Estimate the Annual Economic Impact of an Independent Rural Health Clinic

Fred C. Eilrich, Gerald A. Doeksen, and Cheryl F. St. Clair, National Center for Rural Health Works

Key Findings

➢ In addition to their medical contribution, independent RHCs contribute economically to the community and surrounding area.

➢ The total estimated annual economic impact of an independent RHC was 12.6 local jobs and $1,009,299 in wages, salaries and benefits.

➢ Smaller RHCs often contract physician services. The total estimated impact of an independent RHC without an FTE employed physician was 6.3 local jobs and $454,871.

➢ Tools are now available that enable community leaders to estimate the annual economic impact of their rural health clinics.

Background

In many rural communities, health services are delivered at Rural Health Clinics (RHCs.) The Rural Health Clinic Services Act of 1977 (Public Law 95-210) was enacted to address an inadequate supply of physicians serving Medicare patients in rural areas and to increase the use of nurse practitioners (NPs) and physician assistants (PAs.)[1] The legislation had two main goals: improve access to primary health care in rural, underserved communities; and promote a collaborative model of
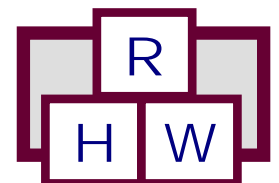
health care delivery using physicians, nurse practitioners and physician assistants. The Act authorized special Medicare and Medicaid payment mechanisms.[2]

There are over 4,000 RHCs nationwide providing access to primary care services in rural areas. RHCs can be either independent (freestanding owned by a provider) or provider-based (integral and subordinate part of a hospital.)[3] The U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services (CMS) February 2015 report showed forty-two percent of RHCs operated as independent clinics while the other 58 percent were provider-based.[4] Labor at many provider-based RHCs are shared with the associated hospitals and an accurate determination of the RHC portion of employment and compensation could not be attained from the CMS cost report data. Therefore, provider based RHCs were not included in this analysis.

Purpose of the Study

RHCs contribute to a strong health sector by providing necessary health services in rural areas. In addition to providing health care, RHCs contribute economically to rural communities by providing employment opportunities and labor income. Labor income is the wages, salaries and benefits paid to the RHC employees. It also includes contract

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physician services and/or physician supervision/oversight income. Maintaining a strong viable local economy is difficult without a strong quality health sector. The objective of this study is to estimate the average direct and secondary employment and labor income impacts on a rural community from an independent RHC. The results provide a template allowing local leaders the capacity to apply local data and estimate the annual economic impact of an independent RHC given their specific conditions.

Scope of Research

For this study, estimates for two different scenarios were constructed based on CMS cost reports[5] and data from the U.S. Department of Labor, Bureau of Labor Statistics (BLS.)[6] Data for 1,261 independent RHCs were identified in the CMS cost reports.

One of the objectives of establishing RHCs was to increase the use of NPs and PAs, particularly in physician shortage areas. Therefore, some RHCs do not employ a primary care physician, but instead only use physicians for supervising and oversight. In cases where primary care physicians are required, these RHCs utilize physicians on a contract basis. The CMS cost reports identify these physician services separately. Estimates for RHCs that did not employ a physician were also analyzed. CMS cost report data were available for 218 independent RHCs that utilized contracted physician services only. More specifically, the scope of research is defined as:

Scenario 1-The average economic employment and labor income impacts of an independent RHC. The sample included 1,261 independent RHCs.

Scenario 2-The average economic employment and labor income impacts of an independent RHC with no direct physician employment. The subset included 218 independent RHCs.

