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Position statement: Research and reconciliation with Indigenous People in rural health journals

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It is time to plant a flag in the White soil of academic journal publishing and declare, “This discourse includes the cultural voices of Indigenous People”. We acknowledge the importance of the individual language and naming conventions of different Indigenous Nations. This statement has used the term Indigenous People as defined by the United Nations. However, we respect the right of nations to determine, define and name their cultural identity as and when they choose. Indigenous People are almost invisible as academic authors in rural health journals. Occasionally, that indigeneity may be deduced through the institutional or organisational affiliation statements, or in the acknowledgements or in the text of articles. Too frequently, it is not discernable in any way. In essence, indigenous cultural identity is suppressed by the conventions of academic publishing. This sees author and subject credibility resting on Western views of provenance, including institutional affiliation, college membership, educational qualifications and disciplinary

background. This research colonialism reflects a power imbalance that must end.

We, as a consortium of three rural health journals (*Canadian Journal of Rural Medicine* [CJRM], *Australian Journal of Rural Health* (AJRH) and *Rural and Remote Health* (RRH)), believe that cultural heritage and cultural provenance are as important, if not more important, than Western views of provenance, regarding any research involving Indigenous People. We commit to developing a textual flag to signal to readers that the author is Indigenous, as denoted in our author list for this statement. Furthermore, our companion policy paper (to be published in the winter edition of the *CJRM* simultaneously with the *AJRH* and *RRH*) lists additional considerations that, if implemented, would mean truly inclusive authorship, i.e., by, for and with Indigenous People. This signals that we are beginning a journey of truth-telling and reconciliation with Indigenous People, a journey that does not merely begin with respecting Indigenous cultural identity. It also flags a movement

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towards an academic treaty where our wonderful kaleidoscope of knowledge radiates through all aspects of academic publishing.

We have come together to declare our intention to publish ‘nothing about Indigenous People, without Indigenous People’. How this is specifically articulated in practice will vary by journal and Nation; however, in essence, we will reject submitted papers that concern Indigenous communities but do not acknowledge an Indigenous author or provide evidence of a participatory process of Indigenous community engagement.

While there may be a risk that this will reduce the already small volume of research

about Indigenous communities, it will increase the quantity and quality of research done with Indigenous communities and the relevance of those research contributions. Papers that do not meet our central criteria can be published elsewhere, or, frankly, not at all. We believe that this approach is morally, ethically, culturally and scientifically correct, and we will promote and support Indigenous authors and promote rural research units to work respectfully with Indigenous communities. As a consortium, we choose to make our publications flagships for Indigenous cultural voices in rural health, and we look forward to increasing the range, variety and volume of the voices of Indigenous People in our field.

Énoncé de position: Recherche et réconciliation avec les peuples autochtones dans les revues de médecine rurale

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Il est temps de planter un drapeau dans la terre blanche des publications scientifiques et de déclarer: “Ce discours inclut les valeurs culturelles des peuples autochtones”. Nous reconnaissons l’importance des langues individuelles et des conventions de nomenclature des différentes nations autochtones. Cet énoncé a utilisé le terme de peuples autochtones, comme défini par les Nations Unies. Nous respectons toutefois le droit des nations de déterminer, de définir et de nommer leur propre identité comme et quand elles le souhaitent. Les peuples autochtones sont presque invisibles à titre d’auteurs scientifiques dans les revues de médecine rurale. Occasionnellement, l’autochtonie est déduite dans les énoncés d’affiliation avec un établissement ou une organisation, ou dans les remerciements ou encore dans le texte de l’article. Mais trop souvent, il est impossible de la discerner. En fait, l’identité culturelle autochtone suffoque sous les conventions de publication scientifique, où la crédibilité de l’auteur et du sujet repose sur la vision occidentale de la provenance, y compris l’affiliation avec un établissement, l’adhésion à un collège ou un ordre, les qualifications éducatives et le parcours dans la discipline en question. Ce colonialisme de la recherche est le

reflet d’un déséquilibre de pouvoir qui s’arrête ici.

Le présent consortium de trois revues de médecine rurale, *Journal canadien de la médecine rurale* (CJRM), *Australian Journal of Rural Health* (AJRH) et *Rural and Remote Health* (RRH), est d’avis que l’héritage culturel et la provenance culturelle sont aussi importants, sinon plus, que la vision occidentale de la provenance, en ce qui a trait à la recherche sur les peuples autochtones. Nous nous engageons à créer un marqueur textuel pour indiquer aux lecteurs que l’auteur est autochtone, comme le dénote notre liste d’auteurs du présent énoncé. En outre, notre énoncé de politique d’accompagnement (qui sera publié dans le numéro d’hiver du CJRM simultanément avec AJRH et RRH) énumère d’autres éléments dont il faut tenir compte qui, s’ils sont appliqués, indiqueraient la paternité réellement inclusive de l’article, c.-à-d. par, pour et avec les peuples autochtones. C’est le début d’un parcours de vérité et de réconciliation avec les peuples autochtones, un parcours qui ne commence pas simplement par respecter l’identité culturelle autochtone. Il marque aussi un mouvement vers un traité scientifique où les reflets de notre merveilleux kaléidoscope de connaissance éclaboussent toutes les facettes des publications scientifiques.

Nous nous sommes entendus pour déclarer notre intention de ne “rien publier sur les peuples autochtones sans les peuples autochtones” dont cela sera articulé en pratique variera en fonction de la revue et de la nation, mais essentiellement, nous allons rejeter tous les articles qui concernent les communautés autochtones qui sont soumis sans reconnaître un auteur autochtone ou sans preuve d’un processus participatif d’engagement communautaire autochtone.

Bien que cette mesure risque de réduire le volume déjà faible de recherches sur les communautés autochtones, elle augmentera la quantité et la qualité de la recherche réalisée en collaboration avec les communautés autochtones,

et la pertinence de ces contributions à la recherche. Les articles qui ne répondent pas à nos critères centraux peuvent bien être publiés ailleurs ou, en toute franchise, pas du tout. Nous croyons que cette approche est correcte sur les plans moral, éthique, culturel et scientifique, et nous encouragerons et appuierons les auteurs autochtones et encouragerons les unités de recherche rurale à travailler respectueusement avec les communautés autochtones. À titre de consortium, nous choisissons de faire de nos publications le fleuron des valeurs culturelles autochtones en santé rurale, et nous avons bien hâte d’étendre la portée, et d’augmenter la variété et le volume des valeurs des peuples autochtones dans notre domaine.

COUNTRY CARADIOGRAMS: SUBMIT A CASE!

Have you encountered a challenging ECG lately?
In most issues of the CJRM, we present an ECG and pose a few questions. On another page, we discuss the case and provide answers to the questions.

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
or email to manedcjrm@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)

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President's Message. Rural Patient Transfer

Early in my career, I remember sitting in a remote northern emergency room in the early hours of the morning with a hypotensive, bradycardic patient. I worked to stabilise him, then called Cardiology in the referral centre located 2 h by air to the south. The cardiologist asked, "How do you know this is a cardiac problem?" Frustrated but undeterred, I spent the hours that followed racing to find an accepting physician and arrange a medevac. As a sole physician in the hospital, I should have been providing patient care.

What seemed like an isolated experience at the time, I now see clearly as a widespread problem: many of the medical transport systems in this country are broken. Agreements and policy between sending and accepting sites are lacking, transport programmes are frequently under-resourced and inter-jurisdictional transfers can be impossible to navigate.

The burdens of these inadequacies are borne first not only by patients and communities but also by providers and health systems. Existing infrastructure often leaves patients waiting in underserved areas for too long and causes stress for patients, families, and transferring physicians¹ and may lead to increased mortality.²

However, there are things we can do. In April 2021, the Rural Road Map Implementation Committee (RRMIC) released their

recommendations for improving patient transfer.³ These included the following calls to action:

1. Adopt formal patient transfer agreements
2. Implement no-refusal policies
3. Create supportive intra- and inter-jurisdictional infrastructures
4. Leverage the use of virtual care technologies to support more care close to home
5. Use data to evaluate, improve and reduce the need for patient transfers and enable on-going end-to-end planning.

The Society of Rural Physicians of Canada is pushing these recommendations forward through research, advocacy and collaboration with our RRMIC partners. I encourage each of you to find ways to be part of this collective effort in your respective corner of the country and to help realise these calls to action.

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Message du président. Transferts de patients en milieu rural

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Au début de ma carrière, je me rappelle avoir été dans un service d'urgence d'une région du Nord aux petites heures du matin avec un patient hypotendu et bradycardique. Je l'ai stabilisé, puis j'ai appelé le service de cardiologie du centre d'aiguillage situé au sud à 2 heures d'avion. Le cardiologue m'a demandé "Qu'est-ce qui vous dit qu'il s'agit d'un problème cardiaque?" Frustré, mais non découragé, j'ai passé les heures suivantes à courir pour trouver un médecin qui accepterait mon patient et organiser un transfert par ambulance aérienne. En tant que seul médecin dans l'hôpital, j'aurais dû passer mon temps à soigner les patients.

Ce qui semblait être une expérience isolée à ce moment-là est maintenant clairement un problème généralisé: de nombreux systèmes de transport médical du pays ne fonctionnent pas. Il n'y a pas d'entente ni de politique entre les centres qui envoient les patients et ceux qui les reçoivent, les programmes de transports sont souvent sous-financés et les transferts entre provinces et territoires sont impossibles à organiser.

Le fardeau de ces inaptitudes est d'abord porté par les patients et les communautés, mais aussi par les médecins et les systèmes de santé. L'infrastructure en place laisse souvent les patients attendre trop longtemps dans des régions mal desservies, ce qui stresse les patients, les familles et les médecins ayant demandé le transfert¹, et pourrait augmenter la mortalité².

Mais nous pouvons faire certaines choses. En avril 2021, le comité du Plan d'action pour la médecine rurale a publié ses recommandations visant à

améliorer les transferts des patients³. Ces recommandations étaient notamment:

1. Rédiger des ententes formelles de transfert des patients
2. Mettre en œuvre des politiques d'interdiction des refus
3. Créer des infrastructures qui favoriseraient les transferts à l'intérieur des provinces et territoires, et entre eux
4. Utiliser les technologies de soins virtuels pour favoriser les soins proches du domicile
5. Utiliser les données pour évaluer, améliorer et réduire le besoin de transférer les patients et pour permettre la planification du début à la fin.

