Okmulgee Memorial Hospital
Medical Service Area-
Economic Impact of the Health Sector

Hospitals

Nursing Home

Community

Doctors &
Other Professionals

Other Medical Services

Pharmacies

Oklahoma State Department of Health
Office of Rural Health

Oklahoma Cooperative Extension Service
Oklahoma State University
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The Economic Impact of the Health Sector on the Economy of the Okmulgee Memorial Hospital Medical Service Area

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RURAL DEVELOPMENT
OKLAHOMA COOPERATIVE EXTENSION SERVICE
OKLAHOMA STATE UNIVERSITY

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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 number of people and have a large payroll, but they also draw into the community a large number of people from rural areas that need medical services. The overall objective of this study is to measure the economic impact of the health sector on the economy of the Okmulgee Memorial Hospital medical service area. The specific objectives of this report are to:

1. summarize the direct economic activities of the health sector;
2. review concepts of community economics and multipliers; and
3. estimate the secondary impacts of the health sector on the economy of the Okmulgee Memorial Hospital medical service area.

No recommendations will be made in this report.

Demographic and Economic Data

The population for the Okmulgee Memorial Hospital medical service area will be illustrated in this section. The medical service area consists of the central portion of Okmulgee County bounded by Beggs on the north, Morris and Grayson on the east, Dewar on the south and the Okmulgee State Park on the west. The population of the Okmulgee Memorial Hospital medical service area is presented in Table 1. The population of the town of Beggs was 1,364 according to the 2000 Census report. The town of Dewar had a population of 919 in 2000. According to the 2000 Census, the town of Grayson had a population of 134. The town of
Hoffman had a population of 148. The town of Morris had a population of 1,294 in 2000. The city of Okmulgee had a population of 13,022 according to the 2000 Census report. The remainder of the medical service area in Okmulgee County, calculated by counting households from Oklahoma Department of Transportation maps and persons per household from Woods & Poole, had an estimated population 4,610 in 2000. The total population in the Okmulgee Memorial Hospital medical service area is estimated to be 21,491 in 2000 according to the U. S. Census Bureau.

The Direct Economic Activities

Employment and payroll are the important direct economic activities created in the Okmulgee Memorial Hospital medical service area from the health sector. The health sector is divided into the following five components:

- Hospitals
- Doctors and Dentists (includes other medical professionals)
- Nursing and Protective Care
- Other Medical and Health Services (includes home health care and county health departments)
- Pharmacies

The total health sector in the Okmulgee Memorial Hospital medical service area employs 749 full-time equivalent employees and has an estimated income of $23,908,500 (Table 2). The health sector in the Okmulgee Memorial Hospital medical service area has one hospital, twenty physicians, seven dentists, three nursing homes, a county health department, an assisted living facility, a rehabilitation institute, and three pharmacies. The Hospital component employs 179 people with an annual income of $7,200,000. The Doctors, Dentists, and Other Professionals component employs 151 full-time equivalent employees with an annual income of $7,418,500.
### Table 1
Okmulgee Memorial Hospital
Medical Service Area Population

<table>
<thead>
<tr>
<th>Population</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Okmulgee County</td>
<td></td>
</tr>
<tr>
<td>Beggs</td>
<td>1,364</td>
</tr>
<tr>
<td>Dewar</td>
<td>919</td>
</tr>
<tr>
<td>Grayson</td>
<td>134</td>
</tr>
<tr>
<td>Hoffman</td>
<td>148</td>
</tr>
<tr>
<td>Morris</td>
<td>1,294</td>
</tr>
<tr>
<td>Okmulgee</td>
<td>13,022</td>
</tr>
<tr>
<td>Rest of Okmulgee County</td>
<td>4,610</td>
</tr>
</tbody>
</table>

**Okmulgee Memorial Hospital Medical Service Area Total**  21,491

SOURCE: 2000 US Census Bureau population; rural areas estimated from ODOT maps.
<table>
<thead>
<tr>
<th>Components</th>
<th>Estimated Employees</th>
<th>Estimated Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>179</td>
<td>$7,200,000</td>
</tr>
<tr>
<td>Okmulgee Memorial Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors, Dentists, and Other Medical Professionals</td>
<td>151</td>
<td>$7,418,500</td>
</tr>
<tr>
<td>(Includes 20 primary care physicians, 7 dentists, 3 chiropractors, 7 optometrists, &amp; 1 podiatrist)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing and Protective Care</td>
<td>156</td>
<td>$2,451,000</td>
</tr>
<tr>
<td>(Includes 3 nursing homes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Medical and Health Services</td>
<td>231</td>
<td>$5,929,000</td>
</tr>
<tr>
<td>(Includes 3 home health agencies, county health dept., 1 assisted living facility, 4 mental health facilities, 3 medical equipment providers, EMS &amp; rehabilitation institute)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>32</td>
<td>$910,000</td>
</tr>
<tr>
<td>(Includes 3 pharmacies &amp; 4 pharmacists)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>749</strong></td>
<td><strong>$23,908,500</strong></td>
</tr>
</tbody>
</table>

