

Non-clinical determinants of Medevacs in Nunavut: perspectives from northern health service providers and decision-makers

Leah McDonnell¹, Josée G. Lavoie^{1,2}, Gwen Healey³, Sabrina Wong⁴, Sara Goulet^{2,5} and Wayne Clark¹

¹Ongomiizwin Research, University of Manitoba, Winnipeg, Canada; ²Department of Community Health Sciences, Rady Faculty of Health Sciences, University of Manitoba, Winnipeg, Canada; ³Qaujigiartiit Health Research Centre, Iqaluit, Canada; ⁴School of Nursing, University of British Columbia, Vancouver, Canada; ⁵Ongomiizwin Health Services, University of Manitoba, Canada

ABSTRACT

A medevac involves the transport of a critically ill patient, usually by plane or helicopter, to access necessary and at times life-saving care, most often only accessible in urban centres. Medevacs are commonly used in resource-limited and geographically isolated areas in Canada.

The objective of this study was to explore the determinants of medevac decision-making from the perspective of frontline care providers and decision-makers in Nunavut. For this purpose, we conducted a secondary analysis of 90 in-depth interviews.

Findings indicate that medevacs can be the result of a number of intersecting factors, including the referring and receiving provider's experience, insufficient staffing in health centres, lack of access to diagnostic or treatment-related, and challenges related to recruitment and retention. An expanded scope of practice for frontline care providers, and a related lack of training and/or confidence in skills, only add to these challenges.

Medevacs play an important role related to managing shifting community nursing workloads, which expands and contracts in response to local needs. Attention to structural issues, putting in place virtual peer support systems, resolving vacancies left by the lag between attrition and recruitment, increasing access to training, and local diagnostic and treatment equipment, might decrease reliance of medevacs.

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Introduction

In Canada, colonisation continues to have lasting impacts on Indigenous people, which, in part, contributes to widening healthcare inequities, and prevents Indigenous community members from reaching their optimal health potential [1–3]. Inuit communities in the Canadian north are no exception.¹

With a population of 38,396, Nunavut's population (85% of which is Inuit) is spread across a very large portion of northern Canadian, spanning three time zones and over 2 million square kilometres. The population is concentrated in 25 hamlets (villages) [4–6]. Nunavut was established in 1999 and created the Nunavut Department of Health and Social Services (DHSS). An early reform abolished the three regional health boards (located in Rankin Inlet, Cambridge Bay and Iqaluit, and serving the Kivalliq, Kitikmeot, and Qikiqtaaluk regions respectively) previously set up by the Northwest Territory Government, which acted as regional decision makers and employers of health staff [4].

Administratively, Nunavut has three regions (Kivalliq, Kitikmeot and Qikiqtaaluk), with one hospital located in the territorial capital, Iqaluit. The Kivalliq, in the southwest, and Kitikmeot, in the northwest, are serviced mainly by one regional health centre (Rankin Inlet and Cambridge Bay respectively) in each region and community-based health centres in each community [4,7]. Policy and implementation decisions are now made by the Nunavut Department of Health and Social Services, which employs all health staff.

Many challenges associated with service provision in Nunavut are common to other rural regions [8], but the magnitude of these challenges is different. A key factor complicating service delivery is geographic isolation [9], which is known to create diseconomies of scale and limits local access to a broader spectrum of services [10]. Limited local services, in the context of remoteness and isolation, create specific challenges to ensuring timely access to many services, including acute and specialised care [11].

CONTACT Leah McDonnell  josee.lavoie@umanitoba

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¹The Inuit Nunangat, or homeland, stretches from the western Northwest Territories (Inuvialuit region), through Nunavut, northern Quebec (Nunavik) and Labrador (Nunatsiavut), and covers approximately 40% of Canada's land mass [41].

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The objective of this study was to explore the determinants of emergency medical evacuation (commonly known as medevac) in Nunavut, from the perspectives of frontline Nunavut care providers and decision-makers. Our goal was to develop a better understanding of the non-clinically-related factors that might lead to a patient being medevaced. Our paper begins with some background, to contextualise the study and findings.

