The General Surgery Job Market: Analysis of Current Demand for General Surgeons and Their Specialized Skills

Marquita R Decker, MD, Nathan W Bronson, MD, Caprice C Greenberg, MD, FACS, James P Dolan, MD, FACS, Kenneth C Kent, MD, FACS, John G Hunter, MD, FACS

BACKGROUND: The majority of general surgery residents pursue fellowships. However, the relative demand for general surgical skills vs more specialization is not understood. Our objective was to describe the current job market for general surgeons and compare the skills required by the market with those of graduating trainees.

STUDY DESIGN: Positions for board eligible/certified general surgeons in Oregon and Wisconsin from 2011 to 2012 were identified by review of job postings and telephone calls to hospitals, private practice groups, and physician recruiters. Data were gathered on each job to determine if fellowship training or specialized skills were required, preferred, or not requested. Information on resident pursuit of fellowship training was obtained from all residency programs within the represented states.

RESULTS: Of 71 general surgery positions available, 34% of positions required fellowship training. Rural positions made up 46% of available jobs. Thirty-five percent of positions were in nonacademic metropolitan settings and 17% were in academic metropolitan settings. Fellowship training was required or preferred for 18%, 28%, and 92% of rural, nonacademic, and academic metropolitan positions, respectively. From 2008 to 2012, 67% of general surgery residents pursued fellowship training.

CONCLUSIONS: Most general surgery residents pursue fellowship despite the fact that the majority of available jobs do not require fellowship training. The motivation for fellowship training is unclear, but residency programs should tailor training to the skills needed by the market with the goal of improving access to general surgical services. (J Am Coll Surg 2013;217:1133–1139. © 2013 by the American College of Surgeons)

There is a current shortage of general surgeons nationwide.[1-3] A growing elderly population and ongoing trends toward increased health care use have contributed to a higher demand for surgical services, without a corresponding increase in the supply of surgeons.[1,4] The number of general surgeons per 100,000 people in the United States declined by 26% from the 1980s to 2005.[5] Cumulative growth in demand for general surgery is projected to exceed 25% by 2025. The Association of American Medical Colleges has projected a shortage of 41,000 general surgeons by 2025.[6] General surgeons make up 33% of the total projected physician shortage, the second highest after primary care physicians, who make up 37% of the total shortage. In an effort to remedy this, the Affordable Care Act of 2010 mandated that 75% of new residency positions be in either primary care or general surgery.[7] The Act also outlined an incentive program for surgical services in geographic areas with health professional shortages, particularly in rural areas, to promote a more proportionate distribution of general surgeons across the country.

Despite the demand for general surgeons, the percentage of general surgery trainees going directly into practice is decreasing while the percentage of trainees pursuing subspecialty training is increasing.[8] This trend is

Disclosure Information: Nothing to disclose.

Marquita Decker receives funding support through the National Institutes of Health Research Training Grant in Surgical Oncology (2T32 CA090217). Nathan Bronson receives funding support through the National Institutes of Health and National Institute of General Medical Sciences T32 Training Grant in Anesthesiology (T32 GM082770).

Received May 30, 2013; Revised July 26, 2013; Accepted July 26, 2013.

From the Wisconsin Surgical Outcomes Research (WiSOR) Program, Department of Surgery, University of Wisconsin (Decker, Greenberg, Kent), Madison, WI and the Department of Surgery, Oregon Health & Science University, Portland, OR (Bronson, Dolan, Hunter).

Correspondence address: Nathan W Bronson, MD, Mail Code L223, Department of Surgery, Oregon Health and Science University, 3181 SW Sam Jackson Park Rd, Portland, OR 97239.

ISSN 1072-7515/13/$36.00
http://dx.doi.org/10.1016/j.jamcollsurg.2013.07.400

projected to lead to a further shortfall in general surgical services if specialists entering the workforce narrow their scope of practice.[9] A recent study reported that graduating residents who lacked confidence in their skills to operate independently were more likely to pursue subspecialty training.[10] This suggests that some graduating residents are motivated to obtain subspecialty training to gain more experience rather than narrow their clinical scope of practice. Given the projected shortage of general surgeons,[6,9] this will be a crucial distinction when reforming surgical education.

