

# Trends in small hospital medical services in Ontario

James T.B. Rourke, MD, CCFP(EM), MCISC

## ABSTRACT

**OBJECTIVE** To compare the medical services provided in small hospitals in Ontario in 1995 with those provided in 1988.

**DESIGN** Mailed survey questionnaire.

**SETTING** Small hospitals in Ontario.

**PARTICIPANTS** Chiefs of Staff of the hospitals.

**MAIN OUTCOME MEASURES** Hospital size and location; numbers of physicians; availability of obstetric, anesthesia, and general surgery services; and other medical services available. The 1995 questionnaire was identical to the 1988 one, except for addition of questions on midwives and deletion of the detailed emergency medicine section.

**RESULTS** Sixty hospitals responded in both years. In these hospitals, there were significantly fewer acute care beds and births in 1995 than in 1988. Availability of general anesthesia and general surgery was significantly reduced, although general anesthesia was administered and general surgeries were performed more often. There were significantly fewer GP anesthetists and significantly fewer family physicians who attended births, although there were slightly more family physicians overall. There were fewer specialists.

**CONCLUSION** These are negative trends, particularly for women giving birth and patients needing emergency surgery in rural Ontario.

## RÉSUMÉ

**OBJECTIF** Comparer les services médicaux dispensés en 1995, dans de petits hôpitaux en Ontario, avec ceux fournis en 1988.

**CONCEPTION** Un sondage-questionnaire envoyé par la poste.

**CONTEXTE** De petits hôpitaux en Ontario.

**PARTICIPANTS** Les directeurs médicaux des hôpitaux en question.

**PRINCIPALES MESURES DES RÉSULTATS** La taille et l'emplacement de l'hôpital; le nombre de médecins; la disponibilité de services en obstétrique, en anesthésie et en chirurgie générale; les autres services médicaux offerts. Le questionnaire de 1995 était identique à celui de 1988, à l'exception de l'ajout de questions sur les sages-femmes et de la suppression de la section détaillée sur la médecine d'urgence.

**RÉSULTATS** Les deux années, 60 hôpitaux ont répondu au questionnaire. Dans ces hôpitaux, on comptait un nombre considérablement moins élevé de lits réservés aux soins actifs et de naissances en 1995 qu'en 1988. On constatait une réduction dans la disponibilité des services d'anesthésie générale et de chirurgie générale, bien que le nombre d'interventions dans ces disciplines se soit accru. On comptait beaucoup moins d'anesthésistes omnipraticiens et beaucoup moins de médecins de famille qui procédaient à des accouchements même si, dans l'ensemble, le nombre de médecins de famille était légèrement plus élevé. Il y avait moins de spécialistes.

**CONCLUSION** Il s'agit de tendances défavorables, en particulier pour les femmes qui accouchent et les patients qui doivent subir une intervention chirurgicale d'urgence, en milieu rural ontarien.

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*Cet article a fait l'objet d'une évaluation externe.*

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## RESEARCH

### Trends in small hospital medical services in Ontario

**T**his study examines trends in small hospital medical services in Ontario between 1988 and 1995. Ontario is a large province (1.1 million km<sup>2</sup>)<sup>1</sup> with many small communities often separated by long distances from large urban referral centres. About 23.3% of Ontario's population live in communities of fewer than 10 000 people.<sup>2</sup> Many of these people come to small hospitals for emergencies; for medical, surgical, and psychiatric problems; and to give birth.<sup>3</sup>

Small hospitals are important for providing a coordinating structure and anchor in rural communities from which rural physicians can provide vital medical services. Many factors could have influenced small hospital medical services in Ontario since 1988. The shortage of rural physicians has continued, despite several uncoordinated education, recruitment, and retention initiatives. The shortage of rural physicians to staff emergency departments in small hospitals resulted in a serious crisis leading to the Scott report<sup>4</sup> and the Provincial Co-ordinating Committee on Community and Academic Health Science Relations report,<sup>5</sup> both released in 1995. Both of these reports recognized the crisis, not only in small hospital emergency care, but also in small hospital medical services and rural health care in general.