La SMRC fait progresser ces recommandations par l'entremise de la recherche, de la prise de position et de la collaboration avec nos partenaires du comité du Plan d'action pour la médecine rurale. J'encourage chacun de vous à trouver des façons de contribuer à cet effort collectif dans votre coin de pays respectif afin de réaliser ces recommandations.

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Trauma experiences of rural practitioners: A self assessment

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Abstract

Introduction: The purpose of this study was to identify, through self-assessment, how comfortable rural emergency medicine (EM) physicians are in treating critically ill trauma patients, the resources available to treat such patients and their comfort with performing trauma procedures.

Methods: An anonymous self-assessment survey was e-mailed to family physicians practising rural EM in Saskatchewan regarding training, hospital resources, demographics and self-reported comfort with rural trauma management. We included physicians who had provided EM care within the past year in Saskatchewan outside of the major trauma centres. Comfort was measured on a Likert scale.

Results: One hundred thirteen physicians out of a total of 479 physicians contacted agreed to participate (23.6%). Thirty-nine percent ($n = 31$) of respondents were comfortable with paediatric trauma, and 46% ($n = 37$) were comfortable with vascular trauma. Nineteen percent ($n = 15$) were comfortable with pericardiocentesis and 25% ($n = 19$) were comfortable with cricothyroidotomy. In the past 12 months, 21% ($n = 17$) had performed paediatric endotracheal intubation, 1.3% ($n = 1$) had performed cricothyroidotomy, 28.8% ($n = 23$) had performed needle thoracocentesis and 20% ($n = 16$) had performed central venous line access. Those who did their residency training outside of Canada were more comfortable with overall trauma care. Those who had taken emergency department echo were generally more comfortable with trauma procedures. Those who had current advanced trauma life support were more comfortable with less frequently encountered aspects of trauma care.

Conclusions: This self-assessment helped us identify which aspects of rural trauma medicine are the most challenging for rural practitioners. It gave us an understanding of the procedures related to trauma medicine that are the most difficult, which critical resources are available and where training could be focused to benefit rural emergency physicians.

Keywords: Rural, self-assessment, trauma

Résumé

Introduction: Cette étude avait pour but d'identifier, par l'entremise d'une auto-évaluation, l'aisance des urgentologues en milieu rural à traiter les patients polytraumatisés en état critique, les ressources disponibles pour traiter ces patients et l'aisance avec laquelle ils exécutent les interventions de traumatologie.

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Méthodes: Un questionnaire d'auto-évaluation anonyme a été envoyé par courriel aux médecins de famille qui pratiquent dans les services d'urgence ruraux de la Saskatchewan; le questionnaire portait sur la formation, les ressources hospitalières, les paramètres démographiques et l'aisance rapportée par les répondants quant à la prise en charge des traumatismes en milieu rural. Nous avons inclus les médecins qui avaient dispensé dans l'année écoulée des soins d'urgence à l'extérieur des grands centres de traumatologie en Saskatchewan. L'aisance était mesurée sur une échelle Likert.

Résultats: Sur un total de 479 médecins contactés, 113 ont consenti à participer (23.6%). Trente-neuf pour cent ($n = 31$) des répondants étaient à l'aise avec les traumatismes pédiatriques et 46% ($n = 37$) avec les traumatismes vasculaires. Dix-neuf pour cent ($n = 15$) étaient à l'aise avec la ponction péricardique et 25% ($n = 19$) avec la cricothyroïdectomie. Dans les 12 mois écoulés, 21% ($n = 17$) avaient exécuté une intubation endotrachéale pédiatrique, 1.3% ($n = 1$) une cricothyroïdectomie, 28,8% ($n = 23$) une thoracotomie à l'aiguille et 20% ($n = 16$) un accès veineux central. Les médecins qui avaient reçu leur formation en résidence à l'extérieur du Canada étaient plus à l'aise avec les soins de traumatologie en général. Les médecins qui avaient suivi le cours d'échographie du département d'urgence étaient en général plus à l'aise avec les interventions de traumatologie. Les médecins qui avaient une certification advanced trauma life support étaient plus à l'aise avec les aspects moins fréquents des soins de traumatologie.

Conclusions: Cette auto-évaluation nous a aidés à déterminer quels aspects de la médecine de traumatologie rurale sont les plus problématiques pour les praticiens en milieu rural. Elle nous a permis de comprendre quelles sont les interventions de traumatologie qui sont les plus difficiles, quelles ressources essentielles sont disponibles et sur quels aspects la formation doit se concentrer pour profiter aux urgentologues en milieu rural.

Mots-clés: prise en charge des traumatismes en milieu rural, médecine de traumatologie rurale, Trauma, rural, médecine d'urgence

INTRODUCTION

Trauma is the leading cause of death globally during the first 40 years of life.¹ It is also the number one cause of mortality in the paediatric population, with an increase in mortality in rural compared with urban environments.² According to the Canada Health Act, provinces are required to provide equal and universal access to health services for all their citizens. This presents a challenge in trauma, where care must be delivered effectively and expeditiously.³ Rural trauma care can be complicated by geography, weather, distances, lack of resources or lack of expertise.⁴

A disproportionate amount of emergency care is delivered in rural centres, making it difficult to assure the availability of emergency medical expertise.⁵ In Canada, almost one-quarter of the population lives over an hour's drive from a major trauma centre.^{6,7} Rural citizens live with significantly more risk than their urban counterparts.⁴ There is a higher mortality rate for trauma patients pre-hospital and in emergency department (ED) in rural hospitals compared to major urban centres.⁶

Rural inhabitants have twice the rate of trauma-related deaths compared to urban

inhabitants, and the relative risk of dying from a motor vehicle collision in a rural community compared to an urban centre is 15:1.^{4,8} Rural environments often have small hospitals with few resources for the evaluation and management of a trauma patient, and ED providers may also have limited trauma experience.⁹ A clear divide exists among urban and rural communities that all provinces must narrow.^{7,10,11}

Despite lack of consensus with regard to its validity, the 'golden hour' is recognised as the time in which patients should receive emergency medical care in trauma to minimise the risk of serious health outcomes and death.^{3,7,8,12-14} Lack of resources in rural areas means an increased rate of transfers to major urban centres to receive this care.⁶ In some rural and remote communities, there are no trained ED providers, meaning the longer the distance from a major urban centre, the lower the level of training and the greater need for transfer.^{5,10,11}

In one study, inappropriate care was given to 60% of trauma victims who reached a rural ED, with errors in airway management, managing chest trauma, inadequate fluid resuscitation and lack of early operative interventions being among the most common.¹² Rural EDs have limited access to medical consultants, surgeons and

intensivists.⁵ As well, rural hospitals have limited access to computed tomography (CT) scanners and diagnostics; in the province of Saskatchewan, there are 15 CT scanners servicing the whole population.^{8,15} Potential gaps in skills for treating paediatric, orthopaedic, vascular, blunt chest and abdominal trauma are related to the infrequency with which rural providers are confronted by these problems.⁹ Lower patient volumes, lower rates of procedures and infrequent exposure to critically ill patients may also present difficulties for rural physicians in maintaining skills and knowledge.⁵ Many ED providers in rural environments may see fewer than 5 patients per year with severe trauma.⁴ In some hospitals, advanced trauma life support (ATLS) is not a requirement for working in their EDs.¹⁶ Many ED providers have difficulty getting timely access to specialists in trauma centres for assistance, due to deficiencies in provincial trauma system development and communication.¹⁷

In a report released by the College of Physicians and Surgeons of Ontario in 2018, the adequacy of emergency medicine (EM) in smaller centres and rural communities in Canada was called into question. The report suggested guidelines mandating that rural family physicians practising EM without additional certification should undergo additional training and supervision.¹⁸ A response by the College of Family Physicians argued that these new guidelines would lead to fewer family physicians working in rural and already underserved communities and expose rural communities to reduced access to much-needed services; they argued that specific checklists of critical skills, supervised for a target number of experiences is unobtainable given the low volume of high-acuity cases and does not reflect competency.¹⁹

The purpose of this study is to identify through self-assessment how comfortable rural EM practitioners are in treating critically ill trauma patients, the resources they have available and their ability to perform trauma-related procedures. We hope that by answering some of these questions, we can identify areas of rural trauma medicine that can be enhanced in Saskatchewan.

METHODS

This was a cross-sectional online survey created by the Survey Monkey software. An e-mail was

sent to physicians practising family medicine in Saskatchewan. They were identified through the Saskatchewan Medical Association database of active family physicians. Our inclusion criteria were family physicians currently providing EM care, or who had provided EM care in the past year to rural communities within Saskatchewan. Rural was classically assumed to be a community size of <10,000 people as per Statistics Canada's definition.²⁰ However, for our study purposes, physicians were excluded if they worked in Saskatoon and Regina and/or if they practised full-time EM.

An e-mail was sent out with the link to the survey, titled 'Trauma experiences of rural emergency physicians: A self-assessment'. The survey started with a consent followed by 18 questions. The survey was an anonymous self-assessment asking questions related to demographics, training, hospital resources and self-reported comfort with specific trauma-related management. Data collection ran from 1st January 2019 to 31st March 2019. All data and responses were deidentified prior to analysis.

Analysis was done by the Clinical Research support Unit at the University of Saskatchewan. Descriptive statistics were provided to describe the respondents collectively. These included frequencies with proportions. Levels of comfort were dichotomised into comfortable or not comfortable from a 5-point Likert scale and then described as frequencies with proportions. Comfort levels were summarised as average values as rated on the 5-point Likert scale, with an average score for each participant calculated from across their responses within each domain of trauma, with an overall mean and median score calculated. Mean comfort levels for each domain were compared with subgroups within the potential predictors of catchment population, number of patients seen in the ED, age and place of training using the *t*-test or analysis of variance. Logistic regression was used for assessing the relationship between the number of times a specific procedure was performed and the dichotomised comfort level. Univariate analysis was used to identify relationships between basic study characteristics and continuous outcomes. This included analysing each type of trauma and procedure with demographics and training levels of the participants.

Ethics approval was obtained from the University of Saskatchewan Research Ethics Board.

RESULTS

One hundred thirteen physicians (23.6%) of 479 rural physicians contacted agreed to participate. Eighty participants met our inclusion criteria. Sixty-seven per cent were from communities with a population of <10,000 [Figure 1], with 70% reporting <300 emergency room visits per month at their hospital. Most participants were <45 years of age, 57% had completed undergraduate training outside of Canada and 63% had completed residency training within Canada. Most had been practising for more than 2 years [Figure 1]. The majority of participants had current ATLS credentials, however, only 37% had ever completed the emergency department echo (EDE) point-of-care ultrasound course [Figure 2].

