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VOLUME 21, NO. 1, WINTER 2016

VOLUME 21, N° 1, HIVER 2016

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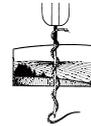
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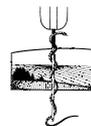
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**treeline shadows streaming
across the softness of new
snowfall**

Acrylic (painted directly on absorbent ground on gessoed birch panel), 24" x 24" x 1 3/4", by Micheal Zarowsky © 2015

www.zarowsky.net; micheal@zarowsky.net; www.facebook.com/micheal.zarowsky

Canadian painter working in water-colour, acrylic and pastels offering a fresh original dialogue on the Canadian landscape. "I paint light, atmosphere, the transparency of water."

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The rural scholar: Anathema or archetype?

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Those in rural practice tend to distance themselves from scholarship. It's something that is done elsewhere, at the ivory tower. I'm too busy at the coalface.

There is something to be said for that. What matters for us is our patients and our community. This is where we ground our values and apply our skills. This is what is important for us. You can certainly do research or something similar (not everyone will hunt and fish for a hobby), but few will care if you buff your CV with a list of publications. If people do care about your CV, it will often be in dismay at the prospect that you are about to leave for a post in the city. The work of dealing with the medical needs of the community, despite limited resources, can and must remain central.

Perhaps if you are “academically minded” you should not be in rural practice. Perhaps you would be better off in the city.

However, the a priori stance that rural doctors are not suited to be scholars may be a bit disingenuous. True, publications in journals such as this one are not common currency. Still, beyond the unidimensional measure of publication count, I would propose the stance that we, in rural medicine, are precisely suited to the activity of the scholar, as we practise our art.

The scholarly questions of integration and application are particularly relevant to us. Every day we ask how (if at all) the knowledge of medicine in urban populations relates to rural settings. After all, our populations are different. The resources we have, particularly in people and their scopes of practice, are different. Rural medicine is not just urban medicine in smaller centres.

The scope of our scholarly work is more than just reviewing literature based in urban medicine for material that is adaptable for us. We are so few that proportionately many more of us are involved in hospital- or practice-level administration suggesting areas for innovation and improvement. We look at our own methods and protocols with a critical eye and draw inspiration from other institutions. The work of asking questions and finding the answers, evaluating outcomes, reflecting and presenting our findings among those in the community who need to be engaged to allow for change is quintessential academic work.

Ultimately, although work has to be disseminated to add to the pool of rural knowledge, when one is focused on the local community as we are, the work doesn't have to go far. If, however, you do have something that many others in rural practice could benefit from, please do consider publication. We at the *CJRM* are always welcoming of submissions.

La publication savante issue d'une pratique rurale : Anathème ou archétype?

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Les praticiens des milieux ruraux tendent à se distancier de la publication savante, perçue comme une activité qui se pratique ailleurs, dans une tour d'ivoire. Je suis trop occupé aux premières lignes.

Voilà qui n'est pas déraisonnable, car ce qui compte pour nous, ce sont nos patients et notre communauté. C'est là que sont ancrées nos valeurs et que nous mettons nos compétences en pratique. C'est ce qui nous importe. Bien entendu, on peut faire de la recherche ou se livrer à toute autre activité semblable (après tout, la chasse et la pêche ne conviennent pas à tout le monde), mais peu se soucient des publications qui enrichissent un CV. Et si les gens s'y intéressent, ce sera souvent parce qu'ils sont consternés à l'idée que l'on cherche peut-être un poste en ville. Répondre aux besoins de la communauté, en dépit de la rareté des ressources, voilà ce qui peut et doit demeurer central.

Si vous penchez pour la recherche et la publication savante, il se peut que la pratique en milieu rural ne soit pas pour vous. Il se peut que la ville vous convienne davantage.

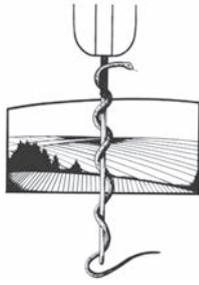
Toutefois, affirmer d'entrée de jeu que les médecins qui exercent en milieu rural ne sont pas faits pour l'érudition serait quelque peu fallacieux. Il est vrai qu'il se publie peu d'articles savants dans un journal comme celui-ci. Pourtant, au-delà de l'évaluation unidimensionnelle qui consiste à compter le nombre d'articles publiés, j'oserais affirmer que les activités savantes nous conviennent particulièrement bien, à nous qui pratiquons notre art en milieu rural.

La question de l'intégration et de l'application de la recherche est tout particulièrement pertinente pour nous. Tous les jours, nous nous demandons

comment appliquer au milieu rural les connaissances médicales acquises auprès des populations urbaines — et si même il est possible de le faire. Après tout, nos populations sont différentes. Les ressources à notre disposition sont différentes, surtout en ce qui concerne le champs de pratique et les ressources humaines. Pratiquer la médecine rurale ne consiste pas simplement à appliquer la médecine urbaine aux populations des petites localités.

Notre exploration du savoir ne doit pas se limiter à chercher dans les articles savants portant sur la médecine urbaine des éléments à adapter à notre contexte. Nous sommes si peu nombreux que, toutes proportions gardées, beaucoup plus d'entre nous sont impliqués dans l'administration d'un hôpital ou d'une pratique, ce qui nous ouvre des possibilités d'innovation et d'amélioration. Nous examinons d'un œil critique nos propres méthodes et protocoles et nous nous inspirons d'autres établissements. Poser des questions, trouver les réponses, évaluer les résultats, réfléchir à nos constatations et les présenter aux instances de la communauté qui ont le pouvoir d'intervenir pour faire des changements, voilà la quintessence du travail de recherche.

S'il faut bien sûr diffuser les résultats d'un travail pour qu'il soit incorporé au bassin du savoir sur la médecine rurale, lorsqu'il se concentre sur la communauté locale, comme le nôtre, sa diffusion peut très bien être restreinte. Si toutefois vous souhaitez diffuser vos résultats à plus grande échelle pour en faire bénéficier vos nombreux collègues en pratique rurale, veuillez songer à les publier. Au *JCRM*, nous sommes toujours heureux de recevoir des articles.



President's message. Who provides emergency care in most of Canada?

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Canada is about 90% rural by geography and slightly less than 20% by population. Canadians living in rural areas need the same access to emergency services and emergency physicians as those in urban areas. The SRPC Emergency Committee has determined that 71% (407/573) of Canadian emergency departments are in communities with populations of less than 20 000 (Dr. Etienne van der Linde, SRPC Emergency Committee: personal communication, 2015). Specialists with fellowship training in emergency medicine work in urban areas. Only 17% of family practitioners with a CCFP(EM) designation work in communities of less than 20 000, and substantially fewer work in communities of less than 10 000 (Dr. van der Linde: personal communication, 2015). Most emergency medicine in rural Canada is provided by family physicians with no official emergency medicine designation.

Physicians who work in rural emergency settings must work as generalists with a wide set of skills that may be seldom used. They must rely on their clinical judgment in the absence of high-tech equipment. They must deal with the challenges of transferring patients to a higher level of care. Many family practice graduates admit that they wouldn't feel comfortable working in a rural emergency department with no respiratory technician, no computed tomography and a potentially long transfer before definitive care. The Advancing Rural Family Medicine Task Force of The College of Family Physicians of Canada

and the SRPC will need to look specifically at how we can better train our family doctors in emergency medicine so they are more comfortable and capable in the rural emergency department. This will play a large role in recruitment and retention of rural family doctors.

To ensure that new family doctors will be able to provide excellent emergency care in rural areas with reasonable confidence and comfort, we require a multifaceted solution. We need to choose students and residents who are able to work in a setting of uncertainty. We need to ensure that their training in urban emergency settings involves a variety of very sick or injured patients, with some degree of responsibility. We need to expose them to low-resource settings while they are supported by skilled preceptors. Where possible, we need to expose them to settings of high volume and low resources, which are hard to find within Canada. We need to support them once they are in practice, both locally and regionally. We need to be sure that mechanisms for transferring patients in rural Canada are driven by the needs of the patient and the rural emergency physician, and are enhanced as much as possible. We need ongoing training with specific courses and simulations to help rural emergency physicians develop and maintain skills.

I am always impressed by the skill and knowledge of new family practice graduates. We need to support them in all ways as they become more comfortable. I know they can do it; they also need to know that they can do it.

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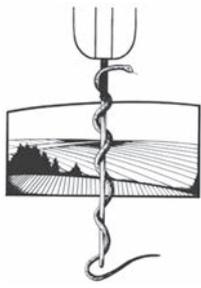
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Message du président. Qui fournit les soins d'urgence dans la majeure partie du Canada?

Le Canada est formé à environ 90 % de régions rurales, et un peu moins de 20 % de sa population habite ces régions. Les Canadiens qui vivent dans les régions rurales ont besoin du même accès aux services d'urgence et aux urgentistes que ceux qui vivent dans les régions urbaines. Le comité d'urgence de la Société de la médecine rurale du Canada (SMRC) a déterminé que 71 % (407/573) des services d'urgence au Canada se trouvent dans des communautés comptant moins de 20 000 habitants (D^r Etienne van der Linde, comité d'urgence de la SMRC, communication personnelle, 2015). Les médecins qui ont suivi une formation spécialisée en médecine d'urgence travaillent dans des régions urbaines. Seulement 17 % des médecins de famille qui ont une désignation CCMF (MU) travaillent dans des communautés de moins de 20 000 habitants, et ceux qui travaillent dans des communautés de moins de 10 000 habitants sont encore moins nombreux (D^r van der Linde, communication personnelle, 2015). La médecine d'urgence au Canada rural est pratiquée en majeure partie par des médecins de famille qui n'ont pas de désignation officielle dans ce domaine.