Background

The context

Across the circumpolar north, medevacs are linked to two northern-centric realities: a highly variable local workload, and a high reliance on centrally-based hospitals in usually, but not always, a southern urban centre. The Nunavut healthcare system was built on a series of outpost nursing stations (now called Health Centres) that were first established by the Federal Government in the 1950s, gradually replacing care provided by religious missions, mining companies, and army bases [12,13]. Community Health Centres are mandated and equipped to provide community members reasonable access to the prevention and primary care they need, across the life span. They are staffed by community-based staff who receive on the job training (community health representatives), nurse practitioners (NPs) and registered nurses (RNs) working as community health nurses (CHNs)² with an expanded scope of practice.³ The government of Nunavut requires CHNs to have advanced training to work in rural and remote areas. In reality however, recruitment pressures can mean that CHNs begin their employment before receiving this training. Some communities (Rankin Inlet, Iqaluit and Cambridge Bay) have resident family physicians. Others benefit from visiting family physicians who provide clinical care over 3–7 day visits, for example. The only hospital now in existence in Nunavut is the Qitiqtani General hospital, a secondary care centre located in Iqaluit.

The Qitiqtani General Hospital and health centres have historically and continue to be largely staffed by non-Inuit professionals. The Aboriginal Nursing Association of

Canada reported that 145 Inuit nurses currently practice in Canada, with 35 working in Nunavut [14]. In 2017, the Government of Nunavut reported that only 5% of its health professional workforce was Inuit [15]. Developing Inuit nursing capacity has been a preoccupation for some time. Dalhousie University has been offering a bachelor of nursing program in Iqaluit, in partnership with Arctic College, since 2000. As of 2016, 48 nurses have been trained, of which 17 were Inuit [13]. Other initiatives have since emerged to try to meet the demand [16].

The vast majority of nurses working in Nunavut come from areas outside of the territory [17]. Recruitment and retention remain an important priority for the Government of Nunavut. Attrition occurs for a variety of reasons. Canada-wide nursing shortages [18] have made recruitment to the north more difficult and attrition more prevalent. Nursing in Nunavut and other remote locations requires a higher level of diverse clinical skills than what nurses usually offer in southern contexts, and an ability to work fairly independently. Shifting workloads resulting from outbreaks or accidents, and the requirement of providing services 24/7, can be a significant challenge for new nurses, especially in small communities where on-call duties (evenings and weekends) can cumulate, leading to exhaustion and attrition.

There is no local surplus nursing workforce living in Nunavut communities, that can be mobilised rapidly when needs emerge, to take a shift or two and alleviate extraordinary workloads. This challenge is not unique to Nunavut. Two solutions are traditionally pursued: building a *relief nursing pool* in regional centres (Cambridge Bay, Rankin Inlet and Iqaluit). Nurses in the pool have the advantage of knowing the Nunavut context, and can be mobilised quickly to meet extraordinary workload needs in communities, for the time needed [19]. Nunavut has previously attempted to implement a relief nursing pool, but recruitment into the pool proved difficult because it requires nurses to spend considerable amount of time away from their family, to provide care in communities unfamiliar to them, thereby undermining their ability to provide relational care. An alternative is the use of *short-term contract nurses* (known as agency nurses). Agency nurses are employed by nursing recruitment

²In this paper, CHNs include both NPs and RNs.

³Across Canada, the scope or range of health promotion, protection, maintenance, restoration, rehabilitation and palliation activities nurses can legally perform is defined by their territorial and provincial nursing association. Through legislation and regulations, the nursing profession regulates itself to ensure that nurses have the skills and competencies necessary to their practice [42]. In Nunavut and the NWT, nurses have traditionally and continue to practice with a scope of practice that has been expanded to include acts generally reserved to family physicians. In remote environments where family physicians might visit but are not residents, and where NPs may not be present, RNs practice through the delegation of medical acts, which might include making decisions on differential diagnoses, diagnostic tests, referrals including medevacs, as well as non-pharmacological and pharmacological treatments.

agencies based in southern Canada, and provide temporary 'flexible' workforce across Canada, to replace vacation, sick time, gaps in coverage related to attrition and extraordinary needs [20]. Although many have built their career on providing short-term care to communities from time to time, many are not oriented to the specific community they are called to serve at any given time. While this service is essential, an over-reliance on agency nurses can lead to discontinuity of care. It can also make it difficult for community members to develop a trust-based relationship with short-term contract nurses, and occasionally undermine community confidence in the care they receive [21,22]. Thus, addressing issues related to short-term staffing shortage is complex, and there is no easy solution.

