

# The Economic Impact of Rural Residency Programs in Oklahoma

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**Background:** Residency training is the capstone education experience for many physicians. Largely the domain of urban academic medical centers, considerable federal and state resources have been invested recently to expand residency training opportunities to rural and medically underserved areas in Oklahoma. Rural residencies have the potential to assist physicians in working closer to home and promote establishment of practices in rural areas. These residency programs also provide employment for both residents and program directors along with income in the form of salaries and benefits. It has been found that rural residencies provide the best opportunities to not only prepare physicians for their rural practice, but they also have the opportunity to increase the amount of time a physician stays in that location.

This analysis will:

- Examine the economic benefits of a rural residency program
- Quantify the collective economic impacts rural residency programs have on the state of Oklahoma as a whole
- Utilize Input/Output analysis to estimate these collective impacts

**Analysis Methodology:** This analysis included six rural residency locations in Oklahoma. Figure 1 spatially displays their locations within the state. Residency-specific employment and payroll data were obtained from each facility for the medical staff associated only with the residency program. These positions typically include a director of medical education (physician) and a coordinator (non-physician). The average direct employment per facility was 2. Resident data including the number of residents per facility and payroll were provided by the Osteopathic Medical Education Consortium of Oklahoma (OMEKO). The average number of residents per program (including all years) was 15. Benefits were added to the payroll using the latest National Compensation Survey from the Bureau of Labor Statistics. The aggregate direct employment of program staff and residents was 102 employees, and the aggregate direct payroll and benefits was over \$7.58 million. (Table 1)

**Input/Output Analysis:** County-level multipliers were generated for each facility for both employment and income. Because businesses, demographics, and spending patterns vary by county, multipliers typically change value across county lines. The multipliers in Table 2 represent an aggregate of hospital and physician industry multipliers. These multipliers were then applied to the direct employment and income. The results were aggregated to create a weighted average multiplier that can be applied to the aggregate state numbers for employment (range of 1.26 to 1.68) and income (range of 1.17 to 1.32).

