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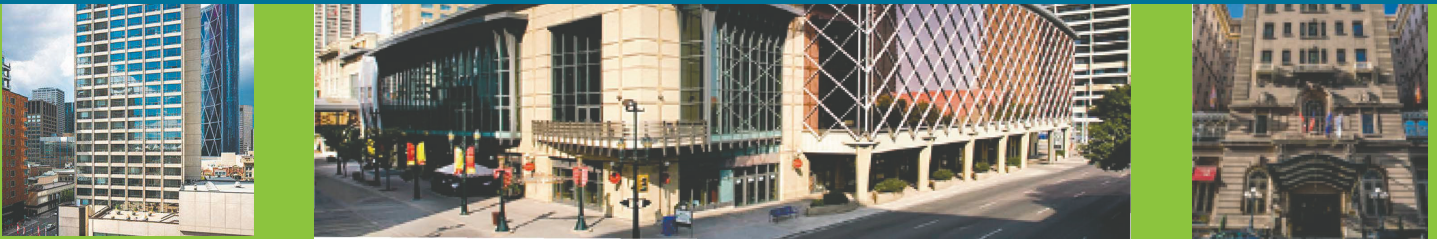
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I am giving up obstetrics

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We know that rural practice is associated with a significantly broader scope of generalist medicine than urban practice.^{1,2} Yet studies show that older rural physicians in Canada^{1,2} and other jurisdictions^{3,4} tend to reduce their scope of practice. This effect might be particularly true in obstetrics. In a study from rural Idaho, 65% of physicians aged 30–48 years attended vaginal deliveries compared with 39% of older physicians.⁵ Despite being a dyed-in-the-wool rural generalist, I struggle with this as well.

Ego is one of those issues that is not often mentioned, but may be important. It is always disappointing when long-time patients choose other providers for care during their pregnancies, and the longer you are in practice the more you will experience this. If you are not valued, then why bother? At our nearest urban referral centre, with competition from other groups, such as obstetrician–gynecologists for high-risk cases and midwives for low-risk cases, there are no longer any births attended by family doctors.

There are system-level reasons why some doctors quit. If you are tied to a community and the local hospital stops providing obstetric care, then you are likely to stop as well. Although I know of hospitals and physicians that have resumed obstetrics, this is uncommon because of a lack of incremental funding to the hospital and retraining challenges for nurses and physicians alike.

You would have to be callous not to be affected by a bad outcome in practice. Certainly, a malpractice claim is associated with physicians leaving that part of practice.⁵ Even

without a malpractice claim, I know of rural physicians who had an outcome in either the nursery or the delivery suite that directly led them to resign their obstetric privileges.

The economics of obstetrics might be overstated as a reason. That said, obstetrics accounts for substantially less than 5% of my income, and it occupies easily half of my malpractice premiums. Put another way, given that obstetric volumes, if not fixed in rural practice, are not easily mutable, the expense of malpractice premiums can provide a disincentive.

Personally, a core problem has been a decrease in obstetric volumes. Last year I attended 12 deliveries. It is not so much fear of malpractice that is driving me but rather my own decreased confidence in my currency in being able to deal with complicated obstetric care.

I can be somewhat reassured by work showing that, for family physicians, length in practice is positively associated with good obstetric outcomes.⁶ Furthermore family physicians have good outcomes regardless of volume.⁷ However, providers with lower volumes refer more,⁷ and, without ready on-site access to pediatricians and obstetrician–gynecologists, rural doctors cannot fully rely on such fail-safe supports.

Although I have delivered notice of giving up obstetrics, I am still delaying choosing the date. For all the challenges, attending a birth is a privilege and gives boundless joy. I am currently caring for a woman whom I held in my hands as a newborn 27 years ago. That type of continuity is special to me. Her baby is due next May. I will continue practising the full scope of “womb to tomb” medicine until then.

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L'obstétrique? Fini pour moi

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Nous savons que le champ d'exercice de la médecine familiale est considérablement plus vaste en milieu rural qu'en milieu urbain^{1,2}. Pourtant, des études montrent qu'au Canada^{1,2} et ailleurs dans le monde^{3,4}, les médecins ruraux d'un certain âge tendent à réduire leur champ d'exercice. C'est peut-être particulièrement vrai en obstétrique. Dans une étude réalisée dans l'Idaho rural, 65 % des médecins de 30 à 48 ans ont dit pratiquer des accouchements vaginaux, comparativement à 39 % pour les médecins plus âgés³. J'ai beau être un omnipraticien rural convaincu, c'est pour moi aussi un aspect difficile de la pratique.

L'égo est un problème rarement évoqué, mais possiblement important. En effet, c'est toujours dur pour l'égo quand une patiente qu'on suit depuis longtemps se tourne vers un autre fournisseur de soins pendant sa grossesse — les plus chevronnés d'entre nous l'ont vécu plus souvent qu'à leur tour. On se dévoue pour des patientes qui croient trouver mieux ailleurs ... à quoi bon? Au centre régional urbain le plus près de chez moi, la concurrence d'autres groupes, comme les obstétriciens-gynécologues pour les grossesses à risque élevé et les sages-femmes pour les autres, a sorti les médecins de famille des salles d'accouchement.

Les raisons qui poussent des médecins à quitter l'obstétrique sont parfois systémiques. Par exemple, si vous avez tissé des liens serrés avec votre communauté et que l'hôpital de votre région cesse d'offrir des soins obstétricaux, vous allez vraisemblablement devoir lui emboîter le pas. Certes, l'obstétrique est revenue dans certains hôpitaux, et certains médecins ont recommencé à la pratiquer, mais il s'agit de cas d'exception, puisque les hôpitaux ne reçoivent pas de fonds supplémentaires pour ces services et que la mise à jour des connaissances des infirmières et des médecins s'avère particulièrement complexe.

Dans un autre ordre d'idée, comment rester insensible à une issue malheureuse? On ne s'étonnera guère qu'un médecin cesse de pratiquer des accouchements après une plainte pour faute professionnelle⁵. Même sans plainte, j'en connais en milieu rural qui ont connu une issue défavorable dans la pouponnière ou dans la salle d'accouchement qui les a directement menés à renoncer à cette branche de la profession.

Il serait peut-être exagéré de mettre cette situation sur le compte de l'économie de l'obstétrique. Et pourtant, l'obstétrique a beau représenter moins de 5 % de mon

revenu, elle correspond facilement à plus de la moitié de mes primes d'assurance contre la faute professionnelle. Autrement dit, comme le volume de travail en obstétrique en médecine rurale n'est pas fixe, mais qu'il n'est pas facile à changer, le coût des primes d'assurance peut en décourager plus d'un.

Un problème fondamental qui m'a touché personnellement est la diminution du nombre d'accouchements. L'année dernière, j'en ai pratiqué 12. Ce n'est pas tant que je crains les plaintes pour fautes professionnelles, mais plutôt que j'ai de moins en moins confiance en ma capacité de pouvoir prendre en charge un cas compliqué.

La recherche me rassure un peu : une étude a établi une corrélation positive entre le nombre d'années d'expérience d'un médecin de famille et des issues obstétricales favorables⁶. Une autre étude a conclu que les médecins de famille obtiennent de bons résultats, peu importe le volume⁷. Cependant, cette même étude précise que les fournisseurs ayant un volume relativement faible dirigent davantage leurs patientes vers d'autres professionnels⁷ et que, sans accès à des pédiatres et à des obstétriciens-gynécologues directement sur place, les médecins ruraux ne peuvent pas compter entièrement sur une telle assistance de secours.

Bien que j'aie déclaré officiellement que je quitterai l'obstétrique, je remets toujours le choix de la date à plus tard. Malgré tous les défis, pratiquer un accouchement est un privilège qui procure une joie indicible. Je m'occupe actuellement d'une femme que j'ai accueillie dans ce monde il y a 27 ans. Ce type de continuité est précieux pour moi. L'accouchement étant prévu pour mai, je continuerai d'exercer la médecine « du berceau à la tombe » au moins jusque-là.

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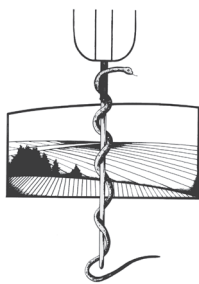
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President's message. Patient-centred care?

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I recently had the opportunity to sample our health care system first-hand. It was an enlightening experience! First, I think the name should be changed to “health treatment system.” Care seems to have become secondary. Second, although we like to call it “patient-centred care,” we should really call it “provider-centred care.” Don’t get me wrong: I received excellent treatment and am grateful for it. My recovery was paramount to my attending team, but it is my perception that the institutional apparatus is geared to the providers.

Ten days in hospital (pre- and post-coronary artery bypass graft) led to the following observations:

- Sleep does not matter. What happened to the hospital zones where those in and outside the hospital were expected to be quiet? Sleep is an important aspect of recovery, but have you ever tried to sleep in a modern hospital? Monitors dinging incessantly (same volume day and night), a persistent level of general activity in the room as nurses tend to their charges, patient activity of various kinds day and night, and the routines identified below.
- Vital signs must be taken every 2 or 4 hours (whether patients are awake or not), despite the electronic watchdogs strapped to our chests.

- Blood is needed daily. Drawn at 4 am, 7 am or both.
- Oxygen is good! Good and dry. I am not sure how much quicker healing is with higher oxygen saturation, but it took 2 weeks for my nasal passages to recover from the dryness after 2 days of oxygen by nasal prongs.
- Time with staff is limited. The nurses work very hard, but they have limited time to spend with patients. Questions must be prepared so that you can ask quickly, while they are taking vitals or administering medication. There is little time to establish a relationship (trusting or otherwise) because they have no time to chat. With 12-hour shifts, you see each only for a few days before a new one appears.
- Doctors come early and stay only briefly. I believe that I had great doctors, but their time for questions was limited: I’d guess 3 minutes per day to satisfy my curiosities.

I mentioned to one of my colleagues (a former resident), that if I had experienced this years ago, I would have been a better doctor. Her reply was that I should try to initiate a mandatory 2-day hospital admission for all medical students so they will realize that being a patient is a lot harder than being a doctor. I think she is right!

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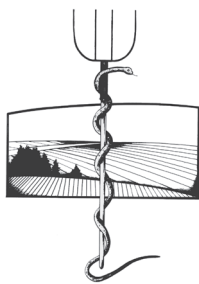
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Message du président. Des soins centrés sur les patients?

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J'ai eu l'occasion récemment de faire personnellement connaissance avec notre système de santé. Quelle expérience éclairante! D'abord, je crois que l'on devrait en changer le nom pour parler plutôt d'un « système de traitement ». En effet, la notion de soin semble être devenue secondaire. Ensuite, même si nous aimons dire qu'il s'agit de « soins centrés sur les patients », en réalité, il faudrait plutôt parler de « soins centrés sur les fournisseurs ». Comprenez-moi bien : j'ai reçu d'excellents traitements et j'en suis reconnaissant. Pour mon équipe soignante, mon rétablissement était primordial. Je me suis aperçu, toutefois, que tout l'appareil institutionnel est conçu en fonction des fournisseurs.

En effet, en 10 jours d'hospitalisation (avant et après un pontage aortocoronarien), j'ai pu faire les observations suivantes :

- Le sommeil n'a pas d'importance. Où sont passées les zones de silence, à l'intérieur et à l'extérieur de l'hôpital? Le sommeil est un facteur important de rétablissement, mais avez-vous déjà essayé de dormir dans un hôpital moderne? Les moniteurs tintent sans arrêt (au même volume jour et nuit), un niveau général d'activité persiste dans la chambre alors que les infirmières vaquent à leurs tâches, les patients s'adonnent aussi à diverses occupations jour et nuit, et les activités routinières énumérées ci-après ne s'interrompent pas.
- Il faut mesurer les signes vitaux toutes les 2 ou 4 heures (que les patients soient éveillés ou non), malgré les instruments électroniques de surveillance qui nous sanglent la poitrine.

