

Trauma in northern Quebec, 2005–2014: epidemiologic features, transfers and patient outcomes

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Background: The Inuit people residing in Nunavik, Quebec, are vulnerable to major trauma owing to environmental and social factors; however, there is no systematic data collection for trauma in Nunavik, and, apart from data regarding patients who are transferred to tertiary care centres, no data enter the Quebec trauma registry directly from Nunavik. We performed a study to characterize the epidemiologic features of trauma in Nunavik, and describe indications for transfer and outcomes of patients referred to the tertiary trauma centre.

Methods: We collected data retrospectively for all patients with trauma admitted to the Centre de santé Tulattavik de l'Ungava in Kuujuaq from 2005 to 2014. Socio-demographic, injury and health services data were extracted. The data were analyzed in conjunction with coroners' reports on death from trauma in Nunavik.

Results: A total of 797 trauma cases were identified. The most common causes of injury were motor vehicle collisions (258 cases [32.4%]), falls (137 [17.2%]) and blunt assault (95 [11.9%]). One-third of patients (262 [32.9%]) were transferred to the tertiary care centre in Montréal. The incidence rate of major trauma (Injury Severity Score > 12) was 18.1 and 21.7 per 10 000 person-years in the Kuujuaq region and the Puvirnituk region, respectively, which translates to a relative risk (RR) of 4 compared to the Quebec population. The disparity observed in trauma mortality rate was even greater, with an RR of 47.6 compared to the Quebec population.

Conclusion: The study showed major disparity in trauma incidence and mortality rate between Nunavik and the province of Quebec. Our findings allow for a better understanding of the burden of injury and regional trauma mortality in Nunavik, and recommendations for optimization of the trauma system in this unique setting.

Contexte : Le peuple Inuit du Nunavik, au Québec, est sujet à des traumatismes majeurs en raison de facteurs environnementaux et sociaux; or, on ne dispose d'aucun système de collecte des données concernant les traumatismes au Nunavik, et outre les données relatives aux patients transférés dans des établissements de soins tertiaires, aucun renseignement n'est consigné au Registre des traumatismes du Québec directement en provenance du Nunavik. Nous avons procédé à une étude pour cerner les caractéristiques épidémiologiques des traumatismes au Nunavik et décrire les indications de transfert et l'issue des traumatismes subis par les patients adressés vers des centres tertiaires de traumatologie.

Méthodes : Nous avons recueilli les données de manière rétrospective pour tous les patients victimes de traumatismes admis au Centre de santé Tulattavik de l'Ungava, à Kuujuaq, de 2005 à 2014. Nous avons extrait les données sociodémographiques, ainsi que les données sur les blessures et les services de santé utilisés. Nous avons analysé les données en parallèle avec les rapports des coroners sur les décès des suites de traumatismes au Nunavik.

Résultats : En tout, 797 cas de traumatisme ont été recensés. Les causes les plus fréquentes de blessures étaient les accidents impliquant des véhicules motorisés (258 cas [32,4 %]), les chutes (137 [17,2 %]) et les agressions (95 [11,9 %]). Le tiers des patients (262 [32,9 %]) ont été transférés vers le centre de soins tertiaires à Montréal. Le taux d'incidence des traumatismes majeurs (indice de gravité des blessures > 12) était de 18,1 et de 21,7 par 10 000 années-personnes dans les régions de Kuujuaq et de Puvirnituk, respectivement, ce qui se traduit par un risque relatif (RR) de 4 par rapport à la population du Québec. La disparité observée au plan du taux de mortalité par traumatisme était encore plus grande, avec un RR de 47,6 comparativement à la population du Québec.

Conclusion : L'étude a révélé une disparité majeure quant à l'incidence des traumatismes et quant au taux de mortalité qui y sont associés entre le Nunavik et la province de Québec. Nos observations permettent de mieux comprendre le fardeau des traumatismes et la mortalité qu'ils causent dans la région du Nunavik, et de formuler des recommandations pour améliorer la traumatologie dans ce contexte particulier.