Les médecins qui travaillent dans les services d'urgence en région rurale agissent à titre de généralistes ayant une vaste gamme de compétences qui peuvent n'être que rarement utilisées. Ils doivent se fier à leur jugement clinique en l'absence d'équipement de pointe. Ils doivent relever les défis liés au transfert des patients vers un niveau de soins plus élevé. De nombreux diplômés en médecine familiale reconnaissent qu'ils ne se sentiraient pas à l'aise s'ils devaient travailler dans un service d'urgence rural sans un technicien en inhalothérapie, sans tomographie par ordinateur et avec une attente potentiellement longue avant que les patients puissent recevoir les traitements indiqués. Le Groupe de travail sur l'avancement de la médecine familiale rurale formé par le Collège des

médecins de famille du Canada et la SMRC devra étudier expressément comment nous pouvons mieux former nos médecins de famille en médecine d'urgence pour qu'ils soient plus à l'aise et plus compétents s'ils travaillent dans un service d'urgence rural. Cela jouera un rôle important dans le recrutement et la rétention des médecins de famille ruraux.

Si nous voulons nous assurer que les nouveaux médecins de famille soient en mesure de fournir d'excellents soins d'urgence en région rurale en se sentant raisonnablement à l'aise et sûrs d'eux, nous devons trouver une solution à multiples facettes. Nous devons choisir des étudiants et des médecins résidents capables de travailler dans un cadre caractérisé par l'incertitude. Nous devons nous assurer que leur formation en service d'urgence urbain prévoit une diversité de patients très malades ou gravement blessés, et leur demande un certain degré de responsabilité. Nous devons les exposer à un cadre où ils ont peu de ressources alors qu'ils sont soutenus par des formateurs qualifiés. Si possible, nous devons les exposer à un cadre où il y a un fort roulement, mais peu de ressources, ce qui est rare au Canada. Nous devons les soutenir quand ils commencent à exercer, autant sur la scène locale que régionale. Nous devons veiller à ce que les mécanismes de transfert des patients au Canada rural soient axés sur les besoins du patient et de l'urgentiste, et à ce qu'ils soient optimisés. Nous avons besoin d'une formation continue, avec des cours et des simulations spécifiques, afin d'aider les urgentistes ruraux à acquérir et à maintenir les compétences requises.

Les compétences et les connaissances des nouveaux diplômés en médecine familiale m'impressionnent toujours. Nous devons soutenir ces derniers par tous les moyens possibles à mesure qu'ils deviennent plus sûrs d'eux. Je sais qu'ils en sont capables, mais ils ont aussi besoin de savoir qu'ils peuvent le faire.

Location decisions of family physicians in Saskatchewan: What really matters?

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This article has been peer reviewed.

Introduction: Residents of Saskatchewan, particularly those in rural communities, have less access to family physician services than people in other parts of the country. This is partly due to the difficulty of attracting and retaining physicians. The objective of this study was to understand the major factors that influence the location decisions of family physicians in Saskatchewan.

Methods: We employed a mixed-methods approach, including a questionnaire survey of family physicians and interviews with individuals from stakeholder health agencies. We used interpretive description to analyze interview responses.

Results: Neither family physicians nor interviewees from health agencies named compensation as the most influential factor in location decisions. More important factors were family influences, work–life balance and community influences.

Conclusion: We recommend that recruitment of family physicians be regarded as a matching process, in which family physicians and communities are strategically matched. Compensating incentives should be targeted at communities that cannot meet the requirements of family physicians.

Introduction : Les résidents de la Saskatchewan, en particulier ceux qui vivent dans des communautés rurales, ont un accès plus limité aux services d'un médecin de famille que les Canadiens des autres parties du pays. Cela s'explique en partie par la difficulté d'attirer et de retenir les médecins. Le but de cette étude était de comprendre les principaux facteurs qui influencent les médecins de famille de la Saskatchewan quand ils choisissent l'endroit où ils vont exercer.

Méthodes : Nous avons utilisé diverses méthodes, notamment un sondage par questionnaire auprès des médecins de famille et des entretiens avec du personnel des organismes de santé visés. Nous avons analysé les réponses aux entretiens en faisant une description d'interprétation.

Résultats : Ni les médecins de famille ni les représentants des organismes de santé n'ont dit que la rémunération était le principal facteur influençant leur décision. Les facteurs les plus importants sont l'influence de la famille et de la communauté, et l'équilibre vie–travail.

Conclusion : Nous avons recommandé que le recrutement des médecins de famille soit considéré comme un processus de jumelage, selon lequel les médecins et les communautés sont jumelés de façon stratégique. Des mesures incitatives devraient être offertes aux communautés qui ne peuvent pas répondre à la demande de médecins de famille.

INTRODUCTION

A strong workforce of family physicians is important for the health status of citizens.¹ Family physician services are particularly important for rural and small communities, where there is often a shortage of health practitioners and a lack of health care facilities.²

There has been an uneven distribution of family physicians among the Canadian provinces.³ With only 100 family physicians per 100 000 people in 2012, Saskatchewan fell below the national average of 109, and this trend has persisted for many years.⁴ The uneven distribution of family physicians also exists between urban and

rural communities in Saskatchewan (and other provinces). As shown in Table 1, rural and smaller communities, such as Sun Country, have less access to family physicians than urban centres, such as Saskatoon and Regina.

This distribution of family physicians may be explained by myriad factors, including the geographic location, the socioeconomic characteristics of a community, the demand for and supply of family physician services, the practice environment, financial incentives, family ties and culture.⁵⁻¹⁰ Many of the existing studies on this issue are quantitative.¹¹⁻¹³ Most of the research is also limited to the views of family physicians and omits the perspectives of health agencies that trained or recruited family physicians. In this study, we aimed to provide a more comprehensive understanding of the location choice of family physicians by using mixed methods to integrate the views of physicians and individuals from stakeholder health agencies.

METHODS

In this study, we employed a mixed-methods approach. The qualitative part of the study involved interviews with representatives of selected health agencies during the fall of 2012. The quantitative part of the study was a questionnaire survey of family physicians conducted during the summer and fall of 2012. Quantitative and qualitative data were integrated during data analysis. The intent of using this

mixed-methods approach was to gain a comprehensive understanding of family physicians' location decisions.¹⁴⁻¹⁷

Participants

Stakeholder agencies were invited to be part of the interviews. The agencies were selected based on the roles they play in family physicians' recruitment and retention in the province. One key informant, an individual in a management position with extensive knowledge about the topic under study, was targeted from each agency. All family physicians who were licensed and actively practising in Saskatchewan were invited to take part in an online survey.

Data collection

A semistructured interview guide was used for the interviews with stakeholder agencies. Interviews were conducted either by phone or face-to-face, according to the preference of the key informant. The stakeholder agencies involved in the interviews are referred to by the letters A to F to preserve their confidentiality and anonymity.

For the survey of family physicians, we designed a questionnaire with both open- and close-ended questions. The questionnaire was divided into 4 parts: general information, education and professional background, location and migration information, and information on recruitment and retention. An invitation email for the survey was sent to all family physicians who were licensed to practise in Saskatchewan through the Saskatchewan Medical Association.

Data analysis

Data from stakeholder interviews were transcribed and analyzed using interpretive description. We chose this method because it identifies the common themes observed during data analysis.¹⁸ Results of the analyses of survey data and interview data were then integrated to draw the final common conclusions; the quantitative data were used to validate the responses from the interviews.

Ethics approval

The University of Saskatchewan Research Ethics Board gave ethics approval for this study (Behavioural Research Ethics no. 12-94).

Table 1: Distribution of family physicians in regional health authorities in Saskatchewan

Health region	Total no. family physicians	No. family physicians/100 000 population
Sun Country	36	65
Five Hills	51	95
Cypress	42	98
Regina Qu'Appelle	278	103
Sunrise	44	81
Saskatoon	377	113
Heartland	25	58
Kelsey Trail	40	101
Prince Albert Parkland	79	99
Prairie North	85	116
Mamawetan Churchill River	14	64
Keewatin Yatthé	17	146
Athabasca	1	40
Saskatchewan	1089	101

Adapted, with permission, from the Canadian Institute for Health Information.⁴

RESULTS

Individuals from 9 stakeholder agencies were invited to be part of the interviews. The response rate for the interview was 67%, with the participation of 6 stakeholder agencies: the Saskatchewan Medical Association; the Physician Recruitment Agency of Saskatchewan; the Division of Continuing Professional Education, College of Medicine, University of Saskatchewan; College of Medicine Alumni Office of the University of Saskatchewan; the Saskatoon Health Region; and the Regina Qu'Appelle Health Region. Of the 6 key informants, 3 were men and 3 were women. Three informants identified that they had medical backgrounds. All 6 informants were in management positions.

A total of 991 physicians were sent the online survey. The survey recorded a low response rate of 6%; 54 of the 991 licensed family physicians responded. Among the 54 respondents, 28 (51.9%) were women and 26 (48.1%) were men.

The largest age group among the responding family physicians was the group between 45 and 55 years of age (17 family physicians, 31.5% of all responding family physicians). Among the 54 respondents, 46 (85.2%) were married and 34 (63.0%) had children.

