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Barriers to patient care in southwestern Ontario rural emergency departments: physician perceptions

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Introduction: We sought to determine the perceptions of physicians staffing rural emergency departments (EDs) in southwestern Ontario with respect to factors affecting patient care in the domains of physical resources, available support and education.
Methods: A confidential 30-item survey was distributed through ED chiefs to physicians working in rural EDs in southwestern Ontario. Using a 5-point Likert scale, physicians were asked to rate their perception of factors that affect patient care in their ED. Demographic and practice characteristics were collected to accurately represent the participating centres and physicians.
Results: Twenty-seven of the 164 surveys distributed were completed (16% response rate). Responses were received from 13 (81.3%) of the 16 surveyed EDs. Most of the respondents (78%) held CCFP (Certificant of the College of Family Physicians) credentials, with no additional emergency medicine training. Crowding from inpatient boarding, and inadequate physician staffing or coverage in EDs were identified as having a negative impact on patient care. Information sharing within the hospital, access to emergent laboratory studies and physician access to medications in the ED were identified as having the greatest positive impact on patient care. Respondents viewed all questions in the domain of education as either positive or neutral.
Conclusion: Our survey results reveal that physicians practising emergency medicine in southwestern Ontario perceive crowding as the greatest barrier to providing patient care. Conversely, the survey identified that rural ED physicians perceive information sharing within the hospital, the availability of emergent laboratory studies and access to medications within the ED as having a strongly positive impact on patient care. Interestingly, our findings suggest that physicians in rural EDs view their access to education as adequate, as responses were either positive or neutral in regard to access to training and ability to maintain relevant skills.

Introduction : Nous voulions déterminer ce que les médecins affectés aux urgences des hôpitaux ruraux du sud-ouest de l'Ontario pensent des facteurs liés aux ressources physiques, au soutien disponible et à l'éducation qui ont une incidence sur le soin des patients.
Méthodes : Un questionnaire confidentiel de 30 questions a été distribué par l'entremise des directeurs de l'urgence aux médecins œuvrant au service d'urgence d'hôpitaux ruraux du sud-ouest de l'Ontario. À partir d'une échelle de Likert à 5 points, on a demandé aux médecins d'évaluer leur perception des facteurs qui ont une incidence sur le soin des patients à leur service d'urgence. On a réuni les caractéristiques démographiques et professionnelles de façon à représenter fidèlement les centres et les médecins participants.
Résultats : Vingt-sept des 164 questionnaires distribués ont été remplis (taux de réponse de 16 %). On a reçu des réponses de 13 (81,3 %) des 16 services d'urgence sondés. La plupart des répondants (78 %) détenaient un CCMF (certificat du Collège de médecins de famille) et n'avaient pas de formation supplémentaire en médecine d'urgence. Les répondants ont indiqué que l'encombrement causé par les patients admis mais en attente de chambre et le manque de médecins ou de couverture à

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l'urgence avaient un effet négatif sur le soin des patients. Ils ont indiqué que le partage d'information à l'intérieur de l'hôpital, l'accès à des examens de laboratoire d'extrême urgence et l'accès, pour les médecins, aux médicaments à l'urgence avaient l'effet positif le plus important sur le soin des patients. Les répondants considéraient comme positives ou neutres toutes les questions liées au domaine de l'éducation.

Conclusion : Nos résultats de sondage révèlent que les médecins qui pratiquent la médecine d'urgence dans le sud-ouest de l'Ontario considèrent l'engorgement comme le principal obstacle à la prestation des soins aux patients. Par contre, le sondage a permis de déterminer que les médecins des urgences rurales sont d'avis que le partage d'information à l'intérieur de l'hôpital, la disponibilité d'analyses de laboratoire d'extrême urgence et l'accès aux médicaments à l'urgence ont un effet fortement positif sur le soin des patients. Nos constatations indiquent que les médecins des urgences rurales jugent adéquat leur accès à l'éducation, car les réponses étaient positives ou neutres en ce qui a trait à l'accès à l'information et à la capacité de maintenir les compétences spécialisées pertinentes, ce qui est intéressant.

INTRODUCTION

The unique concerns of physicians staffing the front lines of rural emergency departments (EDs) need to be explored. It has been shown that rural EDs in Ontario do better in regard to wait times and meeting Canadian Emergency Department Triage and Acuity Scale (CTAS) benchmarks when compared with urban counterparts.[1,] However, a report on rural health has shown that rural and urban residents have differing levels of chronic diseases, self-reported health and mental illness, with rural areas reportedly having an overall "health disadvantage."[3] One study has also demonstrated that more than 70% of physicians staffing rural EDs in southwestern Ontario had no formal training in emergency medicine.[4] It is clear that physicians staffing rural EDs practise a distinct form of medicine and, thus, may have similar challenges to delivering care in rural environments.[5]

To address these challenges, the Canadian Association of Emergency Physicians (CAEP) contributed to the Romanow Commission by forming a committee to describe the state of emergency care and to guide the delivery of rural emergency medicine in Canada.[6] The committee advised that equipment and facilities should be enhanced and adapted to accommodate the unique challenges of the rural health care environment, that rural emergency physicians should be supported by improved initial training and innovative continuing medical education, and that regionalized models of rural emergency care should be studied.[6]

The purpose of our study was to further this dialogue and to examine what physicians staffing rural EDs in southwestern Ontario perceive as positive or negative factors that have an impact on patient care within the domains identified by CAEP: physical resources, available support and education.