- Il faut effectuer des prélèvements sanguins tous les jours — à 4 heures ou à 7 heures du matin, parfois les deux.
- L'oxygène, c'est bien! C'est bien et bien sec. Je ne sais pas à quel point une saturation en oxygène plus élevée accélère la guérison, mais il a fallu 2 semaines à mes narines pour se remettre de la sécheresse causée par 2 jours d'oxygène administré par pinces nasales.
- Le temps du personnel est limité. Les infirmières travaillent très fort, mais ont peu de temps à passer avec les patients. Il faut préparer des questions afin de pouvoir les poser rapidement, au moment où elles prennent vos signes vitaux ou administrent des médicaments. Il n'y a guère de temps pour établir un rapport (de confiance ou autre), parce qu'elles n'ont pas le temps de bavarder. Et en quarts de travail de 12 heures, vous voyez les mêmes personnes quelques jours seulement avant que d'autres viennent les remplacer.
- Les médecins arrivent tôt et ne restent pas longtemps. J'estime avoir eu d'excellents médecins, mais ils n'avaient guère le temps de répondre aux questions : je dirais que j'ai eu 3 minutes par jour pour satisfaire ma curiosité.

J'ai dit à une de mes collègues (une ancienne médecin résidente) que si j'avais fait cette expérience quelques années plus tôt, je serais devenu un meilleur médecin. Elle m'a répondu que je devrais essayer d'organiser une hospitalisation obligatoire de 2 jours pour tous les étudiants en médecine, afin qu'ils se rendent compte qu'il est beaucoup plus difficile d'être un patient que d'être un médecin. Je pense qu'elle a raison!

The impact of transport of critically ill pediatric patients on rural emergency departments in Manitoba

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This article has been peer
reviewed.

Introduction: Although the interfacility transport (IFT) of critically ill pediatric patients from rural to tertiary health centres may improve outcomes, the impact of IFTs on the rural referring centre is not known. The purpose of this study was to investigate how the IFT of critically ill children affects staffing and functionality of rural emergency departments (EDs) in Manitoba.

Methods: In 2015, surveys were emailed to the medical directors of all 15 regional EDs within 2 hours' travel time from a tertiary pediatric hospital. The survey consisted of 9 questions that addressed baseline characteristics of the regional EDs and duration of ED staffing changes or closures due to IFT of critically ill pediatric patients.

Results: Ten surveys were received (67% response rate); a regional ED catchment population of about 130 000 people was represented. Interfacility transport caused most EDs (60%, with an average catchment population of 15 000) to close or to alter their staffing to a registered nurse only. These temporary changes lasted a cumulative total of 115 hours.

Conclusion: Interfacility transport of critically ill pediatric patients resulted in ED closures and staffing changes in rural Manitoba. These findings suggest that long-term sustainable solutions are required to improve access to emergency care.

Introduction : Même si le transfert entre établissements (TEE) des patients pédiatriques gravement malades des centres de santé ruraux vers des centres tertiaires peut améliorer les résultats, l'impact du TEE sur les centres ruraux d'origine est inconnu. Le but de cette étude était d'évaluer dans quelle mesure le TEE des enfants gravement malades affecte la dotation en personnel et la fonctionnalité des services d'urgence ruraux au Manitoba.

Méthodes : En 2015, des sondages ont été envoyés par courriel aux directeurs médicaux des 15 services d'urgence régionaux se trouvant à 2 heures de distance ou moins d'un hôpital pédiatrique de soins tertiaires. Le sondage comportait 9 questions qui portaient sur les caractéristiques de base des services d'urgence régionaux et la durée des changements de leur dotation en personnel ou leur fermeture en raison du TEE des patients pédiatriques gravement malades.

Résultats : Dix sondages ont été reçus (taux de réponse : 67 %); une population d'environ 130 000 personnes desservies par les services d'urgence régionaux se trouvait représentée. Le transfert entre établissements a entraîné la fermeture ou la modification de la dotation en personnel ramené à une seule infirmière dans la plupart des services d'urgence (60 %, desservant en moyenne une population de 15 000 personnes). Ces changements temporaires ont eu une durée cumulative de 115 heures.

Conclusion : Le transfert entre établissements des patients pédiatriques gravement malades a entraîné la fermeture des services d'urgence et des modifications de leur dotation en personnel dans les régions manitobaines rurales. Ces observations donnent à penser que des solutions viables à long terme sont nécessaires pour améliorer l'accès aux soins d'urgence.

INTRODUCTION

It is estimated that half of the emergency care in Canada is managed in rural, remote or isolated health centres.¹ However, only 20% of the Canadian population is rural.² Delivering consistent, high-quality emergency care in a rural area is challenging. A disproportionately low distribution of physicians practise in rural areas,³ which has resulted in limited access to surgeons, consultants and intensive care support.^{4,5} Physicians⁶ and nurses⁷ may not have formal training in emergency care or may lack skills to manage the care of critically ill patients, and rural providers of emergency medical services (EMS) may have less training, less education and fewer opportunities to maintain competency than their urban counterparts.^{8–10}

Data from the United States have suggested that 10% of prehospital EMS responses¹¹ and 27% of emergency department (ED) visits are for children,¹² and only 6% of EDs are completely equipped for pediatric emergencies.¹³ Moreover, emergency care in rural centres may not be at the same standard as in urban EDs.¹⁴ This may be partially attributed to the paucity of pediatric-trained emergency providers, infrequent contact with critically ill children and unfamiliarity with pediatric pathophysiologies.^{15–17} This suggests that optimizing pediatric emergency care in these settings may be difficult.

Given these limitations, regionalization has been suggested as the solution, by which patients are matched to appropriate resources.¹⁸ In many instances, this involves the interfacility transport (IFT) of critically ill pediatric patients to higher levels of care. Although these IFTs may improve morbidity and mortality,^{19–21} the impact on the rural referring centre is not known. In some health regions such as Manitoba, the referring centre may be responsible for managing the pediatric IFT to the tertiary centre, but potentially at the expense of losing ED personnel for that transport. In smaller centres, a loss of human resources may influence how emergency services are delivered.

The purpose of this study was to investigate how the IFT of critically ill children affects staffing and functionality of rural EDs in Manitoba.

METHODS

Manitoba's transport system

Critically ill pediatric patients in Manitoba and Nunavut are transported to a single pediatric tertiary hospital in Winnipeg, Man. Accepting emergency or

intensive care physicians, together with rural health providers, review management and transport plans, and triage according to the severity of the patient's illness. Beyond Winnipeg's concentric 250-km road network, health care providers in rural, remote and isolated centres use government-operated, fixed-wing IFTs, led by specialty air medical crews. However, 77% of the catchment population lives within the 250-km concentric network.²² Here, ground transport is employed and managed by the referring site's emergency physician and its regional EMS.

Procedure

We identified rural communities with an ED within 2 hours' travel time of Winnipeg. Contact information from ED medical directors was gathered from hospital directories and local sources. In 2015, surveys were emailed to all 15 medical directors within the concentric network. We used research electronic data capture (REDCap) to collect data.²³ REDCap is a Web-based application to support research data capture that ensures secure layer encryption, anonymous responses and secure Web authentication.²³ A link to the REDCap survey was emailed to each medical director. Second and third reminder emails were sent to nonresponders at 4-week intervals. No incentives were provided and no follow-up phone calls were made.

The Health Research Ethics Board at the University of Manitoba approved the study protocol.

Survey

The survey consisted of 9 questions assessing baseline characteristics of the ED (e.g., ED catchment population, staffing and hours of operation) and institutional experiences of pediatric IFTs (e.g., number of transports per year, duration of IFT and the effects of IFTs on ED staffing and closure) over the previous 2 years. The duration of IFTs was defined as the time that rural physicians were physically absent from their ED. An embedded branching logic algorithm facilitated responses if an emergency physician managed the IFT. Anonymous data were exported into a password-protected database in a locked office at the University of Manitoba.

Analyses

Catchment population, daily operating hours and staffing for rural EDs were represented as proportions. Number of IFTs per year and impact of IFT to EDs were also calculated as proportions. Duration of

ED staffing changes or closures due to IFTs were calculated by multiplying the number of IFTs per year with the total duration of the IFT.

RESULTS

A total of 10 survey responses were received (67% response rate) (Table 1), representing a regional ED catchment population of about 130 000. Catchment populations varied from less than 5000 to more than 20 000 people. Emergency department hours ranged from less than 12 hours per day (10%) to 24-hour coverage (70%), and staffing varied from registered nurses only (30%) to registered nurses and 2 or more physicians (40%).

During the previous 2 years, 20% of centres had no IFTs per year, 10% had 1 per year, 20% had 2–5 per year and 50% had more than 5 per year (Table 2). Interfacility transports caused most EDs (60%) to close or to alter their staffing to a registered nurse only. With these 6 centres combined, the duration of total yearly ED closures was 30 hours (affecting a catchment population of 20 000), ED closure or change to registered nurse–only staffing totaled 50 hours (affecting a population of 30 000) and change to registered nurse–only staffing totaled 35 hours (affecting a population of 40 000).

DISCUSSION

The purpose of this study was to investigate how IFTs of critically ill children affect rural EDs in Manitoba. In our survey of rural ED directors, we found that pediatric IFTs caused 60% of EDs to either close or alter their staffing to registered nurses

only. These temporary changes lasted a cumulative total of 115 hours across 6 centres with an average catchment population of 15 000.

Rural physicians who accompany pediatric patients on IFTs are in compliance with Canadian recommendations for rural and remote ED care.²⁴ They facilitate regionalization by transporting critically ill patients to the most appropriate resources.¹⁸ Their presence also remedies the discomfort and lack of experience that EMS providers may have with a critically ill child, particularly if their scope of practice is limited to that of an emergency medical responder, or primary care paramedic. However, for the 60% of rural EDs surveyed that did not have 2 or more emergency physicians per shift, the temporary loss of a single physician on transport may have broader implications.

Closures and change of staffing to a registered nurse model only were the major impact EDs experienced from pediatric IFTs. Patients seeking timely access to emergency care within their catchment area may not have received adequate or standard treatment. Although our study did not investigate these possibilities, ED closures may have unintended ripple effects on patient outcomes.²⁵ Even with ambulance

Table 1: Characteristics of regional emergency departments (n = 10)

Characteristic	No. (%)
Catchment population	
< 5000	2 (20)
5000–9999	4 (40)
10 000–20 000	2 (20)
> 20 000	2 (20)
Daily operating hours	
< 12	1 (10)
12 to < 24	2 (20)
24	7 (70)
Emergency department staffing	
RN only	3 (30)
RN and physician	3 (30)
RN and ≥ 2 physicians	4 (40)
RN = registered nurse.	

Table 2: Characteristics of pediatric interfacility transport from 10 regional emergency departments

Characteristic	No. (%)*
No. of IFTs per year	
0	2 (20)
1	1 (10)
2–5	2 (20)
> 5	5 (50)
Effect of IFTs on ED	
No notable effects	4 (40)
Closure	2 (20)
Closure or change to RN-staffing only	2 (20)
Change to RN-staffing only	2 (20)
Total duration if ED affected, h (n = 6)	
< 3	1 (17)
< 4	2 (33)
> 5	3 (50)
Duration of ED changes, h/yr	
Closure	30
Closure or change to RN-staffing only	50
Change to RN-staffing only	35
Catchment population exposed to changes	
Closure	20 000
Closure or change to RN-staffing only	30 000
Change to RN-staffing only	40 000

ED = emergency department; IFT = interfacility transport; RN = registered nurse.

*Unless stated otherwise.

diversion policies, closures can lead to longer pre-hospital transport times and have an impact on walk-in patients. Furthermore, even a transition to a nurse practitioner model may have an impact on the management of higher-acuity conditions.²⁶ Some of these negative effects may have been mitigated given that 30% of EDs were not open for 24 hours at baseline, which implies that alternatives were in place for access to emergency care. Nevertheless, the collective effect may not be insignificant, and more sustainable solutions need to be considered.

Although the timing of rural pediatric IFTs is unpredictable, contingency plans are required when they are necessary. Only 2 larger rural centres had created IFT call lists or were able to quickly assemble transport teams without causing deficits in human resources at the ED. However, this was not employed with the remaining smaller remote centres, which suggests limitations of human resources and real difficulties in creating reliable transport strategies. Enhanced telemedicine may address some of the disparities in urban versus rural care for critically ill children^{27,28} but cannot directly alleviate the issues with human resources pertaining to IFTs. Implementation of a specialty IFT program using ground and/or air transportation may be the most viable long-term solution to ensure consistent access to emergency care by mitigating rural ED closures and staffing changes. Transport teams could also implement effective outreach and educational activities in rural centres, helping to facilitate the best possible management before transport.²⁹

Limitations

The major limitation of our survey was the small sample of 10 responses. However, our unit of analysis was regions and not a single person, and given our study catchment population of more than 130 000, a greater response rate may not have dramatically changed our observations. Second, whether ED closures or staff changes altered patient care could not be determined by this survey. This question has been addressed by other Canadian studies that have examined regional hospital closures.³⁰

CONCLUSION

Interfacility transport of critically ill pediatric patients resulted in ED closures and staffing changes in Manitoba's rural EDs. These findings suggest that long-term sustainable solutions are required to optimize access to emergency care.