Trauma care in northern Quebec, Canada, which covers a large area with a rugged geography and severe climate, is highly challenging. Northern Quebec is geographically the largest of the 17 administrative regions of the province and is divided into the Jamésie region in the south and the Nunavik region in the north. Nunavik constitutes the northern third of the province and lies in both the Arctic and sub-Arctic climate zones. About 11 000 Inuit people reside in Nunavik, constituting most of the northern population.¹

Compared to the rest of the Canadian population, the Indigenous Peoples of Canada experience lower life expectancy, higher incidence rates of chronic and infectious diseases, and higher rates of substance abuse, addiction and suicide.² The known health disparities in the Indigenous population are not a consequence of poor individual choices or health behaviours; rather, they are a reflection of major historical, economic and governance inequities that have oppressed and continue to oppress the Indigenous population of Canada. A history of assimilationist education and child welfare policies in Canada, and internal colonial politics that systemically marginalize Indigenous people from mainstream biomedical health care are examples of such inequities, with a detrimental impact on population health.²⁻⁵

Limited aircraft availability for a vast and isolated geographic region, in addition to unpredictable and extreme weather conditions, poses substantial challenges for delivering timely care for patients with trauma in northern Quebec. The “golden hour” principle in trauma suggests that critically injured patients should receive definitive treatment within 60 minutes.⁶ Hameed and colleagues⁷ measured access to level I or II trauma centres in Canada using geographic software and found that 22.5% of Canadians live outside the golden hour access range. In Quebec, more than 40% of rural emergency departments are located more than 300 km from a tertiary or secondary trauma centre.⁸ Data from other Canadian provinces show that the mortality rate for a similar injury is twice as high in rural as in urban regions.⁹⁻¹¹ Possible explanations for this difference are limited health care resources, delays in transfer to trauma centres and rural care providers' limited exposure to trauma. In 1992, Quebec implemented the trauma care continuum, an organizational model for trauma care and services that resulted in a substantial decrease in the mortality rate among patients with severe trauma, from 52% to 8.6%.¹² However, to our knowledge, the effectiveness of the trauma care continuum specifically for rural populations in Quebec has not been studied.

Currently, there is no trauma registry in northern Quebec communities, and no data are entered directly into the Quebec trauma registry from the northern regions (only data regarding patients transferred to tertiary care centres are entered). Furthermore, with the exception of an observational study on outcomes of patients with trauma who were transferred to Montréal,¹³ there is lack of published data on trauma in that region.

The main objectives of the present study were to 1) characterize the epidemiologic features of injuries and the sociodemographic characteristics of patients with trauma in northern Quebec from 2005 to 2014, 2) measure the suspected disparity in trauma incidence and mortality rate compared to the Quebec population and 3) describe indications for transfer and outcomes of patients referred to the tertiary trauma centre, the Montreal General Hospital (MGH), a tertiary care centre that is part of the McGill University Health Centre.

METHODS

Design and setting

We obtained local input into the research questions and study design. We conducted a retrospective review of data for all admitted and transferred patients with trauma from Kuujjuaq, Quebec, and the 6 surrounding villages (Kangiqsualujjuaq, Kangiqsujuuaq, Kangirsuk, Tasiujaq, Quaqtaq and Aupaluk), as well as prehospital deaths, from 2005 to 2014. Kuujjuaq is the capital and administrative centre of Nunavik, with a population of 2754.¹⁴ Two regional hospitals — the Centre de Santé Tulattavik de l'Ungava (CSTU) in Kuujjuaq and the Centre de santé Inuulitisivik in Puvirnituk (the second largest village in Nunavik) — provide secondary and limited tertiary care to the resident population in Nunavik. The CSTU is the largest regional hospital in the Nunavik region, and is the first point of care for patients living in Kuujjuaq and the 6 surrounding villages. The village population ranges from 209 in Aupaluk to 942 in Kangiqsualujjuaq.¹⁴ Each village has its own clinic, staffed by a full-time staff of nurses and social workers. There is 1 general practitioner on call at all times in the CSTU, who is available for telephone consultations from clinics to discuss cases and arrange for transfer if necessary.

Patients with trauma from the 6 villages surrounding Kuujjuaq are transferred by medevac to the CSTU for assessment by the physician on call or nursing staff, or both. If the patient requires transfer to a tertiary trauma centre, transfer is organized through communication

between the physician on call in Kuujuaq and the trauma team leader at MGH, the main referral centre. Patients are then transferred by jet airplane to Montréal accompanied by a nurse, physician or emergency medical services personnel, depending on the patient's clinical status.

