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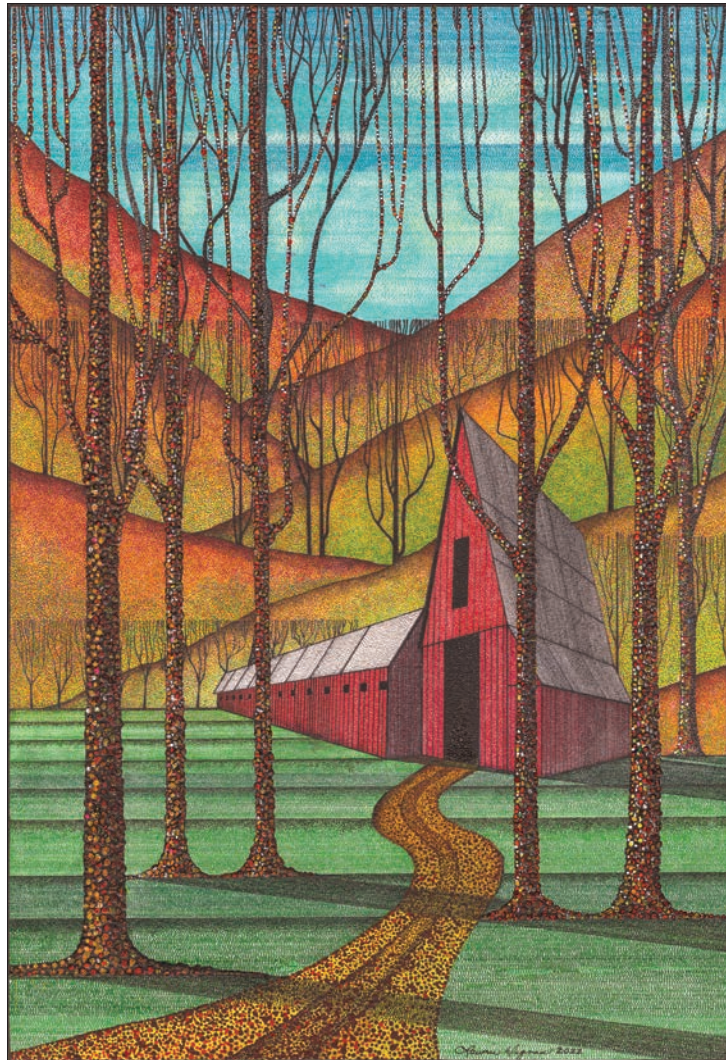
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Red Barn Shadows 2022
16" x 12" pen and ink on paper
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The overall stylization of this image is greatly influenced by the Master works of Disney Animator, Eyvind Earl. Throughout my working career with the Ministry of Highways, I was stationed in many rural farming communities where barns and farmyards were prevalent. I have derived much subject material from these memories.

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Fostering growth

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Pointing out that (self-professed) ‘social accountability’ is not the same thing as being accountable to society is probably a controversial statement in the context of medical schools. The former is easy, the latter hard when we in the faculty are training daughters and sons of privilege.

The soup kitchen mentioned on the medical student resume is invariably not about their own food insecurity. Why is that so? Would the person who has overcome their circumstances and perhaps is working two jobs to the detriment of their grade point average, be a better doctor for it?

Should we be surprised that specialties of rank and privilege are perennially filled (I’m looking at you Ophthalmology and Dermatology as exemplars) and that even for the more “mundane” disciplines, our graduates end up preferring the worried well as patients, over those who are unlike us.

Compounding this problem is the fact that Canadian medical schools are loath to challenge students outside of their comfort zones. Limited life experience leads directly to thin comfort zones. They will learn so much more if they are allowed to be challenged.

The real world is messy. In my practice, I have drug dealers, addicts, sexual abusers and abused and sometimes all in one person. This is often easier to see in the poor but is equally present in other strata if you look. That is the thing. You need to look. You may not be comfortable about asking, but if

you do not probe about abuse, drugs, sexual orientation and the like, you can spend your career in ignorance.

If we denigrate “see one, do one, teach one” to the point that we coddle our learners from responsibility, then we teach them to be helpless. This is tolerated if not encouraged in urban centres, but even the urban patient benefits from the nephrologist who is also aware and competent of the patient’s concomitant diabetic and cardiac issues. The patient cannot be treated as if they are one system. Learned helplessness is particularly disastrous in the rural community that needs its family doctors to provide services such as emergency and obstetrics.

One of the side effects of the infantilisation of medical training is that learners are unsure of their own competence. It is not that they are incompetent (very much the contrary - they often excel despite the training), but that they are made to feel that they could not be competent.

The College of Family Physicians of Canada has misdiagnosed this angst as the inadequate length of training. It is commonly understood that doing more of the same will not yield different outcomes and yet they are promoting adding another year of training. For an institution that professes competency-based training as a core, a time-based ‘solution’ seems to miss the mark.

By this point, I may have offended you. Good. Being uncomfortable is an opportunity for growth.

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Favoriser la croissance

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Dans le contexte des facultés de médecine, le fait de souligner que la “ responsabilité sociale ” (autoproclamée) n’est pas la même chose que la responsabilité à l’égard de la société est probablement une déclaration controversée. La première est facile, la seconde est plus difficile lorsque nous, membres de la faculté, formons des filles et des fils de privilégiés.

La soupe populaire mentionnée sur le CV de l’étudiant (e) en médecine n’a invariablement rien à voir avec sa propre insécurité alimentaire. Pourquoi en est-il ainsi? La personne qui a surmonté ses difficultés et qui, peut-être, cumule deux emplois au détriment de sa moyenne, serait-elle un meilleur médecin pour autant?

Faut-il s’étonner que les spécialités de rang et de privilège soient perpétuellement remplies (je pense notamment à l’ophtalmologie et à la dermatologie) et que, même pour les disciplines plus “ banales ”, nos diplômés finissent par préférer les patients inquiets et bien portants à ceux qui ne nous ressemblent pas.

Ce problème est aggravé par le fait que les facultés de médecine canadiennes sont peu enclines à pousser les étudiants à sortir de leur zone de confort. Une expérience de vie limitée conduit directement à des zones de confort étroites. Les étudiants apprendront beaucoup plus s’ils ont la possibilité d’être mis au défi.

Le monde réel est désordonné. Dans ma pratique, je rencontre des trafiquants de drogue, des toxicomanes, des abuseurs sexuels et des personnes maltraitées, et parfois tout cela chez la même personne. C’est souvent plus facile de voir cela chez les personnes pauvres mais, si vous regardez de plus près, c’est tout aussi présent chez d’autres classes économiques. C’est là tout le problème. Il faut regarder de plus près. Vous

n’êtes peut-être pas à l’aise à poser des questions qui doivent être posées, mais si vous ne vous renseignez pas sur les abus, les drogues, l’orientation sexuelle et autres, vous risquez de passer votre carrière professionnelle dans l’ignorance.

Si nous dénigrons le principe de “ voir, faire, enseigner ” au point de déresponsabiliser nos apprenants, nous leur apprenons à être démunis. Cela est toléré, voire encouragé, dans les centres urbains, mais même le patient urbain bénéficie de la présence d’un néphrologue qui est également conscient et compétent en ce qui concerne les problèmes diabétiques et cardiaques concomitants du patient. Ce dernier ne peut être traité comme s’il s’agissait d’un seul système. Ce sentiment d’impuissance apprise est particulièrement désastreux dans les communautés rurales qui ont besoin de leurs médecins de famille pour fournir des services tels que les urgences et l’obstétrique.

L’un des effets secondaires de l’infantilisation de la formation médicale est que les apprenants ne sont pas sûrs de leurs propres compétences. Ce n’est pas qu’ils soient incompetents (bien au contraire, ils excellent souvent malgré la formation), mais on leur fait croire qu’ils ne pourraient pas être compétents.

Le Collège des médecins de famille du Canada a mal diagnostiqué cette angoisse en affirmant que la durée de la formation était inadéquate. Il est communément admis que faire plus de la même chose ne produira pas de résultats différents et pourtant, ils préconisent d’ajouter une année supplémentaire de formation. Pour une institution dont le cœur de métier est la formation basée sur les compétences, une “ solution ” basée sur la durée semble manquer sa cible.

À ce stade, je vous ai peut-être offensé. C’est une bonne chose. Être mal à l’aise est une opportunité de croissance.

President's Message – Strengthening partnerships

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What an exciting past few months! In writing this President's Message, it was difficult to decide what to share, as SRPC members and staff have been busy with so many projects.

In April, we hosted the 30th Annual Rural and Remote Medicine Conference. It was a wonderful opportunity to connect with rural colleagues, learn together, have fun and discuss important issues. The SRPC's National Advanced Skills and Training Programme was profiled, we hosted a collaborative meeting on Rural Surgery, Anaesthesia and Operative Delivery, and findings from the SRPC's Survey on National Licensure¹ were shared with attendees. In addition, a workshop was held at 'R&R' where findings of the SRPC's education reform survey were shared, and participant perspectives were collected.²

The College of Family Physicians of Canada's (CFPC) education reform plans have been of critical interest, as the potential implications on rural health care delivery are significant. As the CFPC explores changes to the family medicine curriculum, we are firmly committed to being engaged and present. Our goal is to ensure that any redesign that occurs allows for optimisation of rural training, including advanced skills, mentorship and transition to practice. We wish to mitigate the potential risk of over-burdening rural training sites, erosion of the quality of training or adverse impacts on the workforce. The SRPC is a participant in the CFPC's Education Reform Taskforce, and in June, we facilitated a 'world café' for teams from all the Canadian Family Medicine programmes, sharing SRPC survey results and discussing rural training. As much of the education design

work is occurring at a programme level, we encourage you to connect directly with your local university to ensure the rural voice is heard.

Beyond this, in May, the SRPC hosted a National Summit on Equitable Access to Patient Transport. This invitational meeting gathered key partners involved in patient transfer. Attendees included Indigenous organisations, rural patients with lived experience, transport providers, administrative and policy decision-makers, rural health care providers and other key stakeholders. Participants shared innovative practices from across Canada and discussed specific action items that will further inform the SRPC's work in developing a national patient transport action plan. Common themes emerging included the value of strategic partnerships and relationships to co-create solutions and the need to reduce or remove jurisdictional barriers.

As we pursue our work, we are aligning priorities with our updated strategic goals: membership growth and engagement, enhancing rural generalist education and supporting our communities. It is exciting to see what the SRPC has the potential to achieve, as we continue to build partnerships and share our expertise in rural health care.

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Message de la présidente. Renforcer les partenariats

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Ces derniers mois ont été passionnants! En rédigeant ce message du président, il a été difficile de décider ce qu'il fallait partager car les membres et le personnel de la SMRC ont été très occupés par plusieurs projets.

En avril, nous avons accueilli la 30^e conférence annuelle sur la médecine rurale et éloignée. Ce fut une merveilleuse occasion de nouer des liens avec des collègues ruraux, d'apprendre ensemble, de s'amuser et de discuter de questions importantes. Le programme national de formation et compétences avancées a été exposé. Nous avons organisé une réunion collaborative sur la chirurgie rurale, l'anesthésie et les accouchements opératoires. En outre, les résultats de l'enquête de la SMRC sur le permis d'exercice de la médecine à l'échelle nationale¹ ont été partagés avec les participants. De plus, un atelier a été organisé à " R and R ", au cours duquel les résultats de l'enquête de la SMRC sur la réforme de l'éducation ont été communiqués et les points de vue des participants ont été recueillis.²

Les plans de réforme de l'éducation du Collège des médecins de famille du Canada (CMFC) revêtent un intérêt critique pour la SMRC car les implications potentielles sur la prestation des soins de santé en milieu rural sont importantes. Alors que le CMFC va de l'avant avec des changements au curriculum de la médecine familiale, nous demeurons engagés et présents. Notre objectif est de nous assurer que tout remaniement permet d'optimiser la formation en milieu rural, notamment les compétences avancées, le mentorat et la transition vers la pratique, tout en atténuant le risque de surcharger les sites de formation en milieu rural, d'éroder la qualité de la formation ou d'avoir des impacts négatifs sur les effectifs. La SMRC participe au groupe de travail sur la réforme de l'éducation du CMFC et, en juin, nous avons animé un " café du monde " pour les équipes de tous les programmes canadiens de médecine familiale, partageant les résultats de notre enquête sur la réforme de l'éducation. Comme une grande partie du travail de

conception de l'éducation se fait au niveau des programmes, nous vous encourageons à communiquer directement avec votre université locale pour vous assurer que la voix des régions rurales est entendue.

Par ailleurs, en mai, la SMRC a accueilli un sommet national sur l'accès équitable au transport de patients. Cette réunion sur invitation a rassemblé les principaux partenaires impliqués dans le transfert des patients. Parmi les participants figuraient des organisations autochtones, des patients ruraux ayant une expérience vécue, des prestataires de transport, des décideurs administratifs et politiques, des prestataires de soins de santé ruraux et d'autres acteurs clés. Les participants ont partagé des pratiques innovantes de tout le Canada et ont discuté des mesures à prendre qui permettront à la SMRC d'élaborer un plan d'action national pour le transport des patients. Parmi les thèmes communs qui ont émergé, citons la valeur des partenariats et des relations stratégiques pour cocréer des solutions, et la nécessité de réduire ou d'éliminer les barrières juridiques.

Tout en poursuivant notre travail, nous alignons nos priorités sur nos objectifs stratégiques actualisés: augmentation du nombre de membres et engagement, amélioration de la formation des généralistes ruraux et soutien à nos communautés. Il est passionnant de voir ce que la SMRC a le potentiel de réaliser, alors que nous continuons à établir des partenariats et à partager notre expertise en matière de soins de santé en milieu rural.

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New insights on rural doctors' clinical courage in the context of the unfolding COVID-19 pandemic

Abstract

Introduction: Rural doctors typically work in low-resource settings and with limited professional support. They are sometimes pushed to the limits of their usual scope of practice to provide the medical care needed by their community. In a previous phenomenological study, we described the concept of clinical courage as underpinning rural doctors' work in this context. In this paper, we draw on rural doctors' experiences during the unfolding COVID pandemic to re-examine our understanding of the attributes of clinical courage.

Methods: Semi-structured interviews were conducted with rural doctors from 11 countries who had experience preparing for or managing patients with COVID-19. Interviews were transcribed verbatim and coded using NVivo. A deductive thematic analysis was undertaken to identify common ideas and responses related to the features of clinical courage.

Results: Thirteen interviews from rural doctors during the unfolding COVID-19 pandemic affirmed and enriched our understanding of the attributes of clinical courage, particularly the leadership role rural doctors can have within their communities.

Conclusion: This study extended our understanding that rural doctors' experience of clinical courage is consistent amongst participants in many parts of the world, including developing countries.

Keywords: Clinical courage, COVID-19 pandemic, rural physicians

Résumé

Introduction: Les médecins ruraux travaillent généralement dans des environnements à faibles ressources et avec un soutien professionnel limité. Ils sont parfois poussés aux limites de leur champ d'action habituel pour fournir les soins médicaux dont leur communauté a besoin. Dans une étude phénoménologique précédente, et dans ce contexte, nous avons décrit le concept de courage clinique comme étant à la base du travail des médecins ruraux. Dans cet article, nous nous appuyons sur les expériences des médecins ruraux au cours de la pandémie de COVID pour réexaminer notre compréhension des attributs du courage clinique.

Méthodes: Des entretiens semi-structurés ont été menés avec des médecins ruraux de 11 pays ayant une expérience de la préparation ou de la prise en charge de

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patients atteints de COVID-19. Les entretiens ont été transcrits mot à mot et codés à l'aide de NVivo. Une analyse thématique déductive a été entreprise pour identifier les idées et les réponses communes liées aux caractéristiques du courage clinique.

Résultats: Treize entretiens avec des médecins ruraux, durant la pandémie de COVID-19, ont confirmé et enrichi notre compréhension des attributs du courage clinique, en particulier le rôle de leadership que les médecins ruraux peuvent jouer au sein de leurs communautés.

Conclusion: Cette étude nous a permis de mieux comprendre que l'expérience des médecins ruraux en matière de courage clinique est la même pour tous les participants dans de nombreuses régions du monde, y compris dans les pays en développement.

Mots-clés: Courage clinique, médecins ruraux, pandémie de COVID-19

INTRODUCTION

Clinical courage describes the lived experience of rural doctors who are pushed to the limits of their scope of practice to provide the medical care that is required by their community.^{1,2} COVID-19 provided an internationally shared context where rural doctors suddenly found themselves responding to a rapidly evolving and challenging health crisis. The shared context enabled us to consider whether the previously identified attributes of clinical courage held true in this exceptional situation.

From our earlier phenomenological study, the six attributes of clinical courage rural doctors experience include:^{1,2}

- A strong sense of belonging to and seeking to serve their community
- Accepting clinical uncertainty, persistently seeking to prepare for clinical challenges
- Working deliberately to understand and marshal resources
- Humbly seeking to know the limits of their own clinical practice
- Needing to clear a cognitive hurdle when deciding to act
- Gaining collegial support to continue their roles.

