RURAL SURGICAL PRACTICE

CASE-MIX

Breon T, Scott-Connor, CEH, Tracy, RD. Spectrum of general surgery in rural Iowa. *Current Surgery* 2003;60(1):94-99.

The purpose of this study was to compare practice patterns of all rural and non-rural surgeons in Iowa. Additionally, the investigators compared the procedures performed by 6 practicing general surgeons in rural Iowa to the case representation, by category, recommended by the ACGME for graduation from an accredited general surgery residency program. The authors recommend that changes in general surgery education should be targeted at meeting the specific needs of medical students and general surgery residents by utilizing increased flexibility to increase the pool of adequately trained general surgery residents qualified to practice in both rural and non-rural settings.

Callaghan J. A twenty-five year survey of a solo practice in rural surgical care. *Journal of the American College of Surgeons* 1994;178(5):459-465.

The purpose of this project was to increase knowledge regarding surgical care in rural America. A review of case logs showed that gynecologic, obstetric, orthopedic, and urologic surgical treatment accounted for more than 40% of extensive operations, but endoscopic procedures have been increasing. The author concluded that more emphasis on broader training is necessary for this pattern to continue.

Landercasper J, Bintz, M, Cogbill, TH, Bierman, SL, Buan, RR, Callaghan, JP, Lottman, JK, Martin, WB, Andrew, MH, Lambert, PJ. Spectrum of general surgery in rural America. *Archives of Surgery* 1997;132(5):494-497.

The purpose of this study was to define types of surgery performed by rural surgeons, compare their experience to that of graduating US surgical residents and document surgical mortality. The results of this review showed that a large volume of surgery was performed with low mortality by 7 surgeons. The operative experience of 1995 residency graduates differed from that of rural surgeons. The authors recommended a rural surgical track to better prepare graduates for rural practice including senior level rotations in endoscopic, gynecologic, obstetric and orthopedic surgery plus mentorship.

Majure J, Abernathy, CM. Rural surgeons of Colorado: The scope of their practice. *Bulletin of the American College of Surgeons* 1981;66(2):11-16.

The purpose of this project was to ascertain the types of surgery practiced in rural Colorado communities and to identify the particular needs of the rural surgeon as demanded by a non-urban practice. The results of this survey demonstrated that the type of surgery practiced was a direct reflection of the surgical sub-specialists available. Surgeons who trained 20 or 30 years previously tended to have a broader base of practice, whereas the younger surgeons were more apt to have a narrower range of skills, although their skills included such newer techniques such as endoscopy. The authors concluded that there is a need to provide adequate experience in trauma and increase training in obstetrics and gynecology. Many of the general surgeons surveyed returned to nearby tertiary-care centers to learn procedures omitted during their training.

Ritchie W, Rhodes, RS, Biester, TW. Workloads and practice patterns of general surgeons in the United States, 1995-1997: A report from the American Board of Surgery. *Annuals of Surgery* 1999;230(4):533-543.

The purpose of this article was to characterize the workloads and practice patterns of general surgeons in the United States over a 3-year period from 1995 to 1997. The results showed that the magnitude of differences in the number of gynecologic, urologic, and orthopedic procedures performed by rural versus urban surgeons was not great. The authors concluded that given the fact that the distribution of procedures by category in rural settings was precisely reflected in classical general surgical training, it is reasonable to question whether or not a radically separate and distinct residency training track for surgeons entering rural practice is truly necessary.

Sariego J. Patterns of surgical practice in a small rural hospital. *The Journal of the American College of Surgeons* 1999;189(1):8-10.

The purpose of this article was to review the spectrum of operative experience in a single small hospital in rural Mississippi and correlate the author's experience with that in urban hospitals and the training received by graduating surgical residents. This example of operative experience in a small rural hospital is significantly different from that at larger urban centers and is also markedly different from the experiences of residents in major teaching centers. This suggests the need to broaden the experience of graduating residents intending to practice in rural areas.

VanBibber M, Zuckerman, RS, Finlayson, SR. Rural versus urban inpatient case-mix differences in the US. *Journal of the American College of Surgeons* 2006;203(6):812-816.