Data collection

We used 3 data sources to capture the target population. The research purpose and protocol were presented to the director of professional services at the CSTU to obtain access to patient data from the paper charting system. We identified via chart review all admissions and transfers for trauma that occurred in the CSTU from 2005 to 2014. All patients who received injury codes V00–Y99 from the enhanced Canadian version of the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision* on admission were included in the study. For all identified trauma cases, we extracted demographic and health care services data, including mechanism of injury; transfer times; blood pressure, heart rate, respiration rate, oxygen saturation and temperature measurements in the emergency department; and patient outcomes.

Second, MGH maintains a full database of detailed information, including age, mechanism and types of injury, geographic origin of injury, travel time to MGH, diagnostic studies, treatment administered and patient outcomes, regarding patients with trauma transported to its site from northern Quebec.

We combined information from these 2 data sources to track the full trajectory of patient care, including the injury, transfer to MGH and eventual discharge back to the community. Use of the 2 sources of information ensured that we captured all trauma transfers from Kuujuaq to MGH.

Third, after presenting the research purpose and protocol to the Coroner's Office of Quebec, we obtained coroners' reports on all trauma-related deaths on the Ungava Bay coast from 2005 to 2014. We analyzed the reports for patients who were found deceased and were transferred to a village clinic or the CSTU for declaration of death, patients who died after arrival at a village clinic or the CSTU, and patients who died after arrival at MGH. Our analysis focused on cause of death, socio-demographic information, geographic location of injury and trend in number of trauma-related deaths over the study period.

The manuscript was reviewed by CSTU physicians and the research department of the Quebec Coroner's Office, and their feedback was incorporated.

Statistical analysis

We used descriptive statistics to summarize baseline patient and injury characteristics (age, sex, and location and mechanism of injury), transport times, physiologic status

and patient outcomes. Means were presented for continuous variables when the data were distributed normally, and medians were used as a measure of centrality when the data were skewed. Absolute and relative frequencies were presented for discrete variables.

Ethics approval

Ethics approval was obtained from the McGill University Institutional Review Board.

RESULTS

Epidemiologic features of injuries

From 2005 to 2014, 797 emergency department presentations for injuries were identified from the CSTU database. Of the 797 patients, 412 (51.7%) were female, and 385 (48.3%) were male. The most frequent age range was 20–29 years (228 patients [28.6%]). Motor vehicle collisions (MVCs) (258 cases [32.4%]), falls (137 [17.2%]) and blunt assault (95 [11.9%]) were the most common causes of injury. Most injuries (500 [62.7%]) were nonintentional, 170 (21.3%) were due to assault, and 127 (15.9%) were self-inflicted. Cuts and open wounds (236 [29.6%]) and head injuries (136 [17.1%]) were the most common types of injury.

Of the 258 MVCs, 112 (43.4%) involved all-terrain vehicles, 69 (26.7%) involved snowmobiles, and 29 (11.2%) involved motorcycles. Among the 229 MVCs in which the patient was the driver or a passenger, there was documented helmet use at the time of injury in 6/151 cases (4.0%). Of the 158 drivers involved in MVCs, 26 (16.5%) were younger than 16 years old at the time of the collision.

The incidence rate of major trauma (defined as injuries with an Injury Severity Score [ISS] > 12) was 18.1 per 10 000 person-years in the Kuujuaq region and 21.7 per 10 000 person-years in the Puvirnituk region. Compared to the incidence rate for Quebec of 4.9 injuries per 10 000 person-years reported by the National Trauma Registry,¹⁵ the calculated relative risk of traumatic injuries with an ISS greater than 12 was 3.7 for the Kuujuaq region and 4.4 for the Puvirnituk region.

The Coroner's Office of Quebec identified 288 deaths from trauma in Nunavik during the study period, 100 (34.7%) in Kuujuaq and surrounding villages, and 188 (65.3%) in Puvirnituk and surrounding villages. The number of deaths and the population trauma-related mortality rate for the 10-year study period for each village are presented in Table 1. The leading cause of death was self-inflicted injury by hanging and suffocation (102 cases [35.4%]), followed by MVC (driver) (21 [7.3%]) and exposure to excessive cold (19 [6.6%]). Other self-inflicted injuries (e.g., stabbing, shooting, drowning, exposure to gas) accounted for 34 deaths (11.8%), making suicide the top