It has long been recognised that courage can be integral to clinical practice,³⁻⁶ but, to our knowledge, our studies amongst rural doctors are unique in exploring the underlying attributes.^{1,2,7} In late 2020, we interviewed rural doctors from 11 countries about their experiences during the emerging COVID-19 pandemic. Our analysis identified different coping strategies that were demonstrated by rural doctors across diverse

geographical locations.⁷ In this study, we return to these interviews to ask: how do the attributes of clinical courage resonate with rural doctors in the face of the COVID-19 pandemic?

METHODS

This qualitative study was undertaken from a constructivist epistemology which views reality as being actively created by social relationships and interactions. As researchers, we played a role in the co-construction of meanings from participants' interviews.

Recruitment

The recruitment and data collection processes were described in our previous paper.⁷ Emails distributed to the World Organisation of Family Doctors Working Party on Rural Practice and the Society of Rural Physicians of Canada email lists invited doctors currently working in rural areas to undertake an interview about their COVID-19 experiences and clinical courage. Inclusion criteria included: currently practising as a rural doctor, having experience preparing for or managing patients with COVID-19 and having proficiency in spoken English. Our aim was to understand the shared experiences of rural doctors across different demographic and geographical contexts, and participants were recruited to provide diversity across gender, career stage and geographical locations.^{1,2,7}

Ethics approval

Ethics approval was granted by the University of Adelaide Human Research Ethics Committee (Project H-2020-168).

Interviews

Semi-structured interviews were undertaken in the last quarter of 2020 using Zoom video conferencing and were recorded with participants' consent. The interviewers were research team members who are experienced rural doctors. The questions explored the participants' stories of preparing for and managing COVID-19 in their community and interviews ranged between 25- and 77-min duration. For this paper, we analysed questions focussed on participant perceptions about drawing upon clinical courage¹ including how they responded to the aforementioned 6 attributes, their experiences with clinical courage during the COVID-19 pandemic and what lessons were learned from these experiences.

Analysis

Analysis was undertaken concurrently with data collection. A deductive thematic analysis was used to identify common ideas and narratives across the interviews,⁸ using the original 6 attributes of clinical courage as an initial coding framework in NVivo 12 (QSR International Pty Ltd., Doncaster, Australia). Four transcribed interviews were read aloud in research group meetings and meanings were discussed, and additional codes and themes were developed and refined through these discussions. The NVivo coding framework was then used by SW and LW to code the remaining interviews. New findings about each attribute

were presented back to the research team with a discussion about how they added to the group's original understanding. After completing 13 interviews, we had identified cumulative evidence to support each of our themes. We were aware that the pandemic was evolving quickly, and doctors' experiences and responses would be changing over time. For these reasons, we decided to cease data collection at that point.

RESULTS

The sample included 13 rural doctors from 11 countries [Table 1], with 6 participants from low-resource countries. This allowed us to consider a broad range of experiences from the international community of rural doctors.¹

Participants were asked to reflect on their experiences of drawing on clinical courage in the context of COVID-19 and specifically asked to reflect on the 6 features of clinical courage. Participants identified with the attributes and drew on examples from their own experiences to affirm them. Their narratives described common feelings of fear and anxiety but a strong commitment to their clinical responsibilities, to providing local leadership and even a need to show bravery.

When I'd leave the house, I had to leave all my fears behind and, like, just show them (staff) that we can manage this. I mean just show them that we can all do this, it's like I had to keep up a front of being brave, even though I feel deep inside I'm not really brave enough. -09Philippines

Table 1: Participant's characteristics and geographical contexts

Career stage	World Bank income level of country ^a	Country	Gender	Participant reference number	
Early and mid-career rural doctor	High income	Australia	Male	4	
		Wales	Female	10	
	Middle income	South Africa	Female	1	
		Lower income	Democratic Republic of Congo	Male	3
			Philippines	Female	9
		Zimbabwe	Female	1	
Experienced rural doctor	High income	Australia	Male	7	
		New Zealand	Female	13	
	Middle income	Bosnia and Herzegovina	Male	2	
		South Africa	Male	5	
		Thailand	Male	6	
	Lower income	Nigeria	Male	8	
		Pakistan	Male	12	

^aWorld Bank. World Bank Country and Lending Groups. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

Standing up to serve anybody and everybody in the community

Consistent with findings from our original study,¹ these rural doctors described feelings of commitment to their communities, with their motivation to serve being grounded in relationships with the community.

If I think back to that day when we got the first COVID-19 diagnosis, we went to the patient's home to go and see their family and check that they were okay, and test those that need to be tested. Because we wanted to make sure that the community was going to be okay. –11South Africa

In the context of COVID-19, there was a heightened significance in standing up to serve the community because of the risks to the doctors and their families' personal safety. Serving the community often involved providing local pandemic leadership, founded on the doctors' broad understanding of, relationships with, and sense of belonging to their community. The descriptions of working together with their communities highlighted that belonging to a community required understanding and valuing diverse community worldviews.

One was just a community experience, that one of the roles of rural doctors is to use your intellect for good, I suppose, and to – with the connections that you have and the understanding you have of the health system to try and help the community come to terms with what you do, and we did a few things. One of them was I, at fairly short notice, just got all the community leaders together and said, 'Let's have a meeting' and I just fielded questions about COVID and how we might need to respond and how we could respond, and – but it was a very collaborative meeting with the community about what do we do if we all have to go into lockdown? –07Australia

Accepting uncertainty and persistently seeking to prepare

This feature resonated very strongly in the context of COVID-19 due to the overwhelming sense of uncertainty throughout the early stages of the pandemic. These doctors sought to understand the threat within their local context and to plan what resources would be needed.

Well, after the [initial] peak, which was end of June, beginning of July, because all the time we were told to expect these huge numbers. And all the time, we kind of plan based on these numbers. And

we don't know if they're right, and we don't know if they're not right. And we're looking at what the numbers say, what are our actual figures say? And what's our oxygen usage like? What's the patient number doubling time? –11South Africa

New approaches to manage COVID-19 patients were rapidly adopted. The importance of teams was a common thread and there were genuine examples of clinical teamwork which supported rapid system change and the capacity to provide care to COVID-19 patients.

We had a guy who arrived, he was extremely short of breath and obviously needed oxygen. We didn't have a high-flow machine at that point and we didn't have easy access to referral at all, and we'd been discussing in the morning meeting the things that we can do to mitigate it, including prone positioning and nursing. ...our community service doctor was actually in the ward at the time, allocated there, and he went back from that meeting and he was, like, 'This patient needs proning and let's do it'. He literally heard about it half an hour before, the nurses knew nothing about it and it was like, 'Let's work out how we can do this'. I mean, we've seen the pictures, we've discussed how to do it, but nobody at all had any experience of it, but clearly this patient needed it and that kind of ability to go and take what you've just learnt, quite literally, and work together with your nursing colleagues and put it into practice, I was so chuffed. –05South Africa

The COVID-19 pandemic also highlighted the importance of persistence in situations where current practices and systems are not ideal, particularly in low-resource rural settings.

I couldn't just then sit back, even though the resources were not enough. Yeah, I think that was the main reason why, in the end, I got up and said, 'We can just work with what we have and see what we can do'.... And so it's drawing from the things that we've already been practising and applying them to a new situation. –01Zimbabwe

Deliberately understanding and marshalling resources

Preparing for COVID-19 involved establishing new infection control procedures, new systems to screen and consult patients, ways of working in teams and improvising existing facilities. When facing the likely influx of patients and potential collapse of health services, these rural doctors were innovative in how they reached out to people to marshal available resources.

I really had to just reach out to people I know who are also starting their responses during that time, like, the other municipal health officers in the area.... I even said to my staff that I personally do not know how to do this, but if we work together, I think we can manage to get through this pandemic and everyone would just share resources,..... We were able to innovate, we were able to do the improvised handwashing facilities that we could use, like, using a drum as a storage of water for handwashing facilities in different areas that we can use. –09Philippines

Being innovative, pragmatic and proactive enabled them to access local facilities and resources, to get up-to-date information and to mobilise clinical team members. These rural doctors understood the local context and reported being better placed than external administrators in recognising and marshalling resources for their medical services.

When the pandemic began, a lot of administrations were worried about getting ventilators and all these things, when the basic infrastructure that people had could have been more useful, like oxygen concentrators, particularly here.... And we were worried about getting ventilators, but we didn't have people trained to use those. And we didn't have enough things to intubate,... so I think, if we are stepping into an unknown situation, I think I learned that we should primarily focus on what we have and see how we can improve what we have, the little that we have, to help us fight an unknown situation. –01Zimbabwe

Humbly seeking to know one's own limits

In the context of the emerging pandemic, 'knowing one's limits' was interpreted in relation to coming to terms with one's own limitations and lack of knowledge about COVID-19.

This experience, more or less, it really humbled me a lot because as a doctor I thought I could manage anything, I mean if you have a disease you need to manage or treat, you'd know what to do because you are the doctor, but with COVID everything is just so uncertain. And you know that it's something that you cannot really rely on the skills you developed during medical school. So, it really humbled me a lot. That I know I do not know everything and that I need other people to work with. 09Philippines

Participants also spoke about the limits to their own personal resources in the context of unrelenting stress and workload, and of recognising the limits of their colleagues:

... I know that everyone has his or her own limits, so we have to know or we have to understand, highly understand about that – about that limit

and don't push them go forward, but you have to support them and stay along with them until they know their own limit, and also support them every moment in that situation. –06Thailand

Another aspect of knowing one's limits was weighing the risks they would take on for themselves and their families. Although none of our participants made the decision to distance themselves from COVID-19 patients, they described how some colleagues had chosen to do so, and how they assessed their own personal risks:

In our department we had the father of some young children who just did not want to have anything to do with it because he was worried that he was going to infect his children, he just couldn't tolerate that. 04Australia

Every risk I take, I think about the repercussion to my family for their health, their wellbeing. Every risk I take, I think what will happen to them if something goes wrong. That is my somehow moral and cautious parameter. 02Bosnia Herzegovina

In many cases, these doctors described pushing beyond their limits of feeling personally safe:

I was really uncomfortable doing all that work. I had to push myself each time.... But the whole time, I was worried that the PPE that I had was inadequate, and I was exposing myself each time. At some point I had to test about 40 members of staff who had been involved in the care of two patients who turned out to be COVID-positive and with severe symptoms. So testing all those 40 people was quite a challenge. 01Zimbabwe

Clearing the cognitive hurdle when something needs to be done for your patient

This feature resonated with participants who faced new clinical challenges with COVID-19 patients. In one case, this involved shifting from life preservation to a palliative care focus for patients with poor prognosis:

I feel like I know that feeling. When you first get the situation and you think, no, I can't, I can't do this, there isn't a way that it can be done. And to come back and look at it again and say, 'Okay, can I make a mind shift'? Can I say, 'All right, maybe there's a way that we can do this. Maybe even the mind shift to the palliative care comes under that? ...But sometimes the obstacle is in your own mind. 11South Africa

Collegial support to stand up again

Collegial support was a strong theme in the

context of COVID-19. It was described in terms of sharing the load and supporting each other in the local context.

I think trying to also get a couple of people around me who were like-minded in their understanding of what was going on within the hospital, obviously, was helpful as well. Getting people to help with some of the day-to-day stuff, like data management and stuff which was obviously important, but was taking a lot of time. –05South Africa

Sharing experiences more broadly with national and international colleagues was an important source of support and reassurance for these doctors. It provided opportunities for problem-solving and gaining access to new information and normalising experiences through shared conversations.

So we built a Zoom meeting to talk about the situation, the COVID situation and how to deal with the COVID in COVID era, something like that; that's the theme of the meeting. So every week, we have the guest or the speaker from every, every province in Thailand that shows how family physician can deal with the COVID situation. So that's helped a lot. That's helped our practice, that's helped our spirit, that we have another family physician that fights COVID along with us, that's helped a lot. 06Thailand

DISCUSSION

The emergence of COVID-19 and its impact on rural doctors presented a rare but timely opportunity to explore the relevance of the attributes of clinical courage as described in our previous phenomenological study. In the current study, we found evidence that affirms and extends our understanding of these attributes, as well as highlighting the role of rural doctors as community leaders during this crisis.

In relation to 'standing up to serve the community' we broadened our understanding to include the drive to respectfully bring community members along in managing the new threat of COVID-19. More than in our previous work,¹ an important community leadership role for doctors was articulated, and this highlighted the intersectionality of rural doctors who belong to the rural community and to the medical profession. Some doctors were driven to push beyond the limits of personal safety to provide care, an expression of clinical courage drawn out by exceptional circumstances.

In our original phenomenological work, we described 'accepting clinical uncertainty' in relation to rural doctors undertaking unfamiliar procedures, and using their adaptive expertise to apply familiar skills to new clinical circumstances.¹ In the context of COVID-19, these doctors used their adaptive expertise to transfer basic clinical knowledge to manage a complex new disease, and to adopt different treatment strategies, such as proning or palliative care for COVID-19 patients with poor prognosis. Adaptive expertise was also used more broadly to develop and implement disaster preparation strategies within their communities. These examples concur with other accounts of rural doctors' adaptive responses in relation to COVID-19^{9,10} or in relation to healthcare barriers.¹¹

To prepare for COVID-19 in their communities, these rural doctors marshalled available resources by reaching into and beyond their local communities. They described sharing information with other communities, 'the more local the better'. Information from international sources was accessed via webinars and professional networks. Where our previous research had uncovered the challenges in marshalling resources for locums who do not know the local context,¹ this study demonstrated how external systems can fail to provide appropriate resources for rural medical facilities, which are often lacking basic infrastructure.

In the early stages of the pandemic, the participants described being humbled by their own uncertainty and powerlessness to manage COVID-19. This resonated with the attribute of 'Knowing one's limits' which was previously understood in relation to recognising the limits to the scope of practice.¹ These doctors also felt pushed to the limits of their own personal reserves, and mindful of their colleagues due to the unrelenting stress and workload. Where our previous work had hinted at the personal risks of burnout when communities had unrealistic trust in or expectations of their rural doctors, this study highlighted the challenges faced by some doctors in coming to terms with their own uncertainties and limitations, especially in low-resource settings.

Participants' narratives strongly emphasised the value and importance of clinical teams and support workers and articulated the terrible sadness and responsibility of having to care

for workmates who became COVID-19 cases. Distress, separation from the support of family, and self-care were prominent in the interviews. While this was unsurprising considering the context and the nature of our questions, these issues may have broader relevance in the praxis of rural medicine. Previous studies have described the importance of self-care to prevent burnout,¹² and the importance of personal and professional relationships for developing and sustaining rural doctors' context-specific clinical courage.²

Participants displayed a range of coping strategies in response to COVID-19, and we have explored these in a separate paper.⁷ Consistent with the Lazarus and Folkman stress and coping model,¹⁵ we identified problem-focussed, emotion-focussed, and meaning-based coping strategies. These parallel some attributes of clinical courage; preparing for uncertainty and working to marshal resources are consistent with problem-focussed coping strategies; while collegial support to continue through adversity represents emotion-focussed coping.

Although there may be further features of clinical courage, this study has affirmed the existing attributes in the context of the COVID-19 crisis and added richness to our overall understanding of this phenomenon. The strengths of the study include interviewing doctors from very low-resource settings; the rich detail provided by all participants; and finally, the rapport between the participants and experienced interviewers who have worked as rural doctors. We do not seek to generalise from this diverse sample of rural doctors, rather, we sought to understand whether the attributes of clinical courage were transferable to this group and in this context. Although the group was small, the sample specificity and high quality of the interview dialogue strengthened the information power and validity of the study.¹⁴

CONCLUSION

This international study affirms the attributes of

clinical courage amongst a group of rural doctors during the emerging COVID-19 pandemic. It also highlights the important role of rural doctors as community leaders during crises.

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Conflicts of interest: There are no conflicts of interest.

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Utilisation and barriers of PoCUS in a rural emergency department – A quality improvement project

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Abstract

Introduction: Point-of-care ultrasound (PoCUS) has been recognised as a tool that leads to more definitive diagnoses and enhances clinical decision-making in rural emergency departments (EDs) where diagnostic imaging is limited. We aimed to determine the current utilisation, barriers and solutions to using PoCUS in this rural Saskatchewan ED.

Methods: Physicians working in the ED participated in a semi-structured interview. An online survey, administered via SurveyMonkey post-interview to provide further context, was used to support qualitative approaches. Interviews were recorded, transcribed and then analysed using inductive interpretation.

Results: Seven physicians completed the quantitative survey with a response rate of 70%. Ten physicians were interviewed with a response rate of 100%. Themes identified were that physicians in this community's ED perceived their skill level as determining whether a scan was diagnostic or not, rather than the specific PoCUS application itself. In addition, they performed scans primarily for the purpose of triage. Inadequate training, *Core IP certification* certification requirement and intradepartmental logistics were barriers to PoCUS utilisation.