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Retention in a 10-year cohort of internationally trained family physicians licensed in Manitoba

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Introduction: International medical graduates (IMGs) seeking licensure in Canada have been recruited to practise in medically underserved areas, but retention of these physicians remains a concern. This study explored retention of IMG family physicians in Manitoba and its predictors.

Methods: We used data from the University of Manitoba, provincial registries and Manitoba Health. Inclusion criteria were IMGs who completed University of Manitoba IMG training or assessment programs, and their return-of-service. Practice location, certification and licensure status were examined. We used logistic regression to consider the effects of a mentorship program, Manitoba residency at application, IMG program and years since program graduation on retention.

Results: A total of 197 IMGs met the inclusion criteria. Most IMGs (63.5%) remained in Manitoba, and 59.2% of this group practised outside of Winnipeg. Of those remaining in Manitoba, most (69.6%) held full provincial licensure and national certification. The regression model was significant ($\chi^2_4 = 13.94$, $p = 0.007$), explaining 10% of the variance in retention. Two predictors were significant: years since program graduation and Manitoba residency at the time of application.

Conclusion: Long-term retention of IMG physicians remains a concern. Potential interventions likely to increase retention, such as Manitoba residency at application and a focus on mentorship programs, should be further explored.

Introduction : Des diplômés de facultés de médecine étrangères (DFME) désireux d'obtenir un permis d'exercice au Canada ont été recrutés pour exercer en régions sous-desservies, mais la fidélisation de ces médecins demeure préoccupante. Cette étude a examiné la fidélisation des médecins de famille DFME au Manitoba et les facteurs permettant de la prédire.

Méthodes : Nous avons utilisé des données de l'Université du Manitoba, des registres provinciaux et du ministère de la Santé du Manitoba. Pour être inclus dans l'étude, les DFME devaient avoir suivi une formation adaptée à leur situation à l'Université du Manitoba ou avoir participé à un programme d'évaluation à cette même université, et avoir conclu une entente de retour de service. Le lieu de pratique, la certification et le type de permis obtenu ont été relevés. Nous avons utilisé une régression logistique pour tenir compte de l'effet sur la fidélisation des éléments suivants : avoir participé à un programme de mentorat, habiter au Manitoba au moment de demander l'admission au programme, avoir participé à un programme destiné aux DFME et nombre d'années écoulées depuis l'obtention du diplôme associé à ce programme.

Résultats : En tout, 197 DFME répondaient aux critères d'inclusion. La plupart des DFME (63,5 %) sont restés au Manitoba et, de ce groupe, 59,2 % pratiquent à l'extérieur de Winnipeg. Parmi ceux qui sont restés au Manitoba, la plupart (69,6 %) détenaient un permis d'exercice sans restriction et une certification nationale. Le modèle de régression logistique a été significatif ($\chi^2_4 = 13,94$, $p = 0,007$), ce qui explique la variation de 10 % du taux de fidélisation. Deux facteurs de prédiction ont été significatifs : le nombre d'années écoulées depuis l'obtention du diplôme du programme et le fait d'habiter au Manitoba au moment de postuler.

Conclusion : La fidélisation à long terme des médecins DFME demeure préoccupante. Il faudrait explorer davantage des interventions axées sur les facteurs susceptibles d'améliorer la fidélisation, notamment le fait que les postulants habitent au Manitoba au moment de présenter leur demande et l'importance à accorder aux programmes de mentorat.

INTRODUCTION

International medical graduates (IMGs) have long been relied on in Canada, the United States and Australia to address physician shortages, and now make up a considerable portion of the physician workforce in these countries.¹⁻⁴ In the province of Manitoba, there have been longstanding challenges in the recruitment and retention of physicians in rural and remote areas. International medical graduates seeking licensure in Canada have been recruited to practise in these medically underserved areas and now represent about 34% of the practising physicians in the province.⁵

Considerable resources have been invested by Canadian provinces in assessment and training programs to ensure that IMGs are appropriately prepared to practise medicine in their jurisdictions. In many provinces, after their training or assessment, IMGs are required to work in underserved rural areas as part of a return-of-service agreement as they seek eligibility for full provincial licensure and certification by the College of Family Physicians of Canada (CFPC), the national specialty credentialing body for family physicians in Canada.

The training and process for licensing IMGs varies from province to province. In general, IMGs are eligible for provisional or conditional licences to practise on completion of some kind of additional training or assessment and as part of a return-of-service agreement.^{4,6} In Manitoba, internationally educated general practitioners/family physicians are required to complete 1 of 2 programs overseen by the University of Manitoba on behalf of the provincial health department and the College of Physicians and Surgeons of Manitoba (CPSM), the provincial regulatory college. The candidates can choose to apply to a 3-month practice-ready assessment program (International Medical Graduate Assessment for Conditional Licensure [IMGACL]), or those who require (or desire) additional training can apply to a 1-year program that provides both training and assessment, similar to residency training in family medicine (Medical Licensure Program for International Medical Graduates [MLPIMG]).

Applicants must meet very similar eligibility criteria to apply to either program, with the IMGACL having a stricter requirement regarding the length of time that has elapsed since applicants last practised. Since 2008, a 1-month orientation has prefaced both of these programs, and a 1-year mentorship program has followed their completion. The orientation covers topics such as the Canadian health care system, ethics, patient-centred care, collaborative care and interprofessional practice. The postplacement mentorship program matches IMGs with a mentor in their rural regional health authority (RHA); the mentors help candidates integrate into their new practice and further develop their skills. Graduates of these programs are bound by return-of-service agreements, often in underserved areas, with a sponsoring RHA, all of which are outside of Winnipeg, the provincial capital and the only large urban centre in the province. The 1-year residency-style program is unique in Canada. Although a number of provinces offer assessment programs through their faculties of medicine and/or accept IMG applicants through the Canadian Resident Matching Service for traditional residency programs, no other province has a hybrid program such as the MLPIMG.

Graduation from one of these programs feeds directly into attainment of a conditional licence through the CPSM that allows graduates to practise only in Manitoba. Within 5 years, IMGs with this licence are expected to pass the Medical Council of Canada Qualifying Examination Part II and the CFPC certification examination, which are both necessary to receive a full licence to practise in the province. Full licensure in Manitoba is desirable because it also facilitates professional mobility within Canada. Extensions of this 5-year period are often permitted, and physicians unable to pass these examinations after this extension period may still acquire a full licence to practise through an alternative pathway, the Manitoba Practice Assessment Program.⁷

International medical graduates are not generally tracked once they have received their full credentials, though retention was examined for a 2010 report.⁸ That report revealed that, as of the end of 2009, retention rates of program graduates in Manitoba varied from 88% to 92%.⁸ However, many of these

graduates were likely still completing their return-of-service agreements, and it is unclear how many remained in the underserved rural areas that recruited them. It is also unclear how many graduates had received their CCFP designation, which would contribute to their mobility within the country.

There has recently been concern that rates of IMG retention are insufficient to warrant the province's continued investment in the MLPIMG and IMGACL programs. As of 2009, the average cost per successful MLPIMG candidate was about \$75 000 and \$54 000 per successful IMGACL candidate, excluding overhead and administrative costs.⁸ In particular, the requirement of Manitoba residency before entry into either program was removed in 2010, leading to concern that IMGs residing outside of Manitoba would use the Manitoba program to enter practice, only to then move to other provinces in Canada.

Similar concerns have been expressed in other provinces. In particular, researchers from Newfoundland and Labrador examined the issue of retention over a 10-year period from 1995 to 2004.² The study revealed that after 3 years of starting practice in Newfoundland and Labrador, as few as 25%–45% of IMGs remained in the province, and about 1 in 5 after 5 years.

In the current study, we sought to identify the retention rates of IMGs in Manitoba following completion of the IMG training program and return-of-service contracts, and to consider the impact of the mentorship program and other predictor variables on retention. It is worthwhile to re-examine the issue of retention now, 10 years after the end of the study from Newfoundland and Labrador. Since that time, there has been more work on identifying the determinants of retention of physicians.⁹ There has also been a push toward increasing the retention of IMGs through a variety of means: increasing length of return-of-service agreements, accepting more candidates into the programs, implementing orientation programs and skills training programs that better prepare IMGs for rural Canadian practice, and implementing mentorship programs that help IMGs integrate into their new practices and communities.^{9–12} The issue of continuity of care for rural patients and the economics of continuous IMG training and assessment are also important concerns that support the relevance of this research.

METHODS

For this study and future program evaluation, we developed a database that amalgamates data from the

IMG programs at the University of Manitoba, the registries of the CPSM and the regulatory colleges of other provinces, and information from the Health Workforce Secretariat of Manitoba Health. This database includes IMG demographic characteristics, program type (completion of the 3-month or 1-year IMG program), participation in the mentorship program, previous training and/or practice (including the school where training was completed and length of practice), country of origin, Manitoba residency status at the time of application, sponsoring RHA, licensure status (conditional or full), CFPC certification status, and current practice location by RHA or location outside the province (if known, as determined from other provincial registries). The information from the Health Workforce Secretariat was important in determining whether a licensed IMG physician was actually in practice in Manitoba, because some physicians who may in fact be largely practising out of province may maintain registration with the CPSM. For this study, variables that may play a role in retention were chosen based on the hypothesis that retention would be affected by program type (3-mo assessment in the IMGACL or 1-year residency in the MLPIMG), time since program completion, participation in the mentorship program (established to assist integration into practice), and Manitoba residency before program entry.

We examined retention of IMGs organized by annual cohort within their IMG program, where retention was defined by whether IMGs were practising in Manitoba past their return-of-service contracts as of the study end date of August 2015. Inclusion criteria were IMGs who had successfully completed the University of Manitoba 1-year or 3-month program and were past the usual return-of-service contract period of 3 years. Our analysis therefore considered cohorts from program inception (2002 for the 1-year program, 2007 for the 3-month program) until the first cohort of 2012, all of whom therefore had completed at least 3 years of practice since graduation at the time of analysis (August 2015). Current practice location was the main outcome variable, categorized as one of the following: practising in the original sponsoring RHA (all rural), practising outside Winnipeg in a different RHA, practising in the Winnipeg RHA (the main urban centre in Manitoba) or practising out of province. Additional variables included whether the IMG had achieved CFPC certification and CPSM licensure. Predictor variables for retention included participation in the mentorship program (all cohorts beginning in 2008), Manitoba residency at the time

of application, IMG program (MLPIMG or IMGACL) and years since graduation from the program. Data were entered into a binary logistic regression model with retention at time of study as the main outcome variable. We performed logistic regression to ascertain the effects of participation in the mentorship program, Manitoba residency at time of application, IMG program type and years since program graduation on the likelihood that participants had been retained in practice in Manitoba at the time of study data collection. We used SPSS 20 for statistical analyses.

The University of Manitoba Health Research Ethics Board approved this study (H2013: 201).

RESULTS

A total of 197 graduates of Manitoba IMG programs met the inclusion criteria, and 125 (63.5%) of these remained in practice in the province as of August 2015 (Table 1). Of the 72 IMGs (36.5%) who had left Manitoba, 62 (86.1%) remained in Canadian practice, and most of this group were practising in Ontario (Fig. 1).

Of the 125 IMGs who remained in Manitoba practice, 74 (59.2%) remained in RHAs outside of Winnipeg, and 20 (27.0%) of these were in the underserved Northern RHA or worked with the Northern Medical Unit, which does regular fly-in visits to northern communities (Fig. 2). Fifty-three (26.9%) remained in their original sponsoring rural RHA. The 51 (40.8%) physicians who remained in practice in Manitoba had moved their medical prac-

tices to Winnipeg. Most of the 125 IMGs remaining in Manitoba had achieved both full licensure with the CPSM and certification with the CFPC (87 [69.6%]), with a few exceptional cases where an IMG was CFPC-certified but had a conditional licence (6 [4.8%]). Of the 106 IMGs past the 5-year grace period in which they were to pass their certification examinations, 26 (24.5%) were not yet CFPC-certified, including 7 (6.6%) who had full licensure but no CFPC certification. Licensure type and certification status were significantly associated with practice location. Individuals with conditional licences, or without CFPC certification, were much more frequently practising outside of Winnipeg than in the city (licensure: $\chi^2_1 = 27.48$, $p < 0.001$; certification: $\chi^2_1 = 10.67$, $p = 0.001$) with a moderately strong relation (licensure: $\phi = 0.47$, $p < 0.001$; certification: $\phi = 0.29$, $p < 0.001$).