The objective of this study was to describe surgical case-mix differences between urban and small rural hospitals. Better knowledge of case-mix differences will help surgical leaders develop policies and programs that will more effectively address the training needs of surgeons who practice in rural areas. The authors concluded that although the data suggest that the scope of urban and rural general surgical practices are markedly different, general surgical education typically does not differ for those heading to disparate practices. Additional competencies in a few surgical areas not currently emphasized in general surgical training could result in an increased role for general surgeons practicing in remote rural areas.

PROCEDURES

Brown RB. Laparoscopic hernia repair: A rural perspective. *Surgical Laparoscopy & Endoscopy* 1994;4(2):106-109.

This paper is a report evaluating a series of 61 patients from rural Minnesota who had their hernias repaired laparoscopically at small rural hospitals (30 beds or less) between March 1991 and December 1992.

Buser KB. Laparoscopic surgery in the pregnant patient – One surgeon's experience in a small rural hospital. *Journal of the Society of Laparoendoscopic Surgeons* 2002;6:121-124.

The purpose of this paper was to detail one surgeon's experience over a 5-year period with laparoscopic surgery in the pregnant patient, primarily laparoscopic cholecystectomy at a small rural Nebraska hospital. The author concluded that urgent laparoscopic operations can be carried out successfully in pregnant patients throughout their pregnancy, even in remote locations lacking immediate on-site availability of sub-specialty care. The surgeon must be skilled in surgical obstetrics and well trained and experienced in advanced laparoscopic techniques. It is recommended that the same lines of communication and referral for sub-specialty involvement be in place as would be required in the management of premature delivery of pregnant patients without surgically urgent disease.

Callaghan J. Colorectal cancer in a small rural hospital. *The American Journal of Surgery* 1990;159:277-281.

This paper is a report consisting of a clinical review of one surgeon's experience in treating colorectal cancer over a 20-year period in a small rural hospital.

Callaghan J. Twenty-five years of gallbladder surgery in a small rural hospital. *The American Journal of Surgery* 1995;169:313-315.

This paper is a report consisting of a clinical review of one surgeon's experience performing over 1,000 gallbladder operations in a small rural hospital between 1967 and 1991. The author concluded that based on the results from this series from a small rural hospital compare favorably with the published results from large medical and academic centers.

Clark GJ, Onders RP, Knudson JD. Laparoscopic distal pancreatecomy procedures in a rural hospital. *AORN Journal* 1997;65(2):334-343.

This article is a case report describing laparoscopic distal pancreatectomy procedures performed on two patients at a 20-bed hospital in rural North Dakota. The authors concluded that facility size does not have to limit the application of laparoscopic technology.

Conn CA, McMasters KM, Edwards MJ, Martin RCG. Acceptance of sentinel lymph node biopsy of the breast by all general surgeons in Kentucky. *Breast Journal* 2005;11(4):231-235.

The purpose of this project was to assess how surgeons in Kentucky, a predominately rural state, have incorporated sentinel lymph node biopsy into their practice. The results of this survey showed that sentinel lymph node biopsy has become widely accepted by surgeons in both rural and urban centers in Kentucky. The authors note however, that there has been considerable variability in the number of training cases surgeons have performed prior to abandoning routine axillary dissection. This indicates a need for continuing educational efforts aimed at quality assurance.

Furman R, Dean C, Frazier H, Furman L. One hundred consecutive laparoscopic cholecystectomies performed in a rural hospital. *The American Surgeon* 1992;58(1):55-60.

The authors reviewed their first 100 consecutive patients undergoing laparoscopic cholecystectomy at a rural hospital. They concluded that laparoscopic cholecystectomy can be performed safely and routinely in the rural hospital setting with results similar to those expected in larger metropolitan centers.

Kemp JA, Zuckerman RS, Finlayson SRG. Trends in adoption of laparoscopic cholecystectomy in rural versus urban hospitals. *Journal of the American College of Surgeons* 2008;206(1):28-32.