Overall, 4 themes were identified as the most important influences on location decisions of family physicians in both the interviews and the survey. The themes, drawn from the qualitative data and supported by the quantitative data, were family influences, work–life balance, community influences, and compensation and incentives (Table 2).

Table 2: Major themes influencing the location decisions of family physicians

Theme	% of influence
Family influences	36
Children's education	16
Spouse's employment	10
Family in general	10
Work–life balance*	32
Lifestyle	13
Workload	10
Satisfaction and balance	10
Community influence	19
Compensation and incentives	13
Total	100

*Values under work–life balance do not sum to 32 because of rounding.

Family influences

The theme of family influences was identified as the most influential factor for physicians' location decisions. This was noted in the comments of key informants. For example: "This type of [practice location] decision cannot be made in isolation; it is always the family that has the final say" (key informant from agency B).

As shown in Table 2, 16% of respondents expressed concern about children's education, 10% about spousal employment and 10% about "family in general," including children, spouses, parents and friends. In a separate question, in which participants were asked whether their spouses and children influenced their choice of practice location, 83% responded "yes."

Work–life balance

In the interviews, work–life balance emerged as the second most influential theme. Four of the 6 key informants reported that the major challenge for family physicians was the ability to balance a heavy workload with family life, to maintain quality of life for themselves and their families. The interviews also identified workload and on-call schedule as the issues that affect the work–life balance of family physicians. For example, agency A's key informant stated,

The number 2 reason, we think, relates fairly closely to that [family] and is the concept of work–life balance, so it's about hours of work and call rotations. ... Call rotations are probably the biggest issue affecting physicians' relationships with their families because they are on call every second day, even every third day; that is very onerous of the time that you have to spend with your family. Family physicians rank lifestyle, type of practice, call rotation, workload much higher [than compensation].

The problem of a heavy workload appears to be particularly acute for rural family physicians. Our results support the idea that rural family physicians tend to work longer hours and have higher on-call frequencies, partially due to the inadequate supply of family physicians. Agency B's key informant explained:

There's just not enough doctors in rural areas; the work–life equilibrium is heavily weighted toward work. ... Most of the doctors who leave Saskatchewan go to Alberta and British Columbia, and most of them are leaving because they believe they can work less and earn the same amount or more.

To address the issue of heavy workload and work–life balance, key informants suggested family

physicians be recruited in groups of a minimum size. For example, the key informant from Agency F stated,

The reason they [family physicians] leave rural is because the model of care delivery there is not sustainable. If they are in a group practice with a team support, then they don't leave rural ... but the vast majority of our turnovers in rural are from single physician practice or 2 physician practices where it is impossible to maintain any work-life balance and do a good job of the work, because of the demand. Unless you can have a group of 5 as a minimum together, it is not sustainable.

The key informant from agency C added,

There need to be more opportunities to practise in larger groups so we are not recruiting into 1-, 2- and 3-physician practices but more into 4- and 5-person practices, so that we can end up with more ... and I think that there needs to be ongoing engagement and dialogue. You can't just hire somebody and leave them there unsupported.

As shown in Table 2, family physicians highly valued work-life balance. The respondents considered lifestyle (13%), workload (10%), and satisfaction and balance (10%) important in their location choices.

Community influences

In the interviews, when key informants were asked about the role of community influences in recruitment and retention of family physicians, agency B's key informant asserted that

Communities have personalities, so you want to make sure the community's personality and that physician's personality are a match, so we strongly advise people and physicians and communities to do site visits more than once.

In particular, the interview results show that family physicians want to practise in communities where they have access to social and recreational amenities. For example, agency A's key informant mentioned that "being in a community that has the amenities to support what you want to do when you are not working" was important in recruitment and retention of physicians.

As shown in Table 2, 19% of respondents identified community influences as an important factor when they choose a practice location. Various community characteristics were examined in the survey through an open-ended question: "Which community characteristics are important to you and/or your family in choosing your location?" Of the respondents, 44% identified nature, infrastructure and amenities in the community; 25% suggested community support and acceptance; 17% identified safety; 8% mentioned climate; and 6% cited the possibility of being isolated in a practice location due to workload or inability to integrate.

Compensation and incentives

In terms of compensation and incentives, the key informant in agency F stated,

I believe even the worst-paid doctor is rich, and so there is no doctor who doesn't make enough money to make a living and be happy and healthy in our country. The problem there is that we again have too much disparity; that we say some doctors can take this amount and other doctors can take 5 times as much, and that's the problem.

In the survey, only 13% of the respondents regarded compensation and incentives as an important factor in their location choices. Our results indicate that compensation was not the most important factor for the location decisions of family physicians, and even if it were, location decisions were influenced not only by the average compensation level, but also by the disparity in payments within a province.

Respect and appreciation for family physician services

The survey did not ask physicians about respect and appreciation of family physician services. This theme emerged in the interviews of the key informants, some of whom have previously practised as family physicians. For example, agency E's key informant explained,

The issue of respect is very important; there's been apathy toward family physicians. Making them feel like a second-best practice. Some people have been told through residency that they are too good to do family medicine.

The key informant from agency B had this to say:

Family physicians can't have hospital admitting privileges, or if they do have hospital admitting privileges, there are only 5 beds in the whole city that family doctors can put patients into. These kinds of things send a very strong message to family physicians that they are not valued and they are not welcome.

Key informants suggested that family physicians, especially those in rural practice, need to be better appreciated and supported, and also to be given the opportunity to put into practice the full medical knowledge and skills they acquired in school. For example, the key informant from agency E mentioned the following:

Another of the reasons that we left was that the hospital, the things we were able to do in our hospital was going down, down, down. When we first got there we could do deliveries, minor surgeries, we had an operating room. Nowadays

that isn't possible. The small rural hospitals don't have strong hold to do that. And so you have become office practice physician. I think, support physician skills, encourage them to use them, give them education opportunities wherever they are to make them feel confident in the way that they can practise.

DISCUSSION

Recruitment and retention of family physicians in Saskatchewan, and particularly in its rural communities, has been a daunting policy challenge for the provincial health agencies. To achieve the goal of recruitment and retention of family physicians, various programs and policies have been adopted.

The most common recruitment and retention strategy employed by the provincial government has been directed at compensation and financial incentives. Although compensation and financial incentives may be an effective recruitment strategy in the short term, they are not always cost-effective in the long term because family physicians often leave the practice location after the incentives expire. Our finding about the limited role of compensation in recruitment and retention of family physicians is interesting because many previous studies have identified higher income in the destination province as the major cause for the migration of family physicians.^{12,14} Saskatchewan is also increasingly recruiting international medical graduates to offset the net outflow of family physicians to other provinces, but this has only limited success.⁵ In the search for more effective recruitment and retention strategies, it is useful to understand what attracts family physicians to a practice location and what motivates them to stay there.

One key finding of this study was the importance of physicians' interactions with their communities in their choice to stay or leave. Although previous studies pointed to the importance of communities in physicians' location decisions,^{7,9,10} the results from the interviews and survey suggest that family physicians have expectations of communities, and communities in turn have expectations of the physicians.

The results from this study inform 2 policy recommendations for the recruitment and retention of family physicians, especially in rural communities. The first recommendation is that recruiters ensure communities can match the expectations for income level, workload, opportunities and amenities of family physicians and their families. The matching can be done by assessing the characteristics of the com-

munities against the important factors identified by family physicians and their families. As noted in the interviews, communities have personalities and these personalities should be compatible with the personality of family physicians and their families. Further, the community must have a client base sufficient to support the minimum viable practice size of 4 to 5 family physicians, such that the requirements of family physicians regarding family, workload, quality of life and professional practice can be met. This physician–community matching is particularly necessary in an environment of tightening government budget constraints.

The second recommendation is that financial incentives be provided to ensure access to family physician services in communities that cannot match the requirements of potential family physicians. First, incentives should be provided to encourage cooperation among communities that could jointly provide the required client base and amenities for a group of 4 to 5 family physicians. Second, there should be compensating incentives or programs aimed at improving the attractiveness of a community. For example, there should be programs such as a relocation allowance for family physicians, spousal support programs, a professional development allowance, mentoring and/or supervision, and provision of information about professional networks.

Limitations

Although the online survey was fast and inexpensive, it could not ensure the desired number and type of people who participated in it. The timing of the invitation for the survey, in the summer, also limited the number of participants. As a result, most family physicians in Saskatchewan were unable to participate in the survey. Based on this small sample, the results may be biased and should be interpreted with caution.

CONCLUSION

In this study, we integrated the views of individuals from stakeholder health agencies and family physicians to understand the major factors that influenced the location decisions of family physicians in Saskatchewan. The analysis of the qualitative data and quantitative data revealed that the location decisions of family physicians depend on family influences, work–life balance, various community influences, level and disparity in compensation, and the public's respect and appreciation for family physician services.

Every community is unique, with a particular personality that has an impact on family physicians' location choices. Therefore, a one-size-fits-all approach is not appropriate for recruitment and retention. Further studies are required to develop a deeper understanding of the relationship between family physicians and their practice communities.

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Practice locations of longitudinal integrated clerkship graduates: a matched-cohort study

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This article has been peer
reviewed.

Introduction: Longitudinal integrated clerkships (LICs) have been introduced as an innovative model to impart medical education. In Canada, most LIC experiences are situated in rural communities. Studies have reported equivalence in graduates from rural LICs and traditional rotation-based clerkships (RBCs) in their performance in residency, as well as in national medical licensure examinations. We sought to determine the impact of rural LICs in terms of practice location of graduates.