The logistic regression model was significant ($\chi^2_4 = 13.94$, $p = 0.007$). The model explained 10.0% (Nagelkerke R^2) of the variance in retention in Manitoba practice and correctly classified 67.4% of cases. Sensitivity was 88.0%, specificity was 31.3%, positive predictive value was 69.1% and negative predictive value was 60.0%. Of the 4 predictor variables, only 2 were significant: years since program graduation and Manitoba residency at time of application (Table 2). International medical graduates who were Manitoba residents when they applied to the IMG program were 2.78 times more likely to remain in Manitoba. Increasing time since completion of the IMG training program was associated with a decreased likelihood of remaining in Manitoba;

Table 1: Graduates of the Manitoba international medical graduate programs past their return-of-service agreements, by program year

Program year	Practice location		Total graduates	Retention, %
	Manitoba	Out of province		
2002	2	1	3	66.7
2003	3	4	7	42.9
2004	6	3	9	66.7
2005	3	2	5	60.0
2006	6	3	9	66.7
2007	16	11	27	59.3
2008	17	15	32	53.1
2009	22	14	36	61.1
2010	31	10	41	75.6
2011	16	8	24	66.7
2012	3	1	4	75.0
Total	125	72	197	63.5

for each additional year since graduation, the odds of having left the province increased by 1.28 times. The type of IMG program approached significance as a predictor ($p = 0.059$); IMGs who completed the 3-month assessment program rather than the 1-year training program were less likely to remain in Manitoba. Participation in the 1-year mentorship program did not add significantly to the model.

DISCUSSION

Overall retention of graduates from Manitoba IMG programs is moderate at 63.5%, ranging from 42.9% to 75.6% depending on the program year. About 60% of these remained in rural practice in the province. However, more than one-third of the graduates were no longer in practice in the province; these graduates were more likely to be further out from program completion and to not have been Manitoba residents at the time of application to the program. This raises the concern that some of these individuals may have been using the Manitoba programs as an entry point into Canadian practice with the intention of practising elsewhere after achieving their full credentials. Anecdotally, it is not uncommon for some candidates' families to forgo relocating to Manitoba for the duration of training and/or return-of-service practice assignment, with the candidates commuting to their original place of residence. This may suggest a lack of true long-term commitment to a rural and remote practice location and to practise in Manitoba in general. The importance of being established in Manitoba at the time of application may be an indicator of other factors contributing to retention not observable in the current logistic model, such as spousal employment, appropriate educational facilities for children, access to cultural and religious institutions, and community integration, which have been observed in other contexts and which our group will investigate with the population of Manitoba IMGs in the future.^{9,10,13} Ontario seems to be the dominant recipient of IMGs trained or assessed in Manitoba who leave the province. As observed in retention studies in other contexts, compensation for physicians is high in Ontario, with its variety of larger urban centres with high cultural diversity that may entice IMG physicians away from practice in Manitoba, particularly rural Manitoba.²

Of those who remained in Manitoba, most did stay in practice outside of Winnipeg past their return-of-service contracts, though not necessarily

within their sponsoring RHA. It is worth noting, however, that given the strong association we found between licensure type/certification status and practice location in Manitoba, it is possible that some IMGs who remained in rural practice were doing so because of the limited mobility and employability associated with having conditional licences, rather than the desire to remain in rural practice.

Given that Manitoba has challenges in keeping Canadian medical graduates in rural areas or attracting them there in the first place, the issue may not be one of IMG physician retention necessarily, but of rural physician retention more broadly.^{14,15}

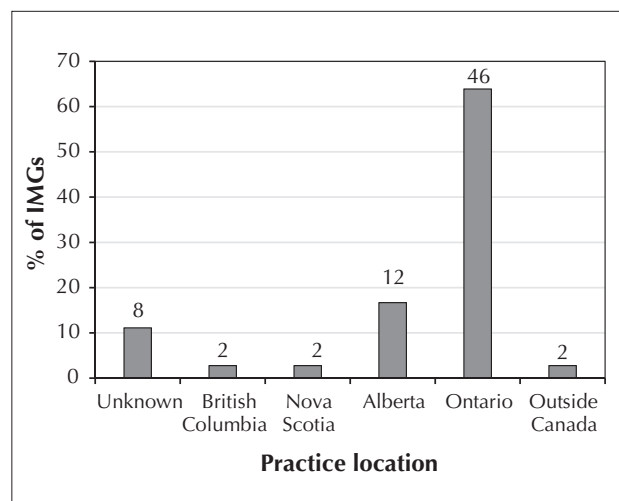


Fig. 1. Practice locations of international medical graduates (IMGs) who had left Manitoba practice as of August 2015 ($n = 72$).

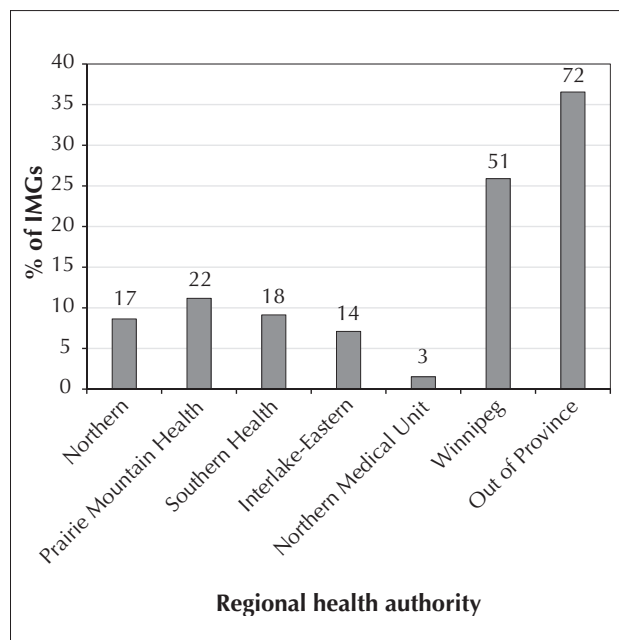


Fig. 2. Practice location of international medical graduates (IMGs) as of August 2015, by regional health authority ($n = 197$).

Indeed, there is no benchmark against which to compare the IMG retention rate outlined here. In the same way as many medical schools, including the University of Manitoba, have modified their application process to encourage the selection of students likely to work in rural areas in the future, it may be worthwhile to investigate similar processes with IMGs that favour IMG applicants who come from rural backgrounds (e.g., favouring those from rural backgrounds or with considerable rural exposure).^{16,17} Our database indicates that many IMGs are from major urban centres in their home countries, and the transition to the remote areas of Manitoba may not be a realistic long-term goal.

One of the most common and pervasive determinants of retention is community integration, both professionally and nonprofessionally.^{18–22} Auer and Carson¹⁹ have identified the need for migrant physicians to establish “place attachment” and either adjust or adapt to cope with new locations; if this becomes unsustainable or unfeasible, migrant physicians may move once more. These coping strategies require the ability and capacity to form social networks and integrate into the community. The mentorship program’s lack of influence on retention is disappointing, given that this was one major anticipated benefit of this approach.¹¹ Whereas the mentorship program is designed to promote IMG integration into Canadian medical practice, it is unclear whether this program serves to encourage integration into the community or boost long-term retention rates.

There remains the question of whether investment in training IMGs for Manitoba practice should be continued. Contracts that require a minimum of 3 years return-of-service (recently extended to 4 years) have been shown in other jurisdictions to lead to professional and nonprofessional dissatisfac-

tion among IMG physicians.²³ Although these contracts are unlikely to disappear, they are at best a short-term solution to a long-term problem. Other solutions need to be sought. For instance, the findings of the current study suggest that it may be advisable to reinstate the requirement that applicants to the IMG program reside in Manitoba as a means of predicting long-term retention at least in Manitoba, if not in rural areas. Such a selection policy, however, may create a trade-off between the quality of applicant (which may be lower when drawn from a smaller, provincial pool) and the likelihood of retention.

Retention of physicians, including IMG physicians is an important facet of physician workforce planning. Policies other than return-of-service contracts should be considered, such as an emphasis on program candidates already residing in the province, to ensure that the investment of assessing and training IMGs for Canadian practice is worthwhile in terms of provincial retention. Physician turnover in underserved areas remains a concern, but it is becoming increasingly clear that recruitment of IMGs may not be the panacea that was once envisioned. Given the importance of continuity of care for patient satisfaction and safety, rural retention of physicians should remain a priority in health policy and physician workforce planning.

Limitations

Because this database was newly developed in 2013, it can be used only to identify where IMGs are practising currently. It has not yet been possible to follow IMGs year by year to establish when IMGs in early cohorts left the province, if they did so. Now that this database has been established and is being updated on an annual basis, this type of analysis

Table 2: Binary logistic regression of predictors of retention in Manitoba practice

Variable	β coefficient	Standard error	Wald test	df	p value	OR (95% CI)
Manitoba residency at application*	1.02	0.41	6.23	1	0.01	2.78 (1.24–6.20)
Years since program completion	–0.34	0.14	6.12	1	0.01	0.71 (0.55–0.93)
IMG program†	–0.62	0.33	3.58	1	0.059	0.54 (0.28–1.02)
Mentorship‡	–0.53	0.59	0.83	1	0.4	0.59 (0.19–1.85)
Constant	2.91	1.23	5.62	1	0.02	18.40

CI = confidence interval; IMG = international medical graduate; OR = odds ratio.

*Compared with non-Manitoba residency at application.

†International Medical Graduate Assessment for Conditional Licensure (3-mo assessment) program compared with Medical Licensure Program for International Medical Graduates (1-yr training) program.

‡Participation in mentorship compared with nonparticipation.

will be possible for future cohorts. As the sample for this study was small, it would be worthwhile to expand the scope of this type of analysis across other provinces that rely heavily on IMGs and that have had issues with retention, such as Nova Scotia.

The sample size also limited the number of variables that could be included in the regression model. For instance, previous training and country of origin may predict retention but were too variable in this sample to be included in the analysis. Certification status with the CFPC and provincial licensure status were not included because it is a requirement for family physicians to be certified by the CFPC to practise outside of the province, so there would be no cases of someone leaving the province and practising elsewhere in Canada without having been certified. Moreover, there were a number of cases where the certification status of physicians who left the province could not be ascertained, for instance, if it was unclear whether they were still practising in Canada.

CONCLUSION

Retention of graduates from Manitoba IMG programs is moderate at 63.5%, with most of these remaining in practice outside of Winnipeg. However, more than one-third of the graduates were no longer in practice in the province; these graduates were more likely to be further out from program completion and to not have been Manitoba residents at the time of application to the program.

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Country cardiograms case 58

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*This article has been peer
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A 66-year-old woman, coming from home, presents with a decreased level of consciousness, a high leukocyte count and fever. She has a “goals of care” directive that outlines the use of full medical and surgical management to cure or control symptoms without use of cardiopulmonary resuscitation or care in the intensive care unit. Vital signs reveal hypotension, along with tachycardia and hypoxia. A septic workup, including urinalysis, and chest radiography show

no source of infection, and results from blood and urine cultures are pending. She is given empiric antibiotics, oxygen to maintain oxygen saturation and intravenous fluids. Her medical history is significant for atrial fibrillation and dementia. What is the electrocardiogram interpretation (Fig. 1), and what is the required treatment?

For the answer, see page 26.

Competing interests: None declared.