Beyond a high reliance on staffing that comes from outside the territory, Nunavut is the only region in Canada to have such a heavy reliance on hospitals located outside its own territory [5]. One consequence is a significant reliance on medical transportation, with both scheduled and unscheduled/emergency (medevac) flights. Most⁴ southern-based, provincially-funded hospitals are focused on serving the needs of their provincial constituency, and are less likely to be attuned to the needs of northern-based Inuit. The Nunavut healthcare system is the most geographically stretched north-to-south healthcare network in Canada, leaving the system fragmented both administratively and operationally: patients from the Kitikmeot regions access hospital care in Yellowknife (Northwest Territories), Edmonton (located in Alberta) and sometimes Vancouver (British Columbia); patients from the Kivalliq region are predominantly transferred to Winnipeg (Manitoba); and patients from the Qikiqtaaluk region most often travel to Ottawa (Ontario) for hospital and specialist care not available in Iqaluit. For scale, the Kivalliq region of Nunavut, home to approximately 8,300 Inuit, sees nearly 16,000 medical trips a year for Inuit travelling to Winnipeg [23,24]. The same pattern exists across Inuit Nunangat. Fragmentation in service delivery creates daunting logistical complexities and massive gaps in service provision, which often negatively impact users [1,5]. Patients who are evacuated from their home communities to larger urban centres face a loss of autonomy, high stress and social dislocation [25]. Patients and healthcare providers report poor communication between north and south service providers, often leaving patients with discontinuities of care and service providers with fragmented and incomplete patient information [26–28].

The role of medevac

Medevacs (emergency evacuations) and scheduled flights (also known as schedevacs or scheduled evacuations) are commonly used in the Canadian north to transport patients in need of care outside of the scope of their local healthcare facility [29]. Many Inuit communities in Canada are geographically isolated with minimal access to larger medical facilities, making medevacs a necessity for healthcare provision. In 2014–15, the Nunavut Department of Health's maintenance and operations budget totalled \$332M, of which 1/3 was associated with medical transportation and treatment provided in out-of-territory facilities [30]. Scheduled flights are most often used because most referrals are non-emergent (>93% of medical flights). While effective, necessary and used relatively rarely, medevacs are costly, ranging between \$1,500 and \$22,000 per transport. Although medevacs are a common tool for medical services, Mitton and colleagues identify a research gap pertaining to the cost effectiveness of medical transport, noting an inability to find articles that outline methods to reduce the need for medical air transport [29].

Medical decision-making

Decision-making for medevacs is guided by a combination of risk-assessment processes entrenched in clinical decision-making, influenced by contextual and other non-medical determinants. An assessment begins with a patient presenting symptoms, a provider evaluating these symptoms, at times in consultation with other providers (locally or at a referral hospital); and the decision to medevac or treat in-centre [31–34]. A provider's experience and history can influence their decision-making process [32]. Further, sociological factors can influence how a provider interprets cues from a patient [33]. If a family physician is not present for a medevac, a nurse will verbally relay the patient's assessment to the family physician located in a referral hospital. The narrative of the patient's symptoms from one clinician to another plays a decisive role for using medevacs or not, as does the trust placed in one provider to accurately describe the situation to another. It is important to note the influence a nurse has on medevacs when framing the narration of the patient's symptoms [35].

Environmental factors in remote regions impact decision-making for all providers. These factors include geographic isolation, severe weather which might delay

⁴Exceptions include the Children's Hospital of Eastern Ontario and the Ottawa Hospital, which have made specific accommodations to meet the needs of their Inuit patients.

a patient's ability to travel if their condition worsens, staffing levels, isolation, poorly defined scope of work, lack of current education and training, and limited confidence in one's own skills [2,20,21,36]. Job vacancy can result in limited staff [37] to consult for collaborative-based decision-making. Reliance on agency nurses [21] means that experienced providers in the north are more limited [21,22]. As decision-making is also based on the ability of the provider to think critically, while using clinical experience and knowledge to interpret cues, it stands to reason that stress and burnout from high workloads, as well as lack of practical experience and collegial support, can influence decision-making.