Conclusion: This study showed that ED physicians in this community perceived PoCUS as a clinical adjunct and as a tool to triage patients for further imaging. Results highlight the need to have accessible training for rural physicians to increase PoCUS utilisation, awareness of current Saskatchewan PoCUS guidelines and education on diagnostic applications of PoCUS. Increased use of PoCUS for specific scans could decrease the need for formal imaging and the associated healthcare system resources.

Keywords: Access to training, emergency medicine, point-of-care ultrasound, rural

Résumé

Introduction: L'échographie au point d'intervention (ÉPI) est reconnue comme un outil permettant d'établir des diagnostics plus définitifs et d'améliorer la prise de décision clinique dans les services d'urgence ruraux où l'imagerie diagnostique est limitée. Nous avons cherché à déterminer l'utilisation actuelle, les obstacles et les solutions à l'utilisation de l'ÉPI dans ce service d'urgence rural de la Saskatchewan.

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Méthodes: Les médecins travaillant aux urgences ont participé à un entretien semi-structuré. Une enquête en ligne, administrée via SurveyMonkey après l'entretien pour fournir un contexte supplémentaire, a été utilisée pour soutenir les approches qualitatives. Les entretiens ont été enregistrés, transcrits puis analysés à l'aide d'une interprétation inductive.

Résultats: Sept médecins ont répondu à l'enquête quantitative, soit un taux de réponse de 70%. Dix médecins ont été interrogés avec un taux de réponse de 100%. Les thèmes identifiés sont les suivants: les médecins du service d'urgence de cette communauté considèrent que leur niveau de compétence détermine le caractère diagnostique ou non d'un examen, plutôt que l'application spécifique de l'ÉPI. En outre, ils effectuaient des scanners principalement à des fins de triage. Une formation inadéquate, l'exigence d'une certification de *praticien indépendant de base* et la logistique interne au service étaient des obstacles à l'utilisation de l'ÉPI.

Conclusion: Cette étude a montré que les médecins des services d'urgence de cette communauté percevaient l'ÉPI comme un complément clinique et un outil de triage des patients en vue d'un examen d'imagerie plus approfondi. Les résultats soulignent la nécessité d'une formation accessible aux médecins ruraux pour accroître l'utilisation de l'ÉPI, la connaissance des lignes directrices actuelles de l'ÉPI de la Saskatchewan et l'éducation sur les applications diagnostiques de l'ÉPI. L'utilisation accrue de l'ÉPI pour des examens spécifiques pourrait réduire le besoin d'imagerie formelle et les ressources du système de santé qui y sont associées.

Mots-clés: Accès à la formation, échographie au point d'intervention, médecine d'urgence, milieu rural

INTRODUCTION

Rural Canadians have lower life expectancy, higher mortality and higher rates of many acute and chronic illnesses than their urban counterparts.^{1,2} They also have higher trauma and trauma-related death rates, with 22.5% of Canadians residing more than 1 h away from a level I or level II trauma centre.^{2,3} In Canada, it has been acknowledged that there are major disparities in access to diagnostic imaging between rural and urban centres.^{1,3} Twenty per cent of rural emergency departments (EDs) have access to computed tomography (CT) scanners and 28% to ultrasound services.^{2,4} This results in the use of inappropriate imaging modalities, such as X-ray, or transferring patients to larger centres, up to thousands of kilometres away, for appropriate imaging such as consultative ultrasound, CT and MRI.^{2,5,6} This inaccessibility and associated travel results in significant direct and indirect financial burdens on the healthcare system as well as the individual.⁴ In addition, transportation delays due to weather or transport availability can also compromise patient care.^{5,8} Thus, a significant barrier to accessible healthcare in rural communities is access to urgent diagnostic imaging, creating a significant disparity between urban and rural populations.^{5,6}

Point-of-care ultrasound (PoCUS) has been identified as an important tool in rural settings to assist in clinical decision-making.^{3,9} PoCUS

reduces time to diagnosis, contributes to definitive diagnoses, alters patient management, improves acute care outcomes and reduces the need for immediate transfer of patients to larger centres for further imaging.^{2,5,10} Furthermore, PoCUS is inexpensive, non-invasive and does not require potentially harmful contrast and radiation.^{2,11}

In Canada, many physicians providing care in rural EDs are family medicine-trained physicians. Despite the benefits for rural physicians to use PoCUS, and these physicians believing PoCUS to be critical to ED practice, there continue to be disparities in PoCUS use between rural and urban acute care environments. As of 2012, less than half of the physicians working in rural EDs used PoCUS, with lack of training followed by time and departmental flow requirements cited as the primary barriers.^{2,12,15} In a survey of Canadian ED physicians, Leschyna *et al.* (2019) demonstrated a strong association between PoCUS utilisation and level of training.¹² Most physicians surveyed (56.6%) received training solely outside of residency, while only 14.8% had received training in residency, with many family medicine residency programmes not having an established PoCUS curriculum.^{12,14} Cost of training, scan requirements to receive formal PoCUS qualification and accessibility to training courses are significant barriers to becoming trained.^{3,13,15,16} Others have identified challenges with skill maintenance, lack of quality assurance and poor access to equipment (i.e., ultrasound

machine), as barriers to PoCUS utilisation in the rural setting.^{2,3,15-19}

To date, there has been 1 published abstract investigating the barriers to adopting PoCUS into practice in rural Saskatchewan EDs.¹⁶ We expanded on their findings by eliciting the voices of physicians working in a specific rural ED, exploring how they utilise PoCUS, perceived barriers to such and possible solutions to overcome those barriers.

METHODS

Methodology

For this quality improvement study, a mixed-methods approach was used with an exploratory sequential research design. Participants first participated in an interview followed by an online survey via SurveyMonkey.²⁰ Data from both research components were analysed.

Setting

This study was completed in a community hospital in rural Saskatchewan serving 5000–6000 residents, as well as the catchment area population of ~15 000, including Indigenous and farming communities. The 24-h ED is staffed by 1 physician and 1–2 registered nurses per shift. This ED has daytime access to in-house X-ray and laboratory services, and on-call services during the night. In-house formal emergency ultrasound is available from 8 am to 4 pm approximately 3 days per week. The nearest community to access non-emergent formal ultrasound and CT is 158 km by road.

Study participants

Eligible study participants were permanent physicians (i.e., non-locum) who worked in this rural community's ED. Purposive sampling took place due to the small sample size of eligible physicians. The community has been kept anonymous to maintain the anonymity of the research participants.

All participants provided written informed consent for participation in the study. The study was submitted to the University of Saskatchewan Research Ethics Board and was exempted from

an ethics review due to quality improvement intent. Despite the obtained ethics exemption, ethical guidelines for conducting research were observed.

Data collection: Qualitative

With consideration of the research questions and pertinence to each objective, interview questions were developed by the primary researchers to help guide the semi-structured interviews. These questions were then reviewed by a qualitative research and knowledge translation specialist to ensure that questions were appropriate and would elicit adequate response. The questions were not piloted due to small sample size.

Interviews took place in a private room in a medical clinic or at the local hospital, and were audio recorded and transcribed using an online artificial intelligence software, Otter.ai.²¹ Transcripts were manually edited by the primary investigator to remove repetitive words, filler words, and reviewed for accuracy. Member checking was employed; participants had the opportunity to edit, delete, rephrase or add to their interview transcript.

Data analysis was conducted after all interviews were completed. All physicians consented via written consent to participate. After 10 interviews were completed, no new information or experiences were shared, and enough data were generated to address the objectives of this study.

Data analysis qualitative

Qualitative data analysis was performed by 2 reviewers using inductive interpretation in 5 concise steps, illustrated by Figure 1, to ensure trustworthiness.

Data collection: Quantitative

After completing the interview, all participants were E-mailed a secure link to complete a survey via SurveyMonkey. Participants inputted a unique participant ID to link their survey responses to their interview responses while maintaining anonymity to the researchers. Participants were given 21 days to complete the survey. Two E-mails reminding participants to complete the survey were sent at 7 and 17 days following the

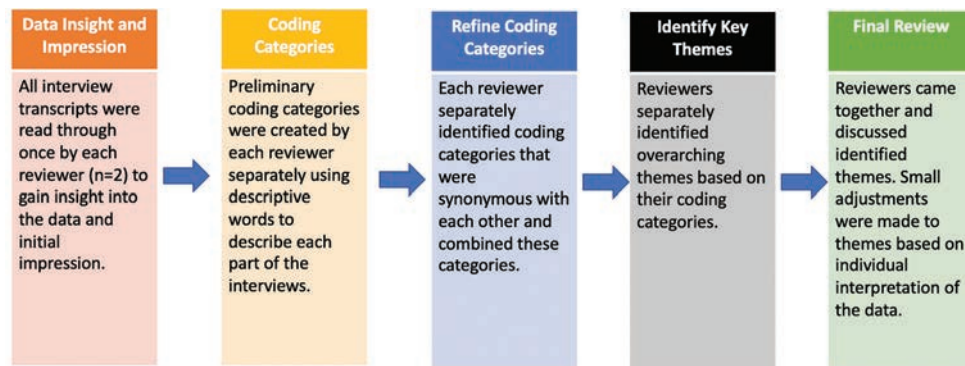


Figure 1: Qualitative analytic process using inductive interpretation.

interview. The survey was comprised of a total of 15 questions, including a mix of open- and close-ended questions. The survey was included in the study design to provide data on participant demographics and gather quantitative data to help support themes elicited through the interviews.

Data analysis: Quantitative

The individual responses from the online survey were compiled and reported as absolute values. Due to the small number of respondents, no statistical analysis was performed.

Researcher characteristics

The research team consisted of 2 medical students immersed in this rural community for 10 months of medical training. They brought with them perspectives influenced by recent clinical experiences in urban centres as well as new knowledge of the barriers that exist in this rural community ED. Each medical student reflected on lived experiences throughout the data analysis. Each had a diverse upbringing in rural and urban settings alike, providing a range of perspectives and insight into the complexity of rural healthcare.

RESULTS

Total participants

Eleven physicians who were permanently working in the ED in this community were approached and 10 of those individuals were interviewed. Of these 10 physicians, 7 of the 10 participated in the online survey.

Participant demographics

Tables 1 and 2 report the participant demographics of interviewed and surveyed participants, respectively.

Themes

Three themes were developed from the semi-structured interviews that address the research objectives – current utility, barriers to utilisation and solutions – and are listed in Table 3.

Objective 1: Current utility

Clinical adjunct

Many participants identified PoCUS as an adjuvant to their clinical examination – ‘Almost always as an adjunct. I don’t use it as a diagnostic tool. So it’s the same as how I use my stethoscope, as part of the clinical examination’ (P03). Other physicians stated that they were hesitant to use PoCUS as more than a supportive clinical skill due to lack of qualifications. The consensus was that if someone did not have PoCUS training and certification, they should use PoCUS as a clinical adjunct rather than a diagnostic tool.

Diagnostic tool

Although many physicians were hesitant to identify PoCUS as a diagnostic tool, some indicated they used it as such. Six out of 7 surveyed physicians were comfortable using it to rule in/out particular pathologies that were identified by free fluid or air, such as intra-abdominal bleeding, abscesses, pleural effusions, pericardial effusions and pneumothoraces. Four of the

Table 1: Demographics of participants who were interviewed

Years	Number of interviewed participants (n=10)		
	Practising as a physician	Practising in an emergency department	Practising in this community's emergency department
0–5	2	4	6
6–10	2	4	2
11–15	2	-	-
16–20	2	1	2
21–25	-	-	-
26+	2	1	-
Mean (range)	14 (2–28)	9 (2–28)	7 (2–20)

Male:female=5:5

Table 2: Demographics of participants who completed the survey

Years	Number of survey participants (n=7)		
	Practising as a physician	Practising in an emergency department	Practising in this community's emergency department
0–5	2	2	3
6–10	2	3	2
11–15	1	-	-
16–20	1	1	2
21–25	-	-	-
26+	1	1	-
Mean (range)	12 (2–28)	11 (2–28)	8 (2–20)

Male:female=4:3

Table 3: Objectives and subsequent themes

Current utility	Barriers to utilisation	Solutions
Clinical adjunct	Inadequate training	Addressing travel, time and cost of training opportunities
Diagnostic tool	Inaccessible training courses	Lateral skill transfer
Triaging patients for urgent tertiary medical management	Core IP certification requirements and clinical relevance Intradepartmental logistics	

interviewed participants stated that they would use PoCUS as a diagnostic tool if they were more comfortable with PoCUS scans. All 7 participants who completed the online survey indicated that they had encountered scans – recommended by the Canadian Association of Emergency Physicians (CAEP) as essential to practise in an ED – that they wished to perform but did not feel comfortable doing so.

Triaging patients for urgent tertiary medical management

Amongst those who used PoCUS, all could identify

an experience where PoCUS allowed for a timely diagnosis of a high-risk presentation and expedited management. They also indicated that it helped triage patients in terms of urgent CT imaging or transport to a larger centre. A participant explained, 'when I look at a gallbladder in the emerg (with PoCUS) and say, 'Oh, this person's got stones and signs of cholecystitis,' then I might be able to expedite that a little bit and be more likely to say, 'I'm going to send this person tonight instead of in four days' (P01). Another participant conferred that PoCUS helps determine, 'how soon this person needs care and what level of care they need' (P10).

Objective 2: Barriers to utilisation

Inadequate training

Six of the interview participants indicated that insufficient training prevented them from using PoCUS and being confident in their findings. This was echoed in the survey results, with 5 of 7 surveyed physicians indicating that a lack of training limited the use of PoCUS in the ED, making it the most frequently cited barrier. One physician indicated that they felt significantly restrained by their lack of knowledge regarding PoCUS, 'Because I haven't had any training, or I am not very comfortable to use (PoCUS)... it's just a matter of user. It's not just a matter of facility or equipment. It's our (lack of) experience' (P08).

Inaccessible training courses

Despite a recognised need for training amongst participants, all cited inadequate access to PoCUS training opportunities as barriers to participate in further training. These were characterised by the high cost of courses, limited course availability and time away from practice resulting in lost income, less availability for patients and increasing workload for colleagues. One physician said, 'Time-because they are 4-day courses, and most of them have happened in Regina. And that's a 5-h drive from here. So, I have to take the full day before off to get there...So it's 5 days that I have to take to do the training' (P01). Another interviewed physician outlined how the cost of the course and time away from practice is a barrier to further training; 'It would have cost me \$5,000 for a week, and I wouldn't be able to work. So I lost income plus I paid \$5,000 to be able to say I have this qualification, which I couldn't bill for' (P04).

Core IP certification requirements and clinical relevance

Many of the physicians had completed the ED Echo (EDE) One course but did not receive certification, citing difficulty achieving the required number of supervised scans. While 1 interviewed physician repeated the EDE One course to achieve the number of necessary supervised scans and receive their certification, they found this to be a costly endeavour. Another

participant echoed this sentiment, 'I think it's really hard for people to go back (to complete scans)...to have a provider come here, it was very expensive. To have somebody come and watch scans... it was like thousands of dollars' (P05). Eight of the interviewed physicians cited completing the number of supervised scans to receive certification as difficult and very expensive. Furthermore, all physicians stated that they did not receive formal ultrasound training in residency. Of those who were exposed to PoCUS during residency, it was completed informally by preceptors during clinical rotations.

Three interviewed physicians were hesitant to say obtaining core IP certification, a certification which is provided by Canadian Point of Care Ultrasound Society to facilitate independent use of PoCUS in practice, would alter how they used PoCUS in the rural ED. One physician stated, 'I think there needs to be more clarification regarding - does (Core IP certification) ultimately change the way we practise and (make decisions)? Because that's what it comes down to. I think a lot of people are holding back on doing this extra training' (P09). Furthermore, participants expressed that specialists in the city still request formal imaging of the described pathology before accepting the patient, regardless of Core IP certification, thus exemplifying the diminished benefit of acquiring the PoCUS skill set. Many physicians identified the inability to save images or videos of their scans and upload them to PACS, the provincial online imaging viewing system, as a significant contributor to this.

Intradepartmental logistics

Physicians also highlighted the time requirement of using PoCUS in the rural community ED. As 1 physician stated, 'I don't have enough time and I'm the only (physician) in the ED, so I find that when things are slower,.. I'll use ultrasound a lot more. Whereas..if it's too busy, then I will rely on other means to get my answers and I won't spend as much time using ultrasound' (P05).

Three of the interviewed physicians also regarded the current COVID-19 precautions in the ED as a barrier to utilisation due to the enhanced sanitisation protocol of the machine. Some also stated that the low volume of specific scans limited their ability to maintain their skills.