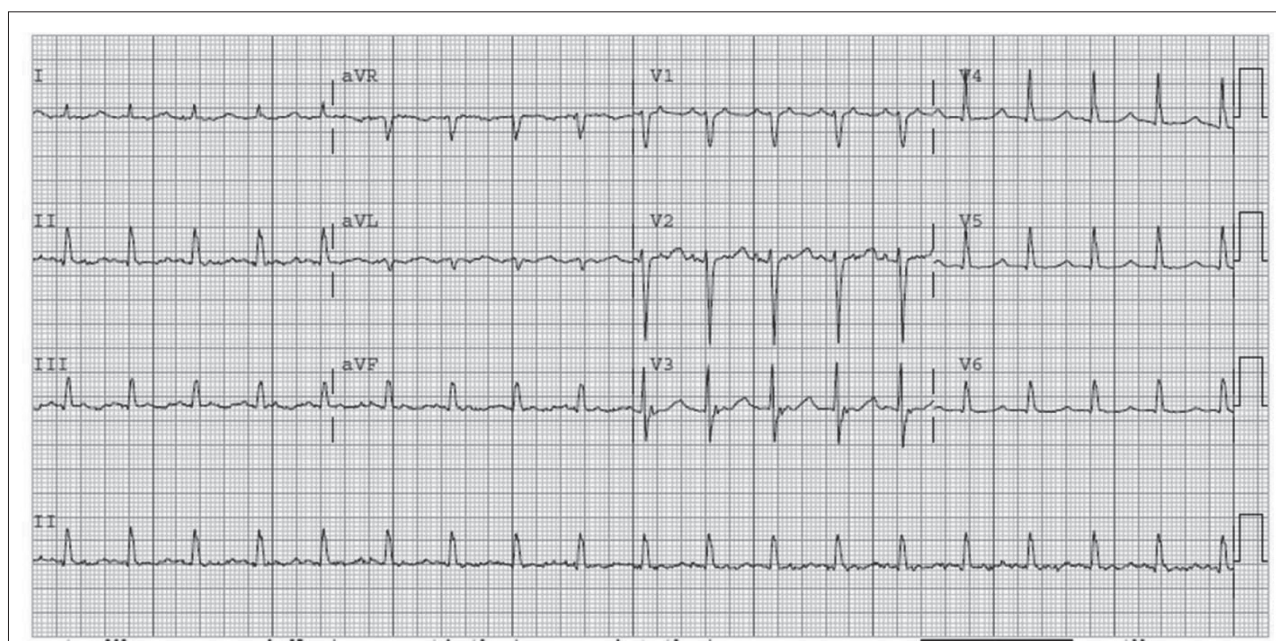


Fig. 1. Electrocardiogram of a 66-year-old woman with decreased level of consciousness, a high leukocyte count and fever.

The occasional medical termination of pregnancy

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INTRODUCTION

About 1 in 3 women in Canada will have an induced abortion throughout their lifetimes.¹ Surgery is the most common method used to terminate unwanted pregnancies in Canada, and surgical procedures account for 96% of abortions.² However, with few abortion clinics, located primarily in urban centres, and only 17.8% of general hospitals providing abortion services, access to abortion is limited in rural areas.³ Of the few hospitals that do offer abortions, many require physician referrals and have waiting periods of up to 6 weeks.³ How can Canadian rural practitioners provide better access for women to terminate unwanted pregnancies? The answer is medical termination, a nonsurgical method that accounts for the remaining 4% of abortions performed in Canada.²

MIFEPRISTONE APPROVAL

Until recently, the only method available in Canada to medically terminate a pregnancy was off-label use of methotrexate with misoprostol.⁴ However, in July 2015 Health Canada approved the medical-abortion drug RU-486, also known as mifepristone, which is already used in more than 60 countries.⁵ Mifepristone is the gold-standard medication for abortion because, compared with methotrexate, mifepristone terminates a pregnancy more quickly, requires fewer follow-up appointments, and, as suggested by some studies, is associated with fewer cases of severe bleeding.^{6,7} The drug terminates a pregnancy by blocking the progesterone

effects on the endometrium, causing it to break down and bleeding to begin.⁸ Misoprostol is then taken 24–48 hours after mifepristone to help soften the cervix and to induce uterine contractions.⁸ However, Health Canada has imposed restrictive policies regarding who can distribute and dispense Mifegymiso (a combination of mifepristone and misoprostol), which threatens its accessibility.⁹ For instance, only physicians who have completed the online training can provide medical abortions with Mifegymiso, and these physicians must dispense the medication to the patient themselves.⁸

METHOTREXATE

Given the restrictions to access Mifegymiso, the only approved mifepristone-containing drug in Canada, methotrexate combined with misoprostol may be an appropriate alternative. Studies have shown methotrexate combined with misoprostol to be just as effective as mifepristone in terminating pregnancies.^{1,10} Methotrexate is cytotoxic to the trophoblast, ultimately blocking the growth of cells, as well as the growth of pregnancy tissues.⁴ The prostaglandin misoprostol is administered 5–7 days after the methotrexate injection to expulse the pregnancy.⁴

Our clinical facility has successfully used methotrexate to terminate unwanted pregnancies for the past 20 years. In this article, we provide the protocol used within our clinic to administer methotrexate followed by misoprostol, as well as a protocol for using mifepristone. We encourage providers to consider both protocols as

effective and safe approaches to providing medical abortion (Table 1) so that challenges with providing Mifegymiso do not interfere with opportunities for a medical approach to termination of unwanted pregnancies.

DETERMINING ELIGIBILITY

When a patient is considering a medical abortion, the provider should discuss the procedure with her, including the benefits, risks and potential adverse effects (Table 1), as well as other options available. It is also important to discuss future birth-control methods, because fertility will return after administration of the medications.¹⁷

Eligibility is determined by an assessment of medical history, a targeted physical examination, screening for vaginal and cervical infections (urine or cervicovaginal swabs), obstetric dating ultrasonography, and blood tests for methotrexate (complete blood count, aspartate transaminase, alanine transaminase, β human chorionic gonadotropin [β hCG], creatinine, Rh and rubella) or for mifepristone (β hCG and Rh).⁸ Once eligibility has been confirmed, the patient must sign a consent form. The medical abortion can be performed if the patient meets the criteria outlined in Table 2 and does not have contraindications listed in Table 3.

For methotrexate, ultrasonography must confirm that the pregnancy is less than 56 days' gestation, as it can be given at up to 55 days. Similarly, for mifepristone, ultrasonography must confirm that the pregnancy is less than 49 days' gestation, as it can be given at up to 48 days.

PROCEDURES

Methotrexate

After eligibility is confirmed and a consent form has been signed, you can now proceed with the medical termination protocol (Table 4). Calculate the patient's body surface area by using a standard nomogram or a formula such as the Mosteller method, and inject 50 mg/m² of body surface area of methotrexate intramuscularly (day 1). If the patient's blood type is Rh-negative, she must also receive a dose of Rh antibodies, Rh₀(D) immune globulin 50 μ g, to prevent Rh sensitization.¹⁸ Eight tablets of misoprostol (200 mg) should be prescribed for the patient to take home.⁴ A prescription for painkillers should also be given to be used as needed. At our facility, we prescribe ibuprofen 600 mg or acetaminophen with 30 mg of codeine. Dimenhydrinate may be used in case of nausea.

Four tablets of misoprostol are to be inserted into the vagina 5–7 days after the methotrexate injection; this is done by the patient at home or by a medical professional on request.⁴ Instruct the patient to use the misoprostol when she has time to lie down afterward. Cramping and bleeding should start 1–12 hours later. If heavy bleeding does not occur within 24 hours following the misoprostol insertion, then the remaining 4 tablets are to be inserted into the patient's vagina.

On day 8, the patient should have a follow-up appointment to review the amount of bleeding and cramping, and to schedule ultrasonography and a blood test (β hCG) for day 13 or 14. On day 15 from

Table 1: Comparison of methotrexate and mifepristone for medical termination of pregnancy

Variable	Methotrexate	Mifepristone
Failure rate	4.0% ¹⁰	2%–4.8% ^{11–13}
Time of completion	Average of 7.1 days after use of methotrexate (74.5% aborted by day 8)¹⁰	Average of 3.3 days after use of mifepristone (90.5% aborted by day 8)¹⁰
Adverse effects	- Bleeding and cramping are expected - Diarrhea (about 27%), nausea (36%), vomiting (15%), fever (22%), chills (49%), headache (17%)¹⁰	- Bleeding and cramping are expected¹⁴ - Diarrhea (about 58%), nausea (31%), vomiting (22%), fever/chills (44%), headache (12%), dizziness (13%), weakness (19%)¹³
Risk of infection	0.8% ¹⁰	$\geq 0.1\%$ to $< 1\%$ ^{11–13}
Prolonged bleeding	2.1% ¹⁰	$> 1\%$ to $< 10\%$ ^{11–13}
No. of required clinic visits	2–3, or more	2–3
Cost of medication	\$59.52 ¹⁵	\$270 ⁵
Success rate	94.3% ⁴	95% ¹²
Method of administration	Injection and vaginal misoprostol	Oral dose and buccal misoprostol
Gestational limitations	56 d	49 d ⁶
Advantages of both options over surgical abortion	- More “natural,” less frightening and more private¹⁶ - No anesthetic required - No risk of perforating the uterus	

the initial methotrexate shot, a follow-up appointment is held to review the results of obstetric ultrasonography and the blood test to determine whether the abortion was successful. If the pregnancy is no longer present, the medical termination is complete. If the pregnancy is no longer growing but still present, arrange weekly follow-up ultrasonography and follow-up appointments until the pregnancy is expelled. If the pregnancy is still present by the 35th day after the initial methotrexate injection, arrange for a surgical abortion.

Mifepristone

The mifepristone protocol is similar to the methotrexate protocol but involves a few differences (Table 4). After eligibility confirmation and signed consent, give patients with an Rh-negative blood type a dose of Rh antibodies, Rh₀(D) immune globulin, 50 µg, to prevent Rh sensitization.¹⁸ Next, give the patient the 200 mg mifepristone tablet from the Mifegymiso green box to be swallowed in your presence or in the presence of another member of the medical staff (day 1).⁶ A prescription for painkillers may be given to be

used as needed, such as 20 tablets of acetaminophen 300 mg with codeine phosphate 30 mg. The patient is also given the orange box to take home, which contains 4 misoprostol tablets (200 µg each). The misoprostol tablets are to be used as a single 800 µg buccal dose 24–48 hours after taking the mifepristone tablet. The 4 tablets should be kept between the patient's cheeks and gums for 30 minutes and the remaining fragments can be swallowed with water. Vaginal bleeding and cramping should start within a few hours; thus, instruct the patient to rest for 3 hours after taking the misoprostol medication.⁶ The presence of vaginal blood clots and tissue is expected, as well as heavier than normal bleeding for 2–3 days. Bleeding usually lasts about 11 days. Instruct the patient to seek immediate medical help if she experiences prolonged heavy bleeding (soaking through 2 sanitary pads in 1 hour for 2 successive hours).⁶ A follow-up appointment is held 7–14 days after the misoprostol buccal dose to ensure the pregnancy is no longer present. This can be confirmed by clinical examination, ultrasonography or βhCG measurement.¹⁴ In the unlikely event that the pregnancy is still present, schedule a surgical abortion.¹⁹

Table 2: Eligibility requirements for medical abortion

Methotrexate	Mifepristone
• Has made a clear, informed decision to have an abortion • Willing to have a surgical abortion if pregnancy continues • Able to tolerate heavy bleeding, cramping and seeing pregnancy tissue • Has access to a telephone and emergency medical care • Able and willing to comply with the visit schedule • Able to understand the consent form	• Able to take misoprostol as a buccal dose at home • Ultrasonography confirms intrauterine pregnancy of < 49 days
• Able to insert misoprostol vaginal tablets or come in to have that done • Ultrasonography confirms intrauterine pregnancy of < 56 days • Willing to abstain from vaginal intercourse and alcohol for 14 days • Willing to stop folic acid vitamins and minimize folate in diet	

Table 3: Contraindications to medical abortion

Methotrexate	Mifepristone ⁶
• Hemoglobin level < 100 g/L, leukocyte count < 3.0 × 10⁹/L, platelet count < 14 × 10⁹/L • Active renal or hepatic disease (creatinine level > 120 µmol/L, AST level > 2 times normal) • Inflammatory bowel disease • Allergy to methotrexate or misoprostol • Breastfeeding • Sickle cell disease	• Ectopic pregnancy • Intrauterine device • Chronic adrenal failure • Long-term use of systemic corticosteroid therapy • Hemorrhagic disorder • Concurrent anticoagulation therapy • Inherited porphyria • Uncontrolled asthma • Allergy to mifepristone or misoprostol

AST = aspartate transaminase.