Approach

The methodology will estimate the annual economic impact for each scenario. The direct impacts include the employees and labor income at the rural health clinic. The secondary impacts are calculated with an input-output model and data from IMPLAN. (Additional details on the model and IMPLAN data are given in the Appendix.) **Figure 1** illustrates a community economic system. The RHC generates jobs and labor income from revenues. In turn, secondary impacts are created as the RHC and the individuals working for the RHC purchase goods and services within the local economy.
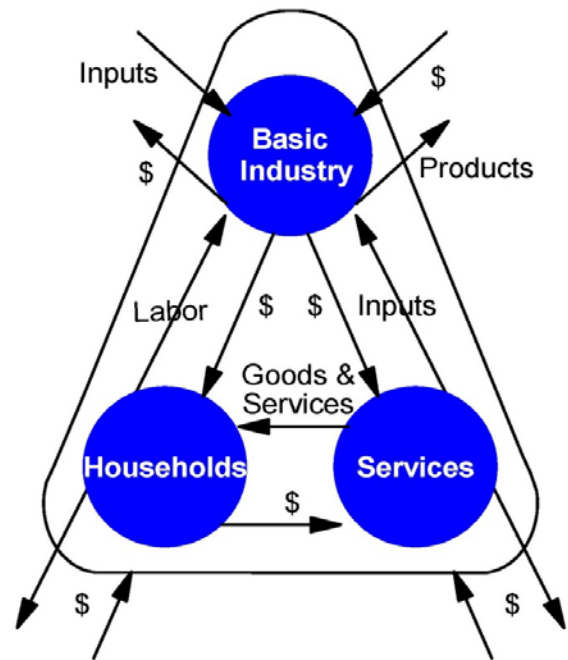
Community Economic System
Figure 1

Figure 1 illustrates that a change in any one segment of a community's economy will cause reverberations throughout the entire economic system of the community.

A multiplier from an input-output model measures the effect created by an increase or decrease in economic activity. The multiplier not only measures the economic activity from the RHC and employees but also includes the economic activity from

additional business spending and household spending such as the restaurant workers, equipment vendors and others. The model calculates multipliers for employment (in terms of full- and part-time jobs) and labor income (in terms of wages, salaries and benefits). The model generates multipliers that are medical service area-specific due to differences in locally-available goods and services across different states, counties, or zip codes.

Direct Impacts of an Independent RHC

Scenario 1: The average labor incomes for employees of the 1,261 independent RHCs are shown in **Table 1**. Average income for providers (physician, NPs and PAs) was determined from total compensation and full-time equivalent employment (FTE) from the cost reports.

Table 1
Estimated Labor Incomes for
Independent RHC FTE Employees, 2014

	Labor Income
Physician	$247,143
PA	$115,413
NP	$107,636
Nurse	$54,013
Accounting Staff	$38,070
Front Desk Staff	$27,830
Medical Secretary	$33,530

Source: Centers for Medicare & Medicaid Services Cost Reports, 2014; U.S. Department of Labor, Bureau of Labor Statistics, May 2014.

The CMS cost reports provide compensation but do not include employment for nursing and office staff. Therefore, income estimates for nursing and office staff were obtained from the estimates from BLS 2014 Wage and Salary Estimates.

The national average income was $68,095 for a registered nurse and $39,930 for licensed practical and vocational nurses for an estimated total average

income for nurses of $54,013. Incomes could be slightly less in rural areas but rural specific data are unavailable.

Data in **Table 2** present the direct employment and labor income impacts of the independent RHCs. The number of annual visits averaged 9,654. The average RHC compensations for nursing and office staff from the cost reports were divided by the BLS 2014 Wage and Salary Estimates to estimate average employment. A small number of independent RHCs include health services from clinical psychologists, social workers and visiting nurses to homebound patients. The compensation for these services was minimal and included in additional staff with office employees. The estimated direct impacts for a rural health clinic were 9.66 jobs and $827,294 labor income.

