

**An Analysis of the Potential Need  
for Primary Care Practitioners and Specialty Physicians  
in the Medical Service Area of Okeene Municipal Hospital**



Prepared by:

National Center for Rural Health Works  
Oklahoma State University

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## **Introduction**

This report will examine the need for primary care practitioners and specialty physicians in the medical service areas of Okeene Municipal Hospital in Okeene, Oklahoma. Primary care practitioners include family practice or general medicine physicians, internal medicine physicians, OB/GYN, pediatricians and mid-level primary care practitioners. Specialty physicians included are allergists, cardiologists, gastroenterologists, oncologists, nephrologists, neurologists, pulmonologists, rheumatologists, surgeons performing general surgeries and surgeons performing specialty surgeries in the areas of ENT, ophthalmology, orthopedics and urology. Specifically, the study will:

1. Illustrate the populations of the primary and secondary medical service areas (MSAs) of Okeene Municipal Hospital;
2. Estimate total office visits and primary care physician office visits in the MSAs of Okeene Municipal Hospital;
3. Estimate the total need for primary care practitioners in the MSAs of Okeene Municipal Hospital based on local usage rates; and
4. Estimate the need for selected specialty physicians in the MSAs.

No recommendations will be made. The information included in this report is designed to assist local decision-makers in assessing the need for primary care practitioner services and specialty physician services.

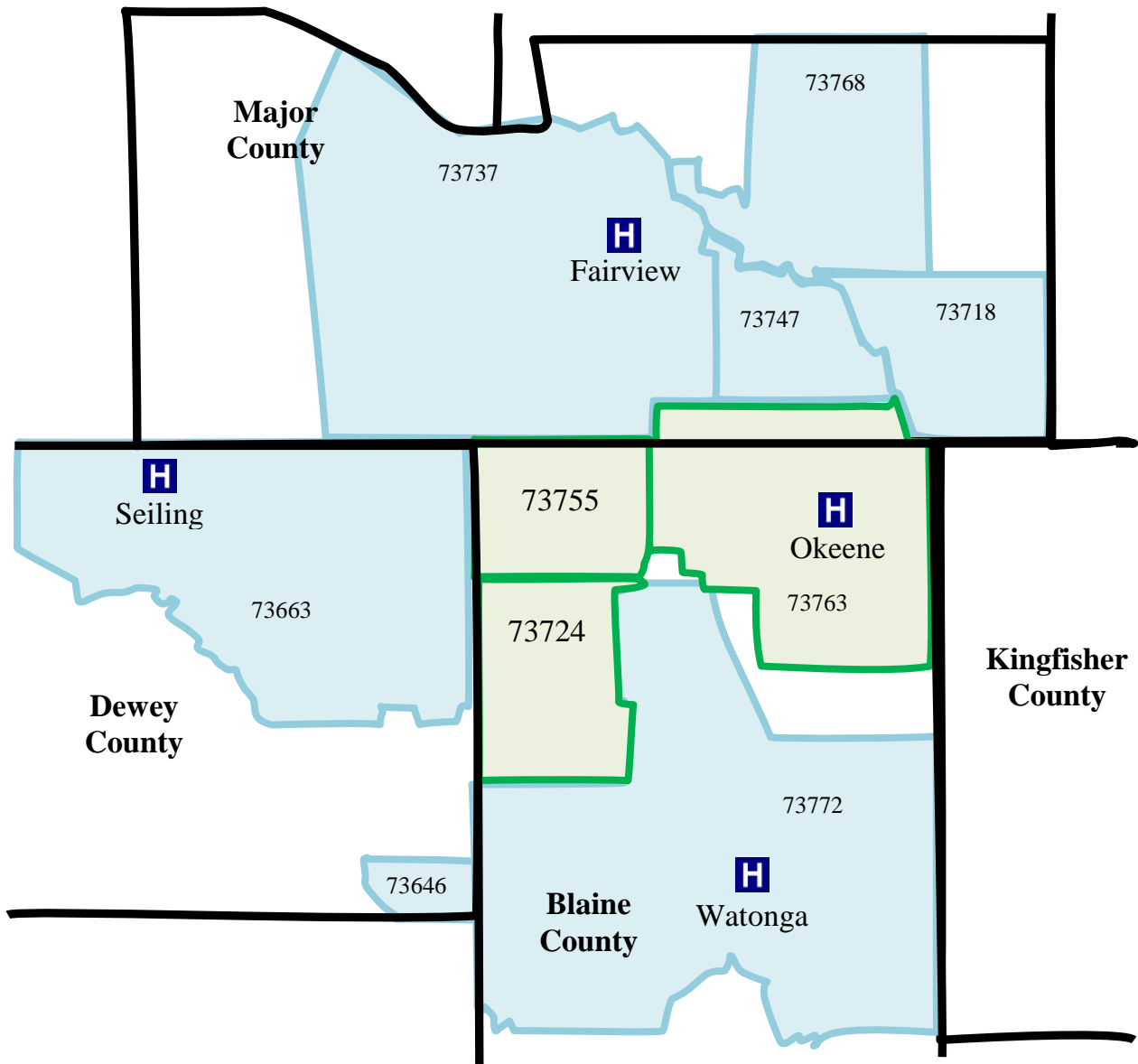
## Medical Service Area of Okeene Municipal Hospital