On the national front, concern about providing emergency services in small hospitals prompted the Canadian Association of Emergency Physicians to develop a comprehensive report with recommendations; it was released in 1997.<sup>6</sup>

Surgical, anesthetic, and medical advances have influenced provision of care in all hospitals, including small hospitals. The shift toward outpatient and short-stay surgery made possible by techniques such as laparoscopic cholecystectomy and the shorter but more aggressive care of critically ill patients (eg, treating myocardial infarctions with thrombolysis) are examples of changes in services. Other pressures on small hospitals between 1988 and 1995 include cutbacks to hospital budgets and physician fees. Technological advances have resulted in widespread extension of technology, such as computed tomographic scanners, to small hospitals in the United States, but not yet in Ontario. Telemedicine and other computer networking is as yet unrealized here.

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**Dr Rourke** practises family medicine in Goderich, Ont, and is an Associate Professor in the Department of Family Medicine at the University of Western Ontario in London.

Given the current pressures for radical change under the direction of the Hospital Services Restructuring Commission and the implementation of Ontario's Rural and Northern Health Care Framework,<sup>7</sup> it is vital that recent trends be taken into account so that the need for rural health care services can be addressed effectively. The future of rural health care in Ontario will be determined, to a large degree, by the structure and organization of the medical services provided by rural doctors at the many small hospitals in Ontario.<sup>8</sup> In these particularly turbulent and changing times, the trends in small hospital medical services provide an important indication of the problems, direction, and need for rural health care in Ontario.

What effect have these and other forces had on the provision of medical services at small hospitals in Ontario between 1988 and 1995? This study examines physicians and the medical services they provided at small hospitals in Ontario in 1995 and compares them with a study group of 60 hospitals that responded to the survey in both 1988 and 1995.

## METHOD

### Survey instrument

The survey instrument was a seven-page questionnaire that included sections on hospital size and location; physician numbers; obstetric, anesthesia, and general surgery services; and other clinics and services. The 1995 questionnaire was identical to the one used in 1988, except for the addition of questions on midwives and deletion of the detailed emergency medicine section. Survey method and results from the 1988 study have been reported previously.<sup>3</sup>

### 1995 survey distribution and data collection

The questionnaire was sent to the Chiefs of Staff of 85 small community hospitals in Ontario that were identified as having fewer than 100 acute care beds in 1995. Such hospitals located in communities where the total number of acute care beds available in the community exceeded 100 were excluded. Hospitals in communities with more than 20 000 population were excluded also.

The first mailing was sent in July 1995. A follow-up mailing to nonresponders was sent in September 1995, and a follow-up telephone call and a further mailing or fax to nonresponders was made in October 1995. Surveys were analyzed using the Statistical Program for the Social Sciences.<sup>9</sup>

**Table 1. Practice characteristics of family physicians (FPs) and general practitioners (GPs) in Ontario in 1988 and 1995**

PRACTICE	1988 N (MEAN)	1995 N (MEAN)	CHANGE N (%)	PAIRED T TEST (DF, P)
Full-time FPs	485 (8.1)	496 (8.3)	+11 (+2.27)	NS
Part-time FPs	36 (0.61)	40 (0.38)	+6 (+11.11)	NS
Emergency department work	406 (6.8)	390 (6.5)	-16 (-3.94)	NS
Attending births	317 (5.3)	243 (4.1)	-74 (-23.34)	49 (59, <.001)
GP anesthetists	108 (1.8)	86 (1.4)	-22 (-20.37)	2.7 (59, <.01)
GP surgeons	9 (0.15)	9 (0.15)	0	NS

NS—not significant.

## RESULTS

Of 85 hospitals contacted, 65 (76%) responded in 1995; 80 of 88 (91%) had responded in 1988. The 60 hospitals that responded in both years provided data for this paper and are referred to as the study group. Forty hospitals were located in southern Ontario and 20 in northern Ontario. Average distance to a tertiary care centre was 211 km (greatest distance was 1060 km).

Twenty-five hospitals did not respond in either 1988 or 1995. Of these hospitals, eight were in northern Ontario and 17 in southern Ontario. Average number of beds available at these hospitals was 61.5.