Comfort was measured on a 5-point Likert scale that was then converted during analysis to a 2-point scale of comfortable or uncomfortable. When questioned about comfort

levels regarding specific types of trauma, only 39% of the respondents were comfortable with paediatric trauma, 46% were comfortable with vascular trauma, 56% were comfortable with spinal cord injuries and 60% were comfortable with genitourinary (GU) trauma [Figure 3]. With regard to trauma-related skills, only 19% of the physicians reported that they were comfortable with pericardiocentesis, and 25% were comfortable with surgical airway procedures [Figure 4]. With regard to skill maintenance, the majority had not performed paediatric endotracheal tube insertion (79%), surgical airways (99%), pericardiocentesis (99%), central venous line (CVL) placement (80%) and needle thoracentesis (71%) within the past 12 months [Figure 5].

Statistically significant relationships were not found between expected variables such as overall comfort with trauma or procedures and size of community, ATLS certification or years in practice [Figure 6].

DISCUSSION

We believe this is the first study of its kind done in the province of Saskatchewan, however, it is limited by the small sample size. Our results are consistent with the existing literature regarding rural trauma care. In terms of demographics, most of our participants were from a community with <10,000 people and with <300 visits per

Figure 1: Physician characteristics

	<i>n (%)</i>
Population of community	
<5000	35 (44)
5000-10,000	18 (23)
>10,000	27 (33)
Number of patients per month	
<100	19 (24)
100-300	37 (46)
>300	22 (28)
Age	
<35	24 (30)
35-44	30 (38)
45-65	23 (29)
>65	3 (4)
Number of years practising	
<2	20 (25)
2-5	22 (38)
>5	38 (48)
Location of undergrad training	
Canada	34 (43)
International	46 (57)
Location of residency training	
Canada	50 (63)
International	30 (37)

Figure 2: Practice setting variables

	<i>n (%)</i>
ATLS certification	
Current	47 (59)
Expired	22 (28)
Never taken	11 (14)
POCUS designation: EDE course	
Current	25 (31)
Expired	5 (6)
Never taken	50 (61)
Resources available	
Radiography	79 (99)
Point-of-care ultrasound	54 (68)
Packed red blood cells	62 (78)
Fresh Frozen Plasma	33 (41)
Platelets	21 (26)
Tranexamic acid	74 (93)

ATLS: Advanced trauma life support, EDE: Emergency department echo, POCUS: Point-of-care ultrasound

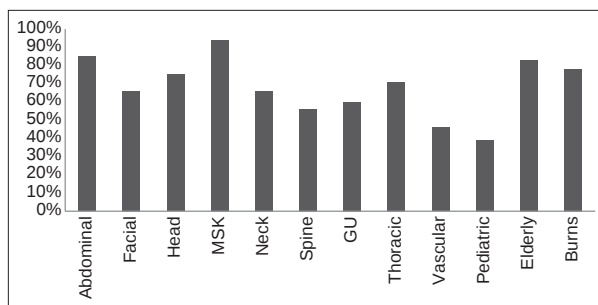


Figure 3: Comfort levels with different types of trauma. MSK= Musculoskeletal; GU=Genitourinary.

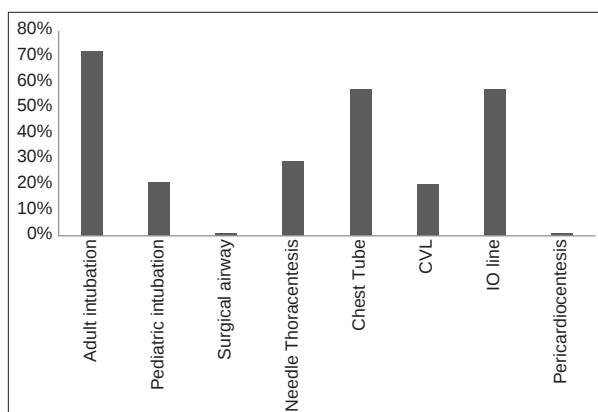


Figure 5: Percent who have performed the procedure in the past year. CVL = Central venous line; IO = Intraosseous.

month in their ED. This small volume of patients seen in rural and remote EDs could explain the lack of comfort with providing aspects of trauma care. However, because of the lack of additional resources, the need to maintain crucial live-saving procedural skills of ED personnel is even more essential in rural and remote areas.

Our results indicate that doing postgraduate training outside of Canada is associated with increased comfort with trauma management. This may be because of the variation in training programmes for Family Medicine in other countries, and possibly because most Canadian Family Medicine residency training programmes exist in urban centres that do not emphasise rural ED care. Most of the participants had ATLS certification. This could explain why most participants were comfortable with primary survey, secondary survey, transportation of patients and basic airway manoeuvres. Existing literature supports our findings that most participants were uncomfortable with vascular and paediatric trauma, and more than a third of participants were uncomfortable with facial, neck, spine and GU trauma because these types of

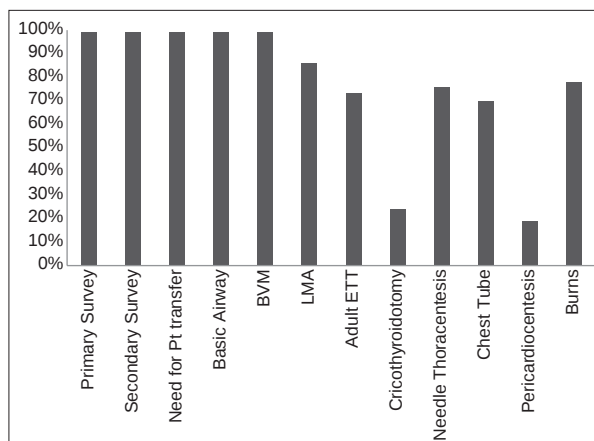


Figure 4: Comfort levels with trauma-related procedures. BVM=Bag valve mask; LMA= Laryngeal mask airways; ETT= Endotracheal Tube.

Figure 6: Physician training characteristics

	Frequency	95% CI
Overall comfort with trauma		
Residency in Canada	50	2.88-3.48
Residency outside of Canada	30	
Comfort with radiography		
<2 years practising	20	2.82-3.34
>2 years practising	60	
Comfort with procedures		
Current POCUS designation	47	3.14-3.73
No POCUS designation	33	
Current ATLS		
Comfortable with SCI	47	2.56-2.98
Uncomfortable with SCI	33	

ATLS: Advanced trauma life support, SCI: Spinal cord injuries, CI: Confidence interval POCUS: Point-of-care ultrasound

traumas are less common for rural practitioners. Not unsurprisingly, participants had not done less common procedures such as paediatric endotracheal intubation, needle decompression, chest tube placement or CVL placement in the past 12 months. Maintenance of these skills requires practice, which emphasises the importance of simulation.

Most participants did not have access to fresh frozen plasma (FFP) and platelets in their EDs, which can make it difficult to treat patients with massive haemorrhage. Cost effectiveness, special requirements for storage and lack of transfusion protocols may be the reason FFP and platelets are not available. Although a large proportion of participants did have access to point-of-care ultrasound in their EDs, fewer than half had formal training in using it. Ultrasound training for

the ED and trauma care are widely available and a potential solution for providing effective care in rural areas that do not have access to advanced diagnostic imaging.

Most participants were uncomfortable with surgical airways and pericardiocentesis; these procedures are rare even in larger centres. Almost all participants had not done a surgical airway or pericardiocentesis in the past 12 months. Although these rare, lifesaving procedures are part of the curriculum for courses like ATLS, Family Medicine residency programmes do not expect competency for the above. It would likely be beneficial to practise these procedures in organised trauma-related courses using simulation or cadavers.

Internationally trained rural ED providers were generally more comfortable with trauma, possibly related to increased exposure or a greater emphasis on trauma care during their training outside of Canada. Current point-of-care ultrasound certification was correlated with more comfort in trauma procedures, possibly related to increased comfort with the use of ultrasound and ultrasound-guided procedures. Spinal cord injury and traumatic brain injury may not be as commonly faced, and so maintaining ATLS certification would allow for more recent practice and exposure to these types of trauma. The more endotracheal intubations a practitioner placed, the less comfortable they were, although this is paradoxical; higher volume could increase the chances of facing complications in resource-limited centres which could lead to lower rates of comfort.

Many programmes exist currently for ultrasound certification, therefore encouraging current and new rural ED practitioners to pursue certification could be one way to improve trauma care in resource poor settings. In addition, creating and expanding existing programmes and courses to facilitate practice and retention for less common procedures could also improve rural trauma care. Perhaps enhancing competency-based training in trauma and ED care for Family Medicine residents who plan to work in rural communities could also help. Finally, increasing recruitment and retention for Canadian Family Medicine residents who have certification in added competency in EM could also be a potential solution.

Future research could be conducted to explore the impact of transport time on patient outcomes

in Saskatchewan. What resources are necessary in rural hospitals that provide trauma care? What is the mortality difference between urban and rural trauma patients in Saskatchewan? These questions could help expand the current knowledge regarding rural trauma care in Saskatchewan. Consideration could be given to the development of training programmes to supplement what is provided during residency training and in addition to courses such as ATLS and EDE.

CONCLUSIONS

Rural Saskatchewan ED providers were not comfortable with significant areas in trauma management. However, courses such as ATLS and EDE directly improved comfort with aspects of rural trauma care. Obstacles to rural trauma care included lack of resources, low volume and significant lack of exposure to trauma procedures. Our study also found that there was a difference in comfort with trauma care, depending on where postgraduate residency training was completed. This self-assessment helped us to identify which aspects of rural trauma care are the most challenging for practitioners, the procedures related to trauma care that were the most difficult and which critical resources were available to rural trauma ED providers.

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Retrospective application of the HEAR score on patients evacuated for chest pain: Assessing the utility of point-of-care troponin

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This article has been peer reviewed.

Introduction: The HEART scoring system codifies the clinical gestalt used by physicians with 0–2 points assigned to 5 criteria (history, electrocardiography, age, risk factors and troponin). This scoring provides a prognostic tool that assists in disposition planning. The use of a truncated HEART score, minus the troponin data (HEAR score), was used for patients presenting with chest pain at one of four outpost nursing stations served by La Ronge Health Centre in northern Saskatchewan. These nursing stations have no onsite physician and no ability to obtain any troponin data. This study set out to determine if there was any utility in conducting point-of-care (PoC) troponins in these nursing outposts.