General surgery trainees interested in career planning would benefit from understanding the demand for general and/or specialty skills in a job market heavily influenced by a constant stream of new graduates. However, little is currently known about the demand for subspecialty vs general surgical skills in the current job market. The goal of this study was to describe the current job market for general surgeons in the United States, using Oregon and Wisconsin as surrogates. Furthermore, we sought to compare the skills required by the job market with those of graduating trainees with the goal of gaining insight that might assist in workforce planning and surgical education reform.

METHODS

Design

This was a cross-sectional study of all recently filled or available positions for recently graduated, board eligible, or board certified general surgeons in Oregon and Wisconsin from November 2011 to June 2012.

Data collection

Demand for general surgeons

Available or recently filled positions for general surgeons were identified by the following: review of job postings listed on the health careers website of the American College of Surgeons (http://www.healthecareers.com/ACS); review of job postings listed on the websites for hospitals and health systems in the state; telephone interviews with hospital and surgical private practice group representatives in the state; and telephone interviews with physician recruiters listed on job postings.

Positions initially identified from job postings were confirmed by telephone interview to obtain further details about the position and to avoid overcounting positions with multiple postings. Jobs that were open within 1 year of the study period were included. Positions for division chiefs, directors, or department chairs were not included in the analysis in order to focus on the positions available for graduating residents and fellows.

The research team was unable to contact employer representatives to fully verify details of the job requirements for 1 position in Oregon and 12 positions in Wisconsin. Therefore, for these positions, all required or preferred skills (ie, fellowship training and specialty practice) were determined from the job posting.

Supply of general surgeons

Information on fellowship training of graduates from general surgery residency programs in each state was obtained from residency program websites and program director/administrator communications.

Analysis

Demand for general surgeons

The number of available general surgery positions was calculated for each state. Data were gathered on each general surgery position to determine whether the surgical practice sought a general surgeon with fellowship training, a general surgeon with no additional training, or a nonfellowship-trained surgeon with particular interest and skills for a specialized practice. General surgery positions requiring fellowship training included breast oncology, surgical oncology, endocrine surgery, minimally invasive surgery, colorectal surgery, vascular surgery, cardiothoracic surgery, and trauma/critical care with or without burn training. Specialized skills for nonfellowship-trained surgeons included obstetrics and gynecology, endoscopy, colonoscopy, advanced laparoscopy, and endocrine and breast surgery. Although there are fellowships available in some of these disciplines, there was not a request associated with these positions for additional training beyond what was acquired during general surgery residency.

The numbers of positions requiring fellowship training were calculated and compared with the numbers of positions for general surgeons with no additional training vs the numbers of positions for general surgeons with the previously mentioned specialized skills and interests. For many employers who did not require fellowship training but preferred specialized skills, the lack of specialized skills was not an absolute barrier to employment.

Positions were classified as serving rural/nonmetropolitan areas or metropolitan areas based on the job posting location description, local population size, and US Department of Agriculture Economic Research Service rural-urban continuum code[11] for the location of the hospital. Positions were also classified as academic or nonacademic based on medical school affiliation.

A stratified analysis was then performed to calculate the numbers of rural vs nonacademic metropolitan and academic metropolitan positions requiring fellowship

training or nonfellowship-trained surgeons with specialized skills.

Supply of general surgeons

The number of general surgery residents who pursued fellowship training was calculated in proportion to the total number of general surgery graduates in each state from 2008 to 2012. The state of Oregon has 1 residency program and the state of Wisconsin has 4 programs. Complete information on all graduates was obtained from residency program websites or by email and phone communication with program directors and administrators, who supplied lists of their graduating residents who specified resident career plans after completing their general surgery training.