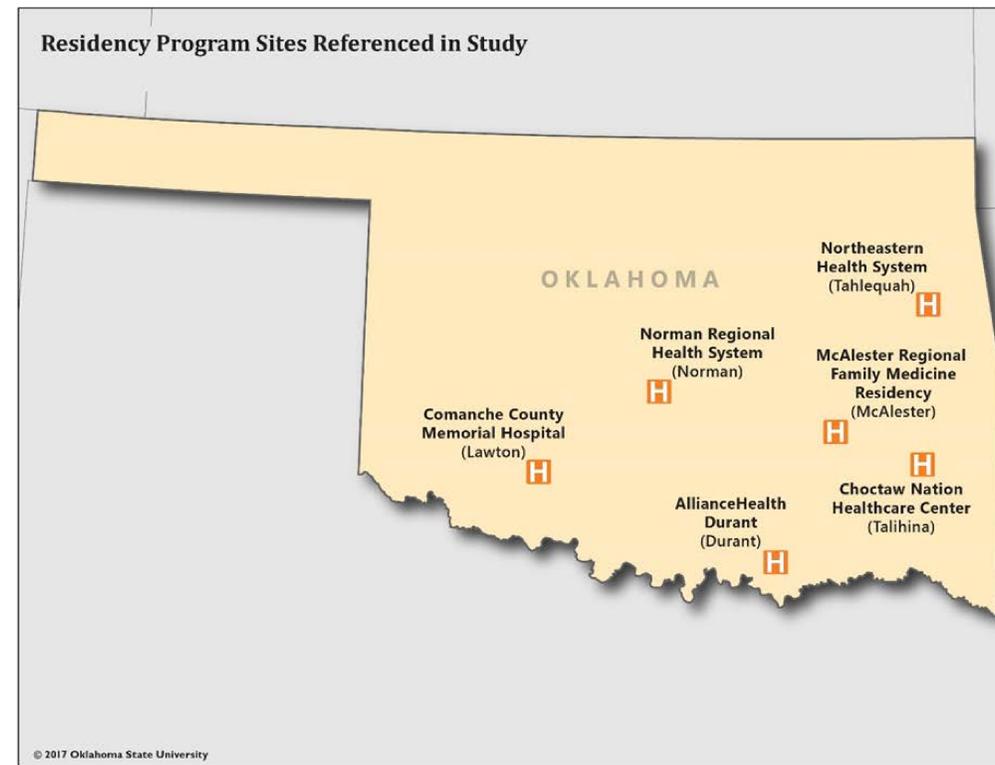


Figure 1. Rural Residency Locations

**Results and Conclusions:** Rural residency programs have a positive impact for communities. It has been noted that these programs provide employment opportunities in rural areas and allow residents to practice closer to home. These programs also bring residents into rural areas with the potential to increase the amount of time a physician stays in that rural location. This analysis furthers previous research by quantifying the economic importance of these programs.

**References and Acknowledgements:**

Parthman, D.E., Steiner, B.D., Jones, B.D., Konrad, T.R. (1999) Preparing and Retaining Rural Physicians Through Medical Education. *Academic Medicine*. July 1999.

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Table 2. Aggregate Rural Residency Impact on the State of Oklahoma's Economy

Total Employment Data <sup>1,2</sup>	102
Employment Multiplier <sup>3</sup>	1.53
Total Employment Impacts	156
Total Salary Data <sup>1,2</sup>	\$ 7,584,140
Income Multiplier <sup>3</sup>	1.24
Total Income Impacts	\$ 9,408,894
Consumption Rate <sup>4,5</sup>	27.9%
Retail Sales Impact	\$ 2,625,081
Oklahoma Sales Tax Rate <sup>4</sup>	4.5%
Total Sales Tax Impact	\$ 118,129

Source: <sup>(1)</sup> Survey data from local facility; <sup>(2)</sup> OMEKO residency data; <sup>(3)</sup> IMPLAN multiplier data (2015); <sup>(4)</sup> Oklahoma Tax Commission; <sup>(5)</sup> Bureau of Economic Analysis, Total Personal Income by County (2015)

After the employment multiplier was applied the total employment impact equaled 156 (Table 2). Similarly, after the income multiplier was applied, the income impact for these programs was over \$9.4 million.

Income also affects taxable (retail) sales. The average consumption of taxable items in Oklahoma ranged from 17.1 to 33.7 percent in the six counties included in the analysis. This was derived by dividing the total taxable sales by the total personal income in the respective counties. The average consumption rate was 27.9 percent. After applying this rate and accounting for the state sales tax rate of 4.5 percent, the total sales tax impact is over \$118,000.

These collective state impacts are comparable to an Oklahoma rural hospital (49 beds or fewer) with an average direct employment of 100 employees and an average direct payroll of \$5.2 million. After applying the appropriate multipliers, this impact increases to 144 employees and \$6.3 million in income.

Table 1. Direct Employment and Income Data by Program

Total Employment of Program Staff and Residents <sup>1,2</sup>	
McAlester Regional Family Medicine Residency	11
Northeastern Health System	15
Norman Regional Health System	20
Comanche County Memorial Hospital	31
Choctaw Nation Family Medicine	12
AllianceHealth Durant	13
<b>Total Employment</b>	<b>102</b>
Total Income (Salary and Benefits) of Program Staff and Residents <sup>1,2,3</sup>	
McAlester Regional Family Medicine Residency	\$ 730,240
Northeastern Health System	\$ 944,221
Norman Regional Health System	\$ 1,330,240
Comanche County Memorial Hospital	\$ 2,370,452
Choctaw Nation Family Medicine	\$ 1,356,160
AllianceHealth Durant	\$ 852,826
<b>Total Income</b>	<b>\$ 7,584,140</b>

Source: <sup>(1)</sup> Survey data from local facility; <sup>(2)</sup> OMEKO residency data; <sup>(3)</sup> Benefit calculation based on Employer Cost for Employee Compensation, Bureau of Labor Statistics (March 2017)