Methods: A matched cohort was developed on the basis of student background and sex to compare practice location of rural LIC and RBC graduates. We used the χ^2 test to assess the association between type of clerkship stream and practice location.

Results: We found an association between participation in a rural LIC and rural practice location.

Conclusion: Rural LIC programs play an important role in introducing students to rural medicine and may be an effective tool in responding to the shortage of rural practitioners.

Introduction : Les stages cliniques longitudinaux intégrés (SCLI) ont été introduits à titre de modèles de formation médicale novateurs. Au Canada, la plupart des expériences de SCLI se déroulent en milieu rural. Des études ont fait état d'une équivalence entre les diplômés ayant opté pour un SCLI en milieu rural ou l'habituel stage clinique hospitalier (SCH) pour ce qui est de leur rendement durant leur résidence et de leurs résultats aux examens nationaux menant à l'obtention du permis d'exercice. Nous avons voulu mesurer l'impact des SCLI en milieu rural sur le lieu de pratique des diplômés.

Méthodes : Une cohorte assortie a été formée sur la base des antécédents et du sexe des étudiants afin de comparer le lieu de pratique des diplômés selon qu'ils avaient fait un SCLI en milieu rural ou un SCH. Nous avons utilisé le test du χ^2 pour évaluer le lien entre le type de stage clinique et le lieu de pratique.

Résultats : Nous avons découvert un lien entre la participation à un SCLI en milieu rural et la pratique en milieu rural.

Conclusion : Les programmes de SCLI en milieu rural sont importants pour initier les étudiants à ce type de pratique et pourraient être un outil efficace pour répondre à la pénurie de médecins en milieu rural.

INTRODUCTION

Longitudinal integrated clerkships (LICs) were introduced as a new educational model to impart medical training, primarily to senior undergraduate medical students. Although LICs have existed since the 1970s,¹ most programs have been created in the past decade. Longitudinal integrated clerkships

have been extensively described in the literature.²

In Canada and Australia, LICs have generally been implemented in rural settings, allowing students to spend most of the clerkship year at a designated site, training under the supervision of a generalist. Rural LICs have been shown to provide a robust experience to students.³ Longitudinal integrated clerkships

appear to be having a significant impact on medical education and are being recognized nationally and internationally as viable and effective alternatives to traditional rotation-based clerkships (RBCs).²

Contemporary studies have reported equivalence in the performance of graduates from rural LICs and RBCs on various platforms, including in-training evaluation reports,⁴ Medical Council of Canada Qualifying Examination Part I,⁵ Part II⁵ and in residency.⁶ Because the rural LIC is a relatively recent development in medical education, little is known about its potential impact on rural communities in terms of practice location selected by its graduates. In this study, we compared practice locations of rural LIC and RBC graduates within the discipline of family medicine.

METHODS

Setting

The Cumming School of Medicine at the University of Calgary has a 3-year undergraduate medical curriculum in which the clinical clerkship comprises the final year of study. Internationally, it is the only LIC offered in the final year. Beginning with the graduating class of 2009, there have been 2 clerkship streams: a traditional RBC and a rural LIC. Details of the University of Calgary program are outlined elsewhere.⁵ The current study was part of a comprehensive 3-year evaluation of the rural LIC that studied various outcomes at both undergraduate and postgraduate levels for the classes of 2009, 2010 and 2011.

Participants

A total of 34 students in the classes of 2009–2011 completed the rural LIC. Each student in the rural LIC was prospectively matched at the start of the clerkship (first by background and then by sex) with students from the traditional RBC stream for comparison. Background was defined by the size of the community where students graduated from high school and consisted of 3 categories (rural, regional or urban). These categories were based on the population censuses of cities and towns. Communities with a population of 25 000 or less were classified as rural, communities with a population between 25 000 and 200 000 were classified as regional and communities with a population greater than 200 000 were classified as urban.

Students are randomly selected to the rural LIC from the applicant pool, which is populated by students who self-select for the program. Consequently, a matched cohort was created to eliminate potential selection bias. Matching was done primarily by background because studies suggest individuals reared in a rural community are more likely to practise in a rural area.^{7–9} Sex was also considered in matching because rural physicians tend to be male.^{10,11} To increase statistical power, we chose 4 RBC controls for each rural LIC student.¹² Because postgraduate training varies from 2 years for family medicine to 6 years or more depending on the specialty chosen, practice locations were available only for practising physicians in the discipline of family medicine.

Materials

We developed a database that included records of both rural LIC and RBC graduates, and we entered practice locations using information from websites of provincial colleges. Practice locations were divided into categories of rural, regional or urban. Categories were based on the same criteria used to establish student background. We reviewed official websites of towns and city councils to confirm population.

Procedure

This prospective matched-cohort study took place over 3 years. We created our cohort of rural LIC students before the start of clerkship, and gathered career and location data on the students as the first group of rural LIC students (class of 2009) completed residency and entered practice. The practice locations were entered about 1 year after the completion of residency, beginning with the class of 2009 and ending with the class of 2011 (until Nov. 30, 2014). The University of Calgary Conjoint Health Research Ethics Board approved the study.

Statistical analysis

We used the χ^2 test to study the association between the dependent variable of practice location (rural/regional/urban) and the independent variable of clerkship stream (rural LIC v. RBC). We carried out secondary analyses by performing 3 χ^2 tests to study the various pairwise comparisons. Bonferroni correction was applied to adjust for the multiple tests. We used SAS version 9.3 for statistical analyses.

RESULTS

The database contained records of 170 graduates. Of the 34 rural LIC participants, 12 (35.3%) had urban, 14 (41.2%) had regional and 8 (23.5%) had rural backgrounds. Of the 136 RBC participants, 48 (35.3%) had urban, 58 (42.6%) had regional and 30 (22.1%) had rural backgrounds. Nineteen (55.9%) of the rural LIC participants were women, and 77 (56.6%) of the RBC participants were women. Twenty-five (73.5%) of the 34 rural LIC graduates and 43 (31.6%) of 136 RBC graduates are practising family medicine. The results of the analysis are summarized in Table 1.

A 3×2 χ^2 test examining type of clerkship and practice locations was significant (Pearson $\chi^2_2 = 11.85$, $p = 0.003$). Subsequently, we performed three 2×2 pairwise comparisons of practice location and clerkship stream. The significance level was adjusted to 0.017 ($\alpha = 0.05/3$). The association between type of clerkship and rural versus urban practice location was significant (Pearson $\chi^2_1 = 9.56$, $p = 0.002$), whereas the association between type of clerkship and rural versus regional practice location (Pearson $\chi^2_1 = 0.05$, $p = 0.8$), and urban versus regional practice location (Pearson $\chi^2_1 = 4.60$, $p = 0.03$) were not significant.

DISCUSSION

We found an association between type of clerkship stream and practice location. Upon completion of residency, rural LIC graduates tended to practise family medicine at a rural rather than urban site. The rural LIC graduates were trained under the supervision of generalists and completed most of their core clerkship training in a rural community. Their clerkship experience was very different from that of the RBC students, who trained primarily in urban hospitals and moved from discipline to discipline at various sites. No association was found between type of clerkship and practice at a regional versus urban or regional versus rural site.

Numerous studies^{4,6,13-15} comparing rural LIC and RBC students have demonstrated the equivalence of performance on various outcome measures. Our results suggest that rural LIC participants who pursue family medicine may be more likely to settle in rural communities. Consequently, the impact of this type of educational experience on rural physician human resources appears to be positive. Compared with practitioners in large urban communities and academic centres, practitioners in small rural communities bear a relatively larger burden in teaching individual students. Our findings demonstrate the result of their efforts in increasing health care access in rural communities as a whole.

Funding to further expand the presence of LICs, especially in rural areas, may be an important strategy to increase the number of family medicine practitioners willing to apply their skills in rural Canada.

Limitations

This study had limitations that should be considered. Our research cannot confirm that participation in rural LICs causes graduates to practise in rural sites. There may be other factors beyond community background and sex that could play a role in this decision (e.g., motivation or spousal influences), and these are worthy of further study.

We had a small sample of rural LIC participants from a single medical school. Furthermore, the Cumming School of Medicine has a 3-year curriculum in which the LIC is offered in the final year of medical study. Therefore, the findings may not be generalizable to 4-year curricula in which LICs occur in the penultimate year of training. Because practice location can change during a physician's career, these findings represent only the initial practice location.

CONCLUSION

In this matched-cohort study on the practice location of rural LIC graduates, we found an association

Table 1. Proportion of graduates from rural longitudinal integrated clerkships and rotation-based clerkships practising family medicine in rural, regional and urban locations

Type of clerkship	Total in family medicine	Practice location; no. (%) of graduates		
		Rural	Regional	Urban
Rural LIC	25	15 (60)	7 (28)	3 (12)
RBC	43	12 (28)	8 (19)	23 (53)
Total	68	27	15	26

LIC = longitudinal integrated clerkship; RBC = rotation-based clerkship.

between type of clerkship stream and practice location. Rural LIC programs may be a significant educational tool to facilitate change in the maldistribution of physicians due to the association between practice location and clerkship type. Given that rural practitioners and communities bear a relatively larger burden than urban practitioners in teaching students, our findings demonstrate the result of these efforts in increasing health care access in rural communities as a whole.