Methods

This study is a secondary analysis of data collected between July 2009 and February 2010. This study is part of a programme of research entitled *Qanuinnngitsiarutiksait* (tools for the well-being and safety of Inuit) which is being conducted in partnership with Inuit Elders residing in the Kivalliq region of Nunavut and in Manitoba, the Winnipeg-based Manitoba Inuit Association and researchers from the University of Manitoba and Athabasca University. The goal of our project is to produce evidence to support the development of Inuit-centric services in Manitoba. The impetus for the development of this manuscript was our need as a team to understand non-medical determinants of decision-making, as a backdrop to our current study.

In-depth interviews were conducted with 86 Nunavut-based participants and an additional 4 were conducted with participants in the Northwest Territories who had extensive previous knowledge of the Nunavut context. The primary purpose of the original data collection was to inform the development of a strategy for improving health and health services to the Nunavut population, through optimising health human resources and service delivery models to match population needs. Selected characteristics of those interviewed are detailed in Table 1.

This study was approved by the Health Research Ethics Board of the University of Manitoba, Bannatyne Campus (HREB # HS189333: H2015:358). The secondary

analysis of qualitative interviews was completed between December 2016 to June 2017. This process included the iterative team-based development of a codebook composed in part of priori codes, based on literature that addressed factors beyond the clinical assessment, which might lead to a medevac in remote communities. The codebook included some key aspects such as (but not limited to): levels of staffing, staff support, scope of work, recruitment and retention, weather conditions an impact, cultural safety, infrastructure and equipment, human resources, and stress among providers. Other codes emerged from the analysis itself. All interviews were coded using the software NVivo. The research team completed a thematic analysis to determine major themes emerging from the data. The study reports on findings from the interviews outlined into thematic categories to better understand non-clinical factors that impacts medevac decision-making.

Findings

Our findings show that, beyond clinical necessity, medevacs in Nunavut can be the result of a number of intersecting factors, including insufficient staffing in health centres related to attrition or increased workload, lack of access to diagnostic or treatment-related equipment (or equipment in need of repair), frontline care providers balancing limits to their expanded scope of practice and patients' expectations and needs. We report our findings in two major segments, proximal and distal influences on medevac decision-making. Proximal influences include providers' experience and collegial support, staffing, access to supports and training, and weather. Distal influences are more nuanced factors and include mainly recruitment and retention, administrative duties such as payroll, and cultural safety.

Proximal factors

According to respondents, medevacs are initiated in one of two ways: a family physician observes a patient and determines the need for a medevac; or a nurse observes a patient, determines a medevac may be

Table 1. Interviewees' characteristics.

Type of Community	
Territorial Centre	33% (N = 27)
Regional Centre	23% (N = 21)
Small communities (N = 6)	47% (N = 42)
Sex	68% female (N = 62)
Age	Range, 20–60 + with 64% between the age of 30– 59 (58%)
Role	
Providers (clinical, social and community health services)	63% (N = 57)
Decision-makers (managers, human resource workers, etc)	37% (N = 33)

necessary and contacts a family physician either by phone or in person. If by phone,

“... a physician has to be called to Medevac. So the nurse would actually assess the person and obviously, if someone is medevaced they are probably unstable or something is going on. So... they would have to be in contact with a physician because you have to have a receiving physician at the other end where we are medevacing them to” (Interview 0600).

In the case of nurses are making the assessment and relaying information to a family physician,

“...there has to be a certain level of trust... [The physician] has to put a certain amount of trust in my clinical skills because [they] is not sitting here looking at you, right” (Interview 0604).

Providers' experience and collegial support

The responsibility of decision-making for medevacs is challenging, especially for new providers entering the field directly from school, with little practical experience working in a northern and remote context. Participants reported that being in the position of deciding to medevac (or not) is difficult,

“Because if you've ever been in those situations it can be terrifying – and I have. When I started my career I was in a [northern health centre] for 2 years, fresh out of [university] and I was scared out of my wits... I wasn't particularly confident in my knowledge at that point in time and if things go south or if they go bad then you are alone, right? So, the inclination is to send people out” (Interview 0703).

Participants discussed the expanded scope of practice they face when working in northern communities. Many providers have the necessary training and experience, but dealing with an expanded scope of practice in the north initially puts staff in a different and unfamiliar position,

“[nurses] may not be comfortable in their role making that decision especially because the expanded role is totally different than [a registered nurse's] role. So they may not be comfortable in all of those decisions...” (Interview 0600).