METHODS

The development of the questions and domains for the survey tool was based on the 2002 CAEP recommendations to the Romanow Commission and a survey of safety concerns within rural EDs in the United States.[6,7] The survey tool also consisted of 5 demographic questions, previously used by Bhimani and colleagues,[4] to characterize the backgrounds of respondents and their practice environments. The physicians were asked to assess the perceived impact of 25 factors affecting patient care in the domains of physical resources, support and training using a 5-point Likert scale. The Likert scale ranked impact on patient care from strongly negative (a score of 1) to strongly positive (a score of 5).

The procedure for determining what ED sites would be included in the study was based on the Rurality Index for Ontario (RIO), which is currently used for the identification and funding of rural communities in Ontario.[8] A RIO score greater than 40 identified rural EDs in southwestern Ontario.

Physician chiefs and leaders of identified rural EDs were contacted by telephone and email between June and July 2010 and were asked to participate in the research as study coordinators, requiring them to distribute surveys to their staff. Surveys were mailed to the physician leaders who agreed to participate with instructions to distribute all research materials to physicians currently working in the ED. Participant consent was implied with the completion

of the survey, as explained in the survey instructions. The collected surveys from each site were to be mailed anonymously in an envelope provided in the package of survey materials to the research team 1 month after distribution. A single follow-up, by email or telephone, was made with physician leaders 1 week after the return deadline. Further reminders were not attempted, and data collection was closed 2 months after distribution.

Demographic and practice characteristics of each respondent were recorded. The results of the 5-point Likert scale questions were graphed using Microsoft Excel. Mean scores, standard deviations, confidence intervals (CIs) and rank orders were calculated for each question within the study domains. We calculated rank orders for each domain and organized data into tabular form.

Approval was obtained from the Health Sciences Research Ethics Board of The University of Western Ontario to survey physicians working in rural EDs across southwestern Ontario.

RESULTS

Physician leaders from 16 (88.9%) of the 18 identified EDs agreed to participate in the study. Thirteen centres (81.3%) returned surveys to the research team between August and October 2010, with a total of 27 of the 164 requested surveys completed (16% response rate). The average number of returned surveys per site was 2.1 (standard deviation 1.1).

The respondent demographic and practice characteristics are presented in Table 1. Study questions were organized into 3 domains based on the content of the question: physical resources (Table 2), available support (Table 3) and training (Table 4). Means and 95% CIs were calculated based on the responses on a 5-point Likert scale.

Through an open-ended question, respondents identified other sources of staffing or coverage within the EDs that had a positive impact on patient

Table 1. Training, experience and hospital characteristics of 27 emergency department physicians

Characteristic	No. (%) of respondents
Training	
CCFP	21 (77.8)
CCFP(EM)	3 (11.1)
Other	3 (11.1)
Additional qualifications	
ACLS	27 (100.0)
ATLS	21 (77.8)
PALS	5 (14.8)
Years in practice	
< 5	9 (33.3)
5–10	2 (7.4)
11–15	4 (14.8)
16–20	2 (7.4)
> 20	10 (37.0)
ED volume, patients per year	
< 10 000	3 (12.0)
10 000–20 000	20 (80.0)
> 20 000	2 (8.0)
No. of beds in hospital	
< 20	8 (29.6)
21–50	17 (63.0)
51–100	2 (7.4)

ACLS = Advanced Cardiac Life Support; ATLS = Advanced Trauma Life Support; CCFP = Certificant of the College of Family Physicians; CCFP(EM) = Certificant of the College of Family Physicians (Emergency Medicine); ED = emergency department; PALS = Pediatric Advanced Life Support.

Table 2. Perceived impact of physical resources on patient care in emergency departments

Resource	Mean score* (95% CI)
Information sharing within the hospital	4.35 (4.02–4.68)
Access to emergent laboratory studies	4.29 (4.00–4.58)
Physician access to medications in ED	4.23 (3.94–4.52)
Access to emergent radiography	4.00 (3.62–4.38)
Information sharing with external centres	3.92 (3.55–4.29)
Access to emergent CT	3.76 (3.28–4.24)
Patient access to medication after ED discharge	3.69 (3.39–3.99)
Access to emergent MRI	3.20 (2.76–3.64)
Crowding from inpatient boarding in ED	2.31 (1.88–2.74)

CI = confidence interval; CT = computed tomography; ED = emergency department; MRI = magnetic resonance imaging.
*On a 5-point Likert scale.