Materials and Methods: A retrospective analysis was conducted using the La Ronge regional electronic medical record by searching for all patients for whom an outpost nurse had called a physician regarding chest pain symptoms between 01 January 2011 and 31 December 2016. The HEAR and HEART score were then calculated for each individual presentation of patients with chest pain that met inclusion and exclusion criteria.

Results: By calculating both the patient's HEART score before evacuation from the outposts and after (i.e. with the troponin data), we were able to determine that, in 89.4% of cases (110/123 events), patients would require evacuation regardless of the troponin values due to a HEART score ≥ 4 . In 10.6% (13/124 events) of cases, the patients who were evacuated had a HEART score ≤ 3 , and in only one case did the troponin data increase this score.

Conclusions: The majority of patients would continue to be evacuated regardless of the result of their PoC troponin due to an already elevated HEAR score. PoC troponin is unlikely to reduce the rate of evacuation of patients with chest pain from the nursing stations served by the La Ronge Health Centre.

Keywords: Heart disease, HEART score, rural medicine, troponin

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Résumé

Introduction: Le système de pointage HEART codifie la gestalt clinique utilisée par les médecins avec 0–2 points attribués à 5 critères (anamnèse, ECG, âge, facteurs de risque, troponine). Ce pointage est un outil pronostique qui aide à planifier les soins aux patients. Un score HEART tronqué, c'est-à-dire moins les données de troponine (score HEAR), a été utilisé chez les patients qui se présentaient pour douleur thoracique à 1 des 4 avant-postes de soins infirmiers servis par le centre *La Ronge Health Centre* au nord de la Saskatchewan. Il n'y a pas de médecin sur place à ces postes de soins infirmiers, et il est impossible d'obtenir des données sur la troponine. Cette étude voulait déterminer si le dosage ciblé de troponine est utile dans ces avant-postes de soins infirmiers.

Méthodes: Une analyse rétrospective a été réalisée à l'aide du dossier médical électronique de la région de La Ronge après une recherche de tous les patients pour lesquels un avant-poste de soins infirmiers avait appelé un médecin pour des symptômes de douleur thoracique entre le 1^{er} Janvier 2011 et le 31 Décembre 2016. Les scores HEAR et HEART ont alors été calculés pour chaque cas de douleur thoracique qui répondait aux critères d'inclusion et d'exclusion.

Résultats: En calculant le score HEART (c.-à-d. avec les données sur la troponine) avant et après l'évacuation du patient de l'avant-poste, nous avons pu déterminer que dans 89,4% des cas (110/123 événements), les patients devraient être évacués sans égard aux valeurs de troponine en raison d'un score HEART ≤ 3 et la troponine a augmenté ce score dans un seul cas.

Conclusions: La majorité des patients continueraient d'être évacués, peu importe les résultats de troponine ciblée en raison d'un score HEAR déjà élevé. La troponine ciblée ne réduirait probablement pas le taux d'évacuation des patients pour douleur thoracique des postes de soins infirmiers servis par le centre *La Ronge Health Centre*.

Mots-clés: Maladie cardiaque, médecine rurale, score HEART, troponine

INTRODUCTION

Cardiovascular disease is the second leading cause of death in Canada, and chest pain is a common chief complaint in patients presenting with acute coronary syndromes (ACS) such as ST-elevation myocardial infarction (STEMI) and non-STEMI (NSTEMI).¹ Given the potentially disastrous consequences of missing a major adverse cardiac event (MACE), resulting in death, STEMI, or NSTEMI in patients presenting to the emergency department with chest pain, almost half are admitted for further workup.² However, <15% of these patients are ultimately diagnosed with a life-threatening cardiac event, resulting in significant unnecessary costs to the healthcare system.^{3,4} The development of several risk-stratification tools allowing for early, safe discharge in patients presenting to the emergency department with chest pain has been the subject of significant research activity over the past 2 decades, potentially offering a method to reduce the costs associated with unnecessary investigations and long hospital stays for patients at low risk for MACE.⁵⁻⁷

The HEART score (history, electrocardiography [ECG], age, risk factors and troponin) codifies a physician's gestalt for a patient's risk of MACE

and identifies patients presenting with chest pain as low, moderate and high risk for MACE within 30 days of presentation; 0–2 points are assigned to 5 criteria, and patient disposition planning and further investigations can be guided by the HEART pathway.⁸⁻¹⁰

Importantly, up to 30% of patients presenting with chest pain are deemed low risk for MACE (HEART score <4, 1.7% risk of MACE within 30 days).^{8,10} This has important implications in rural sites, where access to specialist services and intensive care can be extremely costly.^{11,12}

In remote locations in Canada, patients are often serviced by nursing outposts with no onsite physician and no ability to obtain troponin data. This clinical dilemma suggests a potential role for the use of point-of-care (PoC) troponin testing to risk-stratify patients using a prehospital HEART score, potentially reducing the rate of costly evacuations. PoC troponin testing has emerged as a method for reducing test turnaround time, reducing emergency department length of stays and allowing for early identification of patients at high risk of MACE.¹³⁻²⁰ Although not yet formally

validated in the pre-hospital setting, the use of the HEART score and PoC troponin testing have been proposed as a possible method of risk-stratifying patients with chest pain even before arrival in the emergency department.^{18,19}

In northern Saskatchewan, where the population density is 0.1 person/km², the La Ronge Health Centre services four outpost nursing stations, ranging from 80 to 466 km away by road.²¹ These clinics have access to ECG but no laboratory services; when patients contact these nursing stations with chest pain, the attending nurse contacts a physician in La Ronge for further guidance, and the patient's risk for MACE must be stratified without the use of troponin. A pre-hospital risk stratification tool that safely rules out MACE in patients presenting to these nursing outposts could significantly reduce the costs associated with evacuating low-risk patients and transporting them to La Ronge. Our study sought to determine if there is any role for PoC troponin testing at nursing outposts serviced by our health centre, by truncating the HEART score (HEAR).

MATERIALS AND METHODS

Study design

A retrospective analysis was conducted using the La Ronge clinic's electronic medical records by searching for all patients for whom an outpost nurse had called a physician regarding symptoms of ACS between 01 January 2011 and 31 December 2016. All patients whose concern generated a phone consult to the La Ronge Health Centre and had a diagnosis of myocardial infarction, chest pain, other chronic ischemic heart disease, angina pectoris or if the diagnosis was left blank were included. Exclusion criteria included patients under 18-year-old, an obvious non-cardiac cause of chest pain (trauma, cancer and abscess), patients who were never evacuated and all charts lacking sufficient data to calculate a HEART score (history of presenting illness, ECG, age of patient, description of risk factors, or troponin result). The HEAR and HEART score were then calculated for each individual presentation of chest pain that met the inclusion and exclusion criteria. HEAR scores were calculated before evacuation, and HEART scores were calculated

using troponin data obtained after the patients were evacuated to La Ronge. The four nursing outposts included in the study were Pinehouse, Southend, Wollaston and Stanley Mission.

A master list of all patient provincial health services numbers was generated in order to assign unique study IDs for the purpose of data entry and tracking. Each patient's chart was individually reviewed to assess the number of times they generated a phone call from an outpost nurse that was related to symptoms of ACS. Many patients had more than 1 event; these were all treated as distinct data points.

A detailed comparison was performed of the HEAR and HEART scores, with the following three outcomes.

1. HEAR Score ≤ 3 which was recalculated with troponin level to result in a HEART score of ≤ 3 (The addition of the troponin did not significantly change the score)
2. HEAR Score ≤ 3 recalculated with troponin level to result in a HEART score of ≥ 4 (The addition of the troponin was significant in raising the score above cutoff)
3. HEAR Score ≥ 4 -(Hence no added value of a PoC troponin, as patient already meets criteria for evacuation).

All research was conducted in accordance with our university's biomedical research ethics board. Access to patient health information was granted by our local Medical Services, and the local Population Health Unit was an informed party.

RESULTS

The initial chart review identified 302 patients with 400 unique events. One hundred and twenty-three of these met inclusion criteria, and 110 (89.4%) had a HEAR score of 4 or more. Thirteen of these events (10.6%), each representing a different patient, had a HEAR score of <4 and adding a troponin to generate a HEART score increased the score to 4 or more in one case (0.8%) [Figure 1]. Seven events had an elevated troponin, causing the HEAR and HEART scores to differ; six of these were unique patients with a HEAR score of 6 or greater. Seventeen patients generated numerous evacuations for the same complaint over the study period with limited findings on each occasion.

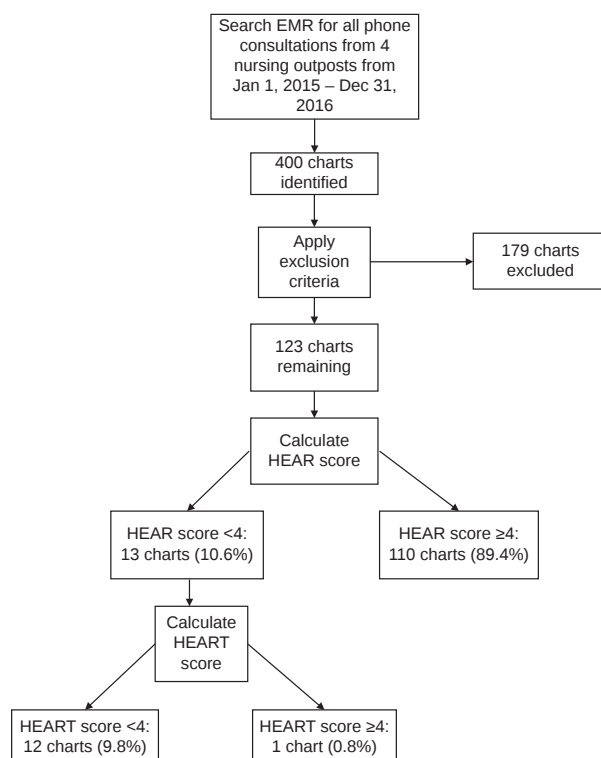


Figure 1: Results flow chart. Patients were excluded if they were less than 18 years old, were not evacuated from the outpost, had no troponin study performed, had no ECG on file, or if risk factor and demographic information was not available from the chart review

Based on our proposed decision-making model, in 89.4% of cases (110/123 events), patients would require evacuation regardless of the troponin values due to a HEAR score ≥ 4 . In 10.6% of cases (13/123), the patients who were evacuated had a HEAR score ≤ 3 , and in only 1 case did the troponin data increase this score (0.8% of cases). The relative contribution of each component of the HEART score for each patient included is presented in Table 1. All patients received at least 1 point for history, based on the inclusion criteria of patients presenting with chest pain concerning for ACS. The greatest contributors to the HEAR scores were history and risk factors; ECG changes contributed the least to HEAR scores [Table 1].