The MSA of Okeene Municipal Hospital includes a primary and a secondary MSA. The primary MSA includes three zip code areas: 73724 Canton, 73755 Longdale, and 73763 Okeene. The secondary MSA includes seven zip codes: 73646 Fay, 73663 Seiling, 73718 Ames, 73737 Fairview, 73747 Isabella, 73768 Ringwood, and 73772 Watonga. **Figure 1** illustrates the zip code medical service areas (MSAs) utilized in this study. Most hospital MSA's can be divided into areas, i.e., primary, secondary and/or tertiary based on the utilization by the residents. The difference in utilization is typically impacted by distance from another hospital and/or physician clinic. For this analysis, it was assumed that 95 percent of the primary service area population utilizes the health care services at the hospital. Many of the residents located in the other seven zip codes utilize health care services at alternative hospital MSAs such as Watonga, Seiling, and Fairview. Therefore, the other seven zip codes were designated as the secondary MSA with an estimated 30 percent of the population utilizing health care services of the hospital.




**Table 1** presents the 2010 Census population by age and gender for each zip code. The total population for the primary MSA was 3,718 and the secondary MSA was 13,556. **Table 2** presents the estimated number of annual physician office visits by age and gender. For instance, for males under age fifteen, the average number of annual physician office visits is 2.8 visits per year. These data were from the National Ambulatory Health Care Survey: 2010 Summary Tables from the U. S. Department of Health and Human Services.

**Table 3** presents the number of annual physician office visits generated in the primary and secondary MSAs. These office visits were estimated by multiplying the 2010 Census population by age and gender groups by the corresponding estimated number of annual physician office visits. Of these total office visits, recent data indicate that 55.5 percent of total physician

**Figure 1**  
**Medical Service Area of Okeene Municipal Hospital with Primary and**  
**Secondary Zip Code Areas and Surrounding Counties and Hospitals**



Okeene Municipal Hospital	Okeene, Blaine County
Fairview Regional Medical Center	Fairview, Major County
Mercy Hospital Watonga	Watonga, Blaine County
Seiling Municipal Hospital	Seiling, Dewey County

-  County Boundaries
-  Primary Medical Service Area Zip Codes Areas
-  Secondary Medical Service Area Zip Codes Areas

**Table 1**  
**Okeene Municipal Hospital Medical Service Area Population 2010**  
**Primary Medical Service Area**

Age	<u>73724</u>		<u>73755</u>		<u>73763</u>		Primary MSA		2010
	Male	Female	Male	Female	Male	Female	Male	Female	Total
< 15	128	150	74	61	178	154	<b>380</b>	<b>365</b>	<b>745</b>
15-24	44	43	32	18	62	55	<b>138</b>	<b>116</b>	<b>254</b>
25-44	30	32	22	22	36	30	<b>88</b>	<b>84</b>	<b>172</b>
45-64	140	126	97	87	176	162	<b>413</b>	<b>375</b>	<b>788</b>
65-74	147	135	159	146	231	217	<b>537</b>	<b>498</b>	<b>1,035</b>
75+	<u>92</u>	<u>123</u>	<u>98</u>	<u>89</u>	<u>141</u>	<u>181</u>	<b><u>331</u></b>	<b><u>393</u></b>	<b><u>724</u></b>
Total	581	609	482	423	824	799	<b><u>1,887</u></b>	<b><u>1,831</u></b>	<b><u>3,718</u></b>

