THE ECONOMIC IMPACTS OF DENTISTS,
PHYSICIAN ASSISTANTS,
OCCUPATIONAL THERAPISTS,
PHYSICAL THERAPISTS AND PHARMACISTS
ON THE STATE OF NEVADA
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INTRODUCTION

Recently additional attention has been given to the national health care industry because many national, state and local leaders realize that quality health care is vital to economic viability at the national, state and local level. Just as quality health care is vital to our nation and state, it is imperative to rural communities. A viable rural health sector in a rural area not only increases local quality of life, but also acts as a necessary input for future economic growth.

For many professions in the health industry, Nevada students must attend professional schools outside of the state to obtain necessary training. To assist Nevada students with tuition for these professional schools, the WICHE program has been used. For this analysis, impacts of medical professions, such as dentists, physician assistants, occupational therapists, physical therapists, and pharmacists are to be estimated for the state of Nevada. Nevada students seeking to become dentists, physician assistants, occupational therapists, physical therapists, and pharmacists, must go out of the state to obtain professional school training. Many use the WICHE program to financially support the cost of their professional training.

The overall objective of this study is to derive the economic impacts of selected medical professions on Nevada’s economy. Specific objectives are:

1. Review concepts of community economics and multipliers, and
2. Estimate economic impacts of medical professions, such as dentists, physician assistants, occupational therapists, physical therapists, and pharmacists on the state of Nevada.
Some Basic Concepts of Community Economics and Income
and Employment Multipliers

Figure 1 illustrates the major flows of goods, services and dollars in 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), 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 the spending of medical professions, such as dentists, physician assistants, occupational therapists, physical therapists and pharmacists and their employees. The medical professions (basic industry) pay employees and thus dollars go to households. Likewise, medical profession offices purchase goods from other businesses and dollars flow to other businesses. This increases income in the “households” segment of the economy. Since earnings increase, households increase their purchases of goods and services from businesses within the “services” segment of the economy. This in turn increases these businesses’ purchases of labor and inputs. Thus, the change in the economic base works its way throughout the entire local economy.
Figure 1: Overview of Community Economic System

- Basic Industry
- Goods & Services
- Households
- Service Firms

Inputs & Labor

$\text{PRODUCTS}$

$\text{LABOR}$

$\text{INPUTS}$

$\text{Households}$

$\text{Service Firms}$

$\text{Products}$

$\text{Labor}$

$\text{Products}$

$\text{Inputs & Labor}$
IMPACTS OF SELECTED MEDICAL PROFESSIONS
ON THE STATE OF NEVADA ECONOMY

The total state-wide economic impacts of medical professions, such as dentists, physician assistants, occupational therapists, physical therapists and pharmacists, were derived using the IMPLAN microcomputer input-output model. IMPLAN was developed by the U.S. Forest Service and is a model which can be used to derive state-wide economic impacts.¹

Dentists:

The state of Nevada does not have a dental school. Therefore a Nevada student can use the WICHE program for tuition assistance to attend a dental school outside the state.

Information as to costs of an average dental operation were obtained from the American Dental Association (1995). For a solo dentist operation, four employees would be employed as dental assistants and office personnel. Using the American Dental Association information, an average solo operation had $311,300 in total output, employed four employees and had an income of $154,200. Using the IMPLAN software, it was calculated that overall economic impact of a solo dentist’s office in the state of Nevada was total economic activity of $547,000, employment of 8 people, and total income impacts of $228,800.

<table>
<thead>
<tr>
<th>Economic Activity</th>
<th>Direct</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Economic Activity</td>
<td>$311,300</td>
<td>$547,100</td>
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<tr>
<td>Employment</td>
<td>4</td>
<td>7.88</td>
</tr>
<tr>
<td>Income</td>
<td>$154,200</td>
<td>$228,800</td>
</tr>
</tbody>
</table>

¹ Direct impact information from referenced materials on solo dental operations from the American Dental Association (1995). Secondary impacts calculated employing IMPLAN input-output model software.
Physician Assistant:

A Nevada student seeking to become a physician assistant will have to attend professional school outside the state of Nevada. For those attending professional school outside the state, the WICHE program is used for tuition assistance.

Information of physician assistants was obtained from the American Academy of Physician Assistants (1996). Physician assistants can be employed in private practice, specialty medical services, hospitals, etc. Since an average physician assistant practice could not be derived, the average salary of a new physician assistant was used to derive impacts. The American Academy of Physician Assistants (1996) indicated that the mean income nationally for a new graduate is $56,318. Using the national average starting salary and the IMPLAN microcomputer input-output software, statewide impacts were estimated. The national average was used for this analysis since data on new hiring of physician assistants in Nevada was not available.