DISCUSSION

In this study, we used a HEAR score (a truncated HEART score which excluded the troponin) to mimic the clinical context in which evacuation decisions are made by physicians in our centre. In northern Saskatchewan, most patients present with chest pain to outpost nursing stations that have no access to troponin data and no on-site

Table 1: HEART score points assigned for each of 113 patients evacuated to LaRonge after presenting with chest pain to one of four nursing outpost stations in northern Saskatchewan

	History	ECG	Age	Risk Factors	Troponin
0 points assigned	0	86	6	3	116
1 points assigned	43	529	71	30	3
2 points assigned	80	8	46	90	4

physician. However, the nurses at these outposts are able to obtain a history and obtain an ECG, and this information is faxed to the La Ronge Health Centre to be read by the physician on call. We found that most patients presenting to four remote nursing outposts with chest pain suspicious for ACS would continue to be evacuated for further investigations and management regardless of their troponin result due to an already elevated HEAR score [Table 1].

Overall, our findings suggest that over the course of 5 years, only 12 of 123 patients could have potentially avoided evacuation with PoC troponin testing, and the addition of troponin to the HEAR score of these patients would have changed the management in only one individual.

While PoC troponin tests have gained popularity in recent decades, there is little evidence to suggest they result in improved clinical outcomes compared to traditional laboratory testing.^{22,23} In addition, PoC testing is less sensitive and has a lower negative predictive value than high-sensitivity troponin testing, reducing its utility in ruling out ACSs.^{24,25} In rural locations in Canada, there are also significant costs associated with PoC testing including costs associated with maintaining the equipment, training staff to use the equipment and maintaining quality standards.²² These results lend further support to our results suggesting PoC troponin testing is unlikely to improve diagnostic accuracy and reduce the costs associated with the investigation of patients with chest pain.

Our results are in keeping with several recent studies assessing the utility of a modified HEART score, in which troponin is excluded, to risk-stratify patients presenting with undifferentiated chest pain. In a planned secondary analysis of the HEART pathway implementation study, Smith *et al.*¹³ assessed the 30-day risk of MACEs in patients presenting

with chest pain based on their HEAR score only; their findings suggest that patients with a HEAR score of <2 are at very low risk for MACE, with only 0.9% of these patients suffering a MACE at 30 days. Moreover, the addition of troponin to the HEAR score re-classified only 2 of 447 patients with a HEAR score <2 .¹⁵ Similarly, in a retrospective analysis of patients with chest pain transported to hospital by emergency medical services, Stopyra *et al.*²⁶ found that a pre-hospital HEAR score had a 94.3% negative predictive value for MACE at 30 days, suggesting a modified HEAR score may be useful even in the pre-hospital setting.

In contrast to our results, in a prospective study comparing the risk of MACE in patients classified as low-risk based on a pre-hospital HEART score calculated using PoC troponin compared to HEAR score alone, van Dongen *et al.*²⁷ noted significantly fewer MACEs in patients stratified using HEART versus HEAR (3% vs. 7%). However, this could be due to the higher baseline prevalence of MACE and the inclusion of unstable angina in their definition of MACE. The conflicting results of our study, and the studies of Smith *et al.*¹⁵ and Stopyra *et al.*²⁶ compared to van Dongen *et al.*,²⁷ highlight the need for prospective validation of a HEAR score pathway, especially in rural locations.

Limitations

Limitations of this study include the small sample size, single geographic location and retrospective design. During the study period, many physicians used exclusively paper records or no records at all, meaning most events recorded occurred after 2013 with the arrival of an electronic medical record. Moreover, the lack of a standard work process for encoding or billing may have left records or events outside the research parameters for this study. In addition, given the retrospective design of the study, it is possible the patients included were biased towards patients with high-risk chest pain, as sicker-appearing patients would presumably have been more likely to generate a phone call from a nurse to the health centre based on gestalt. However, in our experience, nursing stations tend to err on the side of caution in patients with chest pain, contacting the supervising physician for most cases of chest pain unless there is an obvious non-cardiac cause (i.e. chest trauma).

CONCLUSIONS

Overall, our results suggest that a truncated HEART score (i.e. HEAR score), in which the troponin measurement is excluded, may be a useful method of risk-stratifying patients with chest pain presenting to remote nursing stations with no access to laboratory data. These results have important implications for providing safe, quality care to patients in rural and remote locations, as evacuation is associated with significant financial and safety risks. Future research should focus on prospectively validating the use of a HEAR score in rural locations.

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Conflicts of interest: There are no conflicts of interest.

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SRPC AND THE ROUNDS

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Why they leave: Small town rural realities of northern physician turnover

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Abstract

Introduction: This study seeks to explore influential factors leading to physician turnover in designated Rural Northern Physician Group Agreement (RNPGA) communities in Northern Ontario, as well as physician's perceptions of the RNPGA contract and effects of the Northern Ontario School of Medicine (NOSM) on physician retention in these communities.

Methods: Twelve qualitative semi-structured interviews were completed with rural physicians who had RNPGA contracts within the past 5 years but had left their practice community. Data collected from recorded interviews were analysed using a thematic analysis approach in order to identify common themes.

Results: A range of factors influencing physician's decisions to leave were identified including lack of partner career prospects, burnout and lack of opportunities and amenities. Common challenges were sometimes also perceived as rewards of rural practice. The concern of lack of flexibility of the RNPGA contract was identified, as well as a perceived lack of presence of NOSM graduates in RNPGA communities.

Conclusion: A variety of factors influence physician turnover in RNPGA communities. These may be considered by communities hoping to inform recruitment and retention policy. Renewal of the RNPGA contract may require consideration for availability of part-time positions, increasing the number of physicians funded and incentivising physician wellness. NOSM may consider mandatory postgraduate programme placements in RNPGA communities and further development of infrastructure in these communities to improve learner, graduate and institutional engagement.

Keywords: Physician turnover, primary care, qualitative research, rural health services

Résumé

Introduction: Cette étude visait à examiner les facteurs qui influent sur le roulement des médecins dans les communautés désignées du groupe de médecins en milieu rural et dans le Nord (GMMRN) du Nord de l'Ontario, ainsi que la perception qu'on les médecins du contrat du GMMRN et des effets de l'École de médecine du Nord de l'Ontario (ÉMNO) sur la rétention des médecins dans ces communautés.

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Méthodes: On a réalisé 12 entrevues semi-structurées auprès de médecins ayant travaillé sous contrat avec le GMMRN dans les 5 dernières années, mais qui avaient quitté leur communauté de pratique. Une approche d'analyse thématique a servi à analyser les données recueillies dans les entrevues enregistrées afin de cerner les thèmes communs.

Résultats: Absence d'occasion de faire carrière avec un partenaire, épuisement professionnel et absence d'occasions et d'équipement font partie de la gamme de facteurs qui influent sur la décision des médecins de partir. Les difficultés courantes étaient parfois aussi perçues comme la récompense de la pratique rurale. Des préoccupations quant à la rigidité du contrat avec le GMMRN ont été soulevées, ainsi que l'absence perçue de diplômés de l'ÉMNO dans les communautés du GMMRN.

Conclusion: Une gamme de facteurs influencent le roulement des médecins dans les communautés du GMMRN. Les communautés qui espèrent éclairer le recrutement et la politique de rétention pourraient en tenir compte. Le renouvellement du contrat avec le GMMRN pourrait nécessiter d'envisager d'ouvrir des postes à temps partiel, d'augmenter le nombre de médecins financés et de favoriser le bien-être des médecins. L'ÉMNO pourrait envisager des placements dans les communautés du GMMRN dans le cadre du programme obligatoire de 2e cycle et le développement plus poussé de l'infrastructure dans ces communautés afin d'améliorer l'engagement de l'apprenant, des diplômés et de l'établissement.

Mots-clés: recrutement des médecins ruraux, rétention des médecins ruraux

INTRODUCTION

The effects of the rural–urban geographic maldistribution of physicians, although a global phenomenon, are especially prominent in Canada, with its large geographic area, widely distributed population and varied economic development.¹ In Northern Ontario, physicians who practise in rural areas are spread across over 800,000 km², resulting in vast medically underserved areas.² Successful recruitment and retention of generalist physicians are paramount to addressing physician shortages and subsequently improving healthcare provision.³ There is a general understanding of the factors associated with recruitment and retention success, with previously identified influential factors for leaving well-established rural practice, including financial reasons, organisational challenges and partner preferences.^{3,4} Physicians remaining in rural practice tend to achieve a balance between the challenges and rewards, whereby demanding aspects of rural practice are also perceived benefits.⁵ Particular recruitment and retention interventions have been implemented in Northern Ontario including the development of the mission specific Northern Ontario School of Medicine (NOSM), and a specialised employment contract, the Rural Northern Physician Group Agreement (RNPGA). NOSM was created in 2005 as a government strategy to increase physician supply in rural Northern Ontario. NOSM trains students in over 90 health

centres and hospitals across Northern Ontario on the basis that students educated in rural areas are more likely to establish practice there. It has been recognised as a major source of physicians recruited into northern community practice in accordance with the school's social accountability mandate.^{2,6} While NOSM has been a driving force in improving recruitment and retention outcomes across the north, physician shortages continue to persist in many small rural and remote communities.⁶ In 2020, in recognition of the ongoing human healthcare resource crisis, NOSM created a new Assistant Dean, Physician Workforce Strategy position with aims to improve support for rural and remote physicians.⁷

The RNPGA was created in 1996 with the goal of improving physician shortages in rural communities.⁸ As a part of the RNPGA, physician designations are allocated by the Ontario Ministry of Health and Long-Term Care to select rural communities in need of physicians as determined by the Ruralty Index for Ontario score.⁹ Although physicians must sign a contract to participate in the funding model, they are not bound to fulfill a specific term by the government. Currently, there are 37 communities funded under the RNPGA agreement, which includes the majority of small rural communities in Northern Ontario. Despite the initial praise of the agreement, there is growing concern on behalf of the medical community that the contract has not accounted for the evolution of practice over the last several decades, citing

lack of adequate remuneration for emergency and inpatient care, financial disincentives for travel to rural communities, and lack of accommodation for role splitting.⁸

METHODS

Purposeful sampling was used to identify potential participants who had previously worked in a Northern Ontario community under an RNPGA contract, but had since left. They were then contacted by telephone or e-mail and invited to participate in one-on-one qualitative, semi-structured interviews.

