National Center for Rural Health Works

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THE ECONOMIC IMPACT OF A RURAL GENERAL SURGEON

Converging forces are contributing to declines in the availability of rural general surgery services. A developing crisis will have profound impacts on many rural residents, hospitals, physicians and communities. While most rural communities' attention is predominately directed to assuring primary medical care availability, more specific focus must be directed to general surgery and its interconnectedness with the sustainability of primary care and other rural services.

The potential risk of losing a general surgeon in a rural hospital represents a substantive economic loss, and a faltering surgical program can represent incremental losses that may ultimately contribute to program failures. Conversely, the ability to expand general surgery represents a potential increase in hospital revenues and local health expenditures by recapturing dollars lost when health services are not purchased locally.

The study is divided into two sections:

1. Estimation of the benefits generated by a rural general surgeon; and
2. Illustration of a methodology to estimate the potential need for a rural general surgeon

The first section of this study estimates the economic value that a rural general surgeon provides in an office practice and as inpatient and outpatient revenue for a typical critical access hospital and rural community.

Table 1 clearly demonstrates the economic contributions of a general surgeon. A rural general surgeon generates approximately $2.7 million in revenue, $1.4 million in payroll (wages, salaries and benefits) and creates over 25 local jobs. The relatively large impact is created through surgeon practice employment, inpatient/outpatient procedures and additional laboratory/diagnostic tests at the hospital. These effects are underestimated because the hospital or community pharmacy revenue associated with pre- or post-surgery is not included. In addition to clinical contributions, surgical services have collateral effects on other services such as emergency departments and primary care associated volumes.

Table 1
Total Impact of a General Surgeon on Revenues, Income[1] and Employment

	Revenue	Output Multiplier	Total Impact
Office	$653,544	1.33	$869,214
Hospital	$1,345,825	1.33	$1,789,947
Total	**$1,999,369**		**$2,659,161**
	Income	**Income Multiplier**	**Total Impact**
Office	$483,082	1.18	$570,036
Hospital	$701,175	1.21	$848,422
Total	**$1,184,257**		**$1,418,458**
	Employment	**Employment Multiplier**	**Total Impact**
Office	4.0	1.30	5.2
Hospital	15.1	1.37	20.7
Total	**19.1**		**25.9**

[1] Income includes wages, salaries and benefits.
Source: 2007 IMPLAN database, Minnesota IMPLAN Group, Inc., local data from ten rural communities

A need-based approach estimates the number of potential procedures performed by a general surgeon by constructing age- and gender-specific coefficients and applying them to a specific service area population. To construct the coefficients, public use data files were obtained from two National surveys, the National Hospital Discharge Survey (NHDS) and the National Survey of Ambulatory Surgery (NSAS). Both surveys are conducted periodically by the National Center for Health Statistics.

To estimate the need for local general surgery services, typical procedures performed by rural general surgeons were identified, using a methodology to estimate the annual rate of these procedures by age and gender. The goal was to compile a condensed list of procedures that were routinely performed by rural general surgeons; only those procedures that were performed more than one time during the year by the conducted survey participants were included.

This methodology can be applied to estimate the need for a general surgeon based on the demographics of the medical service area and the procedures can be adapted to represent a particular general surgeon or hospital scenario. From the estimates, a hospital administrator can assess the need for a general surgeon and estimate the required FTEs necessary to meet the demand.

Table 2 summarizes the results. This first approach to identifying the need for a general surgeon is to apply National averages to the total population of the medical service area. The National average approach resulted in a population-to-general surgeon ratio of 12,389 (809/65.3).

The community specific approach, based on specific general surgeon preferences and local population age-specific demographics, can yield a more accurate estimate. The population of the example service area (7,677) would generate 549 surgery procedures.

Given this estimate, a general surgeon performing 708 procedures annually would require a 0.77 FTE. Again, a list of procedures based on a particular general surgeon's scope of practice and number of annual procedures will impact these numbers.

The process of determining the local value of general surgery to a community as well as the economic risk and potential is likely to expose issues that can and should be addressed in order to promote the community's economic health as well as its clinical needs. This study will continue with research on the procedures, scope of practice, and other factors that may impact the recruitment and retention of general surgeons in rural communities.

Table 2
Two Approaches to Estimating the Number of General Surgeons for an Example Medical Service Area

National Averages Approach	
Procedure Rate/1000 Population[1]	65.3
Average Annual Procedures per General Surgeon[2]	809
Population/General Surgeon Ratio	12,389
Estimated Number of General Surgeons for Example Medial Service Area	0.63
Community Specific Approach	
Number of Procedures from Example Medical Service[3]	549
Example Annual Procedures per Local General Surgeon	708
Estimated Number of General Surgeons for Example Medical Service Area	0.77

[1] Data based on procedures sampled from rural hospitals, 2006 National Hospital Discharge Survey (NHDS) and National Survey of Ambulatory Surgery (NSAS).
[2] 2007 median annual number of surgery cases per non-metro single specialty general surgery office, 2008 MGMA Physician Compensation and Production Survey
[3] Data based on procedures sampled from rural hospitals, 2006 NHDS and NSAS surveys, applied to example medical service area.