Table 1. Frequency of death from trauma and trauma-related mortality rate in Nunavik, 2005–2014, by village

| Village | No. of deaths | Total population* | Mortality rate per 10 000 person-years† |
|--------------------------|---------------|-------------------|---|
| Kuuujuaq region | | | |
| Kuuujuaq | 42 | 2375 | 17.7 |
| Kangiqsualujuaq | 18 | 874 | 20.6 |
| Kangirsuk | 14 | 549 | 25.5 |
| Kangiqsujuaq | 11 | 696 | 15.8 |
| Quaqtaq | 7 | 376 | 18.6 |
| Aupaluk | 5 | 195 | 25.6 |
| Tasiujaq | 3 | 303 | 9.9 |
| Subtotal | 100 | 5368 | 18.6 |
| Puvirnituq region | | | |
| Puvirnituq | 54 | 1692 | 31.9 |
| Salluit | 34 | 1347 | 25.2 |
| Inukjuak | 31 | 1597 | 19.4 |
| Kuujuarapik | 26 | 657 | 39.6 |
| Akulivik | 23 | 615 | 37.4 |
| Ivujivik | 11 | 370 | 29.7 |
| Umiujaq | 9 | 444 | 20.3 |
| Subtotal | 188 | 6722 | 28.0 |
| Total | 288 | 12 090 | 23.8 |

*According to 2011 Census.
†Calculated population trauma-related mortality rate, 2005–2014.

cause of death. An overall increasing trend in trauma-related mortality was observed over the study period (Figure 1).

Data from the National Trauma Registry showed a population trauma-related mortality rate of 0.5 per 10 000 person-years in Quebec in 2008.¹⁵ The calculated population trauma-related mortality rate for Nunavik for the 10-year study period was 23.8 per 10 000 person-years. This translates to a relative risk of dying secondary to trauma in Nunavik of 47.6 compared to the Quebec population.

Trauma care systems and patient outcomes

The majority of patients (514 [64.5%]) were admitted to the CSTU from the emergency department. One-third (262 [32.9%]) were transferred to tertiary care, either directly from the emergency department or after a short hospital stay. Of the 262 referred patients, 198 (75.6%) were transferred to MGH, 50 (19.1%) were transferred to Montreal Children’s Hospital, and 16 (6.1%) were transferred to other hospitals in Montréal. Nineteen patients (2.4%) were dead on arrival at the CSTU.

Of the 461 patients transferred from Kuuujuaq and surrounding villages, 122 (26.5%) were transferred for computed tomography (CT) imaging alone. Of the 122, 104