Staffing

The local level of staffing impacts decision-making for medevacs. In times when Health Centres are faced with insufficient staff and support (because of attrition, sickness or as a result of increased community needs), staff can feel overworked and overstressed. When local staffing levels fall below needs, relief must come from the nursing pool or agency nurses. If this does not happen

or while sudden shifts in needs are being addressed (which can take a few days), local staff must address increased needs. This can influence the rationale for medevacing when staff, without support or relief, or supported by staff with less experience of the community, doubt being able to provide the support required by a critically ill patient. In addition, needs can expand very quickly, as a result of an accident, or an outbreak:

“... often [medevacing] comes down to the fact that it's just that the nurses are feeling stressed out and maybe they feel that they are overworked and they can't stay up all night with a patient... Perhaps that's because they don't have enough nurses to back them up so that they can have the next day off or something if they are up all night” (Interview 0701).

Participants mentioned that human resources and administrative policies affect recruitment and retention. One common concern for retention of staff is issues with being overworked, feeling under supported, and burning out,

“You are run ragged off your feet from morning to night and you never really have a weekend off” (Interview 0800).

Another participant highlighted the difficulty of working in smaller communities where the nursing workforce may be limited to two nurses only:

“When are you off? 'Well I'm never off because I'm always the second person on-call... you just can't go out, you can't leave, you can't walk, you can't go have a glass of wine, you can't do anything that shuts your brain off work because you are always on-call which is huge” (Interview 0305).

The limited mental health services and support offered in Nunavut communities was also identified as a concern by participants,

“We essentially have no resources for mental health-care. We have one psychiatrist for maybe even the whole territory ...” (Interview 0821).

For those working in social support roles (social workers, for example), participants highlighted that a lack of staffing directly increased their case load, as mentioned by a social worker in the study,

“... I am easily carrying 2–3 times a usual case load for a [social worker] in the south” (Interview 0303).

Although this was not a prominent theme in interviews, some participants noted that limited local access to mental healthcare can lead to the use of medevacs. Using medevacs for mental healthcare treatment is based on the *Mental Health Act* [38], which allows medevacs to be used to transfer the patient for

a psychiatric assessment, especially when the patient cannot be held at the current health centre,

“... but in a few cases medevacs are also used for mental health patients to fly them straight from one community to a treatment centre in the south” (Interview 0804).

The intent of these mental health-related medevacs may be to provide respite to the family, trigger a reassessment of an individual’s care plan when behaviour appears to be escalating, or address issues related to safety (of the patient or family).

Staff retention was a major challenge raised by a majority of participants. High vacancy rates create difficult conditions for front-line workers providing primary care services,

“A lot of people are overwhelmed, people are often doing more than their job, like a lot of other jobs in addition to their jobs because positions aren’t filled or there’s not enough staff” (Interview 0820).

Participants also mentioned that unclear job descriptions, and fragmented support and training for new and/or non-permanent staff, led to confusion and high staff turnover,

“...when you first come up here there’s not much of an orientation process, so if you’re lucky enough to have a job description, then it may be similar to other people’s and other people aren’t familiar with what their role is...” (Interview 0506).

High staff turnover lead to reliance on agency nurses, who often enter into difficult situations,

“... when you land off the plane in that community, you are expected to assume the role of the [community health nurse] to its full extent. You are not there to have the nurse-in-charge or the other nurses carry you around and show you what to do and train you... so it’s a very stressful job, as an agency nurse” (Interview 0408).

Reliance on medevacs is related to risk-adverse decision-making combined with minimal or lack of experience in communities by continuously having new and/or temporary staff. While experience and risk adverse decision-making also influence medevacs on the receiving end for new and/or locum family physicians, a lack of collegial relationship with the CHN also influence the use of medevacs. Temporary and non-permanent staff impact the number of medical flight (including medevacs) that take place,

“[Medical flight transportation] increases when you have short-term staff... When you have stable nursing staff and stable physicians the amount of turnover to referrals changes. It goes down and it goes up with your casuals...” (Interview 0600).

Family physicians and CHNs alike, especially new hires, temporary hires, and locum positions, are under tremendous pressures to perform in/for rural and remote populations. Temporary staff, with less in-community and collegial experience, may tend to base their decision-making process in risk adversity, as a way to avoid or mitigate potential critical situations and the possible death of patients under their care.