Data analysis

Interviews were conducted by a research team member, transcribed by a second team member, and reviewed by both individually to ensure accuracy.¹⁰ Two interview transcripts were then reviewed by all 4 team members and a comprehensive list of codes was developed iteratively using a thematic analysis approach.¹¹ All 4 researchers convened after independently coding two transcripts each at which time coded data were cross-referenced among team members to establish consensus and inter-rater reliability.¹⁰ One researcher coded using Dedoose® data analysis software, while 3 team members manually coded data. Collapsed codes were combined with corresponding interview citations to validate grounding in the data.¹⁰

Qualitative rigor was established through the use of purposeful sampling, a standardized questionnaire, data triangulation, multiple data analysts, and the use of respondent quotations to illustrate each theme.¹⁰

This study was approved by the Lakehead University Research Ethics Board.

RESULTS

Participants

Interviews were conducted during a 7-month period between 2019 and 2020. Nineteen family physicians who had contracts in an RNPGA-designated community in Ontario within the past 5 years, but had left their rural practice community, were contacted to participate. Twelve took part in the study from 11 different communities. Two

participants lived outside of the practice community during the study period. Nine participants were male. Years spent in the community of practice ranged from one to 27. One completed undergraduate and postgraduate education at NOSM, while the rest completed education elsewhere.

Personal challenges affecting retention

Personal challenges of rural northern practice and living were identified by participants as partner career, extended family, life plan, and community integration.

Partner career

Participants identified their partner's lack of career opportunities as a major influential factor in their decision to leave the community, making partner career prospects the most frequently cited and most heavily weighted reason for leaving. Lack of opportunities in significant others' field of interest led to partner and personal dissatisfaction with life in the community. One described her own frustrations with a perceived lack of reciprocity on behalf of the community in assisting her partner to secure employment: 'He is a very skilled worker. He has two degrees in university with significant job experience, and the community was unable to ever find job opportunities that would fit for him. Even when there [were] opportunities that came up, they were never offered.'

Extended family

Desire to be near extended family was described by participants as the basis of their decision to leave. Several participants cited an immediate family member's illness as the primary reason, while others expressed a fear of estrangement from extended family. One provided an example of the latter: 'We were a long way from both of our families... The less the kids recognized their family and the less we saw them, the more we felt guilty about it.'

Life plan

Several participants experienced major alterations or uncertainties in their future life plans related to family and career goals and reported this as an influential factor in leaving. One, who had

long-term intentions of rural practice elaborated: 'I was kind of at a transition point... That was my first job and... It's pretty easy for a rural community to turn from sort of supportive and nurturing to kind of oppressive and boring.'

Community integration

A sense of feeling isolated and unaccepted, leading to trouble finding meaningful community relationships emerged for some participants. One described a feeling of lack of belonging in the community, stating, 'The biggest problem I had was that you are always an outsider. You are never an insider.'

Professional support challenges affecting retention

Common challenges with professional support included issues with a lack of resources, team dynamics, and inherent disadvantages associated with the RNPGA contract.

Lack of resources

Participants frequently described a lack of human and non-human resources as a challenge of rural practice, although none cited this as a reason for leaving, and several believed that working with fewer resources had improved their diagnosis and management skills. New regional services such as Virtual Critical Care were praised but affirmed as not equivalent to inperson support. Lack of human resources seemed to contribute to a sense of isolation: 'There was nobody I could call if I was having a difficult time that would have more critical care skills than I [do]... There was nobody with formal advanced skills.' When referring to human resources in rural areas, one stated:

"Rural medicine is like: If you are rich, you are really rich, and it is easy to stay rich. But if you start to get poor, you just get poorer faster and faster. When things are going well, they sort of just chug along the way they are designed. But if it starts to go badly and you start to lose people, then it just snowballs".

Team dynamics

The importance of having supportive, reliable team members was emphasised, while poor team

dynamics were cited as contributing to decisions to leave: 'Some personality clashes... Personal conflict that I had... Affected me quite badly. The power distribution was quite dysfunctional.'

Several participants discussed reduced team efficacy due to having colleagues who worked but did not live in the community.

Contract

Lack of flexibility of the RNPGA contract was cited as a reason for leaving: 'one of the difficulties about a contractual obligation such as an RNPGA is that it lays out what you are going to be doing for most of your life... There is not really room for part-time people.'

Professional experience challenges affecting retention

Burnout, the level of service demand and a sense of responsibility for outcomes in the community emerged as professional challenges.

Burnout

Burnout and work-induced stress were a major influential factor in decisions to leave and affected both professional and personal aspects of rural life. One lamented, '... You have to be able to walk away from your child in the middle of a sentence if something crazy happens. It was draining as hell.' Another elaborated:

When communities are short staffed, there is just work to do, so you do it, and the more you do the more you feel capable of doing, so you just keep on adding things... And so you kind of get in that habit of working at very high levels of output, and then as you age, it changes, and you get tired.

Service demand

The majority of rural communities involved were short of physicians, never meeting their quota. Rural patients were described as being more medically complex and vulnerable, requiring more time to manage with less available staff: 'The work was heavy in terms of timing, degree of hours. I would put in probably 70 h a week plus call... There was a lot more work than any one individual wanted.'

Another participant described how professional demands affected his personal life: 'I was not home during the day at all. My wife was snow blowing all day long, and I got home quite late, would have something to eat, go to bed, get up and do the same thing.'

Responsibility

An unspoken social contract leading to a heightened sense of personal responsibility for health outcomes became emotionally challenging for some: 'Every once in a while... Something bad happens... And then you feel this sense of guilt and responsibility.'

Rural community lifestyle challenges affecting retention

Common challenges of community life were a lack of opportunities and amenities, travel, personal privacy issues, patient expectations, dual roles and physician status.

Lack of opportunities and amenities

Lack of community opportunities and amenities were the most frequently cited and heavily weighted factors for leaving. Participants perceived a lack of dependable childcare, education and sports-related opportunities:

I wanted to be able to go swimming, or go to the gym, or go to a shopping centre, like basic-well not basic, but just things that some people take for granted. I was just feeling more and more that I wanted to live somewhere that if I had to go to (the pharmacy) at two in the morning for Benadryl, then I could do that.

Patient expectations, dual roles, personal privacy and status

Enhanced patient expectations of care, dual roles and lack of personal privacy emerged as challenges. Participants expressed the moral dilemmas of caring for friends and family members and feeling unable to escape being 'under a microscope.' Some avoided going out for fear of being approached by patients: 'I mean literally, you'd go and you'd be at the gas station, filling up your car, for example, and someone would say, 'Doc, what was my cholesterol like?' And that doesn't really upset you but, it's just-it's not right.'

In order to avoid being called into work during their vacation time, most participants felt they had to physically leave: 'The feeling on your chest as you drive away from the town, all of a sudden a weight you never knew was there, you can almost literally feel like it's coming off... All of a sudden you just go 'oh!' because you know they can't get ya (laughs).' Despite these inherent challenges, some participants reflected on the fulfilling nature of close community relationships.

Travel

Some participants maintained permanent addresses in nearby urban settings and would commute to work. The commute became a burden which ultimately led them to leave.

Northern Ontario school of medicine

Impact

Only one participant believed that NOSM has improved physician recruitment and retention in Northern Ontario since its inception. Many cited a lack of concrete statistics or firsthand experience to support the notion of NOSM's positive impact. Many felt that, while NOSM's initiatives may keep physicians in the North, they are not successful keeping them in the rural North.

I know you know the quote that NOSM says 94% or 96% of their grads stay in the North, but [they] go to big cities, [they] don't go to the small towns. It's successful in keeping them in Sudbury, keeping them in Thunder Bay or Sault Ste. Marie but probably not the small towns as much.

Presence

Only a few identified the presence of NOSM residents or graduates in their communities. The remainder commented on the presence of medical students but expressed frustration that they were unable to teach NOSM residents or recruit new graduates: '... in the 5 years I was there... The only contact I had with NOSM was the 2nd-year students that would come... we had zero – I never saw a resident, and I never saw anyone be recruited from NOSM into those communities.'

Difficulty engaging in NOSM-related opportunities was attributed to geography, time constraints, workload and a perceived lack of relationship between NOSM and the practice community: 'I would have liked to have participated with the school a lot more... I could have offered more... My time didn't work well. I mean, how do you take time off to go teach or do research or do something?'

Another participant, who did not train at NOSM, described difficulties forming a working relationship with the school.

The double-edged sword

It is important to acknowledge the duality of the self-identified challenges, a theme described by the majority of participants, which emerged consistently through exploration of personal, professional, and community experiences. The sense of rural generalist practice being a 'double-edged sword', was used to express how, 'some of the things that one enjoys about a rural community are also part of the challenges.' One illustrated this concept when recalling an influential preceptor's view of practice with few resources: '... He talked about being the only person there, and the stress of that, but also the interesting parts... What it's like to not rely on technology and computed tomography scans and ultrasounds, and basically learning how to be a doctor with very little.'

DISCUSSION

Rural northern practice challenges encompass personal, professional and community factors. The most influential reasons for leaving RNPGEA-designated communities are lack of partner career prospects, experiences of burnout and lack of amenities and opportunities. Many challenges align with previous research.^{4,12-23} What leads one physician to leave and another to stay is likely a manifestation of their own balance of factors which exist as both rewarding and challenging aspects of rural practice, which here is illustrated as the 'double-edged sword' concept.⁵

There is no established literature on physician retention in RNPGEA-designated communities. As

described by participants, the lack of flexibility in workload and remuneration within the RNPGEA contract presents challenges for individuals hoping to limit their workload. Allowing more flexibility for part-time positions would support those team members. Since the contract's development in 1996, it has not kept pace with new demands on physicians such as leadership for quality improvement and interprofessional collaboration, increased complexity of patients and teaching and service expectations. Increasing the number of physicians funded in the contract could better distribute demands, thus mitigating burnout. The RNPGEA contract could incentivise physicians to reside in their community of practice to promote long-term retention, integration and team dynamics. Physician wellness initiatives and funding for travel to visit family as a part of the contract could help avoid burnout and bolster retention.

Hogenbirk *et al.* found that only 8% of physicians graduating with a NOSM undergraduate medical degree from 2011 to 2013 went on to practise in rural Northern Ontario.²⁴ Our study supports this finding. To date, there are no studies evaluating the impact of NOSM's undergraduate or postgraduate programming on physician retention specifically in RNPGEA communities. In considering the perceived lack of recruited NOSM residents and staff, NOSM may consider initiating mandatory rural postgraduate rotations in small rural or RNPGEA communities. NOSM may consider improving rural community infrastructure and awareness of teaching opportunities, thereby easing the physician engagement burden. These suggestions, based on study findings from NOSM's catchment area, may be applied to other medical education institutions.