Objective 3: Solutions

Addressing travel, time and cost of training opportunities

All physicians who completed the survey either agreed (1/7) or strongly agreed (6/7) that if opportunities for PoCUS training and skill maintenance were made more accessible, they would be more likely to engage in activities to further their PoCUS skills. The travel requirement was the most frequently cited barrier that, if removed, would increase the likelihood of the participants participating in further PoCUS training (7/7). This was followed closely by eliminating the out-of-pocket cost (5/7) and reducing time requirements (5/7). This was echoed during the interviews:

‘Offering it in rural centres. I think that would actually solve a lot of the problems... That if a course was actually taking place in your community, I think you’ll get a lot of people signing up... that would reduce time away from practice and potential costs associated with the course...’ (P09).

Capitalising on lateral skill transfer

Lateral skill transfer via peer-to-peer teaching was also identified as a possible solution, with 6 of 10 interviewed participants identifying it as such. They highlighted that it would help eliminate travel and cost requirements while improving congeniality;

‘You can learn this by being taught by colleagues as well....If we have some training here that leaks out... (resulting in) everyone knowing a little bit more. There’s definitely a lateral skill transfer that occurs when you’ve got people that are qualified in ultrasound..’ (P03).

Most surveyed respondents (5/7) believed that there is a role for using telemedicine with PoCUS in this ED. However, 5/7 expressed that those significant logistical challenges, such as the time burden associated with consulting another physician, would be a barrier to using PoCUS telemedicine.

mostly as a clinical adjuvant and triage tool, even for scans with a diagnostic application. Many barriers, including training accessibility, cost, time away from family and practice and fulfilling scan requirements for Core IP certification, limit opportunities for further training, preventing PoCUS from being utilised to its full potential in this ED.

Currently, CAEP indicates that PoCUS should be used based on clinical context as a diagnostic or procedural tool to help guide the management and treatment of patients in the ED and that all physicians working in an ED should be comfortable with specific scans.²² Based on these guidelines, the diagnostic application can be further divided into 3 categories – resuscitative, advanced diagnostic and therapeutic – and the utility of a PoCUS scan should not be based on the provider’s skill level.²² While the physicians in this rural ED used PoCUS via a diagnostic application in specific situations, they were hesitant to identify their scans as diagnostic under most circumstances, attributing this to their perceived skill level and their limited knowledge of current Saskatchewan PoCUS guidelines. These guidelines state ‘that all providers should have a clear induction to the ultrasound application followed by supervised apprenticeship’.²³ This emphasises the need to continue to promote systems to connect emergency medicine providers throughout the province with networks such as the Saskatchewan Emergency Medicine Collective.²⁴

In this rural ED, some physicians felt uncomfortable using PoCUS due to a lack of training. Those physicians using PoCUS only did so for specific scans with which they felt confident. This too seemed to be associated with a lack of necessary training and experience. Our results were consistent with Flynn *et al.*, who reported that 77.8% of rural physicians surveyed cited training as a barrier to PoCUS use.¹⁵ Level of training in PoCUS also correlated with PoCUS utilisation and the likelihood that a physician would consider their scans as diagnostic, which, as stated previously, should not be associated with the skill level of the provider. A Canadian survey study by Leschyna *et al.* elicited similar results, in that those physicians who had formal training in PoCUS were using it more regularly in the ED.¹²

Rural physicians have indicated accessing training as per Saskatchewan PoCUS guidelines is costly, and achieving scan requirements to

DISCUSSION

Physicians in this rural ED currently use PoCUS

become certified is tedious.¹² Participants echoed Flynn *et al's* results and concurred that the time commitment and poor accessibility to courses were deterrents to using PoCUS.¹⁵ Participants noted that most EDE courses were in major centres hours away with limited spots that fill quickly. This did not give them adequate time to rearrange their clinic and practice responsibilities. Despite this, participants recognised PoCUS as a beneficial ED tool and skillset.

This study provided insight into the potential system benefits of increased formal PoCUS training for rural ED physicians. In this rural ED, PoCUS is currently being applied as a triage tool, reducing the need for urgent imaging and the associated ambulance transports hours away to major centres. As outlined by Arnold *et al.*, further training to build on the current use of PoCUS in rural centres can further aid in the reduction of healthcare utilisation and costs.¹⁹

Participants were eager to learn and suggest solutions to training barriers. A proposed solution was lateral skill transfer via peer-to-peer teaching, which has been suggested in the current Saskatchewan PoCUS guidelines.²⁵ This is an effective learning medium, with knowledge transmission that is like an experienced teacher.²⁶ It also provides a more comfortable learning environment that encourages collaboration and collegiality.²⁶ Second, increasing the availability of courses in rural communities in Saskatchewan would decrease training barriers and increase the uptake of training of rural physicians while providing education on current Saskatchewan PoCUS guidelines.^{2,16} Finally, increasing the formal PoCUS training within medical school and residency programmes could decrease the need for PoCUS training post-residency, reducing the barriers reflected upon by participants.¹⁴

Strengths

Reviewers had different worldviews resulting in a thorough interpretation of the data, from a rural and urban perspective. Supportive data from the survey and precise qualitative analysis completed by 2 reviewers enhanced the trustworthiness of this study. Furthermore, 10 of the 11 total physicians permanently working in this ED were interviewed, corresponding to a high participation rate.

Limitations

The participants interviewed in this study were working closely with the researchers at the time, resulting in possible bias. In addition, this study was limited to a small sample size attributable to the size of the community. Finally, this study was focused on a specific ED in rural Saskatchewan with the intent of quality improvement. Thus, caution should be taken when generalising the results to other rural communities. Further research should be completed in assessing whether the results of this study are representative of physicians working in other rural Saskatchewan EDs.

CONCLUSION

In this rural ED, physicians use PoCUS as a clinical adjuvant and triage tool due to perceived skill level. This is exacerbated by the fact that these physicians need to travel great distances to seek out formal PoCUS training which requires time and money. Furthermore, many do not seek out the opportunity due to a perceived lack of impact on current practice. To overcome these barriers, physicians suggested that formal PoCUS courses be offered in the community to make them more accessible which would increase diagnostic efficiency and help decrease transportation healthcare costs for urgent imaging. This study further highlights the need to connect with rural communities throughout the province to provide continued and current updates on Saskatchewan PoCUS guidelines.

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Enhanced recovery after surgery reduces length of stay after colorectal surgery in a small rural hospital in Ontario

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Abstract

Introduction: Enhanced recovery after surgery (ERAS) programmes include pre-operative, intraoperative and post-operative clinical pathways to improve quality of patient care while reducing length of stay (LOS) and readmission. This study assessed the feasibility and outcomes of an ERAS protocol for colorectal surgery implemented over 2 years in a small, resource-challenged rural hospital.

Methods: A prospective cohort study used retrospectively matched controls to assess the effect of ERAS on LOS in patients undergoing colorectal surgery in a small rural hospital in northern Ontario, Canada. ERAS patients were matched to two patients in the control group based on diagnosis, age and gender. Patients had open or laparoscopic colorectal surgeries, with those in the intervention group treated per ERAS protocol and given instructions on pre- and post-operative self-care.

Results: Most of the 47 ERAS patients recruited to the study reported adherence to ERAS protocols before surgery. Adherence to protocol was strongest for chewing gum in the days after surgery. Most patients were sitting in a chair for their afternoon meal by the 1st day and most were walking down the hallway by the 2nd day. The control group had significantly higher ($P < 0.001$) malignant neoplasm of the colon (C18, 69% vs. 35%) and significantly lower malignant neoplasm of the rectum (C20, 0% vs. 5%). The control group had an average ln-transformed LOS that was significantly longer (exponentiated as 1.7 days) than ERAS patients (t -test, $P < 0.001$).

Conclusion: This study found that ERAS could be implemented in a small rural hospital and provided evidence for a reduced LOS of approximately 2 days.

Keywords: Colorectal surgery, enhanced recovery after surgery, hospitals, length of stay, Ontario, perioperative care, rural

Résumé

Introduction: Les programmes de réhabilitation améliorée après chirurgie (RAAC) comprennent des itinéraires cliniques préopératoires, peropératoires et postopératoires visant à améliorer la qualité des soins aux patients tout en réduisant la durée du séjour et les réadmissions. Cette étude a évalué la faisabilité et les

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résultats d'un protocole de RAAC pour la chirurgie colorectale mis en œuvre pendant deux ans dans un petit hôpital rural aux ressources limitées.

Méthodes: Une étude de cohorte prospective a utilisé des témoins appariés pour évaluer l'effet de la RAAC sur la durée du séjour des patients subissant une chirurgie colorectale dans un petit hôpital rural du nord de l'Ontario, au Canada. Les patients RAAC ont été appariés à deux patients du groupe témoin sur la base du diagnostic, de l'âge et du sexe. Les patients ont subi une chirurgie colorectale ouverte ou laparoscopique, et ceux du groupe d'intervention ont été traités selon le protocole de RAAC et ont reçu des instructions sur les soins auto-administrés pré et postopératoires.

Résultats: La plupart des 47 patients RAAC recrutés pour l'étude ont déclaré adhérer aux protocoles de RAAC avant l'intervention chirurgicale. L'adhésion au protocole a été la plus forte pour la gomme à mâcher dans les jours qui ont suivi l'opération. La plupart des patients étaient assis sur une chaise pour le repas de l'après-midi dès le premier jour et la plupart marchaient dans le couloir dès le deuxième jour. Le groupe témoin présentait un taux significativement plus élevé ($P < 0,001$) de néoplasme malin du côlon (C18, 69% contre 35%) et un taux significativement plus faible de néoplasme malin du rectum (C20, 0% contre 5%). Le groupe de contrôle avait une durée moyenne de séjour transformée en Ln significativement plus longue (exponentielle de 1,7 jours) que les patients RAAC (test t , $P < 0,001$).

Conclusion: Cette étude a montré que la RAAC pouvait être mise en œuvre dans un petit hôpital rural et a fourni des preuves d'une réduction de la durée de séjour d'environ deux jours.

Mots-clés: Réhabilitation améliorée après chirurgie (RAAC); durée du séjour; hôpitaux ruraux; chirurgie colorectale; Ontario; soins périopératoires

INTRODUCTION

Enhanced recovery after surgery (ERAS) programmes consist of pre-operative, intraoperative and post-operative clinical pathways to improve the quality of patient care while reducing the length of stay (LOS), readmission rates and reduce the economic impact on the institution.¹⁻⁶ By following the 15–20 interventions defined by ERAS, many large centres have shown significant improvement in patient outcomes, fewer surgical site infections and lower rates of hospital-acquired infection.²⁻⁴ However, evidence is sparse for the effectiveness of ERAS in smaller, rural hospitals.⁷ This study reports on the feasibility and selected outcomes of implementing the ERAS programme in a small rural hospital located in an underserved region of Ontario, Canada.

ERAS programmes use evidence-based medicine to challenge traditional surgical practices; strict fasting protocols are replaced by carbohydrate loading, control and optimal goal-directed fluid therapy during surgery. Advances in anaesthesia allow catered approaches to minimise opioid use, and early mobilisation after surgery is encouraged.^{6,9}

ERAS also highlights the need for patient engagement in their own healing. Patients appreciated playing a role in their recovery and

were highly satisfied with all aspects of their procedure such as physician skill level (technical and interpersonal), pre-operative patient education and availability of staff to the patients.^{6,10,11}

Patient education is a key component from the pre-operative stage through to post-operative follow-up.^{6,12} Patients are encouraged to take some responsibility for their post-surgical outcomes,¹³ particularly related to smoking cessation. Smoking increases risk factors for wound healing, anastomotic leak, perioperative stroke and myocardial infarction. Consistent and correct information is crucial, as demonstrated by previous research where 90% of older adults adhere more strongly to ERAS protocols when time is taken to ensure the patients understand the guidelines.^{10,11,13}

Conventionally, patients preparing to undergo gastrointestinal surgery would be in a fasting state for a minimum of 8 h to reduce the risk of aspiration pneumonia.^{14,15} In addition, patients would undergo a bowel preparation, which may increase the risk of dehydration, particularly in the elderly.^{6,14} Patients who smoke, have functional dyspepsia, psychological stress or have an increase in female hormones are at increased risk for delayed gastric emptying.¹⁴

ERAS pre-operative procedures focus on patient engagement and optimal preparation for their surgical procedure in four key areas: breathing

(smoking cessation), movement (exercise), nutrition and expectations (clear surgery date).^{8,12} Intraoperatively, the patient is maintained at the ideal anaesthesia depth, has active warming and goal-directed fluid therapy, particularly for high-risk patients.¹¹ Patients are risk-stratified for nausea and vomiting and are given pre-emptive medication accordingly. Postoperatively, pain is managed with multi-modal therapy, minimising opioid use; narcotic use is a rate-limiting step in patients regaining bowel function, which directly influences LOS and can result in further complications.^{5,8,9} Epidural anaesthesia is often part of this approach. Nasal gastric tubes, bladder catheters, drains and intravenous fluid are used sparingly and removed as soon as possible.⁸ Enteral feeding and early mobility are introduced as soon as feasible after surgery and routine screening for delirium is conducted for older adults.¹¹

Studies overwhelmingly suggest that adherence to the entire pathway produces the best patient outcomes^{1,7,8} and highlight the need for health-care professionals to work as a multidisciplinary team.^{2,7,11} The programme requires input and support from all layers within the facility: hospital administrators and senior leadership, clinicians including surgeons, anaesthesiologists and nurses, and allied health professionals such as physiotherapists and dietitians.^{3,16,17}

Successful execution of ERAS requires substantial changes from the traditional methodologies for gastrointestinal surgeries. While ERAS protocols have been in place in urban centres for several years, this may be a challenge in rural hospitals, which have fewer resources.⁷ The goal of this project was to determine the feasibility of implementing an ERAS protocol for gastrointestinal procedures over 2 years in a small rural hospital and to evaluate its impact on patient outcomes, LOS, morbidity and readmission rate.

METHODS

Study design and setting

A prospective cohort study, using retrospectively matched controls was used to assess the effect of ERAS on LOS in patients undergoing colorectal surgery. The setting was a small rural community hospital situated in northern Ontario. Huntsville

has a stable population of 6482 and a catchment area of just under 20,000 permanent residents quadrupling seasonally with tourists. Seniors represent 27% of the population as it is also a retirement destination (Statistics Canada, 2016). The local hospital, Huntsville District Memorial Hospital (HDMH) (one site of Muskoka Algonquin Health Care (MAHC), has 37 acute care beds, dedicated to adult care.

This study received ethics approval from the Laurentian University Research Ethics Board (file number 2015-02-02) on 10 April 2015.

The surgical team involved the primary investigator HR, and two other surgeons, JM and RK. The study educator and surgical assistant is a Registered Nurse First Assistant (RNFA). Anaesthesia for all surgeries was overseen by AB.

All patients undergoing routine colorectal surgery, either benign or malignant disease, were eligible for the ERAS project. Consent for patients undergoing colorectal surgery was attained as per normal procedure in the surgeon's office. Patients were educated regarding the surgical procedure and expectations after which they had the opportunity to ask questions and have any aspect clarified. Family members were included when possible. Smoking cessation was mandatory 4 weeks before all ERAS procedures with patients receiving support aids if necessary. Patients were provided an ERAS handbook which contained education and instructions about the specific ERAS protocols. Patients were asked to fill in their handbook for each protocol they were required to complete before their day of surgery (e.g. carbohydrate consumption on the night before and morning of surgery and bowel preparation).

Enhanced recovery after surgery protocol

The RNFA and, when required, the on-call anaesthetist conducted patient education sessions in the day surgery unit. These visits lasted 1–2 h. ERAS patients received detailed information about how to prepare for surgery, and what they would need in the hospital and at home for their post-surgical care. Patients were sent home with the ERAS Patient Education Booklet.

Conventionally, patients would only attend the hospital pre-surgically if a consult was required. Surgical instructions and pre-surgical medications

would be provided by their surgeon when the procedure was booked.

ERAS patients were advised to consume two carbohydrate drinks before their surgery (the night before and 4 h before surgery). They were asked to chew gum as soon after recovery as possible and were encouraged to start eating solid food and drinking immediately after surgery. Mobility was promoted the night immediately following surgery by having patients sit and dangle their legs over their bed. Short walks were encouraged the day after surgery.

When ERAS patients were seen by their surgeon 2–4 weeks before their surgery, they were instructed to optimise their nutrition and improve their cardiovascular activity. Prescriptions were provided for oral antibiotics and bowel preparation at the surgeon's discretion. Upon completion of their pre-surgical appointment, patients could be referred for a pre-operative anaesthesia and/or internal medicine consultation if not already done. Patients were asked to bring their ERAS patient handbook to the hospital with them on the day of their surgery with the pre-operative questionnaire completed in advance.