Competing interests: None declared.

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We are organizing a rural research poster session at the Society of Rural Physicians of Canada's Rural and Remote Medicine Course.

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Closing rural maternity services: Is it worth the risk?

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Women from rural and remote communities with no local access to maternity services have worse maternal and newborn outcomes than women from similar communities with local access to even limited birthing services.¹ Canadian studies have demonstrated that distance to services affects maternal and newborn outcomes.²⁻⁴ Perinatal mortality is higher for populations of women who are more than 4 hours away from maternity services.¹ Women who live 2-4 hours away from the nearest maternity service show increased rates of interventions, and women living 1-2 hours away from services have increased rates of unplanned out-of-hospital deliveries.¹ There are trends across all these groups toward increased prematurity.⁵ Parturient women from communities with no local intrapartum services are 7.4 times more likely to report moderate to severe stress than women from rural communities with local birthing services.⁶ Loss of local maternity services in a rural or remote community is more than just a social and financial challenge. Translating these research findings into policy is essential: how do these issues affect clinical care, health services planning and risk management?

Clinical decision-making optimally follows full discussion of the diagnostic and therapeutic choices available with an exploration of the various risks and benefits, including social risks, as well as a discussion of alternative choices.⁷ Although this approach may be possible in a well-resourced

urban environment, a different set of issues arises in a rural and remote environment, where choices for birthing women are limited by access.^{8,9} Decision-making will be influenced by the financial costs or the social and cultural challenges resulting from an absence from home.^{8,10,11} This may be particularly significant for women living in areas with limited birthing services (without local surgical backup). In rural and remote settings, maternity care providers and their patients weigh possible clinical risks associated with birthing locally against the social and other challenges involved in travelling away from home to access services. Women may elect to accept some potential clinical risk to mitigate an apparent social or financial risk. This leads to difficult decisions for maternity care providers in small communities who may be without the surgical backup needed to manage an unexpectedly complicated delivery.

The question of whether or not a maternity care service should be supported adds another layer of complexity to analyzing risk. If a decision is made by health authorities to cease maternity services in a rural community, clinical decision-making is simplified. Services are no longer available to women, so they must travel to access services somewhere else. This is particularly challenging, however, for rural women with uncomplicated pregnancies, previous vaginal deliveries and young children at home. Although health professionals may be relieved by no longer being asked to manage the uncertainty of birth in a low-resource environment, they also

need to cope with the recognition that, beyond the inevitable precipitous deliveries, some women will choose to birth locally against professional advice or by turning up at the hospital in advanced labour.¹² Most challenging is the evidence that shows that it is safer for the community to provide maternity services than not.¹³

Across rural Canada and Australia, health care planners and administrators continue to struggle with the challenges of sustaining rural maternity services in small communities. Assuming a population of birthing women is large enough to sustain local services (e.g., a community catchment area with greater than 100 pregnancies per year more than 1 hour from the next nearest service), there are 3 possible scenarios.

First, services can be closed. If this choice is made, all parturient women are required to travel to access services at a larger centre, often an administratively compelling option owing to efficiencies of scale. Research suggests that these women will experience increased social and financial risk and personal stress from being separated from family¹⁴ and that overall there will be an increased risk to the population as evidenced by increased rates of adverse outcomes.^{3,15,16} Providers who work in the community may actually experience decreased stress in their role in that some of the uncertainties and challenges of providing maternity services on site — particularly with limited resources — are no longer part of their scope of elective practice. Conversely, dealing with unplanned births, with little or no antenatal care or resources, creates other risks and anxiety.

The second alternative is that health system leaders and planners can maintain a primary care service (with no local access to cesarean delivery). There is evidence that most women can birth relatively safely in their home community, and the women requiring specialist medical care are still encouraged to travel.^{17,18} The social risks are mitigated because the women who have the most difficulty in travelling (i.e., multiparous women with children at home) are often the safest to deliver locally.¹³ The risk to the population is decreased. There is some increased stress and risk for providers who face responsibility for unforeseen events with limited on-site support. There is also some increased risk for the health services system in that rarely there will be a bad outcome locally. There are risks associated with urgent intrapartum transfer and possible risks to transport teams due to inclement weather and challenges of rural travel.

The third alternative is to keep local maternity services open, with the benefit of local surgical care when needed, probably provided by general practitioners with enhanced surgical skills. This is an optimal solution if the population is large enough to sustain surgical services and the infrastructure for cesarean delivery is in place.⁵ Most local parturient women can deliver safely in these communities, diminishing risk and stress to the population and providers, and lowering known risks to the health system. Intrapartum transfer is uncommon, and outcomes are good.

Ideally, policy supporting the planning of rural maternity services requires a rational approach based on the population defined by number of birthing women, their social vulnerability and distance to other maternity services. Rural maternity services should not close based on the assumptions that parturient women will somehow be able to access services in another community. It's not worth the risk.

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The occasional intrauterine device insertion

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INTRODUCTION

The intrauterine device (IUD) and hormone-containing intrauterine system (IUS) are effective, long-lasting and reversible methods of contraception. Failure rates are 0.6–1.2 per 100 woman-years for copper IUDs and 0.04–0.1 per 100 woman-years for levonorgestrel-containing IUSs, as compared with 0.2–2.0 with perfect use of combined oral contraceptives.^{1–4} Although more than 26% of women worldwide have used an IUD, in North America less than 2% of women use this form of contraception.¹ Use of IUDs has been affected by economics, beliefs regarding the mechanism of action, the risk of pelvic inflammatory disease (PID) and ectopic pregnancy, and the lack of insertion training for physicians.^{5,6} Appropriate education about IUDs is needed to help practitioners provide counselling about, and insertion of, these devices.

Upfront costs of IUDs and IUSs can be striking for patients, because the devices are not usually covered by medicare. However, they become less expensive than combined oral contraceptives after 3 years of use.⁷ Copper IUDs are cheaper, ranging from \$60 for Mona Lisa 5-year models to \$80 for Flexi-T (lasts 5 yr), Mona Lisa 10 (lasts 10 yr) and Liberté (lasts 5–10 yr). Mirena costs about \$350 and lasts 5 years. Flexi-T and Liberté UT models are covered by Health Canada's Non-Insured Health Benefits Program for First Nations and Inuit people. Mirena is also occasionally available through the Society of Obstetricians and Gynaecologists of

Canada's (SOGC's) Compassionate Contraceptive Assistance Program.

Concerns regarding infection and PID were more significant with old-model IUDs that had a braided string, which may have increased the ability of bacteria to ascend into the uterine cavity, and a former lack of testing methods for asymptomatic sexually transmitted infections (STIs).⁸ New IUD models do not have braided strings, and studies have shown that the risk of infection is increased only in the first 20 days following insertion, when the uterus becomes contaminated with endocervical bacteria.^{6,9} This risk is only 9.7 cases per 1000 woman-years, and drops to 1.4 after 20 days.⁶

Copper IUDs cause changes to the endometrium in response to the copper that inhibits sperm transport and have direct effects on sperm motility.^{1,10–12} Progesterone IUSs cause changes to endometrial thickness, thickened cervical mucous and, in some women, ovulation suppression.¹

Insertion of these devices is a relatively simple procedure that can be performed by rural physicians in the office setting. The focus of this article is the levonorgestrel-containing IUS (LNG-IUS) by Mirena and the copper-containing IUDs Flexi-T, Mona Lisa 10 and Liberté UT380. Other copper IUDs share insertion methods with one of the 3 devices described in this article. New IUDs are coming on the market; one of these, Jaydess, has already been approved for use in Canada. Jaydess also contains levonorgestrel but is smaller than Mirena and lasts 3 years. Insertion is identical to that for Mirena.

INDICATIONS FOR IUD INSERTION

There are many indications for IUD insertion. Despite popular belief, IUDs can be used in nulliparous women and adolescents, as well as multiparous women, as a method of long-lasting contraception, particularly in women with adherence issues.^{6,8,13} Intrauterine devices can be inserted postpartum in breastfeeding women.

Levonorgestrel-containing IUSs can also be used for menorrhagia in perimenopausal women, including those with fibroidal bleeding, and for dysmenorrhea in all age groups. There is a substantial reduction in blood loss, up to 97%, and improvement in hemoglobin levels.¹ Newer evidence has shown it may be used for endometrial protection during estrogen replacement therapy or tamoxifen use.