Limitations

Selection bias may exist due to the purposive snowball approach in recruiting participants.²⁵ Furthermore, participants' recollection of their experiences is susceptible to recall bias.

CONCLUSION

Lessons learned from rural physician's experiences may be used to bridge the gap between physicians and the communities

hoping to retain them and ultimately lead to an improved balance of the challenges and rewards of rural practice.^{26,27} This study provides key findings on rural physician retention in RNPGA communities, a phenomenon not previously studied, along with insight into these physicians' perceived effect of NOSM in their practice communities. This study's findings support those of previous research, identifying a broad range of factors affecting rural physician retention. The accompanying recommendations can be applied by patients, communities and physicians to address challenges and improve health equity in the rural North.

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The occasional penicillin allergy test

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While penicillin allergy most definitely exists, its prevalence among all those labelled with penicillin allergy is under 10% and decreases with time after the last reaction.¹ A direct result of this overdiagnosis of 'penicillin allergy' is that more effective, cheaper and safer therapies are denied to many of our patients who do not actually have a penicillin allergy.^{2,3} Better antibiotic stewardship will require clarification to prove or disprove whether a patient has a penicillin allergy.

HOW TO TEST YOUR PATIENTS FOR THE PREVALENCE OF PENICILLIN ALLERGY

Equipment needed

Emergency Supplies [Figure 1]:

- Epinephrine 1:1000
- Lookup table for epinephrine dose by age
- Diphenhydramine for injection
- Syringes and needles for resuscitation.

Testing Supplies:

- PRE-PEN® reagent

(benzylpenicilloyl polylysine 6 × 10⁻⁵ M)

- Positive control: Histamine 6 mg/ml
- Negative control: 50% w/v glycerine in water
- Amoxicillin liquid and tablets
- Duo sharp plastic needles.

PATIENTS

- The author actively recruits patients based on the presence of the penicillin allergy label in the chart and the number of antibiotic prescriptions in their chart
- Due to reagent cost and stability, batch multiple patients within the day and use plastic skin test needles to minimise consumption of reagent
- Pre-visit instructions [Table 1] are given to the patient several weeks before the test is conducted
- Take a history – it does not need to be long: obtain details of the reaction, its timing post dose, how long ago the reaction occurred, what treatment was given and what other antibiotics the patient has tolerated
- Potential exclusions for testing are listed in Table 2 and are rare

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- A specialist opinion may be warranted in these cases. However, the most common reason for exclusion in my clinic is that people had forgotten the pre-visit instructions, and had taken an antihistamine within the prior week [Table 1].

THE SKIN PRICK TEST

1. An initial screen is done with skin scratch testing with emergency supplies at hand [Figure 1]. Scratch tests are considered very safe with rare systemic reactions (3:10,000 patients)⁴
2. *In vivo* penicillin gets converted to benzylpenicilloyl polylysine which is the major antigenic determinant in penicillin-allergic patients.⁵ It is available in a dilute solution for skin testing
3. Low-risk reactions as screened by history such as a childhood exanthem, or an unknown reaction over 10 years ago, can proceed directly to oral challenge.⁶ Nonetheless, for maximal safety, always do a skin prick test first
4. For the skin prick test, label the volar aspect of the forearm with P, – and + about 3 cm apart. Those will be the sites for each of benzylpenicilloyl polylysine (PRE-PEN®), 50% glycerine for negative control and histamine for positive controls

Table 1: Pre-visit patient instructions

Pre-visit instructions
Wear short sleeves
Do not take any antihistamines for a week before the appointment
You can take a steroid nasal spray
Allow 2 h for the testing
You can bring a book or your phone

Table 2: Contraindications for penicillin testing

Exclusion	Reason
Anaphylaxis in the previous month	Anaphylaxis suppresses skin tests Skin tests are for type I reactions
Serum sickness (type III reaction)	Allergies mediated by other means cannot be safely excluded and may be provoked with the oral challenge
Toxic blistering dermatological reactions	
Haematological renal or hepatic reaction	

5. The author uses Duo sharp 2 needles. Dip them into the well of the reagent. Lightly dent the skin and rotate to administer each reagent
6. Read the diameter of the welt (not the flare). It is considered positive if it is 5 mm or larger induration after 15 min.⁴ Figure 2 (negative test) shows a 10 mm response to histamine (+) with negative (–) and PRE-PEN® (P) reactions under 5 mm. This is a normal reaction that is interpreted as immune competent and benzylpenicilloyl non-allergic
7. Do not test positive individuals further as they have a >50% chance of reacting (potentially seriously) to oral penicillins.⁴ Adults who test negative with PRE-PEN® have <5% chance of reacting to therapeutic penicillin.⁴ Further testing to identify this subset is done by challenging them with an oral penicillin while under direct observation. The author gives a therapeutic dose



Figure 1: Emergency supplies.



Figure 2: Results of a skin prick test. Negative test shows a 10 mm response to histamine (+), with negative (–) and PRE-PEN® (P) reactions under 5 mm.

Table 3: Post-visit instructions

Phone the clinic on XXX-XXX-XXXX if you have any late reactions or proceed to the ED
If tested negative, inform your pharmacy, hospital and doctors that you are no longer allergic to penicillin and that they should adjust your chart accordingly

of amoxicillin (500 mg for adults, weight-based dosing for children) which allows for testing of both minor and major antigenic components. Assess patients for another hour

8. The vast majority of our patients have no reaction to the oral challenge. Patients who pass are advised that they are not allergic to penicillin [Table 3]. Notes are sent to partners in the circle of care (including the pharmacy) to have them remove the penicillin allergy label from their systems.

In conclusion, penicillin allergy testing is easy to do and interpret. Most patients are 'de-labelled' as allergic, which is gratifying to both the physician and the patient.

CANADIAN SUPPLIERS

Alk-Abelló is the distributor of PRE-PEN® (benzylpenicilloyl polylysine injection USP).

Negative and positive controls and plastic skin test needles can be obtained from an allergy supply company such as Quantum Allergy Newmarket or Western Allergy Victoria.

Adrenalin 1:1000, diphenhydramine and amoxicillin are available from your pharmacy.

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The occasional challenge in a rural setting: COVID-19 intubations in patients living with obesity

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INTRODUCTION

COVID-19 has unique implications for rural Canadian communities where resource limitations influence clinical decision-making. We describe an approach we used when two individuals with an anticipated difficult airway (due to obesity) required intubation for COVID-19-associated respiratory failure. We offer an approach and technique that was successful in our facility and offer practical suggestions for practitioners in other rural/remote communities. We recognise that all rural locations are unique with different resources. We offer these suggestions with the expectation that adaptations would be needed depending on the setting.

Our setting

Our hospital is in a community of 12,000 with a small intensive care unit (ICU) and capacity of up to two mechanically ventilated patients. There is no tertiary care centre within 500 km of our community. ICU care is provided exclusively by general internists (2 local and 3 regular visiting) and anaesthesia care

is provided exclusively by general practitioner anaesthetists (GPAs) (3 permanent, supported by occasional locums).

We serve as the COVID-19 and critical care referral centre for multiple primary care hospitals in our region. We receive patients by road (1–4 h) and air (fixed-wing and helicopter). Most ambulance services in our area do not have critical care capacity, and a physician escort is needed for critically ill transfers. Due to our remoteness, transfers from our centre to a tertiary care centre occur exclusively by air ambulance.

CASE HISTORY

Our hospital received two patients with COVID-19 pneumonia with severe hypoxemic respiratory distress. Both individuals were living with obesity (body mass index 55–65 m/kg²).

Pre-hospital transport

Before transport to our facility, a collaborative discussion was held among the sending, receiving and transporting physicians to determine

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if the first individual should be intubated before transfer. Given the risk of further deterioration after intubation and an anticipated difficult airway, a decision was made to transfer the patient to our facility on non-rebreather face mask plus additional oxygen via nasal prong, as needed. Full personal protective equipment was indicated, including a properly fitted N95 mask for all members involved in the transfer. In one case, two ambulances meeting half way were deployed for a single patient: one from the sending community with the patient, a physician, and two basic life support paramedics and a second ambulance from the receiving community with two basic life support paramedics and additional tanks of oxygen.

Making the decision to intubate

Upon arrival at our hospital, both patients were stabilised on high-flow nasal cannula (60 L/min, 100% FiO₂) plus supplemental oxygen via non-rebreather face mask (up to 15 L/min). Their work of breathing improved, peripheral oxygen saturation was maintained around 86%–88% and they had no signs of tissue/end organ hypoxia. Worsening oxygenation was anticipated such that intubation would be required within 24–48 h, given the patients were marginally compensating with maximal oxygen supplementation. This decision was supported by telephone consultation with a regional intensivist. Key components of our approach included:

1. On-going telephone consultation with a regional intensivist and close communication with the tertiary care centre for support and subsequent transfer of care
2. Early involvement of GPA on call
3. Early involvement of a second GPA to assist
4. Planned, controlled intubation before imminent respiratory failure
 - a. Pre-emptive insertion of central venous catheter and arterial line before intubation
 - b. Intubation by GPA with second GPA assisting and critical care nurse supporting
 - c. Second critical care nurse and internist donned and ready in PPE outside of room.

Alternatives to invasive ventilation

For severely hypoxic COVID-19 patients at risk of respiratory failure, there are limited alternative

options aside from invasive mechanical ventilation. It is our practice to use high-flow nasal cannula to improve tissue oxygenation and reduce work of breathing. If this is insufficient, we proceed with invasive ventilation if it is consistent with the patient's goals of care. Furthermore, severely hypoxic patients are difficult to transfer without invasive ventilation.

Non-invasive measures such as BiPAP have been used in the treatment of COVID-19 pneumonia, but our region has not been using this modality due to limitations in negative pressure rooms and concerns over barotrauma, and thus, we would not recommend this modality for rural centres unless there are strong operator comfort and appropriate infection control resources. In Europe, observational studies have reported considerable success using helmet continuous positive airway pressure devices (CPAP) in COVID-19 pneumonia.¹ This modality allows for the delivery of positive end-expiratory pressure (PEEP) which can improve oxygenation and has lower risk of transmission compared to conventional CPAP. Helmet CPAP therapy could be helpful in rural settings to stabilise a patient in a centre with limited experience with intubation. Unfortunately, helmet CPAP devices are not Health Canada approved nor are they readily available in Canada outside of research studies.