RESULTS

Demand for general surgeons

During the study period, 71 positions for board eligible or board certified general surgeons were available in Oregon and Wisconsin. Twenty-seven jobs were available in Oregon and 44 were available in Wisconsin (Fig. 1). In both states combined, 24 (34%) positions required fellowship training (Table 1). Of the positions for fellowship-trained surgeons, 1 was in breast oncology (1% of all positions), 1 in surgical oncology (1%), 2 in endocrine (3%), 5 in minimally invasive (7%), 1 in colorectal (1%), 5 in vascular (7%), 5 in cardiothoracic (7%), and 4 were in trauma/critical care with or without burn surgery (6%).

Among the positions for nonfellowship-trained surgeons, 30 (42%) preferred some specialized skill. Obstetrics and gynecology experience was a desired skill set for 19 (43%) positions in Wisconsin and none in Oregon. Endoscopy skills were preferred for 5 (7%) positions in both states. Advanced laparoscopy skills were preferred for 4 (6%) positions. A nonfellowship-trained surgeon with a practice focus in breast was requested by 1 (1%), and also an interest in endocrine surgery by 1 (1%).

Stratified analysis of demand by rural vs nonacademic and academic metropolitan settings

Thirty-three general surgery jobs were located in rural areas, with 9 rural positions in Oregon (35% of positions in Oregon) and 24 rural positions in Wisconsin (54% of positions in Wisconsin). One position in Oregon was excluded from the stratified analysis because no specific information about location was provided.

Only 6 (18%) rural positions in Oregon and Wisconsin required fellowship training. Seven (28%) of the nonacademic metropolitan positions and 11 (92%) of the academic metropolitan positions required fellowship training. Among the positions for nonfellowship-trained general surgeons, obstetrics and gynecology skills were preferred for 15 (46%) rural positions, 4 (16%) nonacademic metropolitan positions, and no academic positions. Endoscopy was preferred in the surgical practices of 3 (9%) of the rural positions, 2 (8%) of the nonacademic metropolitan positions, and none of the academic metropolitan positions.

Supply of general surgeons

From 2008 to 2012, 134 residents completed a general surgery residency in Oregon or Wisconsin (58 in Oregon,

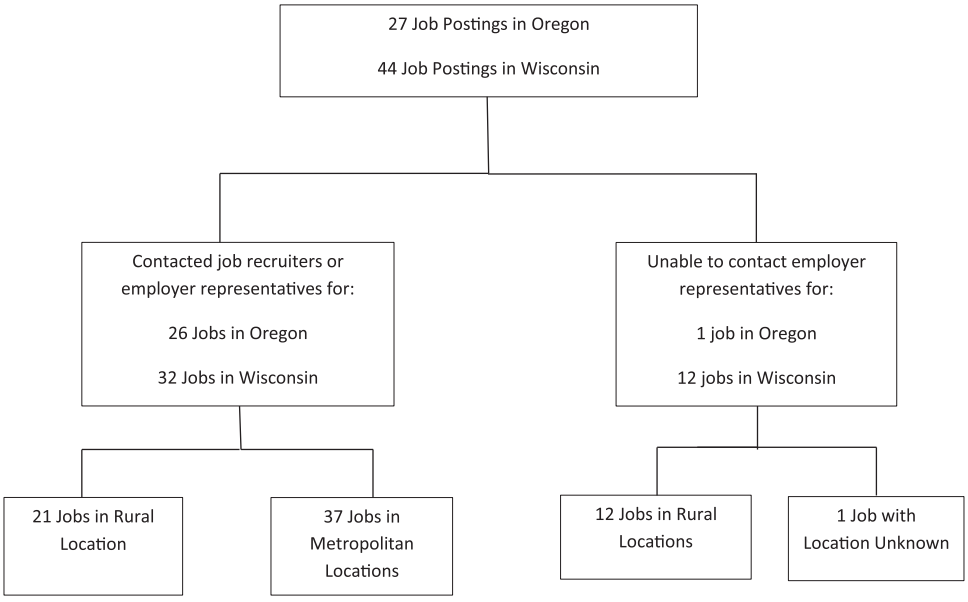

Figure 1. Study flow diagram.