Supports and training

As one consequence of high-vacancy rates, permanent staff members themselves tend to be over-subscribed and unable to provide additional training for agency nurses, as high workloads may not permit for extra support and training. Still, education and access to ongoing training was mentioned by several participants as being an important factor that influences decision-making. Participants outlined the challenges of accessing training,

“I have up-to-date [cardiopulmonary resuscitation or CPR] because a friend has CPR training and when she comes up as a nurse she does our CPR course. The only reason I have any ACLS [Advanced Cardiovascular Life Support] or T&CC [Trauma Nursing Core Course] or anything like that is because it’s been organized through Keewatin Air and the clinical nurse educator who comes up to the north to do it; otherwise we are all uneducated” (Interview 0301).

“What there isn’t is the support for the nurses. So they don’t get the ACLS, T&CC, you know education, but they also need the public health, right? And they don’t get nearly enough education in that” (Interview 0504).

Better use of available, but underutilised, diagnostic and treatment equipment can prevent unneeded multiple medical trips for clients,

“Why would I send my compromised client on an air-plane that’s uncomfortable for them... introduce them to a variety of issues that they just can’t handle, ... when I can do 2 wheelchair assessments on the telehealth... A \$30,000 piece of equipment [telehealth], \$1,000 cable connection fee and \$250–400 per use, per session. They stopped sending us education pamphlets... and there [the telehealth system] sits. It probably costs anywhere between \$8,000 and 12,000 to send 2 escorts and one of my clients to Winnipeg” (Interview 0201).

Interestingly, the barriers to better use the telehealth system raised by participants were limited to a lack of goodwill and efforts on the part of the Nunavut Department of Health. External barriers (the lack of southern providers willing to offer services through

telehealth, potential discontinuities of care, issues related to fair remuneration, etc) were not discussed.

Participants also reported that some medical travel could, in their view, be circumvented by providing needed equipment,

“So there’s waste [of finances on medical travel] but it’s not because of clinical judgment, it’s because they won’t give us equipment and I’ve asked many times” (Interview 0301).

Weather

Although mentioned by only a few participants, it should be noted that because of the remote geographic location of most communities, weather can impact medevac decision-making:

“If you have a storm that has come that’s going to be 3 days is the likelihood that this is going to deteriorate and need to be medevaced or is it something that probably should get better like you are seeing signs that it will get better so those are all kind of factors that you have to take into consideration whether you are going to keep the person or not” (Interview 0600).

As outlined by participants, the proximal factors aforementioned have the most direct impact on medevac decisions, outside of crisis and severity of the patient’s condition. However, these topics are not the only factors influencing medevac decision-making. There are several distal factors that weigh on providers, and influences medevac decision-making. Discussed below are distal factors identified by participants.

Distal factors

Distal influences on decision-making are often more nuanced and can impact providers’ overall performance, including decision-making regarding medevacs.

Human resources issues

The high visibility of CHNs in small communities can lead to staff feeling like they are constantly working, with no separation between personal life and work. Without support from other staff members and clearly defined roles, nurses in remote areas can often feel as though they work 24 hours a day, with no respite. That amount of work for any profession is unadvisable and, in the case of northern medical providers, can lead to poor mental well-being and burnout.

Retention rates can also be impacted by administrative practices that largely impact casual staff members. Staff include full-time staff, who are managed and paid

through the government of Nunavut; casual and part-time staff, who are also managed through the Government of Nunavut; and agency nurses which are managed by Nunavut staff, but paid through an agency. The agency itself is paid through the Government of Nunavut. Difficulties impacting retention arise due to difficulty in casual and part-time staff receiving their pay in a timely manner. In order to receive pay, casual and part-time staff must submit a weekly timesheet. Many participants reported that the processing time for getting paid is unacceptable:

“...I’m [the] timesheet collector and I do all of those things diligently and my staff don’t get paid. Every second Friday I have at least two of my Inuit staff coming to me that they haven’t been paid... So they go 4–6–8 weeks without being paid” (Interview 0301).

These issues can lead to high turnover in support staff, causing CHNs to have to fill multiple roles,

“So we really have a shortage of support staff so often the nurses will be the janitors, we’ll be answering the phones” (Interview 0301).