Table 4: Visit schedule for medical abortion with methotrexate or mifepristone

Visit	Methotrexate	Mifepristone
Assessment	- Physical examination and swabs - Patient counselling and information handout - Order laboratory work (CBC, AST, ALT, βhCG, creatinine, Rh, rubella, ultrasonography)	- Physical examination and swabs - Patient counselling and information handout - Order laboratory work (βhCG, Rh, ultrasonography)¹⁴
Ultrasonography	Ultrasonography to confirm gestational age and exclude ectopic pregnancy	Ultrasonography to confirm gestational age and exclude ectopic pregnancy
Day 1 (medication)	- Review laboratory results and confirm candidacy - Obtain signed patient consent - Prescription for methotrexate and misoprostol given - Rh₀(D) immune globulin given if the patient is Rh-negative - Prescription for ibuprofen or acetaminophen with codeine - Instructions to registered nurse for methotrexate injection: date and dose (50 mg/m²)	- Review laboratory results and confirm candidacy - Obtain signed patient consent; patient to read and sign the Patient Information Card⁸ - Pharmacist must dispense the drug directly to the physician¹⁴ - Rh₀(D) immune globulin given if Rh-negative before receipt of mifepristone - Prescription for ibuprofen or acetaminophen with codeine - Mifepristone swallowed by patient in the presence of a physician or a member of the medical staff
Misoprostol	Vaginal insertion of misoprostol (800 mg) at home 5–7 days after methotrexate injection	Patient inserts 4 misoprostol tablets (800 μg buccal dose) at home 24–48 hours after mifepristone ingestion¹⁴
Day 8	- Follow-up visit - Review of bleeding and cramping - Plan for ultrasonography and βhCG test (before day 15)	- Follow-up visit (7–14 d) after misoprostol tablets - Review of bleeding and cramping - Check if pregnancy has completely ended (clinical examination, ultrasonography or βhCG test);¹⁴ if the pregnancy has not ended, schedule a surgical abortion
Day 15	- Ultrasonography and βhCG results - Check if pregnancy has ended; if it has not ended, schedule ultrasonography and follow-up visit - Incomplete termination by 35th day requires a surgical abortion	NA

ALT = alanine transaminase, AST = aspartate transaminase, CBC = complete blood count, β hCG = β human chorionic gonadotropin, NA = not applicable.

A summarized procedure schedule for both methotrexate and mifepristone is shown in Table 4. The follow-up appointments to confirm that the pregnancy is terminated are extremely important, because methotrexate and mifepristone are teratogenic to the embryo. Our clinical group has created a number of information tools and schedule templates to facilitate the process of a medical termination using methotrexate. These include a patient information page, a consent form, a follow-up information and instruction page, a nomogram for body surface area of adults, and a clinical flow sheet and checklist. These can all be downloaded from our online library (<http://miowl.org/browse/cat/115>; click on the “download” icon).

CONCLUSION

Compared with surgical abortion, medical abortion requires much less technical skill and a simpler

health care infrastructure, and thus can easily be used by rural practitioners.²⁰ Mifepristone, the better pharmaceutical abortifacient, is now approved in Canada but has challenges related to access. Methotrexate followed by misoprostol is legal, safe and accessible, and is effective in successfully terminating a pregnancy. Many women prefer medical abortion because it occurs like a natural miscarriage within the privacy of their own home.²⁰ Given the high success rate of medical abortion and the fact that abortion services are limited in rural Canada, medical abortion with mifepristone or methotrexate is a good solution to terminate a patient's unwanted pregnancy.

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Competing interests: None declared.

DOCTORS SPEAK OUT

Podium — Letters to the Editor — Editorials

We invite physicians to speak out on issues that concern them.
Send your submissions to Suzanne Kingsmill, Managing Editor,
CJRM, 45 Overlea Blvd., P.O. Box 22015, Toronto ON M4H 1N9;
manedcjrm@gmail.com

LES MÉDECINS S'EXPRIMENT

La parole aux médecins — Lettres à la rédaction — Éditoriaux

Nous invitons les médecins à commenter les questions qui les intéressent.
Faites parvenir vos textes à Suzanne Kingsmill, rédactrice administrative,
JCMR, 45, boul. Overlea, C. P. 22015, Toronto (Ontario) M4H 1N9;
manedcjrm@gmail.com

THE PRACTITIONER

LE PRATICIEN

Country cardiograms case 58: Answer

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The ventricular rate is 110 beats/min and regular. P waves cannot be seen in lead II, but lead VI clearly shows 2 P waves for each ventricular complex (Fig. 1, on page 20). Although it looks like an atrial flutter with a 2:1 block, the atrial rate is about 220 beats/min and hence more properly diagnosed as a supraventricular tachycardia (SVT) with a 2:1 block (an atrial flutter has a rate of 250–350 beats/min). The PR interval is 120 ms, which is borderline short. The QRS interval is normal at 80 ms, and the QT interval is wide. The P wave morphology is difficult to assess given its fast rate. There are no pathologic Q waves and there is normal R wave progression. There is no right or left ventricular hypertrophy. There are no acute changes to the T wave or ST segment. In summary, the abnormal changes on this electrocardiogram (ECG) include an SVT with a 2:1 atrial ventricular block rhythm.

An SVT is defined by the American College of Cardiology, American Heart Association and the Heart Rhythm Society as being an atrial and/or ventricular rate greater than 100 beats/min at rest due to an arrhythmia caused by heart tissue involving the bundle of His, or anywhere above it.¹ An SVT includes atrial flutter, atrial fibrillation, focal and multifocal tachycardia, junctional tachycardia, atrioventricular nodal reentrant tachycardia and accessory pathway reentrant tachycardia.¹ An atrial flutter is a rapid and regular atrial rhythm with a rate of 250–350 beats/min and is caused by reentry of the rhythm within the right atria.²

The most common causes of an SVT include coronary ischemia, heart failure, respiratory failure, shock, ane-

mia, infection, pain or anxiety.³ Patients with an SVT may present with the following symptoms: palpitations, syncope, lightheadedness or dizziness, chest pain, dyspnea and decreased level of consciousness.³

The treatment of an SVT depends on the stability of the patient and the cause of the SVT. If the patient is hemodynamically unstable with a known SVT cause, an attempt should be made to reverse the cause of the SVT.^{1,3} Synchronized cardioversion is the first-line recommendation for patients with hemodynamic instability and rapid decompensation with an unknown SVT cause, and an intravenous adenosine normal saline push is the most commonly used method for patients who are hemodynamically stable.^{1,4} Second-line treatments for patients with acute SVT include intravenous calcium channel blockers, such as verapamil or diltiazem, or intravenous β blockers, such as metoprolol.¹

Because this patient was hemodynamically unstable, we would have normally chosen to do synchronized cardioversion. However, given her goals of care, that was not an option. The ideal option for acute SVT treatment would have been an intravenous adenosine normal saline push. However, because this ECG was inappropriately diagnosed as atrial flutter, a rate-control treatment was considered. The choice between intravenous calcium channel blockers and intravenous β blockers for rate control is largely based on physician and patient preference. β blockers tend to be better for rate control and conversion to sinus rhythm, whereas calcium channel blockers tend to be better for patients with chronic obstructive pulmonary disease or asthma.⁵ In this case, the patient

was given intravenous metoprolol because she had previously taken oral metoprolol for atrial fibrillation control. Once the metoprolol was administered, the patient's heart rate slowed and returned to sinus rhythm. We were already treating the cause of the SVT with empiric antibiotics. The patient's condition improved over the next 12 hours. Her blood and urine cultures surprisingly showed no bacterial growth, but because the clinical picture was clearly that of septic shock, we continued to treat with intravenous ceftriaxone.

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For the question, see page 20.

Competing interests: None declared.

Country Cardiograms

Have you encountered a challenging ECG lately?

In most issues of *CJRM* an ECG is presented and questions are asked.

On another page, the case is discussed and the answer is provided.

Please submit cases, including a copy of the ECG, to Suzanne Kingsmill, Managing Editor, *CJRM*, 45 Overlea Blvd., P.O. Box 22015, Toronto ON M4H 1N9; manedcjr@gmail.com

Cardiogrammes ruraux

Avez-vous eu à décrypter un ECG particulièrement difficile récemment?

Dans la plupart des numéros du *JCMR*, nous présentons un ECG assorti de questions.

Les réponses et une discussion du cas sont affichées sur une autre page.

Veuillez présenter les cas, accompagnés d'une copy de l'ECG, à Suzanne Kingsmill, rédactrice administrative, *JCMR*, 45, boul. Overlea, C. P. 22015, Toronto (Ontario) M4H 1N9 ; manedcjr@gmail.com

PODIUM: DOCTORS SPEAK OUT LA PAROLE AUX MÉDECINS

Family medicine education in rural communities as a health service intervention supporting recruitment and retention of physicians

This report is co-published in the January 2017 issue of Canadian Family Physician

Advancing Rural Family Medicine: The Canadian Collaborative Taskforce
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About 18% of Canadians live in rural, remote or isolated communities.¹ Factors such as isolation from urban centres, poor weather conditions impairing access to remote locations, and lack of communication technology infrastructure have made it challenging for the Canadian health system to sustain equitable provision of health care services to these communities.² The implications of this are evident when comparing the health of rural Canadians with that of their urban counterparts. There are higher incidences of poor nutrition, chronic disease, injury and death among rural populations than among urban populations.³ These health differences are even more pronounced for indigenous populations in rural and remote communities that have experienced more difficulty in accessing regular primary care services.⁴ In fact, a call to action was highlighted in the Truth and Reconciliation Commission report, stating that indigenous health will not improve without considerable system change, given the persistent inequity and inaction across the health system.⁵ Despite the federal government's investment in public health and community care, rural and remote populations in Canada continue to experience poor health.^{3,6}

These health disparities are driven in part by the ongoing challenge of family physician shortages in rural and remote Canada. Although family physicians represent 50% to 53% of the physician work force, only 14% work in rural and remote communities.⁷ Rural commu-

ities experience a number of challenges in recruiting and retaining physicians, such as concerns regarding isolation, limited resources and health facilities, and the lack of educational and employment opportunities for physicians' families.²

There are a number of policy measures that have been taken to address this challenge, including incentives for physicians to practise in rural and remote communities,⁸ increases in health human resources in the form of nurse practitioners and physician assistants, and investment in telehealth technology to facilitate communication in remote communities. One of the most prominent national and international strategies to address this health human resource challenge has been return-for-service funding and other financial incentives (bursaries, awards, scholarships, etc.). However, according to a recent review from Australia, financial incentives have not resulted in adequate progress in addressing the physician resource gap experienced in rural and remote communities.⁹ Thus, despite some progress being made in indicators of patient care and health outcomes,^{10,11} rural health disparities and the closely linked challenge of recruiting and retaining rural family physicians to deliver high-quality care in these communities continue to persist.

EDUCATION AS A HEALTH SYSTEM INTERVENTION

Family physicians are a critical resource to rural and remote communities. In

practising full-scope, comprehensive family medicine, family physicians often provide needed care services in the absence of other specialists who would traditionally deliver such care (e.g., general surgery, general anesthesia). Family physicians adapt and evolve the family medicine competencies achieved while in residency training to meet community needs when they have established their clinical practices. Family medicine learners are provided comprehensive learning experiences to support the acquisition of generalist skills within the newly

implemented Triple C Competency-based Curriculum.¹² When learning is offered in rural environments, family medicine residents are able to learn and acquire generalist competencies within a rural context. Exposing learners to rural contexts early and often while in medical school and residency gives them a better understanding of the opportunities and realities of rural practice. Exposure to rural practice by rural clinical teachers positively influences recruitment and retention of family physicians in rural and remote Canada.¹³

Currently, there are more than 160 rural-based family medicine clinical teaching sites, 75 of which focus primarily on the provision of longitudinal learning in rural and remote communities.¹⁴ However, further support for distributed medical education delivery is needed in order for rural medical education to serve as a comprehensive, coordinated health human resource strategy that can enhance the recruitment and retention of rural physicians.