Table 1. General Surgery Positions in Wisconsin and Oregon

	All positions		Rural		Nonacademic Metro		Academic Metro	
Job requirements	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Fellowship required	24	34	6	18	7	28	11	92
Breast oncology	1	1	1	3	0	0	0	0
Surgical oncology	1	1	1	3	0	0	0	0
Endocrine	2	3	0	0	0	0	2	17
Minimally invasive	5	7	1	3	3	12	1	8
Colorectal	1	1	0	0	0	0	1	8
Vascular	5	7	2	6	2	8	1	8
Cardiothoracic	5	7	1	3	1	4	3	25
Trauma/critical care ± burn	4	6	0	0	1	4	3	25
Fellowship not required	47	66	27	82	18	72	1	8
General surgery alone	17	24	5	15	10	40	1	8
Fellowship not required, + specialized skills	30	42	22	67	8	32	0	0
Breast oncology	1	1	1	3	0	0	0	0
Endocrine	1	1	1	3	0	0	0	0
Obstetrics/gynecology	19	27	15	45	4	16	0	0
Endoscopy	5	7	3	9	2	8	0	0
Advanced laparoscopy	4	7	2	6	2	8	0	0
Total positions	71		33		25		12	

76 in Wisconsin). Of these graduating general surgery residents, 38 (66%) in Oregon and 52 (68%) in Wisconsin pursued fellowship training. The fellowships pursued are listed in Table 2.

In order to assess practice emphasis and competing fellowship experience at each residency program, the types of fellowships coexistent with each residency program were compared. The fellowships offered in Wisconsin include cardiothoracic (n = 1 fellowship), critical care (n = 1), endocrine (n = 2), hepatoprancreaticobiliary (n = 1), minimally invasive (n = 2), pediatrics (n = 1), transplant (n = 1), and vascular (n = 2). Most of these fellowships were offered at either the University of Wisconsin (4 fellowships) or the Medical College of Wisconsin (6 fellowships); Marshfield has no fellowship programs and Gunderson has a minimally invasive surgery fellowship only. The fellowships offered in Oregon at Oregon Health and Science University include colorectal, critical care, cardiothoracic, hepatopancreaticobiliary, minimally invasive, pediatric, and vascular surgery. The decision to pursue a fellowship and the types of fellowships pursued by residency program graduates did not correlate with the existence of specialty fellowships or the types of fellowship programs at that site. Specific practice location was known for all Oregon graduates and 47 (62%) Wisconsin graduates. Among all Oregon graduates, 30 (52%) remained in Oregon. Of the 20 Oregon graduates who did not pursue fellowship, 11 (55%) remained in Oregon, 1 (5%) left Oregon but stayed in the Pacific Northwest, and 9 (40%) left the Pacific Northwest entirely. Of the 47 Wisconsin graduates with known practice locations, 17 (36%) remained in Wisconsin after graduation. Of the 24 Wisconsin graduates with known practice locations who did not pursue fellowship, 11 (46%) went into practice in Wisconsin, 9 (38%) left Wisconsin but remained in the Midwest region, and 4 (17%) left the Midwest to practice general surgery elsewhere.

DISCUSSION

Findings from this study indentify a disparity between the training that general surgery trainees pursue and the skills that general surgery employers seek. Although almost 70% of trainees in both states sought fellowship training in general surgery subspecialties, a number consistent with other previously published national reports,[8,10] fellowship was required for only 34% of the available positions. These data suggest that twice as many fellowship-trained surgeons are produced compared with what are needed. Although the majority of positions for general surgeons did not require fellowship, a large proportion preferred a specialized skill set. The supply of general surgeons relative to subspecialists has been suggested to have important financial implications. As recently described by Ricketts and Belsky,[12] a higher