The copper IUD has a unique role in postcoital emergency contraception and can be inserted within 7 days of unprotected intercourse.^{1,14}

Copper IUDs and LNG-IUSs can also be used in women with contraindications to estrogen-containing contraception, including those with a history of thromboembolism.⁸

CONTRAINDICATIONS FOR IUD INSERTION

The World Health Organization and SOGC have supported a list of absolute and relative contraindications to IUD or IUS insertion.^{1,6}

Absolute contraindications are

- pregnancy
- current, recurrent or recent (3 mo) PID or STI
- puerperal or postabortal sepsis
- severely distorted uterine cavity
- unexplained vaginal bleeding
- cervical or endometrial cancer
- gestational trophoblastic disease
- copper allergy (for copper IUD)
- breast cancer (for LNG-IUS)

Relative contraindications include risk factors for HIV or STI, HIV seropositive status, recent (48 hr to 4 wk) childbirth, ovarian cancer and benign gestational trophoblastic disease.¹

PREPROCEDURE ASSESSMENT AND COUNSELLING

Women should be informed of the risks of IUD insertion. These risks include uterine perforation (0.6–1.6 per 1000 insertions), infection (as discussed above, due mostly to contamination with endocervical bacteria and exposure to STIs), expulsion (10% in the first year,

declining to 6% in the first 5 years) and failure of device (in women who become pregnant with IUD in place, ectopic pregnancy should be excluded and referral for consideration of removal of IUD should be arranged).¹⁹

Routine testing for STIs before insertion will depend on the patient and provider; however, evidence has shown that testing for chlamydia and gonorrhea at the time of insertion is reasonable, given the low risk of PID when IUDs are inserted with infection present (0%–5%).^{6,9,13} If chlamydia or gonorrhea cultures return positive after insertion, the infections can be treated early, leaving the IUD in place.^{6,9,13}

Women should also be counselled that initially bleeding patterns may be irregular and that, with levonorgestrel IUS, they may become amenorrheic after several months of use. Menstrual pain can worsen with the copper IUD but usually lessens with the LNG-IUS. Although the concentration of hormone in Mirena is low, patients may also experience some adverse effects, such as acne and breast tenderness.¹ Finally, patients should be counselled that IUDs do not protect against STIs, and thus they should continue barrier methods such as condoms to prevent these infections.⁸

Although it is common practice to insert during menstruation, an IUD may be inserted at any time during the menstrual cycle, provided pregnancy has been ruled out.¹ If the LNG-IUS is inserted more than 7 days after the menstrual cycle, backup contraception should be used for 1 week after insertion.⁶ Postpartum insertion is usually best performed 4–6 weeks after delivery to reduce the risk of perforation and expulsion. However, emerging evidence suggests insertion may occur immediately postpartum or postabortion.⁶

EQUIPMENT

Aside from the IUD or IUS, the following should be gathered for the procedure (Fig. 1):

- sterile gloves
- 4 × 4 gauze pads soaked in povidone-iodine
- speculum and light source
- ringed forceps
- single-toothed tenaculum
- uterine sound
- cervical dilator (optional)
- scissors

PROCEDURE

After reviewing the procedure with the patient, obtaining consent and ensuring that pregnancy is ruled out, place the patient, draped, in the lithotomy position.¹⁵

1. After donning gloves, insert the sterile speculum and visualize the cervix. If indicated, samples for a Pap smear and chlamydia and gonorrhea tests can be obtained at this point.
2. Use ringed forceps with iodine-soaked gauze to clean the surface of the cervix 3 times.
3. Grasp the anterior rim of the cervix with the tenaculum, enough to prevent tearing out during insertion (this step is optional if the cervix is less mobile but preferred to help guide insertion).
4. Gently pull on the tenaculum to straighten the cervical canal, insert the uterine sound into the cervix and apply steady, firm pressure to advance it through the canal into the uterine fundus (generally 5–8 cm) (Fig. 2).
5. If the sound does not advance easily, the smallest cervical dilator or os finder can be tried. If this is successful, use progressively larger dilators until the sound will pass.
6. Once the uterus is successfully sounded, have an assistant open the IUD package, or do this yourself and then reglove.
7. For the Mirena IUS (EvoInserter):¹⁶
 - a. Slide the slider to the most distal position to load the IUS into the inserter.
 - b. Set the flange to the depth sounded.
 - c. Grasp the tenaculum and provide counter-pressure while using steady gentle pressure to advance the inserter into the cervix, not quite all the way up to the flange (Fig. 3).
 - d. Move the slider part way back to the mark, to release the Mirena arms.
 - e. Gently advance the inserter so the flange is at the cervix.
 - f. Pull the slider all the way back to release the device into the uterine cavity.
 - g. Carefully remove the inserter, sliding it all the way off the strings.
 - h. Using scissors, cut the threads 2–3 cm from the cervix.
 - i. Carefully remove the tenaculum and the speculum.
8. For the Flexi-T 300:¹⁰
 - a. Slide the cervical stop to the centimetre mark corresponding to the depth sounded; in this model the arms will still be in a T position outside of the inserter and the strings will be visible at the end of the insertion tube.
 - b. Grasp the tenaculum and provide countertraction while inserting the whole device into the uterine cavity, until you reach the fundus and the cervical stop rests against the external os.
 - c. Gently pull on the strings to ensure the arms

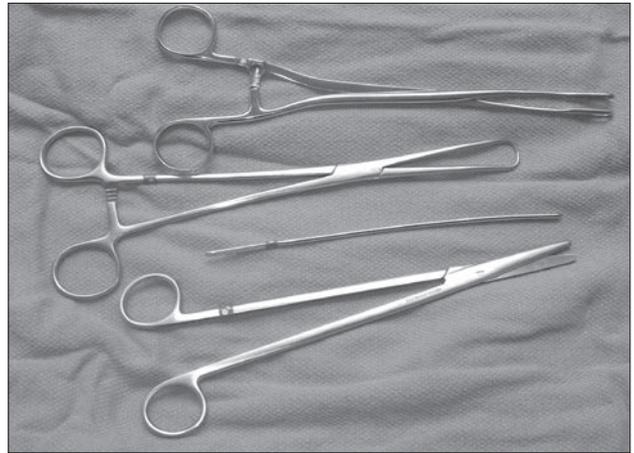


Fig. 1. Equipment for insertion of an intrauterine device, from top to bottom: ringed forceps, tenaculum, uterine sound and curved scissors.



Fig. 2. Tenaculum applied to anterior lip of the cervix and pulled gently to straighten the cervical canal, while the uterine sound is advanced with steady pressure into the uterine cavity.

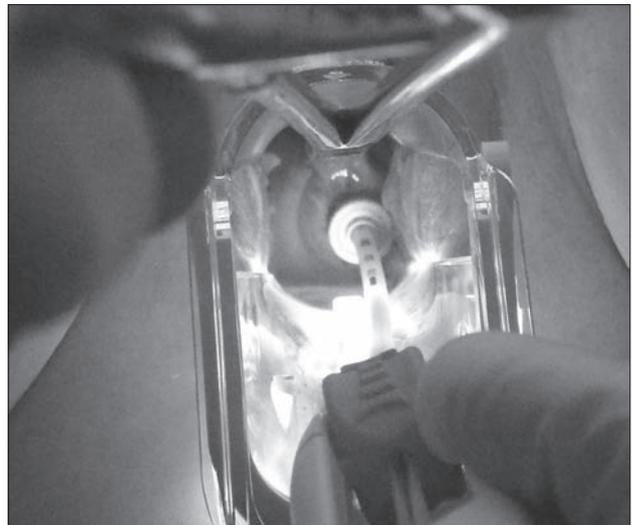


Fig. 3. Steady counterpressure is applied to the tenaculum while the inserter is advanced into the uterine cavity with steady pressure.

- are unfolded and the device is stable within the uterus.
- d. Gently push the inserter toward the fundus, then rotate and pull out to remove the inserter, while leaving the IUD in place.
 - e. Cut the strings 2–3 cm from the cervix.
 - f. Carefully remove the tenaculum and the speculum.
9. For the Liberté UT380:¹²
- a. Position the flange at the distance sounded.
 - b. Pull the nylon threads at the bottom of the inserter to pull the IUD into the inserter (Fig. 4).
 - c. Gently insert the plunger into the insertion tube to the base of the IUD; be careful not to expel the IUD out the end of the inserter.
 - d. Grasp the tenaculum and provide countertraction while inserting the device into the uterine cavity until the flange is about 1.5 cm from the external cervical os (Fig. 5).
 - e. Push the plunger farther into the inserter, up to the black mark, to release the arms of the IUD.
 - f. Gently advance the whole device to the fundus; the flange should move closer to the external os.
 - g. Holding the plunger steady, pull the inserter back until it touches the ring on the plunger to release the IUD from the insertion tube (Fig. 6).
 - h. Pull out the plunger.
 - i. Gently remove the insertion tube.
 - j. Cut the strings 2–3 cm from the cervix.
 - k. Carefully remove the tenaculum and the speculum.
10. For the Mona Lisa 10:¹¹
- a. Slide the flange to the distance sounded.
 - b. Ensure the strings are hanging straight out the bottom of the device and gently insert the plunger, pushing the IUD up into the insertion tube until the ends of the arms project just past the end of the tube, giving a rounded end.
 - c. Grasp the tenaculum to provide countertraction while inserting the device into the uterine cavity until the flange is flush with the external os.
 - d. Holding the plunger steady, pull the insertion tube back to the base of the plunger, to expel the IUD into the uterus.
 - e. Remove the plunger, keeping the insertion tube steady.
 - f. Gently remove the insertion tube.
 - g. Cut the strings 2–3 cm from the cervix.
 - h. Carefully remove the tenaculum and the speculum.