### Acute care beds

The number of acute care beds decreased in 59 of the 60 hospitals responding to the question in both surveys. Total number of acute care beds dropped from 2497 in 1988 to 1994 in 1995, a decrease of 503 (20.1%). Mean number of beds available was 42.3 in 1988 and 33.8 in 1995. The difference was statistically significant (paired  $t$  6.9,  $df$  58,  $P$  < .01).

### Family physicians and GPs

Table 1 shows the number of full-time and part-time family physicians, family physicians doing emergency-department shifts and attending births, GP anesthetists, and non-specialist general surgeons reported by the 60 hospitals.

### Specialists

Table 2 shows the number of specialist general surgeons, general internists, anesthetists, obstetricians, psychiatrists, and other specialists reported by the

60 hospitals. None of the numbers were large enough to be statistically significant.

### Medical services

**General anesthetics.** Fifty of the 60 hospitals reported the number of general anesthetics administered in both years. The number rose from 17 275 in 1988 to 20 021 in 1995, an increase of 2746 (15.9%). Mean was 367.6 in 1988 and 426.0 in 1995. A paired  $t$  test indicated an insignificant difference.

At 56 of the 60 hospitals that answered the question on anesthetic availability in both years, the amount of time that general anesthetics were available was lower in 1995 (Figure 1). Many of the hospitals that had anesthetics available all the time in 1988 were only able to provide them most of the time in 1995. The difference was statistically significant ( $\chi^2$  56.38,  $df$  15,  $P$  < .001).

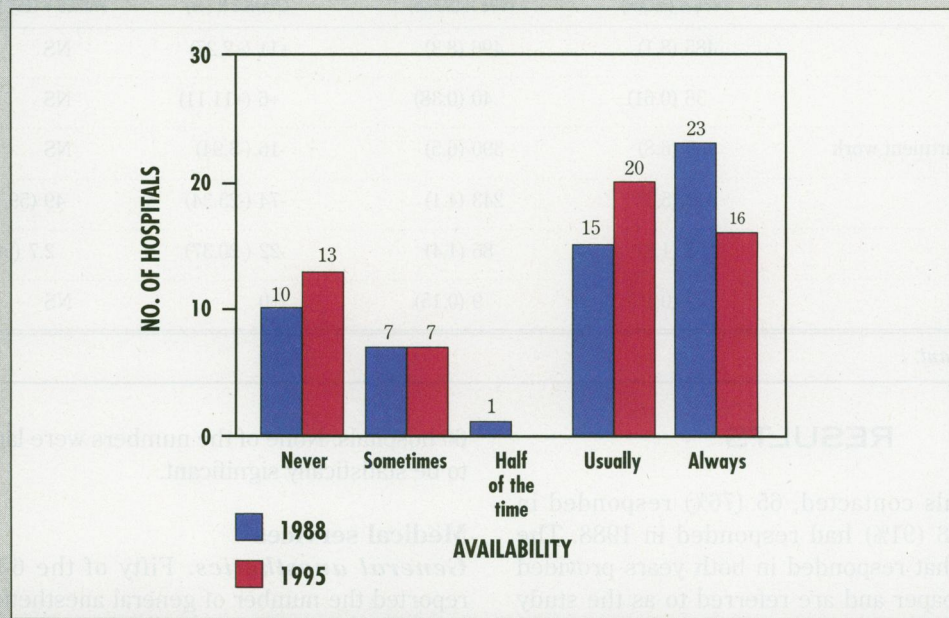
**Table 2. Practice characteristics of specialists in Ontario in 1988 and 1995**

SPECIALTY PRACTICE	1988 N (MEAN)	1995 N (MEAN)	CHANGE N (%)
General surgery	40 (0.7)	37 (0.6)	-3 (-7.5)
General internal medicine	23 (0.4)	29 (0.5)	+6 (+26.09)
Anesthetics	10 (0.2)	5 (0.1)	-5 (-50)
Obstetrics	8 (0.1)	11 (0.2)	+3 (+37.5)
Psychiatry	6 (0.1)	11 (0.2)	+5 (+83.33)
Other specialties	90 (1.5)	64 (1.1)	-26 (-28.88)
TOTAL	177 (3.0)	157 (2.7)	-20 (-11.29)

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Figure 1. Availability of general anesthetics in 56 hospitals in 1988 and 1995:  $\chi^2$  56.38,  $df$  15,  $P < .001$



**General surgery.** Forty-six hospitals reported the number of major general surgeries in both years. The number rose from 10 688 in 1988 to 11 769 in 1995, an increase of 1081 (10.1%). Mean was 232.3 in 1988 and 255.8 in 1995. A paired  $t$  test indicated an insignificant difference.

