to the \$2,889,175 payroll. The Nursing and Protective Care component has a payroll of \$1,569,900; applying the income multiplier of 1.17 brings the total impact to \$1,842,617. The Other Medical and Health Services and Pharmacies component has a total payroll of \$491,136 and an income multiplier of 1.17 leading to a total income impact of \$576,964. The total income impact of the health sector on the economy of Newman Memorial Hospital medical service area is projected to be \$11,039,945 (**Table 8**, total of column 7).

Income also has an impact on retail sales, and the health sector has its own distinct effect on these retail sales. The local retail sales capture ratio is used to estimate the effect of the health sector on retail sales. This ratio indicates the percentage of personal income spent locally on items that generate local sales tax. If the county ratio between retail sales and income continues

as it has in the past several years (around 56.25 percent), then direct and secondary retail sales generated by the health sector equals \$6,209,969 (**Table 8**, total of column 8). Each of the components' income impacts is utilized to determine the retail sales and a one-cent sales tax collection for each component. A one-cent sales tax collection is estimated to generate \$62,100 in the Newman Memorial Hospital medical service area economy as a result of the health sector income impact (**Table 8**, total of column 9). This estimate is probably low, as many health care employees tend to spend a larger proportion of their income in local establishments that collect sales tax. The bottom line is that the health sector in Newman Memorial Hospital medical service area not only contributes greatly to the medical health of the community, but also to the economic health of the community.

Summary

The economic impact of the health sector on the economy of Newman Memorial Hospital medical service area is tremendous. The health sector employs a large number of residents, similar to a large industrial firm. The secondary impact occurring in the community is extremely large and is a testament to the importance of the health sector. If the health sector increases or decreases in size, the medical health of the community, as well as the economic health of the community, is greatly affected. For the attraction of industrial firms, businesses, and retirees, it is crucial that the area have a quality health sector. The fact that a prosperous health sector also contributes to the economic health of the community is often overlooked.

References

- [1] IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software – USER'S GUIDE, ANALYSIS GUIDE, DATA GUIDE, MIG, Minnesota IMPLAN Group, 2nd Edition, June 2000.

- [2] Palmer, Charles and Eric Siverts, IMPLAN ANALYSIS GUIDE. U.S. Department of Agriculture, Forest Service Land Management Planning Systems Section, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, 1985.
- [3] Siverts, Eric, Charles Palmer, Ken Walters, and Greg Alward, IMPLAN USER'S GUIDE, U.S. Department of Agriculture, Forest Service, Systems Application Unit, Land Management Planning, Fort Collins, Colorado, 1983.