Pong and Heng's¹³ rural education "pipeline" (Fig. 1) is one model that describes how medical education can support the recruitment and retention of rural physicians by highlighting a mechanism for selecting, supporting, educating and producing physicians for practice in rural communities in Canada. The model demonstrates how the pipeline for producing a rural physician begins before entry into medical school and continues throughout the medical education continuum through to practice. It is supported by evidence documenting that students from rural backgrounds are more likely to practise in rural communities than those from urban backgrounds, and that increased exposure to rural communities during the course of medical training enhances the likelihood that students will practise in rural and remote contexts.¹⁵

Pong and Heng identify 4 critical factors that can affect a physician's decision to practise rural and remote medicine: rural upbringing, positive undergraduate rural exposure, targeted postgraduate exposure outside urban areas, and stated intent to practise or preference for family medicine or generalist practice.^{13,15} These factors, in combination with the pipeline approach to medical education delivery, provide a starting point for understanding how medical education programs must be structured to foster interest in practising rural family medicine. Some strategies for the delivery of comprehensive, coordinated rural education include targeted admission of students with rural backgrounds, integration of rural medicine into undergraduate and postgraduate curricula, efforts to ensure that rural learning experiences are positive for students, delineation of rural family medicine

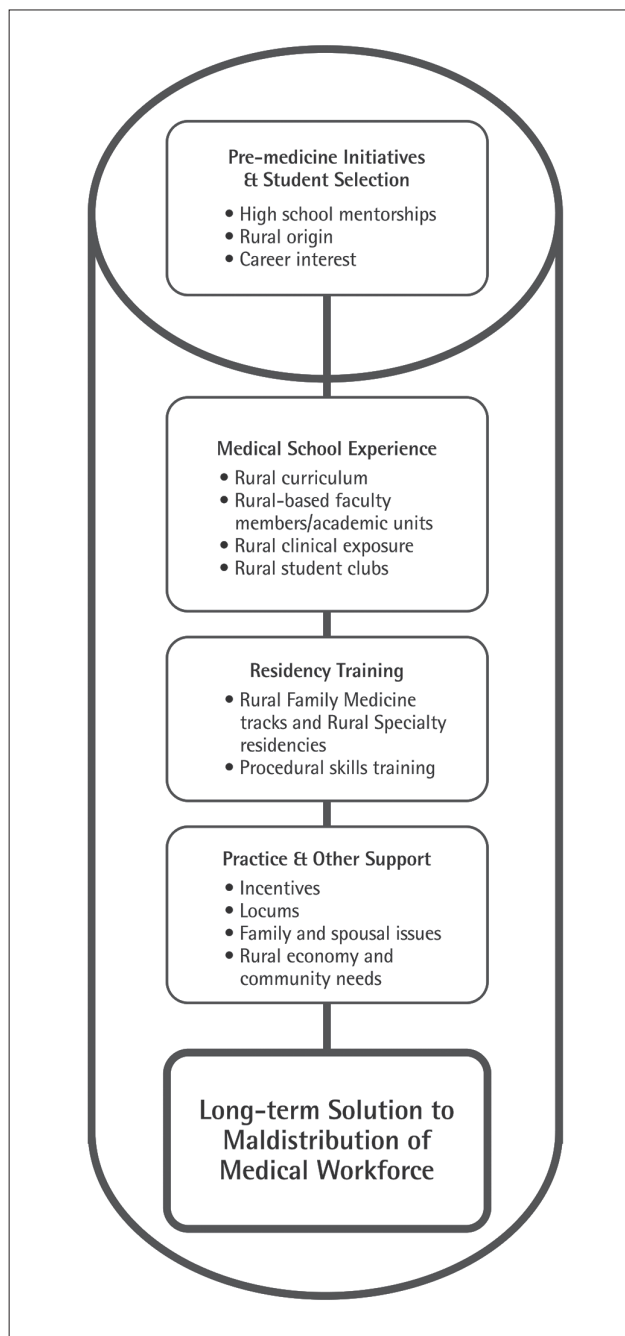


Fig. 1. Pipeline model of rural physician production. Reproduced with permission from the Centre for Rural and Northern Health Research at Laurentian University.¹³

streams in postgraduate training, and increased co-ordination of education with recruitment and retention efforts in rural communities.¹⁴ However, rural and remote clinical teaching sites and teachers often have limited resources to train and graduate family physicians who are equipped with the skills needed to meet community needs. Support and coordination from higher organizational levels for implementation of these strategies remains a challenge.

ADVANCING RURAL FAMILY MEDICINE: THE CANADIAN COLLABORATIVE TASKFORCE

Action to improve health care outcomes and access to primary care in rural and remote communities through a comprehensive, coordinated approach in Canada is required. Recognizing this need, the College of Family Physicians of Canada (CFPC) and the Society of Rural Physicians of Canada (SRPC) have come together to form Advancing Rural Family Medicine: The Canadian Collaborative Taskforce. The task force aims to advance the recruitment and retention of family physicians in rural, remote and isolated regions of Canada in order to improve access and health care outcomes for these populations. The task force's mandate is to develop a pan-Canadian rural education road map that will describe how this goal can be achieved. The road map will include a series of recommendations to enhance undergraduate, post-graduate and continuing medical education training, with the aim of increasing the proportion of learners choosing rural family medicine practice as a lifelong career. In developing this road map, the task force will engage key stakeholders, including rural communities and all levels of government, in an effort to build the support and momentum needed for the recommendations to be implemented and put into action.

Composition of the task force. Members of the task force were chosen jointly by the CFPC and the SRPC from key stakeholder groups, including educators, practitioners, CFPC education committee chairs, deans, chairs of family medicine, experts in rural education and key decision makers. The task force members were also purposefully selected to represent a mix of key perspectives needed to ensure the work produced was rigorous and of high quality (Box 1).

Leaders in rural medical education and training across Canada were selected and invited to join the task force by the CFPC and the SRPC executives (Box 2). Observers from the Canadian Medical

Association and Health Canada's Council on Health Workforce, and representatives from the Royal College of Physicians and Surgeons of Canada were also invited to provide their perspectives on the task force's work and to encourage and coordinate multi-organization action on implementing the recommendations to enhance recruitment and retention of rural family physicians.

METHODS

As part of its work, the task force commissioned a focused literature review, published in January 2016, entitled *Review of Family Medicine Within Rural and Remote Canada: Education, Practice, and Policy*.¹⁴ This review included both peer-reviewed and grey

Box 1. Perspectives selected for representation on the task force

Representatives on the task force were selected jointly by the SRPC and the CFPC. The types of individuals needed are described below. The list was intended to help the executives of both organizations consider the mix of perspectives needed around that table in order for the work of the task force to be of high quality and to be strategic in nature, with key individuals of influence included.

- Faculty with extended history of rural family medicine, advocacy, education, practice, administration and policy
- Representative with extensive knowledge of rural medicine family medicine programs and administration
- Representative with extensive knowledge of family medicine and rural medicine within the university sector and of negotiating with governments for resource allocations
- Representative with knowledge of rural medical education research data
- Representative with distributed medical education experience and longitudinal clerkship experience at the medical school level
- Early career rural and remote practitioner involved in CPD and mentorship programs
- Representative with experience working at all levels of government: negotiations related to family practice in rural communities, physician education, and the physician work force, including knowledge of political issues and experience addressing the needs of rural educators and rural practitioners
- Representative with an understanding of the needs of Aboriginal communities and who is a strong advocate for teaching the domain in medical education
- Representative with an understanding of accreditation processes at the CFPC and other education policy issues
- Representatives chosen selectively from the Royal College of Physicians and Surgeons of Canada, the Collège des médecins du Québec, the Indigenous Physicians Association of Canada, the Medical Council of Canada, the Federation of Medical Regulatory Authorities of Canada and Health Canada's Council on Health Workforce

CFPC = College of Family Physicians of Canada; CPD = continuing professional development; SRPC = Society of Rural Physicians of Canada.

Box 2. Task force membership

Executive

- Dr. C. Ruth Wilson (Co-chair)
- Dr. Trina Larsen Soles (Co-chair)
- Dr. Braam De Klerk
- Dr. Kathy Lawrence
- Dr. Francine Lemire
- Dr. John Soles

Members

- Dr. Stefan Grzybowski
- Dr. Darlene Kitty
- Dr. Jill Konkin
- Dr. Roger Strasser
- Rachel Munday (Society of Rural Physicians of Canada public member)
- Dr. Colin Newman
- Dr. Alain Papineau
- Dr. Tom Smith-Windsor
- Dr. Karl Stobbe
- Dr. Jim Rourke
- Dr. Jennifer Hall (ex officio, The College of Family Physicians of Canada)
- Mr. Paul Clarke (Council on Health Workforce, Health Canada observer)
- Dr. Ken Harris (Royal College of Physicians and Surgeons of Canada representative)
- Dr. Granger Avery (Canadian Medical Association observer)

literature to examine the status of rural medical education, training and practice in relation to the health needs of rural and remote communities in Canada. The background paper provides a partial overview of the state of rural training and practice at the education and health systems levels and their effect on the family physician work force in rural communities. The document also captures gaps where further action is required.

An environmental scan was also completed to deepen the task force's understanding of the state of family medicine education and practice in rural and remote communities. This scan included 3 components: federal, provincial and territorial; rural medical education; and rural physician.

Federal, provincial and territorial scan. Interviews with more than 100 policy makers, government representatives, providers, educators, learners and community leaders were conducted to understand successes and challenges with recruitment and retention policy initiatives.

Rural medical education scan. Two surveys (Rural and Remote Undergraduate Medical Education Survey, Postgraduate Medical Education Survey) were administered to all 17 faculties of medicine to document rural education being delivered and to identify challenges, barriers and successes experi-

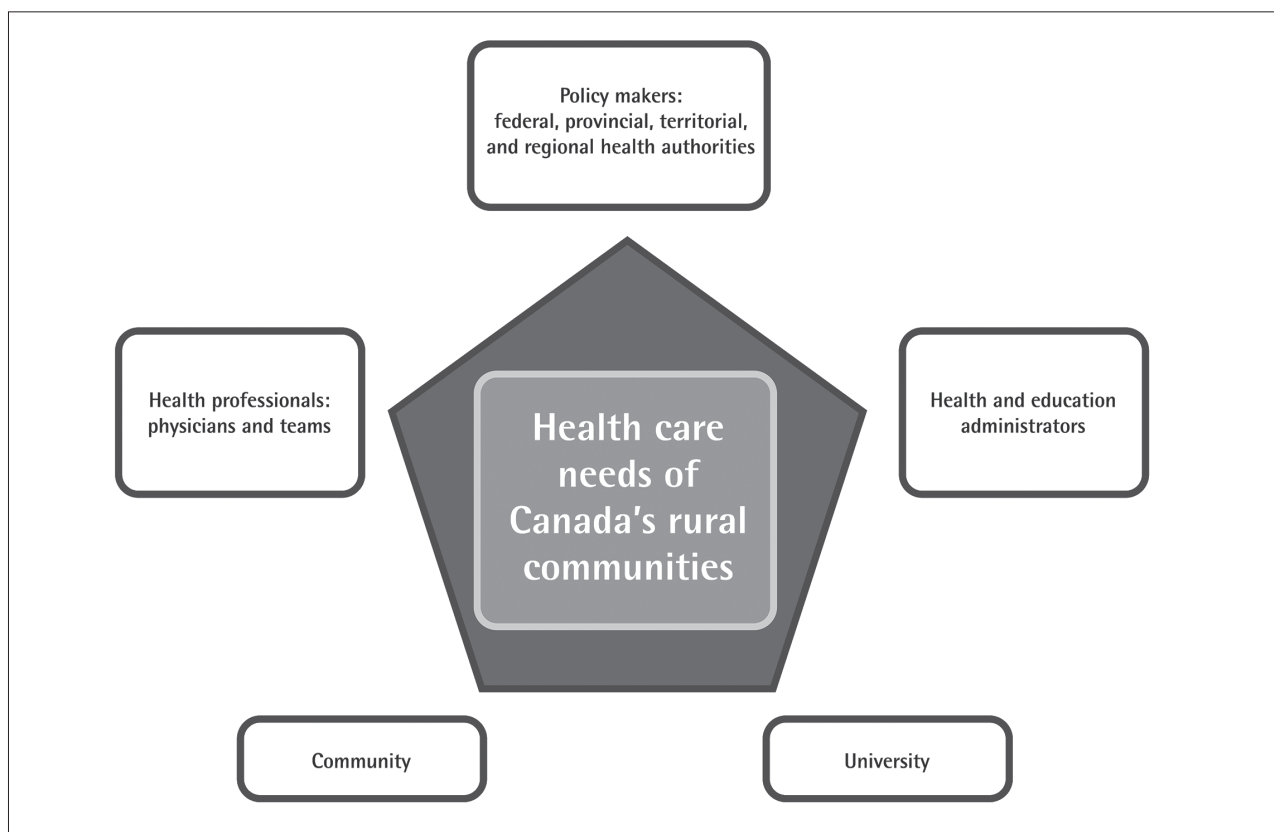


Fig. 2. Social accountability framework: Pentagram Partners. Adapted from Boelen.¹⁶

enced across the faculties of medicine and their affiliated family medicine residency programs.