SOURCE: Local employment data and estimated income
The Nursing and Protective Care Component employs 156 people with an annual income of $2,451,000. The Other Medical and Health Component has a total of 231 employees totaling an income of $5,929,000. The Pharmacies Component includes 32 employees and has an annual income of $910,000. It should be noted that many rural communities have a large number of elderly, and the ranchers and farmers often retire in the towns. Thus, Nursing and Protective Care facilities are an important component of the health sector.

In summary, the health sector is vitally important as a community employer and important to the community's economy. The health sector definitely employs a large number of residents. The health sector and the employees in the health sector purchase a large amount of goods and services from businesses in the Okmulgee 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, basic concepts of community economics will be discussed.

Some Basic Concepts of Community Economics and Income and Employment Multipliers

Figure 1 illustrates the major flows of goods, services, and dollars of any economy. The foundation of a community's economy are those businesses, which sell some, or all of their goods and services to buyers outside of the community. Such a business is a basic industry. The flow of products out of, and dollars into, a community are represented by the two arrows in the upper right portion of Figure 1. 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 1), labor from the residents or "households" of the community (left side of
Figure 1.
Community Economic System
Figure 1), and inputs from service industries located within the community (right side of Figure 1). The flow of labor, goods, and services in the community is completed by households using their earnings to purchase goods and services from the community's service industries (bottom of Figure 1). It is evident from the interrelationships illustrated in Figure 1 that a change in any one segment of a community’s economy will have 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 dollars going to households will stop. Likewise, the hospital will not purchase goods from other businesses and 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 these businesses' purchases of labor and inputs. 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 purchases 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. A Type III multiplier is used in this report. It is defined as:

Type III - is the ratio between direct employment, or that employment used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment.

A Type III 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 Health Sector on the Economy of the Okmulgee Memorial Hospital Medical Service Area

Employment and income multipliers for the area have been calculated by use of the IMPLAN model. It was developed by the U.S. Forest Service and is a model that allows for development of county multipliers. The Type III employment multipliers for the five components of the health sector are shown in Table 3, column 3. The Type III employment multiplier for the hospital component is 1.76. This indicates that for each job created in that

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1 The Type III multiplier is a modified Type II multiplier and is calculated slightly differently than normal Type II methodology. Researchers feel it is more accurate. For specific reasons and how to calculate, see [1].

2 For complete details of model, see [1] and [2].
### Table 3
Economic Impact of the Health Sector on Employment, Income, Retail Sales, & Sales Tax in the Okmulgee Memorial Hospital Medical Service Area

<table>
<thead>
<tr>
<th>Health Sector Component</th>
<th>(2) Number</th>
<th>(3) Multiplier</th>
<th>(4) Impact</th>
<th>(5) Income</th>
<th>(6) Multiplier</th>
<th>(7) Impact</th>
<th>(8) Retail Sales 1</th>
<th>(9) One Cent Sales Tax 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>179</td>
<td>1.76</td>
<td>315</td>
<td>$7,200,000</td>
<td>1.54</td>
<td>$11,088,000</td>
<td>$3,659,040</td>
<td>$36,590</td>
</tr>
<tr>
<td>Doctors &amp; Dentists</td>
<td>151</td>
<td>1.91</td>
<td>288</td>
<td>$7,418,500</td>
<td>1.46</td>
<td>$10,831,010</td>
<td>$3,574,233</td>
<td>$35,742</td>
</tr>
<tr>
<td>Nursing &amp; Protective Care</td>
<td>156</td>
<td>1.67</td>
<td>261</td>
<td>$2,451,000</td>
<td>1.86</td>
<td>$4,558,860</td>
<td>$1,504,424</td>
<td>$15,044</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>231</td>
<td>1.76</td>
<td>407</td>
<td>$5,929,000</td>
<td>1.67</td>
<td>$9,901,430</td>
<td>$3,267,472</td>
<td>$32,675</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>32</td>
<td>1.63</td>
<td>52</td>
<td>$910,000</td>
<td>2.02</td>
<td>$1,838,200</td>
<td>$606,606</td>
<td>$6,066</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>749</strong></td>
<td><strong>1,323</strong></td>
<td><strong>1,323</strong></td>
<td><strong>$23,908,500</strong></td>
<td><strong>$38,217,500</strong></td>
<td><strong>$12,611,775</strong></td>
<td><strong>$126,117</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** 1998 IMPLAN Multipliers; Local employment and income data; 2000 BEA Data; 2001 retail sales tax collections, Okmulgee County, Oklahoma Tax Commission.