Table 2. General Surgery Graduates in Oregon and Wisconsin, 2008 to 2012

	Both states		Oregon		Wisconsin	
Fellowship training	**n**	**%**	**n**	**%**	**n**	**%**
None	44	33	20	34	24	32
Fellowship specialty						
Breast	4	3	0	0	4	5
Surgical oncology	6	4	2	3	4	5
Endocrine	1	1	0	0	1	1
Minimally invasive	12	9	3	5	9	12
Colorectal	13	10	7	12	6	8
Vascular	13	10	6	10	7	9
Cardiothoracic	10	7	6	10	4	5
Trauma/critical care	12	9	8	14	4	5
Burn/ plastics	9	7	3	5	6	8
Other specialty	10	7	3	5	7	9
Total graduates	134	100	58	100	76	100

general surgeon-to-population ratio correlated with lower Medicare costs, while the opposite was true if the ratio favored subspecialists. Accordingly, the disparity between the supply of general surgeons and subspecialists likely contributes to greater costs to our health care system, which is already financially strained.

In Oregon there were 0.70 job postings per 100,000 people, and in Wisconsin there were 0.77 per 100,000. Given variations in the market, these 2 figures likely represent similar overall demand for general surgeons. However, it is clear that graduates in both states are not filling the demand of their respective geographic regions. In both states combined, fewer than 6 graduates per year were known to stay in their respective state to fill a general surgery job, despite the availability of 17 positions in the 2 states over a similar time period.

This study suggests geographic variation in the individual skills sought in the general surgery job market, despite a rather similar overall demand. There were marked differences between the 2 states with regard to the preferred skill sets. Specifically, experience with obstetrics and gynecology was preferred by nearly half the Wisconsin employers, but not at all in Oregon. This may reflect regional differences in the medical-legal environment; a more litigious environment in Oregon as compared with Wisconsin may prohibit Oregon general surgeons from performing obstetric or gynecologic procedures on a regular basis. Alternatively, the supply and practice pattern of trained obstetrician gynecologists and family practitioners may also be different in the 2 states. A recent study of the Dakota Database of Rural Surgery revealed that rural surgeons performed 1,063 obstetrics/gynecology procedures in 1 year, including caesarian sections, tubal ligations, and hysterectomies; this accounted for 2.3% of the 46,052 procedures performed that year by rural general surgeons.[13] Endoscopy is a skill set that constitutes a large part of many general surgery practices, it is estimated to be 39% of all procedures performed by rural general surgeons in the Dakota Database. Yet only 7% of employers in this study specifically sought advanced endoscopy skill. This is likely because employers believe sufficient endoscopy experience is provided during general surgery residency, which is currently defined by 35 upper endoscopies and 50 colonoscopies. Endoscopic proficiency is not yet defined by any quantifiable metric,[14] but newly introduced programs such as the Society of American Gastrointestinal and Endoscopic Surgeons' (SAGES) Fundamentals of Endoscopic Surgery (FES) curriculum and assessment tool seek to provide an objective measure of endoscopic proficiency,[15] and may provide a more reliable tool for employers and accrediting agencies to assess whether a surgeon is competent to perform endoscopic procedures.

This study is limited by the fact that it is a small sample of the US job market, covering only 3.1% of the US population[16] and therefore is not a comprehensive evaluation of the US. However, it is a comprehensive evaluation of 2 states and, in many respects, these 2 states reflect an important sample of the overall US job market. Both states contain major metropolitan centers with several intermediate-sized cities, and a population that is otherwise widely distributed across vast areas of land serviced by regional medical centers and small community hospitals. This is similar to most other states in the country. A recent study used US census data to identify states that are most representative of the US population.[17] According to statistics on race and ethnicity, income and education, housing prices and neighborhoods, Wisconsin was the most representative state and Oregon was the seventh

most representative state for the US population. Given similar population profiles and similar referral structures, it is reasonable to believe that Oregon and Wisconsin demonstrate similar needs for general surgical services as most of the United States, supporting the external validity to this study.