Hiring practices do not always allow for overlap between the previous staff member and the incumbent,

“If a position number is filled they can’t put another person into that position while that position number is filled so I have to wait until an experienced nurse has left this building to bring an inexperienced nurse in and that’s not the way you learn this job” (Interview 0301).

Without overlap time to do on-the-job training, new employees may be left feeling overwhelmed and under-supported.

Structural issues regarding cultural safety

Limited opportunities for relationship development between agency staff and community can lead to issues for patients accessing care,

“We have multiple agency nurses who are just not good and they don’t care and they upset everybody and insult everybody because there is no cultural sensitivity [training] given by [the Government of Nunavut] before they come out” (Interview 0201).

While agency nurses have the necessary clinical skills to treat patients, many lack an in-depth understanding of and sensitivity towards working in the north,

“The nurses certainly are skilled, don’t get me wrong, I’m not talking about job quality but I am talking about attitude and professional conduct issues you know that trickle down and affect us” (Interview 0201).

Cultural safety and relationship development between patients and nurses is a key in facilitating patients using primary healthcare services as a preventative measure.

Proximal concerns identified by participants can both impact medevac decision-making in an interrelated or individual manner, while distal concerns tend to influence decision-making in a more interrelated manner. A discussion on how these factors play either key or interrelated influences follows below.

Discussion

The objective of the paper was to explore the non-clinical determinants of medevac decision-making from the perspective of frontline care providers and decision-makers in Nunavut. We wanted to highlight the circumstances under which medevac decisions are made to identify any gaps or supports needed for providers. There are some limitations and strengths to this study. A first limitation is that findings of the study are based on qualitative interview data. Data are not linked to any health administrative (hospital abstracts) or patient chart data, which would give us a better understanding of why people were medevaced. This linkage was beyond the scope of the overall project. Future studies involving linking databases and qualitative data on medevac are suggested. Another limitation noted is the data is already a few years old and Nunavut policies might have changed. Our team however includes a family physician, a nurse and researchers who are familiar with the current Nunavut context, and who were able to assess whether the data presented continued to resonate with current reality.

Our findings indicate that the high use of medevacs in Nunavut is the result of intersecting factors. Medevacs are effective and life-saving. Decisions for calling a medevac are often made under high-stress circumstances and demonstrate a reliance on a mix of clinical and practical training, mediated by contextual factors. Clinical assessments conducted by providers rely on experience, education, and often a collaborative approach [9,21,32,34,39,40]. Understanding limitations of care based on geographic isolation and available staff and equipment [20,21,40] all play a key role on initiating a medevac or not.

One of the largest concerns identified by participants and in the literature is a lack of adequate staffing to support the needs of patients [20,21]. Staffing health centres with the 'right' level is not a simple task. Health centres may have adequate staffing levels, until two or three crisis situations occur in a matter of hours, leaving the health centre critically understaffed. Crises may last hours (a motor vehicle accident, sick staff) to weeks

(an outbreak, attrition and delays in re-staffing). While some increased needs may be predictable (flu season, retirement), most crises are by their nature unpredictable. Delays in recruitment can lead to higher vacancy rates, and an overreliance on non-permanent staff, such as agency nurses [37]. While agency nurses are able to fill positions and provide services to community members, employment of transient staff does come with some difficulties. Some challenges include a nurse's lack of northern clinical and contextual experience to work in a northern context, limited peer and clinical support, and high pressure being placed on new providers [21,22]. While the Government of Nunavut is providing agency nurses to meet the needs of their population, there may be opportunities to invest energies towards more in training, education and retention, to attenuate and mitigate the reliance on agency nurses.

Providing services that take into account northern contextual realities is a key to improving patients' outcomes. Developing services with the community can provide a safer and more efficient system, which can help address some of the structural issues (cumbersome administrative processes, lack of ability to retain or recruit staff, for examples), as well as emergent issues (outbreaks, for example) that impact northern rural and remote communities. Developing services with the community can also include creating culturally safe and supportive practices, which can help educate all medical staff (including agency nurses) on culturally respectful behaviour and community expectations. Providing more support and training for agency nurses may combat some of the feeling of isolation and provide stronger community and peer-to-peer supports [21].