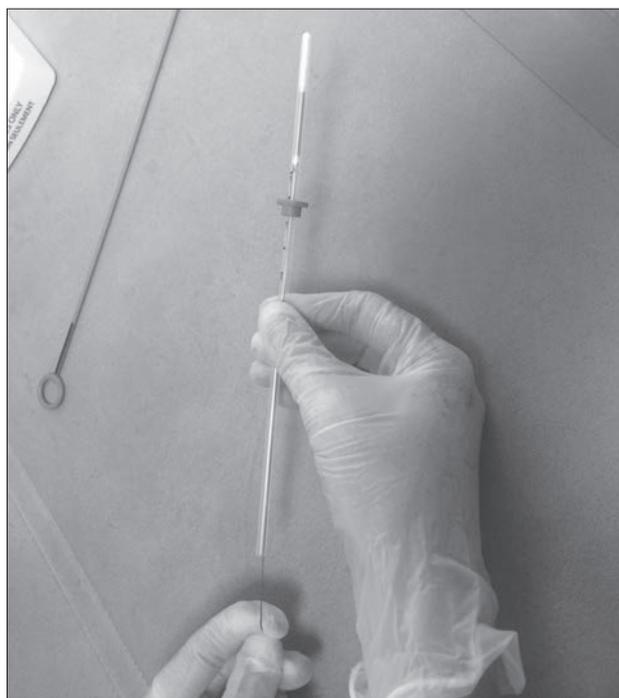


Fig. 4. Load the intrauterine device by pulling the strings while holding the inserter tube. You will see the arms of the device tucked into the inserter and the flange set to the appropriate uterine depth.

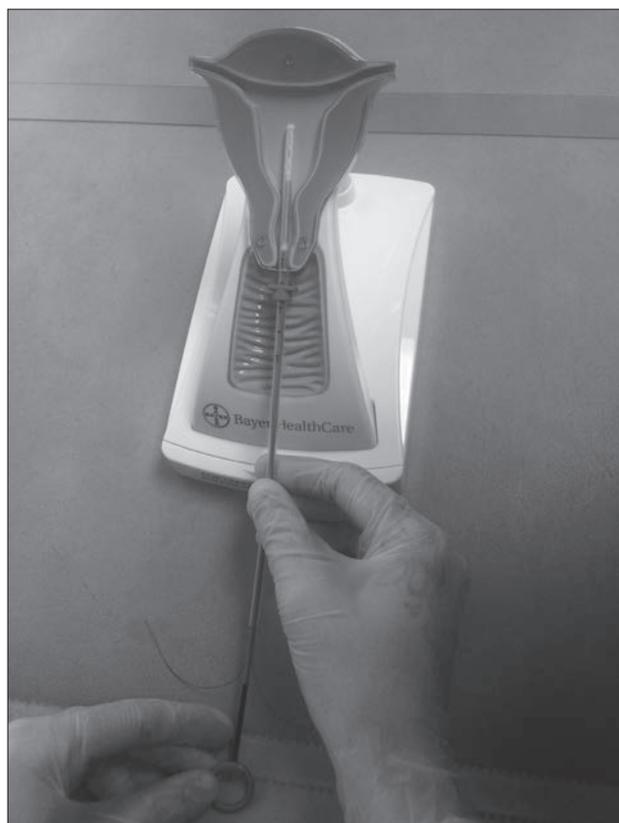


Fig. 5. Insert the intrauterine device (IUD) inserter into the uterus. You can see in this step, the flange is not quite flush with the surface of the cervix; the plunger is advanced into the tube to release the IUD and the entire device is advanced to the fundus. Pull back the tube until it touches the ring and remove the plunger and then the insertion tube.

OTHER CONSIDERATIONS

Insertion of an IUD can cause pain, particularly if cervical dilation is required. Predictors for increased pain include nulliparity, history of dysmenorrhea, and increased time since last pregnancy or last menses.^{6,13,17} Many providers have used nonsteroidal antiinflammatory drugs pre- and postprocedure, although there is little evidence to support the effectiveness of this practice. Paracervical blocks are used by many gynecologists during insertion, but again studies are lacking. The best evidence comes from communication of the steps of the procedure and reassurance to decrease anxiety.

Difficult insertions can also be encountered with tight cervical canals. These are more common in nulliparous women and adolescents. Some providers have attempted to circumvent this by prescribing misoprostol before insertion to ripen the cervix. Again, few studies have been completed; however, one study using 400 µg sublingual misoprostol before insertion improved ease of insertion and did not increase expulsion rates after 1 month.⁶ Further studies are needed before this becomes routine practice. Using a tapered os finder before uterine sounding may also help.

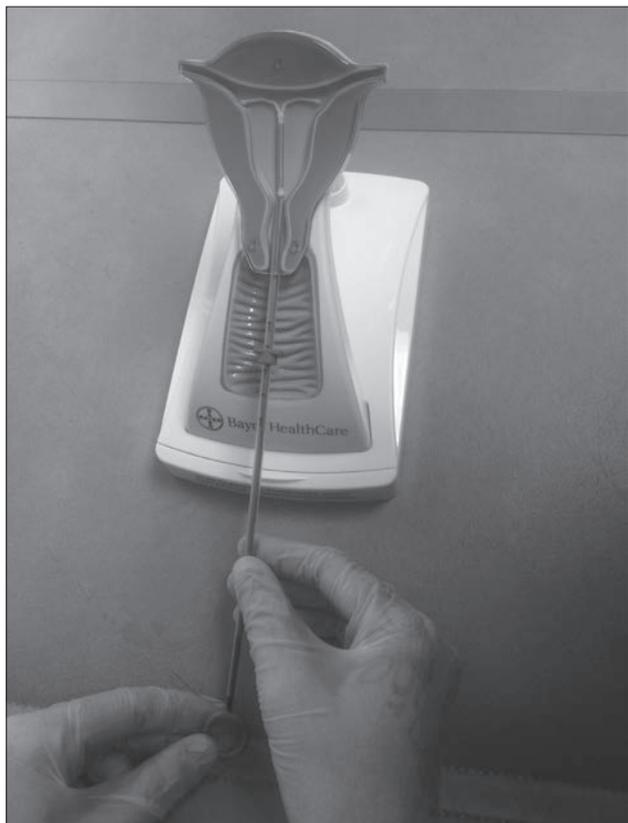


Fig. 6. Intrauterine device in situ with strings exiting the cervix. These are trimmed to the appropriate length.

Amenorrhea can occur with LNG-IUS. Women should be counselled that this is a normal occurrence and should also have a pregnancy test completed at first onset of amenorrhea to rule out pregnancy.

Testing for STIs does not need to be completed before IUD insertion. If you elect to screen for STIs, swabs may be done just before insertion at the same visit. If the results are positive, the patient can receive antibiotics with the IUD left in place.^{1,9} However, in women who have a known STI, the insertion should be delayed until 3 months after treatment. In the event of PID, the patient should be given appropriate antibiotics; in mild to moderate cases, the IUD may be left in place unless there is no improvement after 72 hours of treatment.^{9,18}

CONCLUSION

Intrauterine devices and systems are underused methods of contraception and menstrual cycle control. Misinformation about IUDs and lack of provider confidence in counselling about these devices have limited their use. Rural physicians can become more comfortable with counselling about, and insertion of, these devices to help decreased barriers to access.

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reviewed.*

It was in. Eight attempts. Three methods. Two Google searches. One YouTube clip. The shoulder was back in. Scars from prior surgery were smooth again. I was more surprised than the patient.

Just over a year has passed since I began my rural practice as a roving locum in Saskatchewan. Fate has dropped me back into the same community where I first practised and where I had the first on-call weekend of my fledgling medical career. Things were different then. There was more fear. I recall planning to work the Friday night on-call so that I could have the Saturday and Sunday off to quickly review all of the things that I might need to know over the next week in clinic. The thought of it, reviewing all of family and emergency medicine in one weekend so I wouldn't be caught out as the new, young, incompetent physician.

As luck would have it, the physician who was supposed to cover the weekend became my patient that night. An acute abdomen and more morphine than I had ever ordered before. A phone consult to a surgeon about someone who would have been my attending only a week before, who was now my patient. No one to call for help. No safety net. This was not going well, nor to plan.

Looking back now, things went okay. I reticently answered the call from the medical manager, knowing the question I was about to be asked. "Can you cover the weekend now as well?"

I covered it. I didn't get to study, and somehow everyone survived. If there is a testament to the resiliency of the human being and the human spirit it is that it takes a lot more than a green physician to kill you. Things could only get better.

Travelling from one small solo-physician town to the next, I slowly gained an appreciation for the variety of medicine that would walk through my door. Pityriasis rosea, systolic hypertension, osteoarthritis, insurance forms and then a massive epistaxis to put a bloody end to the day — the variety astonishes. If you let your guard down for a moment, you will miss that zebra in the stampede of horses that fill your mornings and extend your afternoons.

The self-directed learning and direct learning in residency and medical school was nothing compared to the pressure of knowing everything. I tried so hard at the start. Multiple medical references on multiple devices, moments stolen away to read and regurgitate knowledge to patients. Then slowly, imperceptibly, I realized it was okay to say those horrible words — "I don't know."

Even slower was the realization that patients would respect you for reaching the end of your knowledge base. I describe mine as large but shallow; if you are swimming and diving in the deep end, I'll need a specialist to make sure you don't drown. I need to look up certain things less often now; I am able to be confident about a subconjunctival hemorrhage. I can sleep at night knowing that I haven't overstepped the edges of my knowledge puddle. If I can't sleep at night, then I know something is wrong.

Not everything goes well in your first year of rural practice. Patients die; your patients. There is an artificial separation during medical school and residency. Things are different when your name is in the blank space next to "Attending

physician.” I remember my first death, and then I remember most of those that followed. Death in rural areas seems more natural to me now. If you talk to a farmer near the end of his days, he knows what is coming. There are no drastic measures; there is a peace and acceptance. There are no restrictions on visiting hours. The community comes to say goodbye. To speak of the good harvests, the bad years, and the many bonds that brought them together, from the credit union to the Chinese takeaway.