**Secondary Medical Service Area**

Age	<u>73646</u>		<u>73663</u>		<u>73718</u>		<u>73737</u>	
	Male	Female	Male	Female	Male	Female	Male	Female
< 15	38	19	155	161	57	40	295	337
15-24	12	8	51	37	14	8	97	96
25-44	9	9	28	21	8	12	78	89
45-64	41	31	142	150	53	62	342	356
65-74	67	70	170	183	76	73	493	489
75+	41	39	100	134	51	47	284	411
Total	208	176	646	686	259	242	1,589	1,778

Age	<u>73747</u>		<u>73768</u>		<u>73772</u>		Secondary MSA		2010
	Male	Female	Male	Female	Male	Female	Male	Female	Total
< 15	20	22	195	164	474	457	<b>1,234</b>	<b>1,200</b>	<b>2,434</b>
15-24	12	11	64	57	136	120	<b>386</b>	<b>337</b>	<b>723</b>
25-44	14	4	37	28	448	124	<b>622</b>	<b>287</b>	<b>909</b>
45-64	31	30	181	180	1,957	439	<b>2,747</b>	<b>1,248</b>	<b>3,995</b>
65-74	47	37	222	212	746	568	<b>1,821</b>	<b>1,632</b>	<b>3,453</b>
75+	<u>30</u>	<u>27</u>	<u>98</u>	<u>130</u>	<u>272</u>	<u>378</u>	<b><u>876</u></b>	<b><u>1,166</u></b>	<b><u>2,042</u></b>
Total	154	131	797	771	4,033	2,086	<b><u>7,686</u></b>	<b><u>5,870</u></b>	<b><u>13,556</u></b>

SOURCE: U.S. Census Bureau [www.census.gov (August 2015)].

**Table 2**  
**Annual Primary Care Physician Office Visits by Age Group**

Age Group	Male Visit Rate <sup>1</sup>	Female Visit Rate <sup>1</sup>
< 15	2.8	2.6
15-24	1.4	2.5
25-44	1.7	3.4
45-64	3.2	4.2
65-74	6.0	6.5
75+	7.6	6.9

<sup>1</sup> Source: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2010 Summary Tables [http://www.cdc.gov/nchs/data/ahcd/namcs\_summary/2010\_namcs\_web\_tables.pdf (July 2015)].

**Table 3**  
**Annual Primary Care Office Visits Generated**  
**in Okeene Municipal Hospital Medical Service Area**

Age	Male			Female			Total Visits
	2010 Population <sup>1</sup>	Visit Rate <sup>2</sup>	Visits	2010 Population <sup>1</sup>	Visit Rate <sup>2</sup>	Visits	
<b>Primary Medical Service Area</b>							
< 15	380	2.8	1,064	365	2.6	949	2,013
15-24	138	1.4	193	116	2.5	290	483
25-44	88	1.7	150	84	3.4	286	436
45-64	413	3.2	1,322	375	4.2	1,575	2,897
65-74	537	6.0	3,222	498	6.5	3,237	6,459
75+	<u>331</u>	7.6	<u>2,516</u>	<u>393</u>	6.9	<u>2,712</u>	<u>5,228</u>
<b>Subtotal</b>	1,887		8,467	1,831		9,049	<b>17,516</b>
<b>Local Primary Care Office Visits Per Year</b> (17,516 x 0.555 = 9,721)							<b>9,721</b>
<b>Secondary Medical Service Area</b>							
< 15	1,234	2.8	3,455	1,200	2.6	3,120	6,575
15-24	386	1.4	540	337	2.5	843	1,383
25-44	622	1.7	1,057	287	3.4	976	2,033
45-64	2,747	3.2	8,790	1,248	4.2	5,242	14,032
65-74	1,821	6.0	10,926	1,632	6.5	10,608	21,534
75+	<u>876</u>	7.6	<u>6,658</u>	<u>1,166</u>	6.9	<u>8,045</u>	<u>14,703</u>
<b>Subtotal</b>	7,686		31,426	5,870		28,834	<b>60,260</b>
<b>Local Primary Care Office Visits Per Year</b> (60260 x 0.555 = 33,444)							<b>33,444</b>

Source: U.S. Census data [August 2015]; U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2010 Summary Tables [http://www.cdc.gov/nchs/data/ahcd/namcs\_summary/2010\_namcs\_web\_tables.pdf (August 2015)].

office visits will be made to practitioners active in primary patient care while the remainder will be made to specialists [3].