This study assessed the degree to which professional isolation among rural surgeons impacted their adoption of laparoscopic cholecystectomy. The findings showed that there was no difference in timing or rate of adoption of laparoscopic cholecystectomy among surgeons from rural hospitals and that these surgeons had similar in-hospital mortality and re-intervention rates to their urban counterparts. The authors concluded that there was no delay in the adoption or quality of laparoscopic cholecystectomy due to professional isolation among surgeons practicing at rural hospitals.

Kreuder KA, Chown M. Laparoscopic cholecystectomy in the rural setting. *Journal of Laparoscoendoscopic Surgery* 1992;2(2):89-92.

The purpose of this project was to evaluate the applicability of laparoscopic cholecystectomy to rural portions of the United States by analyzing the early experience of laparoscopic cholecystectomy by two rural surgeons. The investigators asserted that laparoscopic cholecystectomy can be managed as well within the rural setting as in the university setting, provided that 1) procedures are performed by well-trained Board Certified surgeons who have been trained in laparoscopic technique, 2) the operating room staff has adequate experience with laparoscopy and appropriate training for its application to the gallbladder, 3) standard laparoscopic gallbladder equipment is available, with or without the availability of a laser, and 4) the surgeon and staff provide adequate and appropriate preoperative patient education.

Haas S, Trujillo A, Kunstle J. Fine needle aspiration of thyroid nodules in a rural setting. *The American Journal of Medicine* 1993;94:357-361.

The objective of this review was to evaluate the applicability of fine needle aspiration biopsy in rural practices with small patient numbers, to assess the effect of these numbers on the results, and to establish the level of accuracy of the procedures in this setting. The findings suggest that fine

needle aspiration biopsy of thyroid nodules can substantially reduce surgical intervention and increase the yield of malignancy without excessive loss of accuracy even in rural areas with small numbers of patients.

Lawler M. Aggressive treatment of ruptured abdominal aortic aneurysm in a community hospital. *Surgery* 1984;95(1):38-44.

This report describes a review of the clinical spectrum observed during the aggressive surgical treatment of 43 ruptured abdominal aortic aneurysms in a rural community hospital by one surgeon over a 10-year period.

Morrison JE, Jacobs VR. Outpatient laparoscopic hysterectomy in a rural ambulatory surgery center. *Journal of the American Association of Gynecologic Laparoscopists* 2004;11(3):359-364.

This article describes an evaluation of a cost-optimized operative technique for outpatient laparoscopic hysterectomy in a rural ambulatory surgery center focusing on shortening hospital stay and substitution of expensive disposable laparoscopic instruments with standard surgical techniques. The authors determined that outpatient laparoscopic hysterectomy is feasible and can be performed cost effectively in ambulatory surgery centers, even in rural areas.

Povoski SP, Choudry UH, Dauway EL, Rassekh CH, Ducatman BS. Sentinel lymph node mapping and biopsy for malignant melanoma at a rural-based university medical center. *The West Virginia Medical Journal* 2002;98194-197.

The objective of this project was to describe the experience of a single-institution, rural-based university medical center with sentinel lymph node mapping and biopsy for cutaneous malignant melanoma. The authors reported that the initial experience was encouraging. They suggested that the procedure shows great promise for any rural-based university medical center practice by potentially sparing patients the added morbidity and inconvenience of more extensive surgery in a setting where patients may have to travel far distances for appropriate evaluation and treatment.

Richmond BK, Eads K, Flaherty S, Belcher M, Runyon D. Complications of thyroidectomy and parathyroidectomy in the rural community hospital setting. *The American Surgeon* 207;73:332-336.

The purpose of this paper was to describe the findings of a chart review addressing complications encountered in a series of 150 consecutive thyroid and parathyroid procedures performed by a single surgeon in a rural community hospital setting. The investigators concluded that outcomes and complications in thyroid and parathyroid surgical procedures were largely dependent on surgeon skill and experience, and can be performed safely in the community setting by an experienced general surgeon despite the absence of advanced technology in this setting.

Sariego J. The role of the general surgeon as endoscopist. *The American Surgeon* 2000;66(12):1176-1178.