Intubation considerations and details

Our considerations around intubation included protection of healthcare workers from COVID-19 exposure, potential rapid desaturation during apnoea, given obesity and increased metabolic demand, potential for hypoxic cardiac arrest, difficult mask ventilation during apnoea, potential difficult intubation and anticipated challenges with mechanical ventilation post-intubation, given chest wall mechanics, ventilation-perfusion mismatch and shunting.

As standard procedure for COVID-19 intubations, we used properly fitted N95 masks, donning and doffing procedures with a buddy check system, in a negative pressure room. We took care to minimise patient coughing and ventilation circuit disconnects. We avoided bag mask ventilation and used a clamp to occlude the circuit during disconnections. We pre-emptively

inserted a central venous catheter and arterial line before intubation for intravenous access and monitoring during and after intubation. This was a recommendation from the regional intensivist, and it greatly facilitated medication administration and monitoring during and after intubation.

Airway management was optimised by placing the patients in Semi-Fowler position, with the head in a ramped position (with pillows) as standard procedure for obese patients. We addressed our concerns regarding desaturation during apnoea by maintaining spontaneous breathing until it was known that the endotracheal tube could easily pass through the vocal cords. This assurance was made by awake intubation facilitated by dexmedetomidine sedation (dexmedetomidine 0.5 mcg/kg ideal body weight, over 10 min followed by 0.5 mcg/kg/h), airway topicalisation with lidocaine (spray to oral pharynx), application of viscous lidocaine by tongue depressors and liquid injection at the vocal cords upon visualisation by video laryngoscope² (glidescope). The goal was to minimise coughing and barotrauma while maintaining spontaneous breathing. Induction of anaesthesia (ketamine 2 mg/kg), including paralysis (rocuronium 1.2 mg/kg ideal body weight), was performed only after the vocal cords were in view on the video laryngoscope and the endotracheal tube was positioned in the oral pharynx ready for advancement into the trachea.

Before induction, we pre-set the ventilator with standby settings including a high PEEP, 100% FiO₂ and lung protective volumes (6 cc/kg ideal body weight as per ARDSNET tables) and frequency exceeding the patient's spontaneous rate. This approach was successful in mitigating prolonged desaturation. Our nadir saturation was a SpO₂ of 76% with recovery to baseline in the subsequent 5–10 min after initiation of mechanical ventilation.

Both patients were intubated safely using the same technique. They were transferred to a tertiary care centre in stable condition. No healthcare worker COVID-19 infections have been linked to either case.

Additional planning to prepare for potential complications

The management plan for a potential hypoxic cardiac arrest included ensuring a crash cart was

available, and central venous access was placed with a prepared vasopressor (norepinephrine) ready for infusion to manage hemodynamic instability. A second physician was pre-selected as the code team leader, allowing the GPA to continue with airway management if an arrest occurred. In addition, the donned team members outside the room were available to prone the patients if necessary.

The back-up airway plan reflected standard difficult airway literature, including an airway bridging device (laryngeal mask airway), video bronchoscopy and an available front of neck airway access kit.

DISCUSSION

Considerations included anticipation of (1) a difficult airway, (2) no further pre-oxygenation options, (3) poor tolerability of any apnoeic period,³ (4) difficult ventilation and (5) a challenging secondary and surgical airway. Furthermore, reverting to an emergency airway or a hypoxic arrest would likely result in higher occupational risk than the topicalisation for the awake visualisation. This article does not aim to endorse any particular intubation technique but rather highlights the importance of careful planning that considers healthcare worker safety, patient safety, local resources and operator comfort.

KEY POINTS

1. Early identification of individuals at risk of decompensation in remote/rural communities is essential to ensure that they can be assessed for the need for ventilatory support before their condition becomes critical. Communication with local and regional specialists can be helpful to develop a collaborative plan around timing of transfer and intubation
2. While preferable to transfer decompensating patients out of rural/remote areas early, before the need for intubation, this may not always be possible. Rural/remote hospitals should have adequate supplies (e.g., central lines, arterial lines, range of induction and sedation agents) and training so that resuscitation can be done in the safest way possible
3. Frequent communication among local team members and supporting tertiary care sites

- are helpful to develop a safe collaborative care plan
4. Rural hospitals should maximise the use of locally available resources and expertise to provide COVID-19 care in challenging cases. Although much of the literature around COVID-19 intubation recommends that the most skilled operator performs the intubation, we would advocate that low-volume sites should involve the two most skilled operators, where safely available
 5. Rural hospitals are an important part of the COVID-19 response, and there is a need for more literature discussing strategies to respond to COVID-19 in these communities.

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Hurt: A pandemic reflection

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My nose hurts.

It is such a minor thing in the grand scheme of things; however, every time, I wash my face, adjust my glasses, rub the sleep from my eyes, my nose hurts and it makes my heart hurt.

My nose hurts from the N95 mask I wore for far too long this weekend. The mask I wore while encouraging a patient to talk to their family before we put a tube down their throat. The mask I wore while spending hours on the phone trying to find an intensive care unit bed for rapidly deteriorating patients anywhere in the province. The mask I wore while sitting in the emergency room worrying about how to best serve our community in this tiny little corner of paradise. A paradise which has quickly become a living nightmare for healthcare workers.

Healthcare workers are used to being 'othered'. We are the ones who cannot tell you the details about our day, the ones who get stuck in a corner at parties because someone wants to show us their rash, the ones who are expected to be perfect every single day because when we are not, human lives are lost. It is heavy. It is othering. It is a privilege. Then, the pandemic hit.

Eighteen months later, I do not recognise our world anymore. I do not recognise the selfishness, the hatred, the vitriol, the 'wokeness' and the vilification. I am othered in an entirely new way, referred to as a government pawn, in the pocket of big pharma, a

terrible person. How did we get to a place where people no longer care about causing harm to another? When did the right to freedom of choice trump the right to safety? My entire career is oriented around helping those around me, helping to keep people safe and well. When did that become what makes me 'other'? My heart hurts.

While some have worked in pandemics before, there has never been a collective global pandemic of this magnitude during any of our careers. There is not a course in medical school called 'How to navigate a healthcare system through a pandemic'. I have been scared plenty of times during my career (the first time, I broke someone's ribs doing chest compressions comes to mind, among many others). I have never been terrified OF my patients as well as FOR them before. However, I chose this career when I was 13 years old. Hence, I updated my will, put on my mask and went to work. I got vaccinated, cried tears of thanks, put on my mask and went back to work. I stayed away from family and friends in case I contracted COVID at work, put on my mask and kept working. It was not enough. I was not enough.

My heart hurts. My nose hurts.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

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Prevalence of point-of-care ultrasound devices in Canada

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We read the publication “The prevalence and patterns of use of point-of-care ultrasound (POCUS) in Newfoundland and Labrador” with great interest.¹ Sheppard *et al.* noted that “This is the first study to our knowledge to report the prevalence of POCUS devices in Canada...” We agree on the usefulness of POCUS in rural medicine and that POCUS and education/training for rural practitioners is necessary. However, Sheppard *et al.*’s report is not the first study from Canada. Leschyna *et al.*² studied responders from several areas of Canada, including Newfoundland and

Labrador.² They concluded that there is an increasing rate of POCUS use.²

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

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2. Leschyna M, Hatam E, Britton S, Myslik F, Thompson D, Sedran R, *et al.* Current state of point-of-care ultrasound usage in Canadian emergency departments. *Cureus* 2019;11:e4246.

RESPONSE

Dear Dr. Mungmunpantipantip and Dr. Adaman,

Thank you for your letter and interest in this work. Leschyna *et al.* performed a survey of CAEP members to describe the demographics, attitudes towards POCUS, POCUS utilisation and barriers to POCUS use in Canada.¹ The prevalence of POCUS reported in that study was estimated from the responses by the study participants. Our methodology is different, and therefore, we have reported new information.² We obtained the purchase records for all the POCUS devices in use within the Regional Health Authorities in Newfoundland and Labrador. The prevalence of POCUS devices was calculated by determining the number

of POCUS devices per population for each of the health regions in the province and then overall for the entire province of Newfoundland and Labrador. Therefore, we are the first to report the prevalence of POCUS devices for a defined population in Canada.

Sincerely,
Gillian Sheppard, MD

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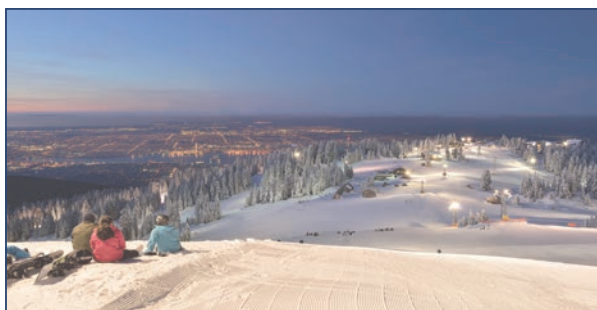
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For more information contact:

Jaime Kapashesit
Physician Services Coordinator
jaime.kapashesit@waha.ca
705 658-4544 ext. 2237

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Adrianne Spence - Recruitment Specialist

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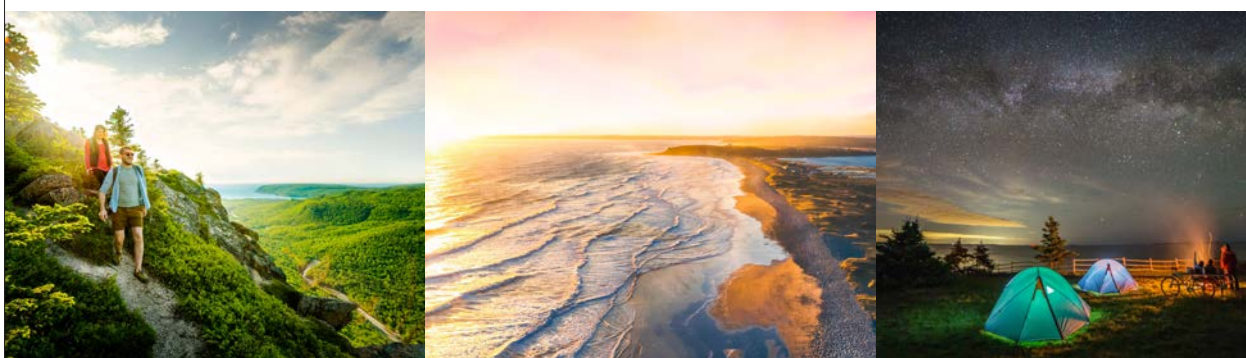
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