When examining the internal validity of the study, it is worth noting the strengths and limitations of sampling general surgery job postings and residency graduate training choices. The length of time that a job posting is available varies widely, which could potentially introduce bias, favoring jobs that are hard to fill, and the market is a dynamic entity that could change significantly over the course of a prolonged study period. Accordingly, in this study, we elected to take a relative snapshot of the market, restricting our search for general surgery positions to 12 months, to limit such bias. In order to adequately assess the supply of general surgery residency graduates, career paths of graduates were assessed for 4 years preceding the 12 months studied. We included this longer window of "workforce supply" in order to eliminate the small sample variability that may have occurred if we sampled only a single year of residency graduates. As it turned out, the interests of the graduating resident were relatively consistent over this 4-year period, and we could not detect differences in resident preferences in any year of our 4-year sampling period. Although public institutions are required to post all job openings, not every general surgery job opening is publicly advertised, and there are no universal standardized requirements for how jobs may be posted and what information is included. Practices may hire a new partner directly out of fellowship or after a particularly positive interaction at a national meeting. By nature, such hiring is difficult to quantify and could not be fully accounted for in our study. Nevertheless, this study involved a comprehensive search for open general surgery positions that we believe resulted in representative samples from each state. These samples demonstrated a consistent demand for general surgeons, which is therefore likely to be generalizable to other areas of the United States. Additionally, this study achieved 100% capture of the supply of general surgery graduates from these 2 states from 2008 to 2012. However, general surgery resident training choices could be captured only at the time of residency graduation, which meant that choices to pursue fellowship training after years of practice were not observed. The factors that influence the skill sets of graduating residents are numerous and difficult to quantify. We attempted to address this by correlating the coexistence of fellowships and residencies with the decision to go directly into training or to pursue fellowships; we found no significant correlation. Despite these limitations, this sampling of graduates and job postings allowed an insightful comparison of supply and job market demand for general surgeons.

Many organizations within the profession of general surgery have an opportunity to contribute to changes in surgical training that will promote comprehensive and rural general surgery as an attractive career path, and therefore help meet the demand for general surgeons without forced intervention by outside authorities. Foremost among these national organizations is the American College of Surgeons (ACS), which recently issued the American College of Surgeons Statement on Healthcare Reform[18] in which it identified 3 core areas of concern: quality and safety, access/workforce, and reduction of health care costs. Under the topic of access/surgical workforce, the ACS stated that it is committed to 5 specific efforts:

1. Providing educational programs to address new paradigms of surgical specialists and the delivery of surgical care in order to ensure that there is an adequate workforce to supply high-quality care through the changing delivery system.
2. Focusing research and advocacy efforts in order to gain an understanding of the challenges that exist in attempting to ensure the availability of a sufficient, yet flexible, surgical workforce that will provide equitable access to quality and timely health care.
3. Developing systems to eliminate disparities in the availability and delivery of surgical and other health care in America.
4. Conducting research on the adverse impact of the declining surgical workforce, focusing on rural and underserved hospitals and providing analysis for the national health workforce database.
5. Providing educational outreach and respite support for surgeons practicing in rural and underserved areas in order to maintain a surgical workforce in these areas.

The American College of Surgeons is actively attempting to address this very important problem, but if it has any chance of success in these 5 efforts, it will need to start by recognizing the disparity in the skill sets attained by current trainees and those needed by the patients that American general surgeons strive to serve. It will then need to support research that further characterizes the specific skill sets that are, in fact, needed by the American public, and support new training paradigms specifically tailored to these skill sets. This study may be a first step in providing this support by determining the specific skill sets that are desired and characterizing the disparity in what is provided by current training paradigms and what

is in demand by the workforce. Further investigation must be done to determine exactly why trainees are seeking alternate skill sets, what could incentivize them to seek skill sets that are needed by the underserved populations within the United States, and how best to train future generations of general surgeons in an efficient and efficacious manner to optimally serve all of our patients.

CONCLUSIONS

There is currently a disparity between the skills sought by general surgery trainees and the skill set desired by general surgical employers. This disparity will have important consequences for the quality, cost, and accessibility of general surgical care throughout the United States for years to come. General surgery residency programs should, therefore, ensure that graduates have competency in the skills needed by the job market. General surgery training should be tailored to market demands to increase access to general surgical services, improve quality, and contain costs of care.