At 47 of the 60 hospitals that answered the question on general surgery availability, the amount of time that general surgery was available was lower in 1995 (Figure 2). Many of the hospitals that had surgery available all the time in 1988 were only able to provide it most or some of the time in 1995. The difference was statistically significant ( $\chi^2$  40.60,  $df$  16,  $P < .01$ ).

**Births.** Fifty-eight of the 60 hospitals reported the number of births in both years. At these hospitals the number dropped from 6225 in 1988 to 5043 in 1995, a decrease of 1182 (19.0%). Mean was 107 in 1988 and 87 in 1995. The difference was statistically significant (paired  $t$  test 3.7,  $df$  57,  $P < .001$ ).

## DISCUSSION

This study shows that small hospitals remain an important provider of medical services to a large portion of the population in Ontario. The study found,

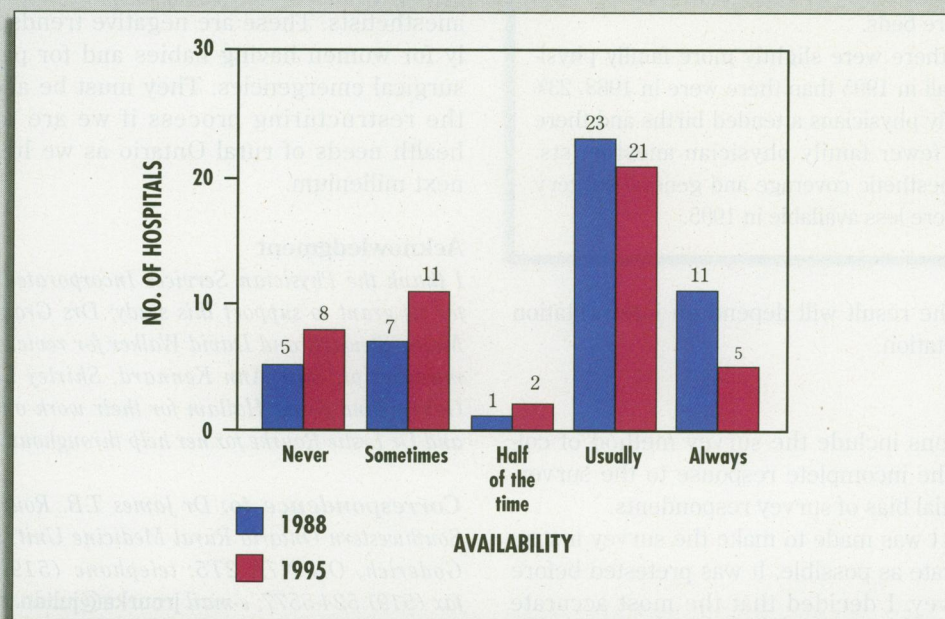
however, noticeably lower numbers of acute care beds, births, and family physicians providing anesthetics and attending births, and a reduced amount of time surgery and anesthetics were available at 60 hospitals. Small-hospital obstetric services are analyzed and discussed in more depth in a separate report (page 2117).

The trend toward bed reductions is consistent with the general trend toward more efficient use of acute care beds throughout North America. The increase in the number of general anesthetic and general surgery procedures, despite the cuts in acute care beds, most likely reflects the general trend toward day surgery. General anesthetic and surgery procedures increased despite substantial reductions in the number of GP anesthetists and general surgeons. These reductions are reflected in the reduced availability of anesthetics and general surgery at these small hospitals. This is a disturbing trend that could have a negative effect on emergency surgical treatment for a range of conditions from trauma to appendicitis to bowel obstruction to ectopic pregnancy.