While access to educational support plays a critical role in medical decision-making and increases job satisfaction, training and access to equipment can also play a key role in clinical decision-making, including medevac decision-making [9]. Simply, a lack of equipment leaves providers unable to serve the needs of patients. In some cases, equipment, such as telehealth, may be present, but without ongoing and proper training, staff are unable to use the equipment effectively leading to unneeded medical trips. Furthermore, without proper training to support an expanded scope of practice, clinicians are left unable to support some of the needs of their patients. Education and training can be effective tools to ensure staff are properly supported in their workplace. Knowledge and confidence in using life-saving actions and technology can improve the health outcomes for patients and decrease the need for unnecessary medical trips (medevac or scheduled flight). Still, we acknowledge that responsive telehealth-based health services require more than functional equipment

and training, and largely depend on the availability of specialised providers willing to provide services through this medium.

Increased recruitment and retention of permanent staff could also have beneficial consequences for reducing the number of clinically unnecessary medevacs in the region: this area should be the focus of further research. Overall, low staffing levels may also lead to some clinically unnecessary medevacs. For example, if a patient is presenting with symptoms that can be managed locally, but needs to be monitored for a 24 hour period, and there is a staff of two CHNs, the staff are unlikely to be able to safely accommodate the patient's needs. It is important to note that the community's need for staffing can change quickly, as a result of accidents, outbreaks, and other factors. The geographical isolation of Nunavut communities precludes the possibility of drawing on a localised nursing surplus workforce, thus the need to depend on agency nurses, and this despite known limitations. We recognise that there is no simple solution to this complex problem.

Conclusions

Findings from the study suggest some key areas that, with improved support, can better assist providers with their medevac decision-making process.

Peer support

Participants mentioned that isolation and feeling overwhelmed are common feelings experienced by providers in the north. When first entering into positions in the north, participants discussed lack of self-confidence and guidance as an issue. Enhancing peer support and making support more accessible, especially for young providers, will help to establish decision based on collaboration. Using a collaborative effort, while sharing knowledge and past experiences with one another, helps to develop on the job training and skills in new providers. On the job training and experience facilitates confidence in decision-making.

Retention

Increasing retention is a well-known, difficult and ongoing task for northern healthcare systems. Based on comments made by participants, some immediate steps were taken to increase retention focus on support of personnel in their specific positions. Specifically, job overlap including on-the-job training will greatly benefit new staff entering into the job. In some cases, this may increase continuity of care for

patients and overall workplace morale, with staff feeling more supported and confident in their position. Clearly defined job descriptions and scope of practices, with an expanded definition of scope of practice to cover the northern context, will assist in managing expectations for providers.

Recruitment

Recruitment was identified as an issue by almost all providers either directly, or indirectly. Low-staffing levels and overreliance on temporary staff are seen to increase medical travel. Strengthening recruitment by re-examining problematic hiring processes will aid in combating high vacancy rates. In order to reduce non-essential medevacing, sufficient staffing at nursing stations is required. Improving hiring practices will involve Nunavut authorities working with local nursing stations and Health Centres to develop relevant solutions.

A longer-term solution involves working with and supporting education for local residents to enter into the healthcare system enhances a sustainable and northern-based health workforce. Partnerships between local community members, educational systems and the healthcare system must continue to be developed and fostered.

Equipment and training

Although there are some realistic limitations as to what equipment and training can be provided for northern healthcare providers, participants identified several training needs and equipment that would improve local access to care if available. They recommended that training be ongoing for equipment that is already available (increasing access to relevant on-line or distance education training could help increase competencies, for example). Furthermore, supporting training on the use of advanced technologies for telehealth (such as remote diagnostics and robotics) that may decrease the need for some medevacs on a case-by-case basis, may be an effective and impactful use of resources and time. Training that compliments an expanded scope of practice should be available for all providers on an ongoing basis; development of these courses could be undertaken in consultation with current providers in the north. For example, training courses around scenario-based medevac situations, which can include planning and decision-making exercises, could be developed with seasoned and experienced providers and extended to others working in the field.

Northern healthcare system design is in its infancy. Most health system research is urban-centric and little

work has been done to support northern remote health system design decision-making. Systems that exist across Canada evolved from practice, context, and known possibilities. Known challenges, such as a dependence on agency nurses, may be addressed to some extent. But agency nurses also play a cost-effective, if imperfect, role in expanding the local workforce in times where need suddenly expands, and to address short-term gaps. They are likely to remain a vital part of northern practice, that require support to provide they care needed.

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