Author Contributions

Study conception and design: Greenberg, Kent, Hunter
Acquisition of data: Decker, Bronson
Analysis and interpretation of data: Decker, Bronson, Greenberg, Dolan, Kent, Hunter
Drafting of manuscript: Decker, Bronson
Critical revision: Decker, Bronson, Greenberg, Dolan, Kent, Hunter

Acknowledgment: We appreciate contributions to this study from the following: Randy Munson, Wisconsin Office of Rural Health, prepared reports on rural job postings and distributed surveys to employers; Kathy Fuchs, Surgery Education Programs Specialist at Marshfield Clinic, prepared a residency program report; Robin Alton and Erin Anderson, Oregon Health and Science University Department of Surgery, prepared a residency program and alumni report for all graduates in Oregon.

REFERENCES

1. U.S. Department of Health & Human Services, Health Resources & Services Administration. The Physician Workforce: Projections and Research into Current Issues Affecting Supply and Demand. December 2008:1–111.
2. Cofer JB, Burns RP. The developing crisis in the national general surgery workforce. J Am Coll Surg 2008;206:790–795; discussion 795–797.
3. Association of American Medical Colleges. State Physician Workforce Data Book 2011. November 2011:1–61.
4. Council on Graduate Medical Education, U.S. Department of Health & Human Services, Health Resources & Services Administration. Evaluation of Specialty Physician Workforce Methodologies. September 2000: 1–104.
5. Lynge DC, Larson EH, Thompson MJ, et al. A longitudinal analysis of the general surgery workforce in the United States, 1981-2005. Arch Surg 2008;143:345–350; discussion 351.
6. Association of American Medical Colleges. The Complexities of Physician Supply and Demand: Projections Through 2025. November 2008:1–94.
7. The Patient Protection and Affordable Care Act of 2010 (Public Law 111–148; March 23, 2010).
8. Borman KR, Vick LR, Biester TW, Mitchell ME. Changing demographics of residents choosing fellowships: longterm data from the American Board of Surgery. J Am Coll Surg 2008;206:782–788; discussion 788–789.
9. Stritzenberg KB, Sheldon GF. Progressive specialization within general surgery: adding complexity of workforce planning. J Am Coll Surg 2005;201:925–993.
10. Bucholz EM, Sue GR, Yeo H, et al. Our trainees' confidence: results from a national survey of 4136 US general surgery residents. Arch Surg 2011;146:907–914.
11. United States Department of Agriculture, Economic Research Service. Rural-Urban Continuum Codes. Available at: http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx. Accessed March 11, 2013.
12. Rickets TC, Belsky DW. Medicare costs and surgeon supply in hospital service areas. Ann Surg 2012;255:474–477.
13. Sticca RP, Mullin BC, Harris JD, Hosford CC. Surgical specialty procedures in rural surgery practices: implications for rural surgery training. Am J Surg 2012;204:1007–1012.
14. Vassiliou MC, Kaneva PA, Poulose BK, et al. How should we establish the clinical case numbers required to achieve proficiency in flexible endoscopy? Am J Surg 2010;199:121–125.
15. Society of American Gastrointestinal and Endoscopic Surgeons Press Release. Presenting the first ever hands on skills assessment examination for endoscopy certification. The Wall Street Journal Market Watch, PR Newswire, United Business Media. January 25, 2013.
16. U.S. Census Bureau, Statistical Abstract of the United States: 2012 (131st Edition) Washington, DC, 2011. Available at: http://www.census.gov/compendia/statab/. Accessed March 11, 2013.
17. Preston M. The most 'representative' state: Wisconsin. Posted Thursday, July 27, 2006. Available at: http://www.cnn.com/2006/POLITICS/07/27/mg.thu/ Accessed April 20, 2013.
18. American College of Surgeons Statement on Healthcare Reform. 2008. Available at: www.facs.org/ahp/hcreform08.pdf. Accessed April 19, 2013.