Table 2
Estimated Direct Impacts on Employment and
Labor Income from Independent RHC, 2014

	Employment	Labor Income
Physician	1.12	$276,800
PA	0.41	$47,319
NP	0.86	$92,567
Nurse	1.83	$98,827
Additional Staff	5.44	$216,848
Benefits	____	$80,890
Subtotal	9.66	$813,251
Contract Physician		49,622
Physician Supervision	____	44,421
Total	**9.66**	**$827,294**

Source: Centers for Medicare & Medicaid Services Cost Reports, 2014; U.S. Department of Labor, Bureau of Labor Statistics, May 2014.

Scenario 2: From the total sample, 218 independent RHCs were identified as having no employed physicians. The same methodology was applied to this group of smaller RHCs (4,753 annual visits) to

estimate the total annual economic impacts. **Table 3** shows the estimated labor incomes for these RHCs that are typically located in less populated areas. Labor estimates for PAs and NPs were slightly less compared to the full sample. Again, BLS estimates for rural are not available so the same estimates for nurses and office staff were used.

Table 3
Estimated Labor Incomes for
Independent RHC FTE Employees, 2014

	Labor Income
PA	$111,825
NP	$105,795
Nurse	$54,013
Accounting Staff	$38,070
Front Desk Staff	$27,830
Medical Secretary	$33,530

Source: Centers for Medicare & Medicaid Services Cost Reports, 2014; U.S. Department of Labor, Bureau of Labor Statistics, May 2014.

The estimated direct employment and labor income impacts of an independent RHC without an employed physician are shown in **Table 4.** The results demonstrate the increased use of NPs and contracted physician services. The decreased number of office staff indicates the smaller size of these RHCs.

The estimated direct impacts were 4.88 jobs and $372,845 labor income.

Total Impacts of an Independent RHC

As stated earlier, the direct employment and direct labor income will further benefit the community by generating secondary jobs and income. Data in **Table 5** present the total annual employment and labor income impacts of the RHC that occur throughout the local area as the RHC and staff purchase goods and services. The secondary employment and labor income are created in other businesses. The additional employment and labor

income can be estimated with multipliers from an input-output model using data from IMPLAN.

Table 4
Estimated Direct Impacts on Employment and
Labor Income from Independent RHC
w/o employed Physician, 2014

	Employment	Labor Income
PA	0.24	$26,838
NP	1.02	$107,911
Nurse	0.78	$41,917
Additional Staff	2.84	$119,457
Benefits	—	$32,418
Subtotal	4.88	$328,502
Contract Physician		32,418
Physician Supervision	—	11,925
Total	**4.88**	**$372,845**

Source: Centers for Medicare & Medicaid Services Cost Reports, 2014; U.S. Department of Labor, Bureau of Labor Statistics, May 2014.

Table 5
Estimated Total Annual Impact on Employment and
Labor Income from an Independent RHC, 2014

	Direct Impact	Multiplier	Total Impact
Aggregate (n=1,261)			
Average Visits = 9,654			
Employment	9.66	1.30	12.56
Income	$827,294	1.22	$1,009,299
w/o FTE Physician (n=218)			
Average Visits = 4,752			
Employment	4.88	1.30	6.34
Income	$372,845	1.22	$454,871

Source: Centers for Medicare & Medicaid Services Cost Reports, 2014; U.S. Department of Labor, Bureau of Labor Statistics, May 2014.

For this analysis, the employment and income multipliers were averaged from 414 rural counties

in 17 states representing the four U.S. Census regions. The RHC employment multiplier of 1.30 estimates that if one job is created by the clinic, then an additional 0.30 full- and part-time jobs are created in other businesses due to the RHC and employee spending. The model calculates multipliers for employment (in terms of full- and part-time jobs) and labor income (in terms of wages, salaries and benefits). The model generates multipliers that are medical service area-specific due to differences in locally-available goods and services across different states, counties, or zip codes.