Table 3. Perceived impact of support on patient care in emergency departments

Support	Mean score* (95% CI)
Ambulance diversions directly to tertiary centres	4.11 (3.76–4.46)
Ambulance diversions directly to tertiary centre transfers	3.88 (3.40–4.36)
Availability of specialty consult within hospital	3.73 (3.20–4.26)
Availability of specialty consult with tertiary centres	3.65 (3.11–4.19)
Availability of consult with other health care providers (excluding tertiary centres)	3.62 (3.18–4.06)
Follow-up for ED care	3.48 (3.18–3.78)
Adequate staffing/coverage in ED by nurses	3.19 (2.81–3.57)
Availability of language interpreters	3.13 (2.69–3.57)
Adequate staffing/coverage in ED by physicians	2.67 (2.19–3.15)

CI = confidence interval; ED = emergency department.
*On a 5-point Likert scale.

care. The presence of physician assistants was volunteered by 4 physicians and nurse practitioners by 3 physicians (14.8% and 11.1% of respondents, respectively) as having a positive impact on patient care (mean score 4.25 [95% CI 4.23–4.27] and 4.33 [95% CI 4.31–4.35], respectively).

Overall, physicians perceived crowding from inpatient boarding in EDs, and inadequate physician staffing or coverage in EDs as having a negative impact on patient care. Factors having the most positive impact on patient care included access to information sharing within the hospital, access to emergent laboratory studies, access to medications in the ED and ambulance diversions to tertiary centres.

DISCUSSION

Patient crowding from inpatient boarding was identified as having the most negative impact on patient care; such congestion has been shown in the United States to increase wait times, diversions of ambulances and the risk of undesirable outcomes.[9] This may be an area that could be addressed to ensure timely care for patients in rural EDs.

Inadequate physician staffing or coverage in EDs was also identified as having a significantly negative impact on patient care. Another recent Canadian study demonstrated that the strongest factors for the dissatisfaction of rural physicians emerge from the "ability to find locum tenens coverage" and "availability of professional backup."[10] The results of our study suggest that the lack of physicians working in rural EDs may cause an increased burden on current rural ED physicians. To retain and recruit physicians to rural communities, the issue of greater staffing and coverage of rural EDs needs to be addressed.

Interestingly, all other areas were identified as having either a neutral or positive impact on patient care in rural EDs. Access to physical resources was found to be predominantly positive. This would suggest that, in southwestern Ontario, physicians working in EDs have access to the resources essential for providing adequate treatment to their patient population. These results may indicate that recommendations that physical resources in rural areas be standardized to meet the unique challenges of the rural environment have been implemented.[6]

As well, the positive results of physician access to training in rural EDs were an encouraging finding. Lower ED volume and separation from academic institutions may make it difficult for rural physicians to maintain skills and knowledge. Our results suggest that rural ED physicians feel that access to training and the ability to maintain knowledge in their field is adequate. The training available to physicians in rural EDs appears to be meeting their needs.

Finally, 4 physicians volunteered that physician assistants and 3 that nurse practitioners were resources that had a positive impact on patient care. Another study examining the role of nurse practitioners in a rural ED showed a decrease in wait times for low-acuity patients and potentially fewer patients who left without treatment.[11] This may be an interesting finding, and should be explored in future studies, as our study was not intended to examine the role of allied health professionals staffing rural EDs.

Table 4. Perceived impact of training on patient care in emergency departments

Training	Mean* (95% CI)
Resources to follow evidence-based emergency protocols	3.96 (3.63–4.29)
Ability to maintain emergency training skills	3.61 (3.20–4.02)
Training of ED nurses	3.53 (3.18–3.88)
Training of ED physicians	3.44 (3.18–3.70)
Access to CME	3.40 (2.95–3.85)

CI = confidence interval; CME = continuing medical education; ED = emergency department.
*On a 5-point Likert scale.

Limitations

The limitations of this study include the low response rate. Although many sites participated in the study, only an average of 2.1 (SD 1.1) physicians per site responded. The low SD among sites suggests that sites were equally represented, but greater physician participation would be necessary to further validate the results of this study.

Furthermore, although researchers and the Ontario Ministry of Health and Long-Term Care generally accept RIO scores as a measure of rurality, the scores are based on historical data and the cut-off for rurality is based on an arbitrary number. Further studies using different measures of rurality may elicit differences between rural and suburban communities, which were excluded by the current RIO cut-offs.

Lastly, rural EDs in southwestern Ontario may be considered "close rural," with most communities located in moderate or strong metropolitan-influenced zones.[12] These results cannot necessarily be generalized to all rural areas of Ontario; results may

change when isolated rural centres with less access to nearby urban centres are analyzed.

CONCLUSION

Our results suggest that physicians practising in EDs in rural southwestern Ontario identify inpatient congestion as well as inadequate physician staffing of EDs as having a negative impact on patient care.

Several factors were identified as having a positive impact on patient care, including access to information sharing, availability of emergent laboratory studies (e.g., radiography) and diversions to tertiary centres. These preliminary findings from physicians who staff the front lines needs to be further validated and included in future dialogue to continue to improve the care provided in EDs in rural Canada.

Competing interests: None declared.

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