1 Based on local retail sales capture ratio of 33.0%

2 Since communities have different sales tax rates, the amount collected from a one cent sales tax is illustrated here.
sector, 0.76 jobs are created throughout the area due to business (indirect) and household (induced) spending. The Type III employment multipliers for the other health sector components are also shown in Table 3, column 3. The Type III income multiplier for the hospital sector is 1.54 (Table 3, column 6). This indicates that for each dollar created in that sector, 0.54 dollars are created throughout the area due to business (indirect) and household (induced) spending. The Type III income multipliers for the other four health sector components are also given in Table 3, column 6.

Applying the employment multipliers to the employment for each of the five health sector components yields an estimate of each component’s employment impact on the Okmulgee Memorial Hospital medical service area (Table 3, columns 2, 3, and 4). For example, the hospital has 179 employees; applying the Type III employment multiplier of 1.76 to the employment number of 179 brings the total employment impact of the hospital to 315 employees (179 x 1.76=315). The Doctors & Dentists component has a direct impact of 151 employees and with the application of the Type III multiplier of 1.91, the total impact comes to 288 employees. The Nursing and Protective Care component has a direct effect of 156 employees and an employment multiplier of 1.67, to bring the total impact to 261 employees. The Other Medical & Health Services component has a direct effect of 231 employees, an employment multiplier of 1.76 and a total employment impact of 407 employees. The Pharmacy component has 32 employees and a total impact of 52 employees, applying the employment multiplier of 1.63. The total employment impact of the health sector in the Okmulgee Memorial Hospital medical service area is estimated at 1,104 employees (Table 3, total of column 4).

Applying the income multipliers to the income (employee compensation and proprietor’s income) for each of the five health sector components yields an estimate of each component’s
income impact on the Okmulgee Memorial Hospital medical service area (Table 3, columns 5, 6, and 7). The Hospital component has a total income of $7,200,000; applying the Type III income multiplier of 1.54 brings the total Hospital income impact to $11,088,000 ($7,200,000 x 1.54 = $11,088,000). The Doctors and Dentists component has a total income impact of $10,831,010 based on the application of the income multiplier of 1.46 to the income of the Doctors and Dentists component of $7,418,500. The Nursing & Protective Care component has an income of $2,451,000, a multiplier of 1.86 resulting in an income impact of $4,558,860. The Other Medical & Health Services has an income impact of $9,901,430 based on the direct income of $5,929,000 and the income multiplier of 1.67. The Pharmacies component has an income impact of $1,838,200 based on the direct income of $910,000 and the income multiplier of 2.02. The total income impact of the health sector in the Okmulgee Memorial Hospital medical service area is projected to be $38,217,500 (Table 3, total of column 7).

Income also has an impact on retail sales. If the county ratio between retail sales and income continues as in the past several years, then direct and secondary retail sales generated by the health sector and its employees equals $12,611,775 (Table 3, total of column 8). Each of the five health sector components’ income impacts is utilized to determine the retail sales and a 1-cent sales tax collection for each component. Then the five components are totaled to determine the direct and secondary retail sales generated by the health sector. A 1-cent sales tax collection is estimated to generate $126,117 in the Okmulgee Memorial Hospital medical service area as a result of the total health sector impact (Table 3, total of column 9). This estimate is probably low, as many health care employees will spend a larger proportion of their income in local establishments that collect sales tax. The bottom line is that the health sector 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 upon the economy of the Okmulgee 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 measures the total impact 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 are greatly effected. For the attraction of industrial firms, businesses, and retirees, it is crucial that the area have a quality health sector. Often overlooked is the fact that a prosperous health sector also contributes to the economic health of the community.
References