Using the direct employment and labor income data from **Tables 2** and **4,** an estimate of total labor income and employment created at the RHC can be made. The total direct employment from an independent RHC that employs a physician was 9.66. After applying the multiplier, the total employment impact from the clinic is 12.56 jobs. An independent RHC contracting physician services has an estimated direct employment impact of 4.88. The total employment impact including secondary impacts is 6.34 full-and part-time jobs

The same methodology can be used to estimate total impact to labor income. The RHC labor income multiplier of 1.22 estimates that every dollar of labor income created at the RHC creates an additional $0.22 of labor income in other business throughout the local area. After applying the multiplier, the total estimated labor income impact for an independent RHC is $1,009,299 and $454,871 for an independent RHC with only contracted physician services.

Summary

The importance of an RHC and the medical contribution that it makes to the community can be evident with improvements in residents' health and increased access to primary care services. However, the economic contribution is not typically quantified. The two scenarios presented yielded estimates of approximately 6.34 to 12.56 local jobs and $454,871 to $1,009,299 in labor income (wages, salaries and benefits) from an independent RHC providing primary care to local residents. (Note: these estimates represent economic impacts on jobs and labor income only.)

Template to Measure the Annual Economic Impact of a Rural Health Clinic

The research results provide a template to assist local leaders interested in estimating the annual economic impact of an independent RHC. Local data should be utilized to derive the most realistic estimates for the local community. If local data are unavailable, the national estimates from the previous tables can be used. All assumptions should be closely examined by local decision-makers to verify that they reflect local conditions.

TEMPLATE
Estimating the Total Employment and Labor Income Impacts of an Independent Rural Health Clinic

	Direct Impact	Multiplier	Total Impact
Employment	_____	_____	_____
Income	$_____	_____	$_____

The first step is to estimate the direct employment and labor income from the clinic. After the direct impacts have been determined, the total impacts including secondary impacts can be estimated. Specific county or zip code multipliers are available through IMPLAN and can be generated and utilized to make the results community specific. The State Offices of Rural Health or County/State Extension Offices might be able to assist with county-specific multipliers. If local data are unavailable, the national estimates provided are the average of 414 rural counties located in 17 states representing the four U.S. Census regions. All assumptions should be closely examined by local decision-makers to verify that they reflect local conditions.

References

[1]Centers for Medicare and Medicaid Services. "Rural Health Clinic Fact Sheet." Available: http://www.cms.gov. 01/16.

[2]AU.S Department of Health and Human Services, Health Resources and Services Administration (HRSA), Office of Rural Health Policy. "Starting a Rural Health Clinic-A How-To Manual."

[3]Centers for Medicare and Medicaid Services. "Chapter 13-Rural Health Clinic (RHC) and Federally Qualified Health Center (FQHC) Services". Medicare Benefit Policy Manual. Available: https://www.cms.gov/center/provider-type/rural-health-clinics-center.htm.

[4]Centers for Medicare and Medicaid Services. "Casper Report 0006 Name and Address Listing for Rural Health Clinic." Updated 10-07-2015. Available: http://www.cms.gov/MLNProducts/downloads/rhclistbyprovidername.pdf.

[5]Centers for Medicare & Medicaid Services. 2014 Healthcare Cost Report Information System (HCRIS) Dataset. Available: *https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Cost-Reports/HealthClinic.html.*

[6]U.S. Department of Labor, Bureau of Labor Statistics. "2014 National Occupational Employment and Wage Estimates." http://www.bls.gov/oes/current/naics2_62.htm

A Review of Input-Output Analysis

Input-output (I/O) (Miernyk, 1965) was designed to analyze the transactions among the industries in an economy. These models are largely based on the work of Wassily Leontief (1936). Detailed I/O analysis captures the indirect and induced interrelated circular behavior of the economy. For example, an increase in the demand for health services requires more equipment, more labor, and more supplies, which, in turn, requires more labor to produce the supplies, etc. By simultaneously accounting for structural interaction between sectors and industries, I/O analysis gives expression to the general economic equilibrium system. The analysis utilizes assumptions based on linear and fixed coefficients and limited substitutions among inputs and outputs. The analysis also assumes that average and marginal I/O coefficients are equal.