For an average salary of $56,318, total medical sector output would be $96,600. Therefore the total economic impact on the Nevada economy of a starting physician assistant is $169,800. (See Table 2.) From a one employee increase, total employment increases by 1.97 jobs. With an average starting salary of $56,318, the total income impacts to the state would be $83,600.

<table>
<thead>
<tr>
<th>Economic Activity</th>
<th>Direct</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Employment</td>
<td>1</td>
<td>1.97</td>
</tr>
<tr>
<td>Income</td>
<td>$56,318</td>
<td>$83,600</td>
</tr>
</tbody>
</table>

| Economic Activity | $96,000 | $169,800 |

Table 2. State-Wide Economic Impacts of a Physician Assistant.

**Occupational Therapist:**

Since the state of Nevada does not have a professional school for occupational therapy, Nevada students must attend professional occupational therapy school outside the state. For those Nevada students attending professional schools outside the state, the WICHE program can be used for tuition assistance.

Information for occupational therapists was obtained from the American Occupational Therapy Association (1996). Occupational therapists can be employed in private practice, specialty medical services, hospitals, etc. Since an average occupational therapist’s practice could not be derived, the average starting salary of a new occupational therapist was used to derive impacts. From the American Occupational Therapy Association (1996) indicated that the average starting salary for a new graduate is $38,300. Based on that figure, the IMPLAN microcomputer input-output software, statewide impacts were estimated.

For an average salary of $38,300, total medical sector output would be $65,700. The total impact on the Nevada economy would be $115,480. (See Table 3.) For a one employee increase, total employment increases by 1.97. Total income impacts would be $56,840.

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**Table 3. State-Wide Economic Impacts of an Occupational Therapist**

<table>
<thead>
<tr>
<th>Economic Activity</th>
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<tbody>
<tr>
<td>Economic Activity</td>
<td>$65,700</td>
<td>$115,480</td>
</tr>
<tr>
<td>Employment</td>
<td>1</td>
<td>1.97</td>
</tr>
<tr>
<td>Income</td>
<td>$38,300</td>
<td>$56,840</td>
</tr>
</tbody>
</table>

Physical Therapists:

Since Nevada does not have a professional school for physical therapy, Nevada students must attend professional physical therapy school outside the state. The WICHE program can be used for tuition assistance.

Information for a physical therapy practice was obtained from the American Physical Therapy Association (1996) and wage and salary data came from the Nevada Department of Employment, Training and Rehabilitation (1997). The data from the American Physical Therapy Association assumes a physical therapy graduate joining an average practice. Association data shows that when an average firm hires a physical therapist, an assistant is also hired, so there is a two employee increase. This is reflected in their initial salaries. The national data may also be skewed upward.

For this analysis, only the physical therapists will be considered. In order to estimate starting salary for a physical therapists in Nevada, the wage and salary data from the Nevada Department of Employment, Training and Rehabilitation was used. The wage and salary survey for 1995 shows that the average starting salary for a physical therapist in Nevada was $33,820. For this average salary, total medical sector output would be $58,040. (See Table 4.) The total impact on the Nevada economy would be $58,040. For a one employee increase, total employment increased by 1.97 full and part-time employees. Total income impacts would be $50,200.

<table>
<thead>
<tr>
<th>Table 4. State-Wide Economic Impacts of a Physical Therapist</th>
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<td>Direct</td>
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<tr>
<td>Economic Activity</td>
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<tr>
<td>Employment</td>
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<tr>
<td>Income</td>
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</table>

Pharmacists:

Since the state of Nevada does not have a professional school for pharmacy, Nevada students must attend professional pharmacy school outside the state. The WICHE program can be used for tuition assistance.

Information for a starting pharmacist was obtained from the American Pharmaceutical Association (1996). The average starting salary of a pharmacist employed by a retail chain is $57,500. Output by the retail sector to support that salary would be $146,900. Therefore, the total impacts to the Nevada economy for a starting pharmacist are estimated to be $405,400. (See Table 5.) A new pharmacist results in the hiring of four new employees by the retail establishment. The total employment impact is 7.95 employees. With an average starting salary of a retail chain pharmacist, total income impacts would be $149,000.

<table>
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<th>Table 5. State-Wide Economic Impacts of a Pharmacist</th>
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<td>Economic Activity</td>
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<tr>
<td>Employment</td>
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<tr>
<td>Income</td>
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CONCLUSION

For many professions in the health industry, Nevada students must attend professional schools outside the state of Nevada. To assist Nevada students with tuition for these professional schools, the WICHE program has been used. From the analysis, the state of Nevada realizes substantial economic impacts from its support of students in professional schools for dentists, physician assistants, occupational therapists, physical therapists, and pharmacists. These professions not only increase the quality of health care within the state, they also increase the quality of life in the state and have been shown to be necessary inputs for future economic growth.

FOOTNOTES

1 For complete details of the IMPLAN model see references, Palmer and Siverts.
REFERENCES