On the day of surgery, patients were instructed to fast after midnight, except for clear fluids as desired and a mandated liquid carbohydrate load 4 h before surgery. Once in the operating room, a surgical checklist was completed as per routine hospital procedure. Intravenous antibiotics, to help prevent surgical site infection, were initiated 1 h before surgery, and deep vein thrombosis prophylaxis treatment, including compression stockings and sequential compression devices, was used. Patients were warmed during surgery with an air blanket device to maintain their body temperature while actively monitoring their temperature throughout.

Each ERAS patient received thoracic epidural anaesthesia before anaesthetic induction. Induction of general anaesthesia was done through the usual technique with opioids, propofol and rocuronium dosed individually by the attendant physician. Immediately after induction, an oesophageal Doppler probe, which generates individualised, estimated real-time cardiac output, was placed to facilitate intraoperative goal-directed fluid therapy. Patients were monitored in the usual fashion during surgery and transferred to the intensive care unit for monitoring and care after surgery.

After surgery, while still in hospital, patients tracked their progress in their patient handbook. Many wrote additional notes and comments in the margins of their handbook about their experience, interaction with staff or how they were feeling. The patient handbook was left with the nursing staff to be collected by the research team when the patient was discharged. ERAS post-operative recommendations included early mobilisation after surgery, chewing gum daily, early return to normal diet and the optimal use of pain management.

Data collection and analyses

Patients were asked to complete the ERAS patient handbook pre- and postoperatively. Questions were asked about the patient's role and expectations for recovery. Patients were also asked to report their perceived pain using a 10-point Visual Analogue Scale with 0 being no pain and 10 being the highest pain they had experienced. Data were also collected from the hospital's EMR including sex, age (years), most responsible diagnosis (coded by International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada, [ICD-10-CA]), principal surgical procedure (coded by the Canadian Classification of Health Interventions [CCI]), and LOS, in days. Additional data were collected for patients who were enrolled in the ERAS programme from November 2015 to November 2017. These data included the presence of ileus, vomiting/nausea, urinary retention, wound infection or dehiscence, deep vein thrombosis, pneumonia, anastomotic leak and readmission.

The choice of statistical procedures was informed by Chazard *et al.* (2017)¹⁸ who recommended Student's *t*-test on logarithmically transformed data or the Mann–Whitney (Wilcoxon) test for two independent groups. Chazard's recommendations, developed for equal sample size, were assumed to apply to this study with twice as many patients in the control group than in the ERAS group. We also used Student's *t*-test and Fisher's test (using exact methods or Monte Carlo methods based on 10,000 randomly sampled tables) to look for differences in patients' age and sex, as well as ICD-10-CA and CCI codes between the control and ERAS group. We used McNemar tests to look for differences in self-reported pain scores from the night following

the surgery to days 1, 2 and 3 post-surgery. All analyses were conducted with IBM SPSS Statistics for Windows, Version 24.0 (Armonk, NY, USA: IBM Corp.). This study is registered with ISRCTN as ISRCTN39272581.

RESULTS

Enhanced recovery after surgery patients, protocol and outcomes

Participation was offered to all eligible patients between 1 November 2015 and 1 November 2017. All patients who were invited to participate enrolled in the study and consented. Forty-seven patients were recruited for the study. Fifty-five per cent were male and were somewhat older, though not statistically significant, compared to female patients [Chi-squared test, $P = 0.57$, Table 1]. At least 57% of patients adhered to pre-operative instructions to drink bowel preparation and bring chewing gum with them [Table 2]. Patients' recall of what was expected of them and their expected LOS was 65% or higher with one exception; only 48% (19 of 40) of patients recalled being informed that they would be able to consume solid foods the day after surgery.

Of the 47 patients recruited to the study, seven patients were removed at the discretion of the attending surgeon due to significant post-operative complications including complicated ileus, substantial nausea and vomiting and a case of abdominal dehiscence that required re-suturing. These complications were outlined in the ERAS order set at the beginning of the study. An initial control group was obtained from the EMR for 2 years before implementation of the ERAS programme. Patients were matched on diagnosis, age and sex. A total of 11 patients were removed from the control group because they experienced similar complications to those patients that were

excluded from the study (significant ileus, vomiting and diarrhoea and surgical site complications).

The primary outcome was LOS, measured in whole days, with 80 patients in the control group and 40 patients in the ERAS group.

On the night following surgery, 45% of the patients dangled their legs from the bed with help, 55% completed their breathing exercises and 73% were offered clear fluids [Table 2]. The day after surgery between 38% and 53% of patients consumed breakfast or lunch while sitting in their chair, 73% reported consuming liquids and 78% chewed gum at least once. Only 23% indicated they were 'peeing on their own', while 40% reported they were passing gas. On day two post-surgery, 56% of patients ate one meal in their chair and reported walking down the hall at least once, 45% were consuming solid food, 73% were chewing gum, 47% were 'peeing on their own' and 47% were passing gas. Day 3 findings were like day 2.

The night of the surgery, 25% of patients reported moderately high pain (6–7) and 12% reported high pain (8–10) [Table 3]. On the day following surgery, 20% of patients reported moderately high pain and 25% reported high pain. On days 2 and 3 after surgery, patients indicated a trend towards lower pain, though these day-to-day trends were not statistically significant (McNemar test, $P > 0.27$).

Overall, up to 87% (40) of patients completed the surveys in the ERAS patient handbooks, though response rates for some questions were as low as 20%. Recalculating percentages by excluding missing data, particularly for discharged patients, showed increased adherence to ERAS recommendations or achievement of desirable outcomes.

Enhanced recovery after surgery patient complications

The most common complications included urinary retention or nausea and vomiting (23%, 9/40 patients) and ileus (18%, seven patients) [Table 4]. Readmission was rare (8%, 3/40 patients), with one patient readmitted for general weakness, a second for myocardial infarction and a third for pneumonia and surgical-related complications.

Enhanced recovery after surgery patient comments

Many patients added notes to their handbooks

Table 1: Age-sex distribution of 40 enhanced recovery after surgery patients

Age (years)	Male, <i>n</i> (%)	Female, <i>n</i> (%)	All patients, <i>n</i> (%)
<60	6 (27)	8 (44)	14 (35)
60–69	4 (18)	4 (22)	8 (20)
70–79	7 (32)	4 (22)	11 (28)
80–89	5 (23)	2 (11)	7 (18)
Sub-total	22 (100)	18 (100)	40 (100)

Table 2: Enhanced recovery after surgery procedural compliance as reported by patients pre- and post-operatively

Question	Yes, n (%)		No, n (%)		No answer, n (%)	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Did you drink bowel preparation?	28 (70)	3 (8)	9 (23)			
Did you bring chewing gum with you?	24 (57)	1 (2)	17 (40)			
Were you informed that you are expected to dangle your legs out of bed within 4 h of surgery?	26 (65)	0	14 (35)			
Were you informed that you are expected to chew gum after surgery to help you pass gas?	26 (65)	0	14 (35)			
Were you informed that you are expected to eat your meals in a chair, out of bed?	26 (65)	0	14 (35)			
Were you informed that you are able to consume solid foods the day after surgery?	19 (48)	5 (13)	16 (40)			
Were you informed that your LOS is expected to be 3 days (colon) or 4 days (rectal)?	30 (75)	0	10 (25)			
Were you encouraged to drink a high carbohydrate drink the night before your surgery?	31 (78)	0	9 (23)			
Were you encouraged to drink a high carbohydrate drink 2 h before your surgery?	31 (78)	0	9 (23)			
Night of surgery (with help)						
I sat at the side of my bed for 10–15 min (with help)	18 (45)	9 (23)	13 (33)			
I did deep breathing exercises 10 times per hour when I was awake	22 (55)	10 (25)	8 (20)			
I was offered sips of clear fluids	29 (73)	3 (8)	8 (20)			
Days after surgery						
Question	Yes, n (%)	No, n (%)	Yes, n (%)	No, n (%)	Yes, n (%)	No, n (%)
	n (%)	answer, n (%)	n (%)	answer, n (%)	n (%)	answer, n (%)
I sat in the chair for my morning meal	15 (38)	13 (33)	23 (58)	6 (15)	23 (58)	7 (18)
I sat in the chair for my afternoon meal	21 (53)	9 (23)	22 (55)	6 (15)	22 (56)	5 (13)
I sat in my chair at other times throughout the day	16 (40)	9 (23)	23 (58)	4 (10)	15 (38)	4 (10)
I walked down the hall at least once	17 (41)	9 (22)	23 (58)	2 (5)	23 (58)	2 (5)
I had nothing to eat or drink	0	30 (75)	3 (8)	6 (15)	2 (5)	6 (15)
I had liquids to eat/drink	29 (73)	0	26 (65)	1 (3)	23 (58)	0
I had solid food	17 (43)	4 (10)	18 (45)	3 (8)	19 (48)	3 (8)
I chewed gum in the morning	28 (72)	2 (5)	28 (72)	3 (8)	25 (63)	3 (8)
I chewed gum in the afternoon	31 (78)	1 (3)	29 (73)	2 (5)	22 (55)	3 (8)
I chewed gum in the evening	27 (68)	2 (5)	29 (73)	3 (8)	19 (48)	3 (8)
My catheter came out today	13 (33)	16 (40)	14 (35)	11 (28)	11 (28)	11 (28)
I am peeing on my own	9 (23)	20 (50)	19 (48)	10 (25)	22 (55)	4 (10)
I am passing gas	16 (40)	14 (35)	21 (53)	9 (23)	24 (60)	3 (8)
LOS: Length of stay						

Table 3: Number of enhanced recovery after surgery patients and their self-reported daily pain measurement score*[†]

Time relative to surgery	Pain level 0, n (%)	Pain level 1–3, n (%)	Pain level 4–5, n (%)	Pain level 6–7, n (%)	Pain level 8–10, n (%)	No answer, n (%)
First night after surgery	5 (12)	4 (10)	9 (22)	10 (24)	5 (12)	8 (20)
Day 1 after surgery	2 (5)	3 (8)	6 (15)	8 (20)	10 (25)	11 (28)
Day 2 after surgery	2 (5)	7 (18)	8 (20)	8 (20)	5 (13)	10 (25)
Day 3 after surgery	2 (5)	6 (15)	8 (20)	6 (15)	4 (10)	14 (35)

*McNemar tests did not find any evidence of a difference from one night or day to any of the next subsequent days ($P > 0.27$), [†]Pain was reported using a Visual Analog Scale

Table 4: Complications of 40 enhanced recovery after surgery patients*

Complication	Yes, n (%)	No, n (%)
Nausea or vomiting	9 (23)	31 (78)
Urinary retention	9 (23)	31 (78)
Ileus	7 (18)	33 (83)
Wound dehiscence	1 (3)	39 (98)
Deep vein thrombosis	1 (3)	39 (98)
Pneumonia	1 (3)	39 (98)
Wound infection	0	40 (100)
Anastomotic leak	0	40 (100)
Number of patients with	n (Total number)	
No complications	24 (60)	
1 complication	7 (18)	
2 complications	7 (18)	
3 or 4 complications [†]	2 (5)	

*Three patients (8%) were re-admitted, [†]One of these two patients had ileus, nausea or vomiting and urinary retention, while the second patient had these three complications plus wound dehiscence

that included comments on the reasons for their responses and about their experience. Retrospective feedback from staff indicated that early removal of catheters was not well-received, particularly in patients that required multiple re-catheterisations. Patients did report that they were highly satisfied with the ERAS procedures, staff and being able to take part in their recovery. Written notes and comments were unanimously positive with respect to patient education and the commitment demonstrated by the RNFA.

Patient comments

Very helpful to have meeting prior to surgery, Useful information on recovery, 'Great to meet JR (RNFA) before surgery – put me at ease', 'Amazed by how quickly I felt good. Day 7 and no pain meds needed', 'I feel good going home day 4', 'After my surgery I ate food and passed gas', 'ERAS – amazing', 'I was happy to participate in the program', 'Great care in hospital', 'The program was helpful and informative'.

Control versus enhanced recovery after surgery patients

Average age of patients was 70.0 years (standard deviation [SD] = 12.5) in the control group and 65.4 years (SD = 14.0) in the ERAS patient group; this difference was not statistically significant (t -test, $P = 0.07$, mean difference = 4.7, 95% confidence interval of the difference -0.3–9.6). There was no statistically significant difference in the percentage of females (or males) between the Control group (50.0%) and the ERAS group (45.0%) (Fisher's exact test, two-sided $P = 0.70$).

The control group had a significantly higher percentage (69% vs. 35%, Fisher's exact test, $P < 0.001$) of ICD-10-CA code C18 (malignant neoplasm of colon), and significantly lower percentage (0% vs. 5%) of C20 (malignant neoplasm of rectum), relative to the ERAS group [Table 5]. There were no significant differences between control and ERAS groups for 5-character CCI codes [$P = 0.503$, Table 6].¹⁹

For logarithm-transformed LOS data, Levene's test of equal variances was significant ($f = 4.44$, $P = 0.045$) and therefore the independent samples Student's t -test that assumed unequal variances was used. This test found that control patients had a LOS that was significantly longer than ERAS patients [$P < 0.001$, Table 7]. The Kolmogorov–Smirnov Test found a significant difference in the distribution of untransformed or transformed LOS between pre- and Post-ERAS patient groups ($P < 0.001$). The mean difference in logarithm-transformed LOS was 0.548, which was reverse transformed (exponentiated) as a difference of 1.73 days. A test of medians found that the median of the control patient group (median LOS = 6) was significantly higher than that of the ERAS patient group (median LOS = 4) ($P = 0.001$). Removing 6 cases in the control group with extreme LOS [≥ 21 days,

Table 5: International statistical classification of diseases and related health problems, 10th revision, Canada (ICD-10-CA) 3-character code for control and enhanced recovery after surgery patient groups

ICD-10-CA*		Patient group [†]		Total
		Control	ERAS	
C18	<i>n</i>	55 [‡]	14 [§]	69
Malignant neoplasm of colon	Percentage within patient group	68.8	35.0	57.5
C19	<i>n</i>	3	0	3
Malignant neoplasm of rectosigmoid junction	Percentage within patient group	3.8	0.0	2.5
C20	<i>n</i>	0 [§]	2 [‡]	2
Malignant neoplasm of rectum	Percentage within patient group	0.0	5.0	1.7
D12	<i>n</i>	9	8	17
Benign neoplasm of colon, rectum, anus and anal canal	Percentage within patient group	11.3	20.0	14.2
K55	<i>n</i>	0	1	1
Vascular disorders of intestine	Percentage within patient group	0.0	2.5	0.8
K56	<i>n</i>	3	1	4
Paralytic ileus and intestinal obstruction without hernia	Percentage within patient group	3.8	2.5	3.3
K57	<i>n</i>	4	6	10
Diverticular disease of intestine	Percentage within patient group	5.0	15.0	8.3
K62	<i>n</i>	1	2	3
Other diseases of anus and rectum	Percentage within patient group	1.3	5.0	2.5
N32	<i>n</i>	1	2	3
Other disorders of bladder	Percentage within patient group	1.3	5.0	2.5
Z43	<i>n</i>	4	4	8
Attention to artificial openings	Percentage within patient group	5.0	10.0	6.7
Total	<i>n</i>	80	40	120
	Percentage within patient group	100	100	100

*The 23 full ICD-10-CA codes were collapsed to ten 3-character codes. Source: CIHI (2015a), [†]Fisher's test (two-sided), Monte Carlo method: $P=0.004$ (95% CI for P : 0.002–0.005), [‡]The observed count was significantly higher than predicted by marginal totals, [§]The observed count was significantly lower than predicted by marginal totals. CI: Confidence interval, ERAS: Enhanced recovery after surgery, ICD: International Classification of Disease, CIHI: Canadian institute for health information

Table 6: Canadian classification of health interventions 5-character code for control and enhanced recovery after surgery patient groups

CCI code*		Patient group [†]		Total
		Control	ERAS [‡]	
1.NM.82	<i>n</i>	4	4	8
Reattachment, large intestine	Percentage within patient group	5.0	10.8	6.8
1.NM.87	<i>n</i>	75	33	108
Excision partial, large intestine	Percentage within patient group	93.8	89.2	92.3
1.NQ.74	<i>n</i>	1	0	1
Fixation, rectum	Percentage within patient group	1.3	0.0	0.9
Total	<i>n</i>	80	37	117
	Percentage within patient group	100	100	100

*The full CCI codes were collapsed to three 5-character codes. Source: CIHI (2015b), [†]Fisher's test (two-sided), Monte Carlo method: $P=0.503$, [‡]CCI codes were missing for 3 ERAS patients. CCI: Canadian Classification of Health Interventions, ERAS: Enhanced recovery after surgery, CIHI: Canadian institute for health information

Figure 1] yielded similar statistical test results. A detailed comparison of LOS is provided in Table 8.

All statistical tests on natural logarithm-transformed LOS consistently found that control LOS differed from ERAS LOS. The best

available evidence suggests that control LOS was significantly longer (by 2 days) than ERAS LOS.