Reductions in the availability of emergency surgical and anesthetic services at small hospitals likely results in more transfers to larger urban centres, with the potential for increased morbidity and mor-



**Figure 2.** Availability of general surgery in 47 hospitals in 1988 and 1995:  $\chi^2$  40.60, df 16,  $P < .01$



tality associated with delay and transport. This issue needs to be explored more fully. Any hospital restructuring in Ontario should take into account the need to provide emergency surgical services within a reasonable time and distance for people living in scattered rural communities. The results of this study support the need to recruit, train, and retain community-focused general surgeons and GP anesthesiologists. Sustainable on-call schedules need to be developed and resourced in key rural hospitals that could become surgical resource centres for surrounding hospitals within a cluster.

Although serious shortages of family physicians remain in rural Ontario, it is encouraging to see a slight increase in the numbers of family physicians at the study group hospitals. As well, the number of family physicians doing emergency department work has remained stable. Given the serious crisis in emergency care in the late 1980s and early 1990s in Ontario, these findings are reassuring and might reflect implementation of some of the recommendations of the Scott report,<sup>4</sup> including sessional fee payments for overnight shifts in small-hospital emergency departments.

Fewer specialists now practise at these small hospitals. There are, however, more general internists, obstetricians, and psychiatrists. The numbers are too small to be statistically significant.

### Coordination and cooperation

Hospitals have coordinated and should continue to coordinate medical services in rural Ontario. Cooperation among small hospitals that are clustered within a reasonable time and distance and networking with larger referral centres will help provide the most effective care.

Rural health care in Ontario needs to be maintained and enhanced. To accomplish this we need to focus particularly on training, recruiting, and retaining appropriate numbers of family physicians and key specialists to ensure appropriate access to medical care as close to home as possible. Results of this study indicate that the provision of medical services, particularly obstetrics and emergency surgery, in small hospitals is in a relatively fragile state and will need particular attention.

Currently, Ontario is undertaking a huge hospital restructuring process that will involve small hospitals and large urban hospitals. This presents a tremendous opportunity for addressing the health care needs of rural Ontario and maintaining and improving the medical services provided at small hospitals while at the same time providing more coordinated and networked care. The recently announced *Rural and Northern Health Care Framework*<sup>7</sup> provides for networking and clustering small hospital services in

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#### Key points

- Comparing small hospital services in Ontario in 1995 with those in 1988 revealed a 20% reduction in acute care beds.
- Although there were slightly more family physicians overall in 1995 than there were in 1988, 23% fewer family physicians attended births and there were 20% fewer family physician anesthetists.
- General anesthetic coverage and general surgery services were less available in 1995.

Ontario, but the result will depend on interpretation and implementation.

#### Limitations

Study limitations include the survey method of collecting data, the incomplete response to the survey, and the potential bias of survey respondents.

Every effort was made to make the survey instrument as accurate as possible. It was pretested before the 1988 survey. I decided that the most accurate comparison results could be achieved by using the same survey instrument in 1995. Thus it was not changed, except for the addition of a small section on midwives and deletion of the detailed section on emergency medical services.

The same criteria were used in selecting the hospitals to be surveyed in both years. The reasonably high response rate in both years minimizes nonresponse bias. The north-south and bed-size profiles of nonresponding hospitals were similar to the study group. The 60 hospitals that responded in both years allow direct comparison of activities at the same hospitals in 1988 and 1995.

The questionnaire was sent to the Chiefs of Staff in both years, who were to draw on administrative and other staff to complete the survey. This mechanism was considered least likely to result in biased responses from the hospitals involved.

I also believe that research on current rural health resources is required for developing appropriate policies, education, programs, and services. This study reports numeric data, which should reduce the influence of bias on both respondents and author.

## CONCLUSION

Rural health care in Ontario remains a tremendous challenge. There are significantly fewer acute care hospital beds than there were in 1988. Although the

number of anesthetic and general surgery procedures has increased, both these services are significantly less available after hours. There are fewer family physicians attending births and fewer GP anesthetists. These are negative trends, particularly for women having babies and for patients with surgical emergencies. They must be addressed by the restructuring process if we are to meet the health needs of rural Ontario as we head into the next millenium. ♦

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**Correspondence to:** Dr James T.B. Rourke, Director, Southwestern Ontario Rural Medicine Unit, 53 North St, Goderich, ON N7A 2T5; telephone (519) 524-9940; fax (519) 524-5577; e-mail [jrouke@julian.uwo.ca](mailto:jrouke@julian.uwo.ca)

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