Nonetheless, the framework has been widely accepted and used. I/O analysis is useful when carefully executed and interpreted in defining the structure of an area, the interdependencies among industries, and forecasting economic outcomes.

The I/O model coefficients describe the structural interdependence of an economy. From the coefficients, various predictive devices can be computed, which can be useful in analyzing economic changes in a state, an area or a county. Multipliers indicate the relationship between some observed change in the economy and the total change in economic activity created throughout the economy.

The basis of IMPLAN was developed by the U. S. Forest Service to construct input/output accounts and models. The complexity of this type of modeling had hindered practitioners from constructing models specific to a community requesting an analysis. The University of Minnesota utilized the U.S. Forest Service model to further develop the methodology and expand the data sources to form the model known as IMPLAN. The

founders of IMPLAN, Scott Lindall and Doug Olson, joined the University of Minnesota in 1984 and, as an outgrowth of their work with the University of Minnesota, entered into a technology transfer agreement with the University of Minnesota that allowed them to form Minnesota IMPLAN Group, Inc. (MIG).

Minnesota IMPLAN Group, Inc. was purchased by IMPLAN and relocated to:

IMPLAN
16905 Northcross Drive Suite 120
Huntersville, NC 28078

Support hours are 8 am – 7 pm Eastern time and can be reached by email at info@implan.com or by phone at 800-507-9426

IMPLAN Software and Data

At first, IMPLAN focused on database development and provided data that could be used in the Forest Service version of the software. In 1995, IMPLAN took on the task of writing a new version of the IMPLAN software from scratch that extended the previous Forest Service version by creating an entirely new modeling system – an extension of input-output accounts and resulting Social Accounting Matrices (SAM) multipliers. Version 2 of the new IMPLAN software became available in May of 1999. The latest development of the software is now available, IMPLAN Version 3 Software System, the new economic impact assessment software system.

With IMPLAN Version 3 software, the packaging of products has changed. Version 3 utilizes 2007 or later data. When data are ordered, the data cost plus shipping are the only costs. Version 3.0 software and the new IMPLAN appliance are included in the cost of the data. There are no additional fees to upgrade to IMPLAN Version 3.0. Data files are

licensed to an individual user. Version 2 is no longer compatible with 2008 and later data sets.

Version 3 allows the user to do much more detailed analyses. Users can continue to create detailed economic impact estimates. Version 3.0 takes the analysis further, providing a new method for estimating regional imports and exports is being implemented - a trade model. IMPLAN can construct a model for any state, region, area, county, or zip code area in the United States by using available national, state, county, and zip code level data. Impact analysis can be performed once a regional input/output model is constructed.

IMPLAN Multipliers

Five different sets of multipliers are estimated by IMPLAN, corresponding to five measures of regional economic activity. These are: total industry output, personal income, total income, value added, and employment. Two types of multipliers are generated. Type I multipliers measure the impact in terms of direct and indirect effects. Direct impacts are the changes in the activities of the focus industry or firm, such as the closing of a hospital. The focus business changes its purchases of inputs as a result of the direct impacts. This produces indirect impacts in other business sectors. However, the total impact of a change in the economy consists of direct, indirect, and induced changes. Both the direct and indirect impacts change the flow of dollars to the households. Subsequently, the households alter their consumption accordingly. The effect of the changes in household consumption on businesses in a community is referred to as an induced effect. To measure the total impact, a Type II (or Type SAM) multiplier is used. The Type II multiplier compares direct, indirect, and induced effects with the direct effects generated by a change in final demand (the sum of direct, indirect, and induced divided by direct).

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Alward G, Sivertz E, Olson D, Wagnor J, Serf D, Lindall, S. 1989. "Micro IMPLAN Software Manual." Stillwater, MN, University of Minnesota Press.

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