Using the office visit data presented in **Table 2**, the primary MSA will generate 17,516 total annual physician office visits (**Table 3**). The local primary care physician office visits were based on 55.5 percent of total office visits to primary care practitioners for a total of 9,721 primary care office visits ( $17,516 \times 0.555 = 9,721$ ). The secondary MSA will generate 33,444 primary care office visits ( $60,260 \times 0.555 = 33,444$ .)

The total number of primary care office visits given various utilization rates from the primary and secondary MSAs is presented in **Table 4**. The usage levels will not be the same for both areas and will depend on location of physicians, geographic or transportation barriers and personal preferences. If 95 percent of the residents in the primary MSA and 30 percent of the residents in the secondary MSA utilize physicians in the Okeene Municipal Hospital MSA, the estimated annual primary care office visits would total 19,269.

The national average for the number of annual office visits to each primary care physician is 5,000 [3]. Utilizing this average, the MSA could support an estimated 3.9 primary care physicians. Okeene Municipal Hospital and its local practitioners draw patients from zip codes that are clearly in close proximity to other providers. It can be difficult to measure the demand generated by the secondary MSA. If necessary, local officials can use the information presented in **Table 4** to more accurately represent the utilization of the secondary MSA population.

As presented in **Table 5**, Okeene Municipal Hospital currently has three full-time equivalent family practice physicians and one family practice physician assistant. For this study, it was assumed that NPs and PAs provide care to approximately 50 percent of the number of



**Table 4**  
**Primary Care Office Visits Given Usage**  
**By Local Residents in Okeene Municipal Hospital Medical Service Area**

<i>No. of Office Visits Based on Usage Levels</i>								
Usage by Residents of Primary Service Area								
Usage by Residents of Secondary Service Area		70%	75%	80%	85%	90%	95%	100%
	10%	10,149	10,635	11,122	11,608	12,094	12,580	13,066
	20%	13,494	13,980	14,466	14,952	15,438	15,924	16,410
	30%	16,838	17,324	17,810	18,296	18,783	<b>19,269</b>	19,755
	40%	20,183	20,669	21,155	21,641	22,127	22,613	23,099
	50%	23,527	24,013	24,499	24,985	25,471	25,957	26,444
	60%	26,872	27,358	27,844	28,330	28,816	29,302	29,788
	70%	30,216	30,702	31,188	31,674	32,160	32,646	33,132

<i>No. of Primary Care Physicians Needed to Service Area Based on Usage Levels</i>								
Usage by Residents of Primary Service Area								
Usage by Residents of Secondary Service Area		70%	75%	80%	85%	90%	95%	100%
	10%	2.0	2.1	2.2	2.3	2.4	2.5	2.6
	20%	2.7	2.8	2.9	3.0	3.1	3.2	3.3
	30%	3.4	3.5	3.6	3.7	3.8	<b>3.9</b>	4.0
	40%	4.0	4.1	4.2	4.3	4.4	4.5	4.6
	50%	4.7	4.8	4.9	5.0	5.1	5.2	5.3
	60%	5.4	5.5	5.6	5.7	5.8	5.9	6.0
	70%	6.0	6.1	6.2	6.3	6.4	6.5	6.6

If 95% primary medical service area and 30% secondary medical service area, then the usage would be:  
 19,269 total primary care office visits  
 for an estimated 3.9 Total Primary Care Physicians  
 Based on 5,000 average annual primary care office visits per physician practice

office visits as a primary care physician. This results in 3.5 FTE primary care physicians. Based on the results of this study showing the need for 3.9 primary care physicians, there may be a need for another 0.5 family practice physician or one midlevel provider in the Okeene Municipal Hospital MSA. Higher usage levels would indicate that additional practitioners could be supported. Users of the data will have to choose the most appropriate utilization rates and

estimate primary care practitioner needs based on local knowledge. All assumptions and local conditions including actual utilization levels and patient volume managed by NPs and PAs must be considered. Again, primary care practitioners include family practice and general medicine physicians, internal medicine physicians, OB/GYN, pediatricians, NPs and PAs. All types of practitioners should be considered when analyzing the primary care practitioner needs in the MSAs.