DISCUSSION

ERAS programmes using pre-operative and

Table 7: Independent samples t-test of the difference of the mean ln (length of stay) between control and enhanced recovery after surgery patient groups

Patient group	n	Mean ln (LOS)	SD	SEM
Control	80	1.93	0.611	0.0683
ERAS	40	1.38	0.463	0.0732

t-test for equality of means						
t	df	P (two-tailed)	Mean difference ln (LOS)	SE of the difference	95% CI of the difference	
					Lower	Upper
5.62	97.9	<0.001	0.55	0.10	0.36	0.74
Reverse-transformed*			1.73	1.10	1.43	2.10

*Values were reverse transformed as e^x , with $e \approx 2.718$, and $x = \ln(\text{days})$. LOS: Length of stay, SD: Standard deviation, SEM: Standard error of mean, CI: Confidence interval, SE: Standard error, ERAS: Enhanced recovery after surgery

Table 8: Length of stay (categories) by sex for control and enhanced recovery after surgery patients

LOS (days)	Control			ERAS		
	Male, n (%)	Female, n (%)	All control patients, n (%)	Male, n (%)	Female, n (%)	All ERAS patients, n (%)
≤3	2 (5)	5 (13)	7 (9)	11 (50)	8 (44)	19 (48)
4–6	16 (40)	23 (58)	39 (49)	8 (36)	7 (39)	15 (38)
7–10	9 (23)	5 (13)	14 (18)	3 (14)	1 (6)	4 (10)
>10	13 (33)	7 (18)	20 (25)	0	2 (11)	2 (5)
Total	40 (100)	40 (100)	80 (100)	22 (100)	18 (100)	40 (100)

Percentile	LOS (days)	LOS (days)
25 th	3	4
50 th (median)*	4	6
75 th	5	10
Minimum	2	2
Maximum	13	34
Mean (SD)	8.44 (6.278)	4.45 (2.407)

*Difference between medians (median test) $P=0.001$. LOS: Length of stay, ERAS: Enhanced recovery after surgery, SD: Standard deviation

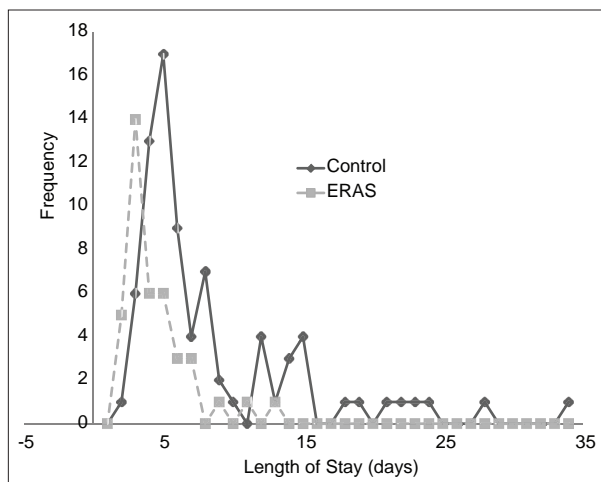


Figure 1: Frequency of LOS (days) for 80 control patients and 40 ERAS patients. LOS: Length of stay, ERAS: Enhanced recovery after surgery.

postoperative clinical pathways to improve patient outcomes were introduced more than two

decades ago, however, they are almost exclusively implemented in large urban centres and associated with teaching hospitals. Studies have shown that incorporating ERAS protocols can enhance patient outcomes, reduce the LOS for patients and offer cost savings for the institution (1–7). However, implementing these protocols requires significant multidisciplinary teamwork. Many of the ERAS protocols conflict with traditional practice, which can make uptake difficult. The goal of this project was to demonstrate that ERAS can be performed in a small rural hospital and positively impact patient outcomes.

Over the 2-year study, 40 patients were included in the ERAS procedures for colon or rectal surgery. Patients were asked to report on which of the ERAS protocols they were informed about and which they complied with. It was found that most patients (75%) consumed the pre-surgical

carbohydrate and chewed gum consistently after surgery. Patient mobility immediately after surgery was also noted, as patients made efforts to both walk in the hallway and take their meals in their chair. Early consumption of food postoperatively was not reported frequently and feedback from patients indicated that the use of an anti-emetic may have improved this. Patients frequently reported feeling nauseous (23%), some to the point of vomiting.

Urinary retention was also high among patients (28%). Comments indicated that early withdrawal of catheters was not well-received, particularly when patients required multiple re-catheterisations. Patients did, however, report that they were highly satisfied with the ERAS procedures and staff and taking part in their recovery. Feedback in the form of written notes and comments was unanimously positive, particularly with respect to patient education and the commitment demonstrated by the RNFA.

Huntsville, Ontario is a community with an aging population, which was evident in this study. Of the 40 patients treated, the average age was 65 years, equally represented by female and male patients. Demonstrating improved patient outcomes and a reduced LOS is of importance in this age group as they are predisposed to chronic conditions and susceptible to nosocomial infections.

Limitations

While all patients were provided the ERAS patient handbook and were asked to complete the handbook throughout their hospital stay, approximately one-quarter did not. Tasking hospital staff, volunteers or research assistants to help patients complete these questionnaires would likely improve response rates, perhaps improve adherence to protocols, and would help identify which ERAS procedures have a higher impact on outcomes.

There are limitations to interpretation based on a matched case study design that uses historical controls. For example, the matching process was conducted on three variables (age, gender and diagnosis) and the effect on LOS of differences between the control and ERAS of these and other variables is unknown. LOS was not adjusted by any method such as the National Surgical

Quality Improvement Program risk calculator (ACS 2020). To simplify analyses, the study used unadjusted LOS.

The study was conducted at a single site and results may not necessarily be applicable to other rural hospitals. However, it is worth noting that the ERAS programme was successfully implemented in a low-resourced rural hospital, with an aging patient population and compounded by a strong seasonal influx of tourists. Evidence of a reduction in LOS complements success in implementation.

Future direction

Creating and implementing pre-surgical, surgical and post-surgical electronic order sets for the ERAS pathway is underway at the HDMH. The order sets and training developed through this study are being shared and implemented at the sister site of MAHC, South Muskoka Memorial Hospital.

CONCLUSION

ERAS consists of a series of pre-operative, intraoperative and post-operative clinical pathways aimed at improving clinical care to improve the quality of patient care with patients as active partners in their care. Patient compliance was highest for chewing gum and drinking carbohydrate liquids. Patient outcomes were lowest for 'peeing on their own' with several patients requiring re-catheterisation. Similarly, the highest complications found in 20%–30% of patients were urinary retention, nausea and vomiting and ileus. Pain scores were generally well controlled and overall patient feedback was positive, appreciating that their participation impacted their post-operative recovery. This study found that ERAS could be implemented in a small rural hospital and that LOS could be reduced by 2 days.

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Rendezvous procedure, a simultaneous endoscopic retrograde cholangiopancreatography and laparoscopic cholecystectomy for choledocholithiasis, in a rural surgical program in Northwest Ontario

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Abstract

Introduction: Northwest Ontario has a high prevalence of cholelithiasis, at 1.6 times the provincial norm. There is a concomitant 14% rate of choledocholithiasis. Accessing surgical services in the region often requires extensive travel by air. Choledocholithiasis management is typically with a 2-staged approach, an endoscopic retrograde cholangiopancreatography (ERCP) followed several days or weeks later by laparoscopic cholecystectomy (LC). Regional surgeons were concerned about the patient burden of travel and the loss to follow-up inherent in scheduling two independent procedures at separate hospital admissions. They adopted a 1-stage management, called the rendezvous procedure, which describes the simultaneous performance of an ERCP and LC.

Methods: We accessed Sioux Lookout Meno Ya Win Health Centre hospital data for all patients receiving an ERCP and LC between 1 June 2019 and 1 December 2022. We documented patient demographics, operative outcomes, length of stay and transfer to other facilities.

Results: There were 29 rendezvous procedures performed, with successful cannulation of the ampulla of Vater in 27 (93%) cases and stone removal in 23 (79%), with a complication rate of 7%. The operating time averaged 136 min, and two patients required transfer to a tertiary care centre and four were stented locally and required a return trip to Sioux Lookout for repeat ERCP and successful stone removal. The average length of stay was 2.1 ± 1.3 days. Patients who could not access a rendezvous procedure averaged 46.1 ± 78.1 days between procedures.

Conclusion: Managing choledocholithiasis with a 1-stage approach was safe and effective and reduced patient travel, time to definitive care and hospital admissions.

Keywords: Gall bladder disease, rural, surgery

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Résumé

Introduction: Le nord-ouest de l'Ontario présente une prévalence élevée de cholélithiase, soit 1,6 fois la norme provinciale. Le taux de cholédocholithiase concomitant est de 14%. L'accès aux services chirurgicaux de la région nécessite souvent de longs déplacements en avion. La prise en charge de la cholédocholithiase SE fait généralement en deux étapes: Une cholangiopancréatographie rétrograde endoscopique (CPRE) suivie, plusieurs jours ou semaines plus tard, d'une cholécystectomie laparoscopique (CL). Les chirurgiens régionaux étaient préoccupés par le fardeau que représentaient pour le patient les déplacements et la perte de suivi inhérents à la programmation de deux procédures indépendantes à des admissions hospitalières distinctes. Ils ont adopté une gestion en une étape appelée procédure de rendez-vous, qui décrit la réalisation simultanée d'une CPRE et d'une CL.

Méthodes: Nous avons accédé aux données hospitalières du centre de santé Meno Ya Win de Sioux Lookout pour tous les patients ayant bénéficié d'une CPRE et d'une CL entre le 1^{er} juin 2019 et le 1^{er} décembre 2022. Nous avons documenté les données démographiques des patients, les résultats opératoires, la durée du séjour et le transfert vers d'autres établissements.

Résultats: Vingt-neuf procédures de rendez-vous ont été réalisées, avec une cannulation réussie de l'ampoule de Vater dans 27 cas (93%) et l'ablation des calculs dans 23 cas (79%), avec un taux de complication de 7%. Le temps d'opération a été en moyenne de 136 min. Two patients ont dû être transférés dans un centre de soins tertiaires et 4 ont été stentés localement et ont dû être ramenés à Sioux Lookout pour une nouvelle CPRE et une extraction réussie du calcul. La durée moyenne du séjour était de $2,1 \pm 1,3$ jours. Les patients qui n'ont pas pu accéder à une procédure de rendez-vous ont passé en moyenne $46,1 \pm 78,1$ jours entre les procédures.

Conclusion: La prise en charge de la cholédocholithiase en une seule étape s'est avérée sûre et efficace et a permis de réduire les déplacements des patients, les délais de prise en charge définitive et les admissions à l'hôpital.

Mots-clés: Rural, chirurgie, maladie de la vésicule biliaire

INTRODUCTION

Gall bladder disease is common in Northwest Ontario, with a prevalence of cholecystitis 1.6 times the provincial norm and an accompanying 14% rate of choledocholithiasis.¹ While cholecystitis without evidence of an impacted common bile duct (CBD) stone is managed with a standard laparoscopic cholecystectomy (LC), management for suspected or confirmed choledocholithiasis is typically managed in two stages. An initial endoscopic retrograde cholangiopancreatography (ERCP) provides stone removal and symptom relief, followed days or weeks later by an LC for the removal of existing and prevention of future calculi.^{2,3}

Choledocholithiasis managed in a 1-stage procedure, called a 'rendezvous', combines a simultaneous ERCP and LC.⁴ First described in Montreal in 1993, the 'rendezvous' of the two procedures occurs when a guidewire introduced by the LC surgeon through the cystic and CBD is used by the ERCP endoscopist to facilitate the cannulation of the sphincter of Oddi for stone removal.⁵ Patients undergo a single anaesthetic and hospital stay. This is particularly advantageous

in Northwest Ontario, where the patients require travel by air for surgical services.^{1,6} The rendezvous procedure was introduced at the Sioux Lookout Meno Ya Win Health Centre (SLMHC) in 2019 to address two local surgical concerns: reduction of patient travel and limiting the possibility of patients being lost to follow-up.

This retrospective study describes the outcomes of the introduction of this 1-stage approach to the management of choledocholithiasis in a rural hospital in Northwest Ontario.

METHODS

SLMHC provides surgical services to a catchment population of 30,000, across a geographic area of 385,000 km². Most patients (25,000) from 26 remote First Nations communities lack road access and travel by air for elective and emergency surgical services, provided by a staff of three general surgeons.⁶ The distance between transferring hospitals is approximately 400 km, and some communities are 700 km distant.

Data for all patients receiving a simultaneous ERCP and an LC, from 1 June 2019 to

1 December 2022, were accessed through hospital medical records. Patients were identified by surgical schedules and cross-referenced to hospital administrative coding. Reliability was verified by the manual review of surgical notes (JP). Data included patient demographics and comorbidity at the initial presentation. Operative outcomes were the rate of successful CBD cannulation, stone removal and complications: pancreatitis, bleeding, perforation and sepsis. The total operating time was measured by 'cut-to-close' time. Resource intensity was measured by the duration of the procedure, hospital length of stay and number of patient transfers.

The study was approved by the Sioux Lookout Meno Ya Win Health Centre Research Review and Ethics Committee (#02-21).

RESULTS

During the 30-month study, 29 patients received a rendezvous procedure. Table 1 indicates patient demographics, and Table 2 shows the outcomes for the rendezvous procedure.

There were six failed stone removals; two patients were transferred to tertiary care centres and four were stented at SLMHC with successful stone removal at a subsequent local repeat ERCP.

During the study, 13 patients could not be managed with a rendezvous procedure due to the unavailability of a second surgeon; they required separate procedures. The average time between procedures was 46.1 ± 78.1 days, during which they averaged 1.3 ± 1.6 gall bladder-related emergency department visits, which often involved a medical transfer from their remote community.

SLMHC does not have intensive care unit facilities; hence, patients presenting with a high anaesthesia risk or multiple comorbidities, or those with a body mass index >50 , are transferred to tertiary care centres.

DISCUSSION

A 2011 study in Northwest Ontario documenting a high rate of regional gall bladder disease identified the need for a Sioux Lookout-based ERCP service.¹ In 2019, a general surgeon with ERCP training joined the surgical staff and an ERCP program was initiated, followed by the introduction of the rendezvous procedure

Table 1: Patient demographics for patients undergoing a rendezvous procedure (n=29)

Age (years)	37.9±19.2
Female sex, n (%)	20 (69)
BMI (kg/m ²)	29.8±6.2
Diabetes mellitus, n (%)	4 (14)
Hypertension, n (%)	7 (24)
Hypercholesterolemia, n (%)	1 (3)
Coronary artery disease, n (%)	2 (7)
Smoker, n (%)	11 (38)
Alcohol use, n (%)	4 (14)
Opioid use, n (%)	9 (31)

BMI: Body mass index

Table 2: Rendezvous procedure outcomes (n=29)

Successful CBD cannulation, n (%)	27 (93)
Stone removal, n (%)	23/29 (79)
Total surgery time (min), mean±SD	136±49.6
Length of hospital stay (days), mean±SD	2.1±1.3
Post-operative pancreatitis, n (%)	1 (3)
Perforation, n (%)	0
Bile leak, n (%)	1 (3)
Sepsis, n (%)	0
Total complications, n (%)	2 (7)
Transfers to tertiary care centre, n (%)	2 (7)

CBD: Common bile duct, SD: Standard deviation

for the management of suspected or confirmed choledocholithiasis. Patients with cholecystitis and no evidence of CBD stone continue to receive traditional LC surgery.

Patient characteristics

Our small sample was predominantly female (69%), compared to a provincial rate of 59% of cholecystitis patients, but consistent with previous high regional estimates of female gall bladder disease.^{1,7} The mean age of 37.9 years is younger than the provincial mean of 56 years and is consistent with a younger mean age found in other First Nations populations of Northern Ontario, Manitoba and Quebec.^{1,7-9}

Program outcomes/complications

Successful CBD cannulation was achieved in 93% of the 29 cases and stone removal in 79%. These compare to the recommended rates of 80% and 85%, respectively. The complication rate of 7% was within the accepted procedure-related rate of $<10\%$.³

Our results are consistent with larger studies and meta-analyses documenting the safety and efficacy of the rendezvous procedure. A 2020 systematic review ($n = 10,611$) comparing the 1-stage to the traditional 2-stage management found the equivalent rates of stone clearance (odds ratio [OR] 2.20, $P = 0.10$), but less post-operative pancreatitis (OR 0.26, $P = 0.0003$) and overall lower morbidity (OR 0.41, $P < 0.0001$).¹⁰ A large meta-analysis of 20 studies ($n = 2489$) compared the efficacy and safety of four combinations of laparoscopic and intraoperative techniques and found that the rendezvous procedure had the highest success rate and lowest morbidity compared to either an LC with a pre- or post-ERCP or laparoscopic CBD exploration techniques.¹¹

Operating times

Our operating time of 136 min was similar to larger urban studies. A 2020 prospective study ($n = 528$) found a median operation time of 139.8 min, and a meta-analysis of eight rendezvous studies documented a range of operating times of 127–217 min.^{10,12}

Technical considerations, such as the introduction and manipulation of the guide wire, contribute to longer total operating times for 1-stage management. A 2018 Cochrane review ($n = 531$) found that the rendezvous management incurred a mean of an additional 34 min to the total operating time compared to two independent procedures.¹³

Time to definitive care

Two-stage management results in time between procedures; in many rural settings, this is an opportunity for patients to become lost to follow-up and develop recurrent cholecystitis. During our study, the 13 patients who required two procedures had an average of 46 days between admissions. The time to definitive treatment (i.e., LC) in a 2020 European study ($n = 357$) for patients receiving 2-stage management was 40.3 ± 127 days.¹⁴ Patients receiving their LC beyond the recommended interval of several days identify the challenge in having patients return for a second procedure.^{2,3}

Medical transfers

Before ERCP was introduced at SLMHC, a 2011 analysis of patients requiring an ERCP, and subsequent LC described the travel requirements of 17 patients who had an average of 6.5 medical transfers.¹ Since adopting the rendezvous procedure, patient travel has been reduced to one round-trip to Sioux Lookout, with the exception of the six patients with unsuccessful stone removal; two of whom were transferred to a larger centre and four who returned to SLMHC for a subsequent ERCP. Reduced travel not only simplified the travel burden of patients but also reduced the substantial physician workload of arranging medical transfers and returns between facilities and northern communities.