The purpose if this review article was to examine the role of a general surgeon in the performance of endoscopy at one small rural hospital in Mississippi and to evaluate the outcomes of endoscopic procedures in the hands of the rural general surgeon. The findings showed that endoscopy comprises a significant proportion of the general surgeon's practice in a rural setting. Increasing emphasis on endoscopy in rural surgical practice suggests that in an era of increasing sub-specialization intensive endoscopic training should continue to be a major part of a surgery resident's training if that resident is considering entering a rural practice.

Schootman M, Aft R. Rural-urban differences in radiation therapy for ductal carcinoma in-situ of the breast. *Breast Cancer Research & Treatment* 2001;68(2):117-125.

The purpose of this study was to determine if, and to what extent, rural women were less likely to receive radiation therapy following breast conserving surgery (BCS) for ductal carcinoma in-situ (DCIS). The findings showed that younger rural women were less likely to receive radiation therapy following BCS for DCIS than their urban counterparts, while there was not a similar difference among women age 65 or greater.

Sebajang H, Trudeau P, Dougall A, Hegge S, McKinley C, Anvari M. The role of telementoring and telerobotic assistance in the provision of laparoscopic colorectal surgery in rural areas. *Surgical Endoscopy* 2006;20:1389-1393.

The purpose of this study was to assess whether telementoring and telerobotic assistance would improve the range and quality of laparoscopic colorectal surgery being performed by community surgeons. The authors concluded that telementoring and remote telerobotic assistance are

excellent tools for supporting community surgeons and providing patients better access to advanced surgical care.

Taufic M. Cholecystectomy in two small community hospitals. *Minnesota Medicine* 1990;73(9):29-32.

This article analyzes and compares results of 981 consecutive cholesytectomies for non-malignant disease performed in two small community hospitals located in neighboring counties in rural southeastern Minnesota during a 30-year period. The author compared these results against those of larger institutions, with regard to morbidity and mortality. The author concludes that his results compare favorably with those published from large institutions and indicate that gall bladder surgery can be performed safely and effectively in small hospitals.

Tietz C. Laparoscopic supracervical hysterectomy in a rural Minnesota hospital. *Minnesota Medicine* 2001;84(4):47-49.

This paper compares laparoscopic supracervical hysterectomy with laparoscopic-assisted and standard hysterectomy and reviews 83 laparoscopic supracervical hysterectomies performed at a rural Minnesota hospital. The findings demonstrate that laparoscopic supracervical hysterectomy is a beneficial alternative to laparoscopic-assisted and standard hysterectomy that can be performed in local hospitals.

Watkins GL. Biliary tract operations in a rural surgical practice: A review of 350 operations. *The American Journal of Surgery* 1971;12:518-521.

This paper used a case study methodology to review the surgical management of 350 consecutive biliary tract operations performed by 2 rural surgeons.

Williams RA, Gladden JC. Aorta replacement surgery in a rural county hospital. *JAMA* 1971;216(2):331-332.

This letter to the editor describing one rural hospital's experience with treating aortic disease. It addresses patient characteristics, surgical procedures, and outcomes. The author concludes that outcomes are similar to those in larger urban hospitals.

Xenos ES, Reinker D, Mogerman D. Early experience with laparoscopic anti-reflux surgery in the rural setting. *Southern Medical Journal* 2001;94(1):43-46.

> This article reports the experience with laparoscopic anti-reflux surgery at a 35-bed rural county hospital. The charts of 26 patients who had a laparoscopic anti-reflux procedure in this facility during a 2-year period were reviewed. The outcomes of this initial experience with laparoscopic anti-reflux surgery in a small rural facility are analogous to results previously published in the literature.

Zuckerman R, Doty B, Bark K, Heneghan S. Rural versus non-rural differences in surgeon performed endoscopy: Results of a national survey. *The American Surgeon* 1997;73(9):903-905.

The purpose of this study was to ascertain practice pattern differences among rural and non-rural general surgeons regarding endoscopy and to determine whether their educational needs differ. The results of the survey showed that rural surgeons perform flexible endoscopy at a much higher rate than their non-rural counterparts. The majority of rural surgeons felt they would have benefited from additional flexible endoscopy training before entering practice.