**Table 5**  
**List of Family Practice Physicians and Mid-Level Practitioners**  
**in Medical Service Area of Okeene Municipal Hospital**

<b>Physician Name</b>	<b>Type of Practice</b>	<b>FTEs</b>	<b>Physician FTEs</b>
<i><b>Full-Time Physicians</b></i>			
Dr. Kirt Bierig, D.O.	Family Practice	1.00	1.00
Dr. George Stenger, D.O.	Family Practice	1.00	1.00
Dr. Michael Talley, M.D.	Family Practice	1.00	1.00
<b>Full-Time Midlevel Providers</b>			
Amy Williams, PA-C	Family Practice	1.00	0.50
<b>Total FTEs</b>		<b><u>4.00</u></b>	<b><u>3.50</u></b>

SOURCE: Okeene Municipal Hospital (August 2015).

## Estimating Need for Specialty Physicians

To estimate the need for specialty physicians, a different methodology was utilized. From the literature, averages of baseline populations were determined that represented the level of population necessary to support a specialty physician in each respective specialty [4,5]. Based on these average population-to-specialty physician ratios, an estimate of need was determined for eight medical specialties and five surgical specialties.

**Table 6** presents the ratio between the baseline population and the support of FTEs of specialty physicians given each particular specialty, along with the equivalency of FTEs to workdays per week. For example, a population of 12,389 would be required to fully employ one general surgeon. Based on the assumption that the utilization rates would be the same for

**Table 6**  
**Specialty Physician Need in Okeene Municipal Hospital Medical Service Area**

Specialty Type	Population to Specialty Physician Ratios	Specialty Physician FTEs	Equivalent Workdays Per Week
<b>Medical Specialties</b>			
Allergy	93,782	0.08	0.4
Cardiology	25,501	0.30	1.5
Gastroenterology	41,111	0.18	0.9
Oncology	46,667	0.16	0.8
Nephrology	65,333	0.12	0.6
Neurology	40,667	0.19	0.9
Pulmonary	58,589	0.13	0.6
Rheumatology	85,557	0.09	0.4
<b>Surgical Specialties</b>			
ENT	35,370	0.21	1.1
General Surgery	12,389	0.61	3.1
Ophthalmology	26,638	0.29	1.4
Orthopedic	16,802	0.45	2.3
Urology	33,974	0.22	1.1

SOURCE: “The Economic Impact of a Rural Primary Care Physician and the Potential Health Dollars Lost to Out-Migrating Health Care Services,” Eilrich, F, Doeksen, G.A., and St. Clair, Cheryl F., National Center for Rural Health Works, Oklahoma State University, January 2007 [www.ruralhealthworks.org [August 2015)].

specialist as primary care practitioners, the surgical needs in the Okeene Municipal Hospital MSAs would support approximately 0.6 general surgeons which is equivalent to 3.1 workdays per week. **Table 6** also presents these estimates for the other specialty physicians. There are minimal specialty physicians currently providing services in the Okeene Municipal Memorial Hospital service area. **Table 7** shows a urologist and a cardiologist providing quarterly visits. The hospital has also just started a tele-hospitalist program the end of July and no estimates of actual usage are available yet.

**Table 7**  
**List of Specialty Physicians in Medical Service Area**  
**of Okeene Municipal Hospital**

<b>Physician Name</b>	<b>Type of Practice</b>	<b>Frequency</b>	<b>FTEs</b>
Dr. Rodney Worthen, M.D.	Urology	1/2day q 3rd wk	0.03
Dr. Gary Worcester, M.D.	Cardiology	1/2 day q other wk	0.05
Dr. Robert Rader, M.D.	Tele-Hospitalist	as needed	New*
Dr. Gregory Blair, M.D.	Tele-Hospitalist	as needed	New*
Dr. Mark Fogle, M.D.	Tele-Hospitalist	as needed	New*
Dr. Jared Matthew, M.D.	Tele-Hospitalist	as needed	<u>New*</u>
<b>Total FTEs</b>			<u>0.08</u>

SOURCE: Okeene Municipal Hospital (August 2015).