Resources

Traditionally, ERCPs were performed by gastroenterologists, and the patient would be rescheduled for an LC by a surgeon several days or weeks later. As ERCP skills become more common in general surgery training, unifying the procedures becomes logistically possible.

Required hospital resources include program capacity for ERCP and LC, a side-viewing endoscope and operating room fluoroscopy for intraoperative cholangiograms. Two physicians with speciality skills must be present for simultaneous ERCP endoscopy and LC. One advantage is the increase in local surgical ERCP expertise as shoulder-to-shoulder peer training occurs.

These requirements may pose a significant challenge for many rural hospitals; however, those with the resources may consider adopting the rendezvous procedure if it is a good fit for their surgical program and patient population. While we describe the program in a rural hospital, rural patients travelling to urban centres would also benefit from 1-stage management of choledocholithiasis.

Limitation

The primary limitation of the study is the small number of procedures. Operation duration times in the literature were heterogeneous; some authors used anaesthesia time rather than

'cut-to-close' operating time; hence, a comparison of the absolute times involved is less informative than the overall trend.

CONCLUSION

Adopting a single 'rendezvous procedure' for the management of choledocholithiasis has important implications for improving patient care and optimizing healthcare resources. This is particularly relevant for rural patients who experience onerous travel requirements when accessing surgical services.

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The Occasional intralipid emulsion therapy

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INTRODUCTION

Intravenous lipid emulsions (ILEs) are fats that can be delivered parenterally as boluses or as infusions. ILE provides dietary fats in total parenteral nutrition (TPN), but it has also been studied and used in the treatment of drug overdoses. ILE is a first-line treatment for local anaesthetic systemic toxicity (LAST), a serious complication of regional nerve block.^{1,2} Some literature also suggests that ILE may be effective as rescue therapy for lipophilic drug overdoses, including tricyclic antidepressants (TCAs), beta-blockers, calcium-channel blockers (CCBs), bupropion and venlafaxine.^{2,3}

The exact mechanism of ILE therapy in the treatment of acute lipophilic drug toxicity remains unclear despite decades of publications. ILE may act as a 'lipid sink' by trapping lipophilic drug molecules and rendering them biologically inactive.⁴ Other theories include ILE helping shuttle encapsulated lipophilic toxins to the liver and/or kidney for elimination^{5,6} and improving cardiac function by providing the myocardium with

readily available fatty acids for energy.^{4,7} Finally, ILE may mitigate hypotension during overdose by decreasing nitric oxide-induced vasodilation.⁸

ILE is a shelf-stable drug. Settings where doctors administer local anaesthetics should stock ILE and establish treatment protocols to be able to use ILE for LAST. Emergency departments could potentially improve patient outcomes in life-threatening lipophilic drug overdoses if ILE was stocked and staff trained in using ILE as rescue therapy.

INTRAVENOUS LIPID EMULSION AS FIRST-LINE TREATMENT FOR LOCAL ANESTHETIC SYSTEMIC TOXICITY

LAST is a rare but life-threatening complication of a local anaesthetic administration. Patients are at higher risk for developing LAST if local anaesthetic is administered at a highly vascular site, such as intercostal nerve blocks and epidural anaesthesia.¹ The presentation of LAST is variable and should be suspected with unexpected physiological changes that occur after administering local anaesthetic.

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Symptoms of LAST include initial central nervous system (CNS) excitement (perioral numbness, metallic taste, mental status changes, anxiety, visual changes, muscle twitching and seizures), CNS depression (somnolence, coma and respiratory depression) and cardiovascular changes (tachycardia, bradycardia, hypertension, hypotension, ventricular arrhythmias and asystole).^{9,10}

Consult a medical toxicologist or Poison Control Centre for assistance when LAST is suspected. As bupivacaine is the most commonly used drug for nerve blocks, ILE should be administered immediately and simultaneously with advanced cardiac life support with bupivacaine-induced LAST.^{1,2} ILE should also be considered treatment for LAST due to other local anaesthetics.

INTRAVENOUS LIPID EMULSION AS RESCUE TREATMENT

Since 2006, case series and case reports describe using ILE as rescue therapy in certain life-threatening lipophilic drug toxicities other than LAST.¹¹⁻¹⁷ There have been no controlled human trials evaluating the efficacy or potential adverse effects of ILE as rescue therapy in treating TCA, beta-blocker (BB) or CCB toxicity.⁵ Randomised control animal studies and various human case studies offer very low-quality evidence with heterogeneous results.³ Higher quality dose-finding and controlled human clinical studies are required to advance the knowledge of ILE as a rescue therapy for drug overdose, including establishing a number needed to treat and a number needed to harm. The current clinical recommendations to inform the use of ILE as rescue therapy for non-LA (Non-local anesthetic) drug overdoses were established by an expert consensus group, the lipid emulsion workgroup, and were informed by systematic reviews including animal studies and human case studies.² To ensure that the treatment of lipophilic toxic drug overdoses is treated with the most up-to-date evidence, medical toxicologists or a Poison Control Centre should be routinely consulted for their expert guidance. Smolinske *et al.*¹⁸ highlight that, in the USA alone, the 'published cases of failed lipid emulsion therapy outnumber the published instances of ILE success', and caution that ILE therapy in non-local anaesthetic overdose requires further study.

TRICYCLIC ANTIDEPRESSANT OVERDOSE

ILE can be used in life-threatening amitriptyline or other TCA toxicity that is refractory to first-line treatment.² In non-life-threatening amitriptyline or other TCA overdoses, ILE should not be used.² Life-threatening TCA toxicity presents with mental status changes (sedation, delirium and confusion), hallucinations, seizures, cardiac dysrhythmias (sinus tachycardia and QRS interval prolongation >100 ms), hypotension and anticholinergic toxicity (flushing, hyperthermia, dilated pupils and urinary retention).¹⁹⁻²¹ Mortality from TCA overdose is most often associated with refractory hypotension.¹⁹ First-line treatment for life-threatening amitriptyline or other TCA overdose is to stabilize circulation, airway and breathing:

- Administer 1 g/kg orally activated charcoal if the patient presents the timeframe for decontamination recommended by your Poison Control Centre of a potentially toxic TCA ingestion, after considering the risk of airway compromise or aspiration versus the benefit expected from gastrointestinal decontamination²²
- Administer IV bolus crystalloid for hypotension (500–1000 mL)²³
- If the QRS >100 ms (2.5 small boxes on a regular electrocardiogram), challenge with IV sodium bicarbonate (1–2 mmol/kg up to 150 mmol/kg [an ampule of sodium bicarbonate has 50 mmol in 50 mL]) and assess for QRS narrowing.²⁴ Consult a Poison Control Centre or toxicologist to determine if a sodium bicarbonate infusion is indicated for your patient²⁵ but do not delay if the QRS is wide
- Administer a vasopressor (norepinephrine) if volume resuscitation or bicarbonate fails to improve hypotension.²⁵

If the patient fails to respond to first-line treatment, administer ILE.²

BETA-BLOCKER AND CALCIUM-CHANNEL BLOCKER OVERDOSE

ILE can be used as a rescue therapy in life-threatening BB or CCB overdoses that are

refractory to first-line treatment, particularly in cases presenting with cardiac arrest.² Differentiating between dihydropyridine and non-dihydropyridine CCBs in overdose is not particularly useful as CCBs lose their selectivity for myocytes and smooth muscle cell in overdose.²⁶ In an observational study of fatal poisoning cases, in which ILE was used, more than 50% of the cases included involved either a CCB or a BB.¹⁸ In non-life-threatening BB and CCB toxicity, ILE should not be used.² Life-threatening BB and CCB toxicity will commonly present with bradycardia and hypotension; myocardial depression and cardiac shock may also occur.^{27,28} Ventricular dysrhythmias, mental status change, hyperglycaemia (CCB), hypoglycaemia (BB) and bronchospasm are other potential effects of severe BB and CCB toxicity.^{27,28} Standard treatment for acute life-threatening BB and CCB toxicity is to stabilise circulation, airway and breathing:

- If a patient presents with a potentially toxic ingestion within the timeframe for decontamination recommended by your Poison Control Centre, administer 1 g/kg²² after considering the risk of airway compromise or aspiration versus the benefit expected from gastrointestinal decontamination
- Administer IV bolus crystalloid for hypotension (500–1000 mL isotonic saline)²⁹
- Administer a vasopressor, IV high-dose insulin and dextrose if no response to 1000 mL fluid bolus²⁹
- Note that atropine is often ineffective in large CCB overdose cases and clinicians should move onto other treatments quickly.²⁵

For scenarios that are refractory to standard treatment, the following treatments should be administered in succession. Consult with a medical toxicologist or the Poison Control Centre for management support.

- IV calcium (CCB)
- IV ILE
- Whole bowel irrigation (for modified-release preparations).

BUPROPION OVERDOSE

Bupropion's primary toxic effects are seizure, tachycardia and agitation. With large ingestions,

status epilepticus, haemodynamic collapse, cardiac arrest and death are possible. Bupropion has a narrow therapeutic window that lowers the seizure threshold even at therapeutic doses.³⁰ The lowest dose which has been associated with seizure is 575 mg.³¹ With overdoses over approximately 3 g, seizures become increasingly likely.³¹ Early consultation with a Poison Control Centre or toxicologist is recommended.

Preliminary treatment of a bupropion toxic ingestion:

- Administer 1 g/kg orally of activated charcoal if the patient presents within the timeframe for decontamination recommended by your Poison Control Centre and after considering the risk of airway compromise or aspiration versus the benefit expected from gastrointestinal decontamination²²
- Administer IV bolus crystalloid for hypotension (500–1000 mL isotonic saline)
- Treat seizures with IV benzodiazepines and/or phenobarbital³²
- If hypotensive, administer a vasopressor.

For scenarios that are refractory to standard treatment, the following treatments should be administered in succession. Consult with a medical toxicologist or the Poison Control Centre for management support. Bupropion can widen the QRS complex, but this is caused by reduced cardiac intercellular coupling, rather than cardiac sodium channel blockade; thus sodium bicarbonate treatment can be tried but may not be helpful.³³ ILE can be used off-label when recommended by a toxicologist for haemodynamic collapse. Extracorporeal membrane oxygenation has also been used successfully in limited case studies,³⁴ but this is difficult to access promptly in the rural setting.

VENLAFAXINE OVERDOSE

Venlafaxine overdose can cause life-threatening seizures, cardiotoxicity, serotonin syndrome and hypoglycaemia. Venlafaxine is not only a serotonin and noradrenaline reuptake inhibitor but also exhibits rate-dependent sodium channel-blocking activity.³⁵ The noradrenergic reuptake inhibition may lead to myocardial damage without severe cardiac conduction abnormalities,³⁶ so symptoms of left ventricular failure must be monitored in

addition to QT prolongation, which is rare.³⁷ Seizures can occur with venlafaxine use in the therapeutic range, but the risk increases with dose. The risk of seizure approaches 100% with a dose of more than 4.5 g.³⁸

TREATMENT

- Administer 1 g/kg orally of activated charcoal if the patient presents within the timeframe for decontamination recommended by your Poison Control Centre and after considering the risk of airway compromise or aspiration versus the benefit expected from gastrointestinal decontamination²²
- Administer IV benzodiazepines (may require high doses, if refractory, consider propofol or barbiturates)
- Cooling, intubation, ventilation and paralysis for serotonin toxicity
- Hypotension not responding to fluids may respond to vasopressors such as norepinephrine
- Recurrent episodes of hypoglycaemia can be treated with octreotide
- If QRS wide, correct electrolytes, consider administering sodium bicarbonate
- In consultation with PCC and a toxicologist, consider ILE for patients who deteriorate rapidly or who do not respond to above.

ADMINISTERING INTRAVENOUS LIPID EMULSION

Please consult the Canadian Antidote Guide in Acute Care Toxicity (<https://www.ciussc-capitalenationale.gouv.qc.ca/en/antidotes>) or their free app for the latest recommendations on how to administer antidotes.

Lipid emulsion therapy for lipophilic drug overdose is administered through a 20% lipid emulsion bolus, based on the patient ideal body weight:

- If ≤ 70 kg, administer IV bolus 1–1.5 mL/kg of 20% lipid emulsion over 1 min³⁹
- In cases of cardiac arrest with no response to the first bolus dose, bolus doses can be repeated every 3–5 min for a total of 3 bolus doses³⁹
- The recommended maximum total ILE dose is 8–10 mL/kg.³⁹

Intralipid® 20% lipid emulsion is the most commonly used and studied ILE formulation.² The risk of adverse effects of ILE, especially at doses beyond 8 mL/kg, is not negligible and must be weighed against the risk of further harm resulting from the poisoning.

ADVERSE EFFECTS OF INTRAVENOUS LIPID EMULSION

The number needed to harm, the risks and the adverse effects of high-dose ILE for acute lipophilic drug toxicity remain unclear as adverse effects have not been studied at the doses suggested for ILE. Their presence or absence is not systematically reported in the ILE literature.

Adverse effects based on the extrapolation of the therapeutic administration of TPN, overdose of TPN and ILE-treated drug overdose cases include:

- Interference with laboratory measures: Serum glucose, magnesium, creatinine and lipase.³ Centrifugation can be used to mitigate interference with certain but not all analyses
- Acute kidney injury⁴⁰
- Cardiac arrest⁴⁰
- Pancreatitis⁴⁰
- Fat overload syndrome⁴⁰
- Fat embolism⁴⁰
- Respiratory complications ranging from simple hypoxia to acute respiratory distress syndrome⁴⁰
- Deep-vein thrombosis⁴⁰
- Infection
- Hypersensitivity reactions
- Extracorporeal circulation machine obstruction.^{40,41}

Further clinical study is needed to understand the adverse effects in the setting of ILE for acute lipophilic drug overdose in humans. However, in the context of life-threatening toxicity failing all other therapeutic measures, the potential benefit of ILE may outweigh the potential adverse effects related to ILE therapy alone.

ORDERING INTRAVENOUS LIPID EMULSION

Intralipid® 20% is the most studied and recommended ILE formulation for drug toxicity

in the Canadian healthcare system.² Other ILE formulations include Nutrilipid 20% and Liposyn III, although these have not been studied for use in acute poisoning and should not be used to treat overdoses. Other ILE formulations of 10% or 30% lipid emulsion exist but should not be used in acute poisoning. We acknowledge the inherent commercial bias in this recommendation. As stewards of healthcare resources, healthcare providers must weigh the costs and benefits of ILE to justify commercial drug purchases. Smaller hospital and healthcare settings that do not stock ILE for TPN purposes may consider stocking ILE for acute drug toxicity.

Intralipid® 20% can be ordered from McKesson Canada in boxes of 6–10 100 mL, 250 mL, 500 mL or 1000 mL bags. The cost per box of bags ranges from approximately \$110.00 to \$200.00. It has a shelf-life stability of approximately 1 year. Smaller healthcare settings that stock ILE for acute drug toxicity should maximise its usage and cost by cycling unused and nearly expired ILE doses to tertiary centres that could use it for TPN.

To conclude, ILE is a first-line antidote treatment for LAST and can be considered rescue treatment in TCA, BB, CCB, bupropion and venlafaxine overdose.^{2,3} Consult a medical toxicologist or Poison Control Centre for support in managing these drug toxicities.

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Gone with air and with water

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Winner of the SRPC student
essay contest.