Rural physician scan. Seventeen interviews with practising rural family physicians were conducted to identify the factors critical to recruitment and retention from the perspectives of those engaged in delivering care in rural and remote contexts.

The gaps identified from the focused literature review and the results of the environmental scan will be used to develop the task force's recommendations for action, highlighting the role of key partners in implementation and needed action.

SOCIAL ACCOUNTABILITY FRAMEWORK: PENTAGRAM PARTNERS

Although enhancing rural medical education and training is critical, it is only one part of the solution for addressing the health care challenges in rural and remote Canada. There is a concerted effort needed on the part of national and provincial stakeholders to support evidence-informed physician resource planning, to provide support for the medical education system and to collaborate in developing an integrated strategy to allocate resources for rural and remote health. Thus, support for rural medical education training requires coordinated efforts and collaboration among multistakeholder partners, including rural communities, policy makers, rural health professionals and physicians, universities and health education administrators (Fig. 2).¹⁶ These “Pentagram Partners” are critical players in upholding the social accountability mandate to provide high-quality care to those living in rural and remote Canada.

Collaboration and coordination among the partners in the social accountability framework will be critical to the work of the task force. Despite the many efforts made to advance rural health care delivery and the progress that has been seen in rural medical education programs, much more remains to be done. In developing the recommendations, the task force will make a concerted effort to engage these partners in identifying how to implement them. The recommendations will undergo a stakeholder consultation process to delineate each stakeholder's role in achieving the goal of high-quality health care delivery in rural and remote communities in Canada.

Each of these partners has a key role to play in advancing recruitment and retention initiatives, and the work of the task force provides an opportunity to bring these partners together in a coordinated way. The task force will explore the roles of medical educa-

tion, rural communities and policy makers in advancing the health of those living in rural and remote contexts. By understanding who is responsible and the actions each stakeholder needs to take to make the recommendations a reality, the task force can lay the groundwork for developing a coordinated, comprehensive health human resource strategy that considers the integral role of medical education as a health system intervention. For more information and additional resources, visit www.cfpc.ca/arfm.

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Contributors: The authors are co-chairs of Advancing Rural Family Medicine: The Canadian Collaborative Taskforce and contributed to preparing the manuscript for publication on behalf of the task force.

PROGRAM DESCRIPTION DESCRIPTION DU PROGRAMME

Antibiotic stewardship in a remote health region: signs of success

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This article has been peer
reviewed.

BACKGROUND

Despite 23 000 annual American deaths from antibiotic-resistant infections,¹ antimicrobials are still used inappropriately in up to 50% of antibiotic prescriptions.² Antimicrobial stewardship programs (ASPs), which are now required by Accreditation Canada, reduce antimicrobial use, *Clostridium difficile* infections and antibiotic resistance.^{3–5} However, developing an ASP can be daunting for rural hospitals, which generally lack personnel, expertise and other resources to establish such programs.⁵

Staffed primarily by family physicians with limited pharmacy support, the hospitals in the Labrador–Grenfell Health Authority (LGH) in Newfoundland and Labrador are no exception (Fig. 1). We do not have infectious disease specialists, medical microbiologists or infectious disease pharmacists, who traditionally lead ASPs. Although we can consult these specialists at our referral centre, which is outside of LGH, they are not mandated to establish or lead our ASP.

The literature on ASPs is also primarily about hospitals far larger than ours with specialty services that are unavailable to us locally.^{3–7} Searching for a practical, meaningful ASP, our family physician– and pharmacist-led ASP team learned of a hospitalist-led ASP called Time Out (T-Out).^{8,9} They decided to implement it at LGH for the following reasons:

- It is based on interaction between pharmacists and generalists, which already occurs at our hospital sites.
- Our family physicians are similar to hospitalists in that they provide inpatient care.
- Our pharmacists are involved with inpatient prescriptions.
- Our hospitals have regular rounds in which inpatients are discussed.
- We could embed it into existing practices.

WHAT IS A T-OUT?

T-Out is a delayed review of antibiotics 48–72 hours after initiation to determine whether they are still necessary and if the drug, dose, route and duration remain appropriate. At initiation of antibiotic therapy, the clinical situation may be unclear and clinicians are hesitant to

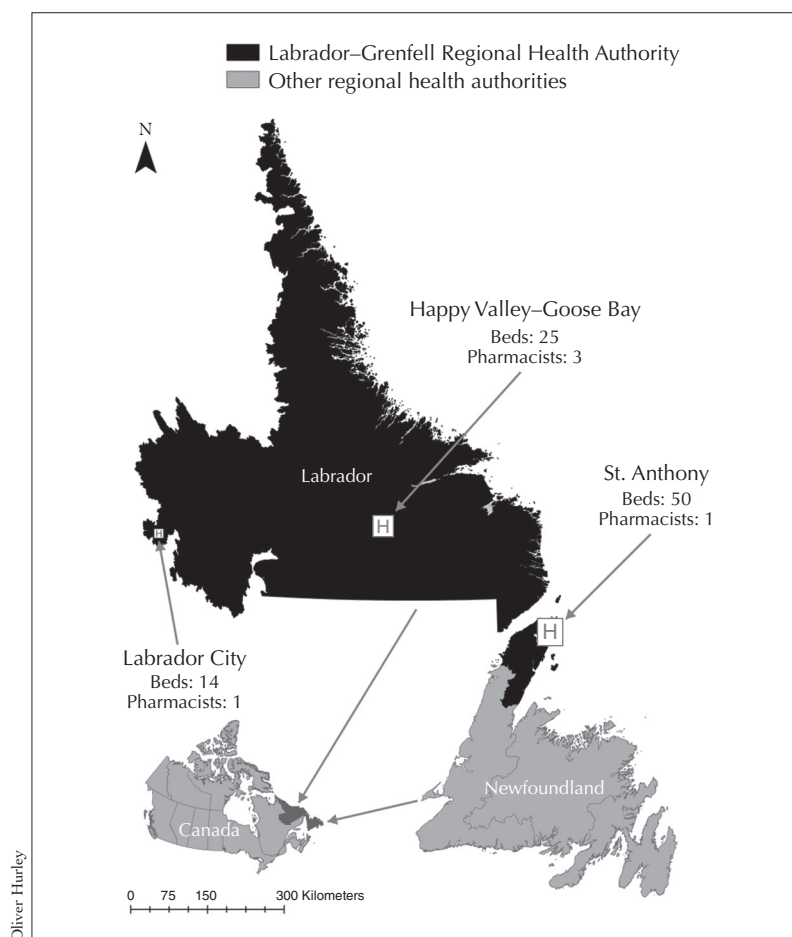


Fig. 1. Labrador–Grenfell Regional Health Authority.

withhold antibiotics owing to the devastating consequences if a treatable infection is missed. After 48–72 hours, culture results and a clearer clinical picture make this a better time to review the antibiotic.

IMPLEMENTATION OF THE T-OUT

T-Out operates at the Goose Bay and Labrador City hospitals, with slight variation to accommodate existing processes at each, according to these steps:

1. A pharmacist immediately enters the medications into our hospital medical records system (Meditech) once they are prescribed to an inpatient.
2. If an antibiotic is identified, the pharmacist reviews it for drug interactions and dosing, records the patient's initials and antibiotic on a data sheet and flags them for a T-Out.
3. After 48–72 hours, the pharmacist reviews the antibiotic in the context of culture results and the clinical situation (T-Out). Using *Bugs & Drugs: an antimicrobial/infectious diseases reference*,¹⁰ as a primary reference, the pharmacist makes a recommendation in 1 of 4 categories: stop antibiotic, change antibiotic, change from intravenous to oral administration or change duration/dose.¹¹
4. The pharmacist makes the recommendation directly to the physician (who also references *Bugs & Drugs*¹⁰), and together they decide on the most appropriate course of action. If the decision requires specialized advice, the local physician consults an infectious disease specialist.
5. Pharmacists record every prescription reviewed, whether a recommendation was made, the recommendation itself and whether the recommendation was accepted.

SIGNS OF SUCCESS

We deduced that if antibiotic prescriptions were reviewed, recommendations were made and most recommendations were accepted, we would be optimizing our antibiotic use and, hence, patient outcomes. Except for a small gap at the Labrador City site while they were relocating the hospital, recommendations were made each month at both sites from September 2014 to March 2015 (69% of recommendations accepted). In addition, an initial survey of physicians at our Happy Valley–Goose Bay hospital with a response rate of 57% (8/14) showed that all 8 physicians felt that the process was useful. Seven out of 8 physicians reported that they made a change based on the T-Out discussion. Our program received approval from Accreditation Canada in April 2015.

A RURAL ASP: NOT SO REMOTE?

It has been challenging but not impossible for LGH to implement an ASP with limited resources and supports. T-Out is operating at 2 sites with signs of success, such as local engagement of physicians and pharmacists, incorporation of T-Out into existing processes and adjustment of T-Out to meet professionals' needs. We are exploring options to expand to our third hospital in St. Anthony. We must now maintain our momentum by ensuring consistent reviews and collecting more comprehensive outcome data (e.g., *C. difficile* rates). Sustained monitoring will show whether changes to antibiotic prescriptions continue and whether these changes have an effect on overall antibiotic usage or rates of *C. difficile*. We will happily share our tools with readers to facilitate the process of ASP implementation at other sites.

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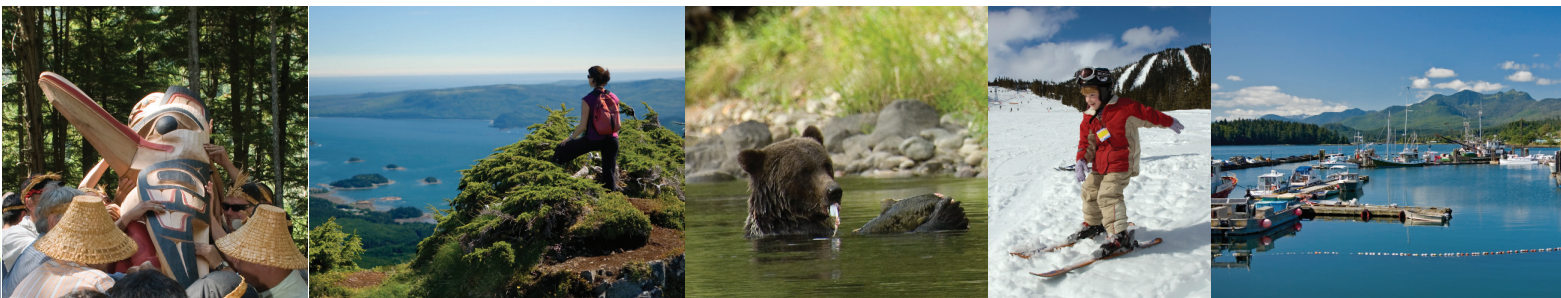
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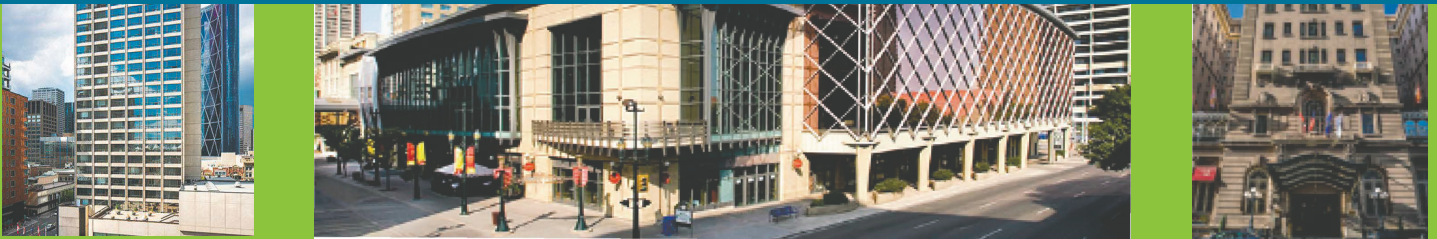


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