\* New program just started end of July 2015.

Typically, since smaller, rural populations are only able to support a fraction of a FTE for many of the specialty care physicians, hospitals or other entities host specialty clinics that have a rotation of specialty care physicians practicing there. The supporting hospital usually provides the facility and maybe an office person to help with scheduling and the physician brings clinical staff and completes the billing. In this way, the specialty care physician needs of the community can be met without a specialty care physician actually residing in the community.

Unique economic impacts are gained through a community utilizing specialty physician clinics. However; the impacts on the local community are difficult to quantify. Different diagnoses and specialists will bring differing revenues. Notably, research has shown that by providing specialty clinics in communities, fewer dollars are out-migrated to other communities for laboratory and pharmacy services. A 2006 survey in Louisiana found that over 90 percent of the patients who went out-of-town to visit a specialist also received their laboratory work and pharmacy services at the specialists' locations [7].

## Summary

The analysis above presents the methodology and results for estimating the need for primary care practitioners and specialty physicians in the MSAs of Okeene Municipal Hospital, located in Okeene, Oklahoma. The results for primary care practitioners suggest that, given a 95 percent utilization rate from the primary MSA and a 30 percent utilization rate from the secondary service area, an estimated 3.9 FTE primary care physicians can be supported. Currently, there are 3.5 physician equivalents providing family practice services. The actual number of physicians that the MSA of Okeene Municipal Hospital can support will vary based on the locally-determined utilization rates. Estimates of these utilization rates should be used in conjunction with the current status of the primary care physicians, NPs and PAs in the MSA.

In addition to estimating the need for primary care practitioners, a methodology was introduced that can assist communities in determining the need for selected specialty physicians. Based on the population of the MSA, an FTE of 0.6 general surgeons could be supported by patients of Okeene Municipal Hospital. The need for general surgeon services is equivalent to 3.1 days per week. The other selected specialties are also illustrated.

Many assumptions have been made in this analysis. These include items that may change, such as the area included in the MSA, the total population in the MSA or usage rates of the primary and secondary MSAs. These assumptions will change with the exit or entry of physicians or NPs and PAs from nearby communities. Should this occur, revised estimates of office visits should be calculated.

All assumptions should be closely examined by local decision-makers to verify that they reflect local conditions. If additional local data are available, these data should be utilized to derive the most realistic conclusion possible for the local community.

## References

- [1] Doeksen, G.A., Miller, K.A., Shelton, P.J., and Miller, D.A., "Family Medicine – A Systematic Approach to the Planning and Development of a Community Practice," University of Oklahoma Health Sciences Center, 1990.
- [2] Miller, K.A., Doeksen, G.A., Miller, D., Campbell, J., and Shelton, P.J., "Internal Medicine - A Systematic Approach to the Planning and Development of a Community Practice - A Step-by-Step Guide," University of Oklahoma Health Sciences Center, 1993.
- [3] U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2010 Summary Tables.
- [4] Eilrich, F., Doeksen, G.A., and St. Clair, C.F., "The Economic Impact of a Rural Primary Care Physician and the Potential Health Dollars Lost to Out-Migrating Health Care Services," National Center for Rural Health Works, Oklahoma State University, January 2007.
- [5] Weiner, Jonathan P., "Prepaid Group Practice Staffing and U.S. Physician Supply: Lessons for Workforce Policy," Health Affairs, February 4, 2004, pp.43-59.
- [6] Shell, Eric, Stroudwater Associates, "Performance Improvement Strategies for Rural Hospitals", paper presented at 4th Annual Oklahoma Rural Hospital Conference, Oklahoma City, April 2006.
- [7] Doeksen, G.A., St.Clair, C., Hartman, P., Schott, V. "Hardtner Medical Center Telephone Survey," National Center for Rural Health Works, Oklahoma Cooperative Extension, Oklahoma State University, July 2006.