‘Do you feel ready?’ I asked you. ‘Oh, yes.’ There were many other things I wanted to ask you that I didn’t. I wondered how it felt to know that you would die, to have more than just some vague notion that your death was coming, but to prescribe it a date and time. How did it feel, I wondered, to decide to die on a Tuesday. I thought of the great stoics, they had conquered the idea of death, so they claimed, and yet when death’s time came – when death was no longer just an idea – many of them were reported to have been afraid. You didn’t seem afraid to me. You and death had established a time, and you didn’t seem afraid.

You and I were different people. You were rugged. Your generation grew up with very little, and you, you grew up with next to nothing. You worked the fish plant, you played cards, you drank, you smoked; eventually, you had a family of your own, and you were proud. You loved your children as you did your grandchildren. Then, cancer.

I always thought that something happened when a person was diagnosed with cancer, something that irrevocably takes a ‘me’ and makes it a ‘me and my body,’ with the two then deemed forever at opposition with one another.

What cancer left for you was cruel, because you were no longer *you*, rather you were a man left alone in a body, scarcely able to get up from your bed.

Hence, you chose medical assistance in dying. In the short time you had left, we became quite close. I never told you, but I set an early alarm each morning. I made sure that once I had rounded on my in-patients, before going to clinic, we had ample time to talk. On Thursday morning, we got to discussing poker. ‘I was never much good,’ you told me, ‘but, it was always a good time.’ You used to wear goofy t-shirts to poker games, and your friends would laugh to the point of tears. I told you how I thought we all ought to live to the point of tears and you agreed.

Monday morning you gifted me a t-shirt, at the sight of which you couldn’t contain your laughter. ‘It’s for you to wear at a poker game with your friends’ and you beckoned me to take it. I did. You had worn it yourself over the weekend at a poker game you hosted with your family and friends while on a pass from the hospital. You told me that your drink and smoke had never tasted so good, and you were happy that such was the case because ‘tomorrow is the day,’ and you ‘couldn’t go out on a bad drink and smoke.’

Tomorrow, then, you would die, as you wanted. It was my first experience

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with medical assistance in dying. I felt like crying but, in some sense, it felt selfish, so I betrayed my own advice to you. I thought I ought to leave the tears to you and your family, so I refrained. In any case, you were happy.

It wasn't long until the storm came. It was a Friday, and I was scheduled to be off for the weekend. I stayed up rather late, mixed a drink of gin and continued to work on a short story I had been writing. It was a tumultuous night. At 3:00 a.m., the wind was steady, drumming on the apartment like a reveille and scant gusts pushed their way through closed windows, a whistle that reminded me of a trumpet – nature's call to action. I slept poorly.

Before 8:00 a.m., my phone rang, and I answered. Something about a code orange; 'we need all the help we can get,' I was told, 'there are houses being swept out to sea.' Hurricane Fiona had arrived at the coastal community of Port Aux Basques.

The main road was safe, but elsewhere water could be seen stretching up and over the streets. Some of the streets no longer existed. Many homes no longer existed. When one stepped outside, one felt as though it were a scene that was quite biblical, in the most terrifying sense.

The hospital had electricity. Some of the employees who had worked the previous night shift elected to stay and help, and some had no home to return to. Many of those who arrived in the emergency department were brought by authorities for safe shelter, although some were hurt by debris, and one had survived being swept away while evacuating. I worked that day in a

sort of sustained daydream, one that lacked the pleasantness of a reverie.

Things were different in the weeks afterward.

'My blood pressure has been out of control lately.' Then, in a sentence that followed, you'd tell me how you were living with family, or friends, because your home, and the perch it sat on, had disappeared. No wonder about your blood pressure, I would think.

'My sugars have been all over the place.' No wonder, I would think.

'I've been having headaches constantly.' No wonder, I would think.

'My shoulder has been bothering me.' Then, you'd tell me how you had spent the last week labouring to clean up the debris around what was left of your home. Yes, well, no wonder, I would think.

'My anxiety has been torturing me lately.' No wonder.

I listened to stories that were nearly unbelievable in the weeks that followed. Unbelievable in the sense that they seemed too tragic to be real. There was often little else I could do, so I just listened. Eventually, I left Port Aux Basques, having finished my rural family medicine rotation. It was my first-ever clerkship rotation. Things were much different in the community when I left it than they were when I arrived. I was much different too.

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A resident physician's reflection on rural medicine

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Winner of the SRPC resident
essay contest.

‘**W**ould you like to take an appointment with the Smiths?’ (Pseudonym), my preceptor asked.

‘Sure! What is the appointment for?’

‘They are an older husband–wife couple. Ex-farmers. Mrs. Smith has terminal cancer. She has requested Medical Assistance in Dying (MAiD), so they are here to talk about that’.

‘Wow. Okay, I will let you know how it goes’, I said, my tone more sombre than my chipper acceptance.

I call out in the waiting room for the Smiths and an older couple rise from their seats and walk towards me, holding hands. We enter the assessment room, take a seat and start getting to know each other. They both came from generations of farmers- they had ‘hay in their blood’, as Mr. Smith put it, winking at Mrs. Smith before having a chuckle. They told me stories of their life on the farm. They were dairy farmers with a large herd of cows, a fair-sized chicken coop, a small garden in the back, a couple of barn cats and a Sheppard named Sam. ‘It was not an easy life, but it was a good one’, said Bill, his arthritic joints a testament to the years of physical labour and hard work.

They had an open-door policy: They loved to host neighbours, family and any sort of company that came to the farm. Their children would often have their friends over after school, likely in part attracted by the cookie jar that was always teeming with Mrs. Smith’s famous oatmeal chocolate chip cookies. As they reached retirement age, the farm work outpaced their capabilities, and they were forced to sell, as none of the children desired to carry on the family tradition.

Flash forward to 2 months ago, when Mrs. Smith received an unfortunate diagnosis of metastatic cancer with a prognosis of roughly 6 months. During the appointment, she began to speak about her values and her decision to pursue an MAiD. She did not want to burden Bill or the health care system. She had lived a good life, and she wanted to leave it on her own terms. She did not want to take more from this Earth, she said. She did her part supporting the community with their milk and ‘now was her time’.

I listened and nodded, moved by the Smiths’ values, by the love they had for each other, for their family, their community, the Earth and life. I probed about any symptoms that bothered Mrs. Smith, trying to view things from a palliative lens to make

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her last days more comfortable. I asked about sleep, pain, bowels and about anything and everything I could do to enhance comfort. She acknowledged my efforts but declined as she said she was comfortable and thanked me for my care.

About 1 month later, I was prepping my charts for the clinic when I saw Bill Smith's name. My preceptor asked to say hello before Bill left so he could offer his condolences. At the end of the appointment, Dr. J. entered the room, held Bill's hands, looked him in the eyes and said, 'I'm sorry for your loss'. Bill held on to Dr. J's hands for what felt like 5 minutes as he talked about the final moments in Mrs. Smith's life. Thank goodness for these N95s and face shields because I was struggling to hold back tears. To see two grown men holding hands like that, to feel the energy in the room- Bill's love for Mrs. Smith, Dr. J's sincerity in his condolences- was one of the most moving experiences I have had in medicine.

Bill went on to ask about Dr. J's kids and said he had seen him at the rink this weekend. Bill's grandchildren played sports with my preceptor's kids, and they all attended the same place of worship. It was evident that Dr. J had genuine care for the Smiths that went deeper than the confines of the clinic walls. That is a large reason why I chose rural medicine. The 'everybody knows everybody' adds another layer that cannot be paralleled by the greater anonymity in urban medicine. Rural medicine is built on a sense of

community; the emotion in the room that day was a testament to the community that connected my preceptor and his patients on another level.

Sure, I could tell you more about how rural medicine allows me to practise as a true generalist, how I'm learning what feels like everything under the sun; how I'm experiencing how to practise effectively (and creatively) in a resource-limited setting; how hard I laughed (afterwards, in private) when a patient called our facility a 'country bumpkin hospital'. However, what stands out to me most is the sense of community that rural medicine is built on. The emotion in the room that day, watching Bill and Dr. J hold hands, observing their sincere interaction, THAT is what rural medicine is about. I love getting to experience it every day- the house calls where a patient insists I stay for a cup of tea, being able to stay late to squeeze in a patient for a last-minute visit because I know their family circumstances and there is no walk-in clinic nearby, the conversations about the best Niagara peaches that turn into '*You go to that farmstand for your peaches?! I went to public school with them!*' To me, rural medicine is about community. Moreover, I cannot wait to keep building and connecting with my community through residency and beyond.

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in our dual zoned ED
4 Hospitalist Teams daily with call 1 in 4

To find out more about the programs and services PRH has to offer, please visit www.pemreghos.org

PRH currently has various weekly to monthly (up to 6 months) locum opportunities available in Emergency Medicine, Hospitalist Medicine, and Internal Medicine.

Position Requirements

- Fully independent and registered (or eligible) with the College of Physicians and Surgeons of Ontario (CPSO) in your specialty.
- Certified by the Royal College of Physicians and Surgeons of Canada – FRCP(C).
- Experienced at working with teams and possessing strong interpersonal and collaborative skills.

For more information about these awesome locum opportunities, please contact PRH Medical Affairs:

(613) 732 – 2811 x 8109 or medicalaffairs@prh.email

HGH
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TO
EXCELLENCE

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PREMIUMS
APPLY**

LOCATED
55 minutes
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Montreal
Ottawa
St-Sauveur

**HGH is looking for PHYSICIANS
including**

- Anesthesia providers
- Dermatologist
- Emergency physicians (R3)
- Gynecologist
- Hospitalists (Rehab and In-Patient)
- Internist (Ambulatory Care)
- Intensivist (Level 2 ICU)
- Neurologist
- Otorhinolaryngologist
- Psychiatrists

**Integrated
Health Information System**

**State-of-the-Art
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Contact
Recruitment Office and Academic Affairs
613-632-1111, extension 31001
physicianrecruitment@hgh.ca

hgh.ca
Hawkesbury and District General Hospital
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 **SOCIETY OF Rural Physicians OF CANADA**

THE NATIONAL RURAL ELECTIVES HANDBOOK

Created by the Society of Rural Physicians of Canada Student Committee
 Last Updated: June 2022

A dynamic, living resource, constantly updated by the Student Committee.

Introducing The National Electives Handbook
 Find it at srpc.ca/The-National-Electives-Handbook

CAEP CPD offers a wide variety of learning opportunities for all levels of emergency professionals.

We strive to bring the best in medical education to as many locations in Canada as possible. Some of our new CPD offerings include the CAEP/BEEM Rural Journal Club, Disaster Preparedness in Healthcare, Trauma Resuscitation in Kids (TRIK) and AIME Awake. CAEP offers a discount or exclusive CPD for its members – prorated memberships now available.



For more information on the upcoming sessions for these courses, and to view our full list of offerings, please visit our website.



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MD Financial Management



Hospitalist Medicine Program

Smiths Falls Site

Full Time / Part Time Opportunities

The Perth- Smiths Falls District Hospital is a two site 85 bed, acute care community hospital serving a regional population of 66,000.

The community of Smiths Falls (pop. 9,000) is conveniently located midway between Kingston and Ottawa, along the Rideau Canal.

- ✓ *Return of Service eligible*
- ✓ *Student Loan Forgiveness program eligible*

Practice Profile

- Most Responsible Physician (MRP) for unattached adult patients
- Week long / 7 Day week (Saturday – Friday)
- 30 Medical/ Surgical beds (includes ALC) *plus 4 bed Level 2 ICU*
- Staffing = 2 Hospitalists daily (flexibility in patient assignment).
- 0800 - 1700 hrs in house coverage (one hospitalist must always be on site).
- 1700-2200 hrs available by telephone
- 2200 – 0800 hrs in house coverage by ED physician
- EMR (Medi Tech) / eScripton / PACs/ CT / MRI
- Full complement of specialty back up locally; Anesthesia / Internal Medicine/ General Surgery/ Ob/Gyn/ Ortho / Physiatry /Urology
- Established links with tertiary care centres 1 hour away (Kingston / Ottawa)

Remuneration

- Fee for Service + \$600 / day (weekday / weekend day)

Contact

Carlene MacDonald, Physician Recruiter, physicianrecruitment@psfdh.on.ca 613 285 5057 c

RADY FACULTY OF HEALTH SCIENCES

Ongomiizwin – Indigenous Institute
of Health And Healing

Want to work out
of town but don't
want to move?

**APPLY
TODAY**

Physician opportunities

Now recruiting for permanent and locum positions across Manitoba.



THINK OUTSIDE THE CITY

Physician services offered in three hospitals and
23 nursing stations across rural Manitoba.

- Embrace diverse cultures and build strong patient relationships
- Experience meaningful work in a beautiful, natural setting
- Be an essential part of an interprofessional health care team
- Enjoy competitive compensation and retention bonuses
- Receive perks like flights, accommodations and a meal per diem

Get paid for out-of-province travel with a two week commitment!

To join Ongomiizwin – Health Services (formerly J.A. Hildes Northern Medical Unit), contact:

Acey (Adrienne) Spence – Recruitment Specialist
Ongomiizwin – Indigenous Institute of Health and Healing
Rady Faculty of Health Sciences, University of Manitoba
Tel: (204)789-3282 | Ongomiizwin.Recruitment@umanitoba.ca



National Advanced Skills and Training Program for Rural Practice

Optimizing rural care



Are you a rural physician interested in advanced training?

The **Society of Rural Physicians of Canada** will reimburse advanced training for practicing rural physicians including specialists, based on the specific needs of rural, remote and Indigenous communities across Canada. Examples of training to improve skills could include emergency medicine, general surgery, obstetrical care, anesthesia, etc.

Rural physicians may receive funding up to \$35,000 for an income stipend, travel, accommodation, locum and preceptor expenses.



APPLY NOW!



To register scan QR code or visit
<https://srpc.ca/advanced-training>

If you are interested in training but do not have a preceptor, please contact kristenk@srpc.ca.

Are you interested in being a preceptor?

REGISTER NOW!



To register scan QR code or visit
<https://srpc.ca/event-5203406>

**Programme national de formation et compétences avancées pour la pratique rurale**
Optimiser les soins des régions rurales



Êtes-vous un médecin en milieu rural intéressé par une formation avancée?

La Société de la médecine rurale du Canada (SMRC) finance des opportunités de formation pour les médecins ruraux, y compris les spécialistes, permettant ainsi aux médecins de répondre aux besoins spécifiques des communautés rurales, éloignées et autochtones partout au Canada. Des exemples de formation pour améliorer les compétences peuvent comprendre la médecine d'urgence, la chirurgie générale, les soins obstétricaux, le traitement de la toxicomanie, l'anesthésie, etc.

Les médecins ruraux peuvent recevoir un financement pouvant atteindre 35 000 \$ pour une allocation de revenu, les frais de déplacement, d'hébergement, de suppléance et de précepteur.



FAITES UNE DEMANDE MAINTENANT!



Pour vous inscrire, scannez le code QR ou visitez <https://srpc.ca/formation-avancee>

Si vous êtes intéressé par une formation mais que vous n'avez pas de précepteur, veuillez contacter kristenk@srpc.ca.

Êtes-vous intéressé à devenir précepteur?

INSCRIVEZ-VOUS MAINTENANT!



Pour vous inscrire, scannez le code QR ou visitez <https://srpc.ca/event-5203406>

LOCUM OPPORTUNITIES

FIND YOUR EXTRAORDINARY AT WAHA



Weeneebayko Area Health Authority
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Γ·L·L·N·Δ Δ·PL·Δ·Δ·σ·`

ABOUT WAHA

The Weeneebayko (“Two Bays” – James Bay and Hudson’s Bay) Area Health Authority (WAHA) provides medical services to 6 communities on the shore of James and Hudson’s Bay; Moose Factory, Moosonee, Fort Albany, Kashechewan, Attawapiskat and Peawanuck. The population of the West Coast of James Bay is approximately 12,000 people; Primarily First Nations. The hospital is located in Moose Factory.

COVERAGE AND COMPENSATION DETAILS

Effective July 1, 2023 - September 30, 2023

Emergency Department Coverage

- 12 hour ED shifts (day or night) changing at 8AM or 8PM
- \$3000 daily stipend
- Travel time reimbursement of \$971 each way

Hospitalist Coverage

- Inpatient coverage from 8AM – 8PM daily
- \$2100 daily stipend
- Travel time reimbursement of \$971 each way

Primary Care Coverage

- Weekday family medicine clinics from 9AM – 5PM
- \$1100 daily stipend
- Travel time reimbursement of \$971 each way

Travel and accommodation expenses for all locum opportunities are covered by WAHA.

If you have the availability to assist, please contact:

Dr. Elaine Innes

Chief of Staff

Weeneebayko Area Health Authority

Mobile: 705-288-9271

Email: Elaine.Innes@waha.ca

Jaime Kapashesit

Physician Services Coordinator

Weeneebayko Area Health Authority

Phone: 705-658-4544 ext. 2237

Email: Jaime.Kapashesit@waha.ca



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