I made a wheat field in a farmer’s room once. I don’t think the public or hospital health staff would have approved, nor would anyone in the hospital with allergies. Metastatic prostate cancer, bones as fragile as early-spring puddle ice. He yearned to see the fields, one more time. To see how the seeds had done with the weather that he could only sense through the separating glass. A final insult: there was no field to see from his window, only trees.

It started small. One day on the drive to work, I stopped at the side of the road and cut a small handful of crop. I didn’t know what it was. Wheat? Barley? When I walked into his room his face lit up. His aged and knowledgeable hands broke the kernels up. He rolled them in his hands and then asked which field it was from. “Oh, I know him. He’ll be happy with this.” Later, I stole a bit more field. A handful of this and a handful of that from the roadside, I thieved my way to the hospital. I don’t know whether he smiled as I left, but he was happy again.

The humerus popped back in. There was no telltale “thunk”; it happened quietly, imperceptibly.

When I think of that shoulder out of place, I think of my first year of rural practice. I began with all the scars of past experience and a feeling that I was out of place, out of my depth. Prior life experiences had made their emotional and physical marks on who I was as I stepped in to practise rural medicine. Was I ready? Was it going to be painful? Why am I here?

Some more sedation of the patient would have been helpful, I am sure. As the first attempts failed, and I caused my patient pain, I realized that many of my first attempts had failed and caused me mental pain. I recalled making frantic phone calls back to the hospital as I drove home. An afterthought that became a worrisome concern. In most cases, it was okay; people are resilient.

I had to go back and learn. Not only medical knowledge but the hidden curriculum of politics and personalities that can not only make a hospital run smoothly but also make it stop in its tracks. I tried different methods of doing the same things; some worked and some didn’t.

But then with patience, time and practice things slowly fell into place. It’s never perfect after it’s reduced — there are imperceptible scars, a greater risk that it will happen again — but it works.

I guess in the end it doesn’t matter what the scars look like on the inside or the outside, just that it works.

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Point-of-care ultrasonography training for rural family medicine residents — its time has arrived

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CASE PRESENTATION

A 53-year-old man presented to our rural emergency department with a 2-day history of progressive, intermittent pain in his right upper quadrant that radiated to his back. This pain was sharp, rated 7/10 on a pain scale and had woken the patient from sleep. There was no nausea, vomiting, diarrhea or change in symptoms with eating. His medical history was remarkable only for a cholecystectomy 6 years earlier. He had quit smoking but had a 40-pack-years history. He consumed 26 oz of alcohol per month. His family history was noncontributory. On physical examination, he had an average build and was in no acute distress. Vital signs were stable except for an initial blood pressure reading of 175/103 mm Hg that decreased to 139/88 mm Hg without treatment. His epigastrium and right upper quadrant were tender to palpation, and there were no signs of acute abdominal pulsation. The pain worsened with flexion and extension of the patient's lumbar spine. Distal pulses were equal and present bilaterally. The physical examination was otherwise unremarkable.

Blood tests revealed a normal complete blood count, and normal amylase, creatinine and liver enzyme levels. Urinalysis and electrocardiography were noncontributory. The patient's pain settled with a single intramuscular dose of ketorolac. Before discharge, the patient was asked if point-of-care ultrasonography could be performed for training purposes by the principal author (T.M.), who was a first-year family medicine resident at the time and had recently completed training in point-of-care ultraso-

nography at Memorial University. The scan revealed a 5.1-cm abdominal aortic aneurysm (AAA) (Fig. 1). Sue¹ provides a detailed explanation on how to perform ultrasonography for suspected AAA.

Emergent computed tomography with contrast confirmed a 5.1-cm AAA; the provisional report suggested either a contained leak or impending rupture (Fig. 2). A vascular surgeon was consulted by telephone, and the patient was airlifted to a tertiary referral centre in St. John's, NL, for further assessment.

MEMORIAL UNIVERSITY'S POINT-OF-CARE ULTRASONOGRAPHY COURSE

In October 2014, Memorial University's Faculty of Medicine formally integrated point-of-care ultrasonography training into its rural family medicine training program. To the authors' knowledge, this distributed training program is the first of its kind in Canada. Training consisted of online lectures introducing basic skills and concepts, followed by 1.5 days of competency development. Specific skills included focused assessment with sonography for trauma (FAST), early pregnancy assessment, detection of AAA and limited cardiac echocardiography. Competency standards were defined as per the Canadian Emergency Ultrasound Society Independent Practitioner (CEUS IP) guidelines, requiring 50 supervised and determinate scans in each area, followed by written, visual and practical examinations.²

At the end of the course, family medicine residents had completed on average 10 to 15 supervised scans before

moving to their rural placements to work on their competency training. A total of 7 rural sites in Newfoundland and Labrador (Clarenville, Gander, Grand Falls–Windsor, Twillingate, Corner Brook, Channel–Port aux Basques and Happy Valley–Goose Bay) have been identified as training sites for competency development, with CEUS IP–certified physicians working in the rural emergency department. Additional efforts are currently underway to enhance these centres and bring additional rural training sites onboard.

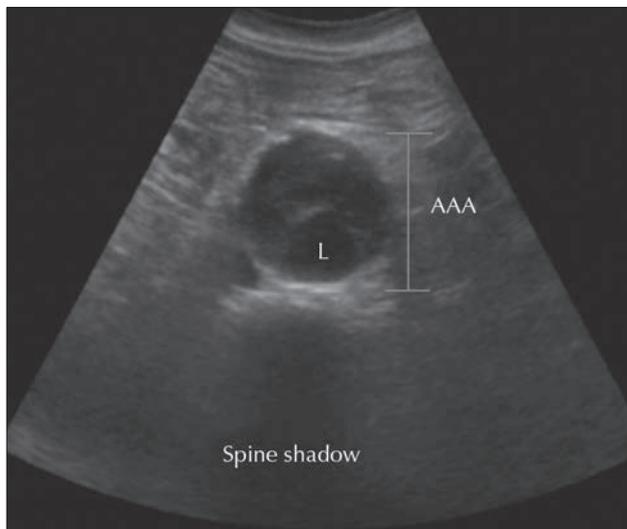


Fig. 1. Ultrasonography image showing the lumen of the abdominal aorta (L) and extent of the abdominal aortic aneurysm (AAA). The spine shadow is the key landmark and represents an artifact produced by the vertebral body.

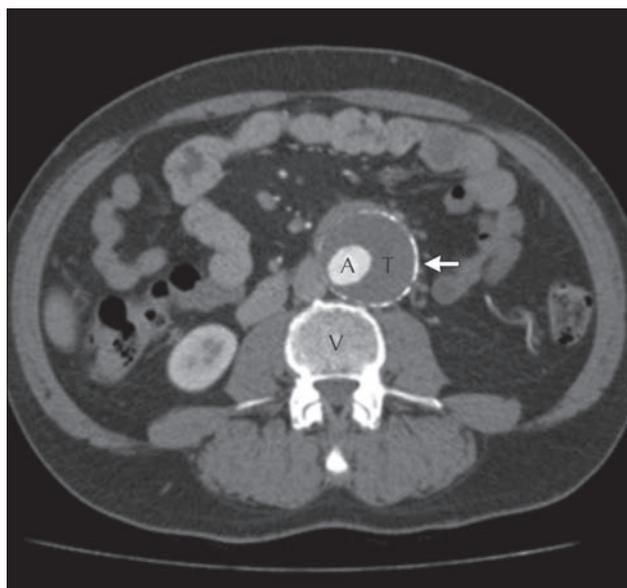


Fig. 2. Transverse view of the abdominal computed tomography scan with contrast showing a 5.1-cm abdominal aortic aneurysm with calcification of the aneurysmal wall (arrow). A circumferential thrombus has formed (T) within the aneurysmal sac adjacent to the abdominal aorta (A). A vertebral body can also be seen (V).

RESIDENT REFLECTION

This experience has had an immeasurable impact on my medical practice (T.M). I was able to diagnose this man’s potentially life-threatening condition with a bedside examination that took less than a minute to perform. His undiagnosed AAA could have ruptured at any time. This single encounter validated why I received this training and illustrated the potential impact it could have on my clinical decision-making. Since then, I have achieved my CEUS IP certification, completing the 200 required scans in a span of 3 months while on my emergency medicine and obstetrics–gynecology rotations. During my emergency medicine rotation, I was able to apply my ultrasonography skills to patients presenting with trauma, abdominal pain and first-trimester vaginal bleeding. While on my obstetrics–gynecology rotation, I have been able to confirm intrauterine pregnancies in newly pregnant women who had been referred to our service via consultation. Using this technology has helped to solidify my theoretical textbook knowledge with practical, real-time patient anatomy and pathology.

I will definitely be using point-of-care ultrasonography in my future family practice to screen for AAAs, as the Canadian Society for Vascular Surgery advocates a single examination for all men older than 65 years of age and for women with multiple risk factors for vascular disease.³ I will continue to develop more advanced ultrasonography skills (e.g., detection of cholecystitis or pleural effusions) and apply these skills in the rural emergency department, where obtaining more advanced imaging can be difficult. Had I not received Memorial University’s point-of-care ultrasonography training, I would never have acquired the skills and confidence to use this technology so early in my residency training. In the future, I intend to be a rural instructor in point-of-care ultrasonography and use my skills to teach the next generation of medical students and residents. I strongly encourage other rural family medicine residency programs to offer this training to their residents, so that they may experience the same benefits that I have.

Competing interests: None declared.

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