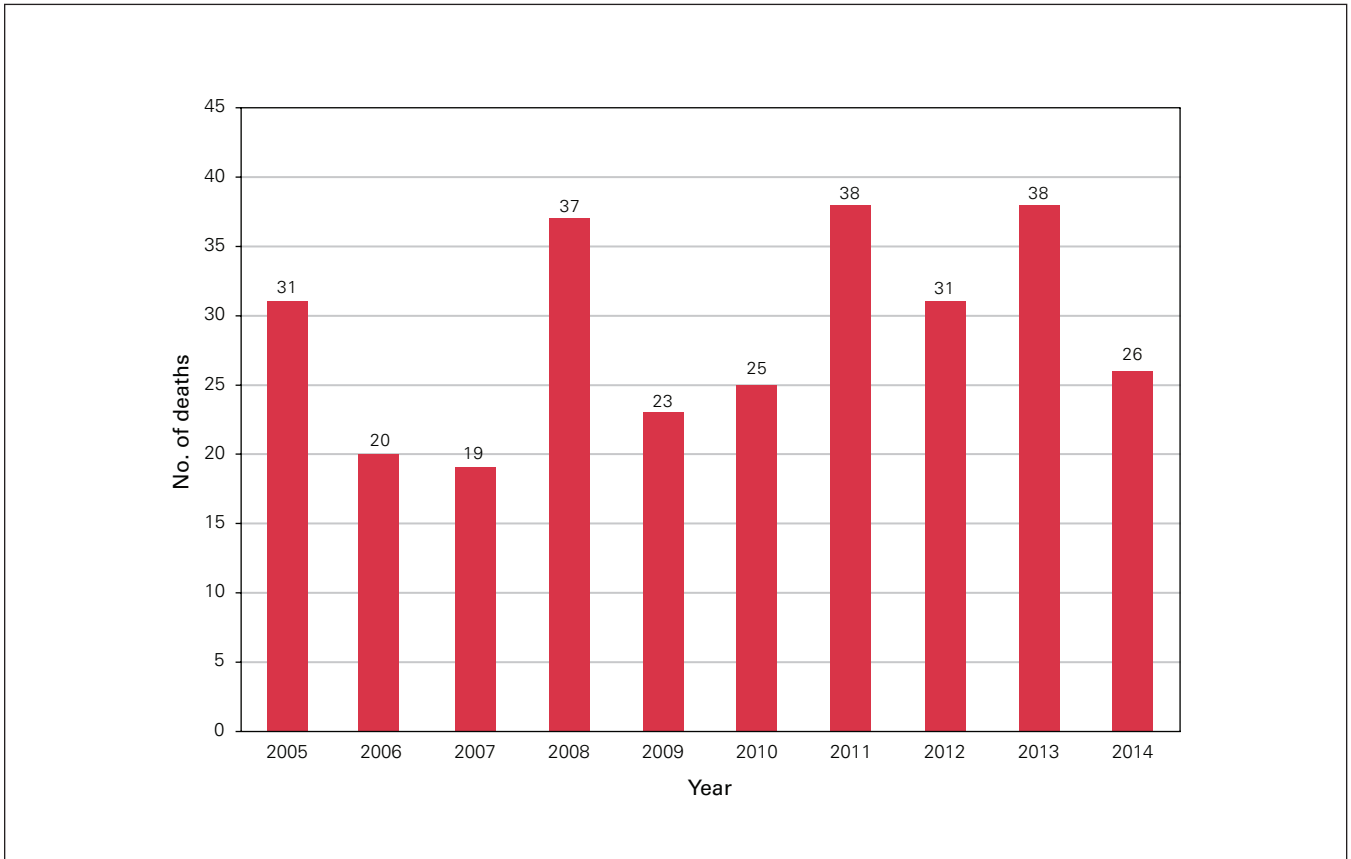


Fig. 1. Frequency of death from trauma in Nunavik, 2005–2014.

(85.2%) met the indication for CT imaging according to the Canadian CT Head Rule,¹⁶ the Canadian C-Spine Rule¹⁷ or the most recent Eastern Association for the Surgery of Trauma guidelines for imaging of other body regions.¹⁸ Seventy-four patients (60.7%) had normal results, 39 (32.0%) had abnormal results, and 9 (7.4%) had no imaging performed during their hospital stay. The majority of these patients were discharged from the emergency department without follow-up (39 [32.0%]) or with follow-up (24 [19.7%]), or were admitted briefly for observation (29 [23.8%]). Nine patients (7.4%) were admitted for medical intervention, and 3 (2.5%) were admitted for surgical intervention. Disposition could not be identified for 18 patients (14.8%).

Of the 461 patient transfers from Kuujuaq, 266 were recorded in the MGH registry. The mean ISS was 13.2 (standard deviation 10.4). A total of 154 patients (57.9%) were admitted for surgical intervention, 74 (27.8%) for medical intervention, and 38 (14.3%) for observation. Of the 163 surgical procedures, 111 (68.1%) were orthopedic, 23 (14.1%) were otorhinolaryngologic/plastic surgery, 19 (11.7%) were laparotomy, and 10 (6.1%) were neurosurgical. Of the 266 patients, 71 (26.7%) required mechanical ventilation (average duration 118.5 h), and 52 (19.5%) were admitted to the intensive care unit (average length of stay 8.6 d). Almost three-quarters of patients (197 [74.1%]) had CT imaging done, which showed injury requiring close monitoring or intervention in 158 (80.2%). A total of 111 patients (41.7%) were discharged with follow-up at MGH or another clinic in Montréal, 105 (39.5%) were discharged home or to the Northern Module (a transitory residence for Inuit patients without follow-up), 36 (13.5%) were transferred to rehabilitation, 11 (4.1%) were transferred to an acute care hospital, and 3 (1.1%) were transferred to long-term care.

Patient transport and delays

The time elapsed between request for medevac transfer and time of medevac arrival at the village clinic was documented for 275 of the 360 patients who experienced an injury outside Kuujuaq. The median wait time was 3.5 (range 0.8–23) hours.

The median time between CSTU physician request for transfer to MGH and arrival of an airplane at the CSTU was 6 (range 0.5–25) hours.

DISCUSSION

One of the most salient findings of this study is the major disparity in trauma incidence and mortality rate between northern Quebec and the province of Quebec: the Nunavik population was found to be at 4 times the risk of major trauma (ISS > 12) and more than 40 times the risk of trauma-related death. Almost half (46.1%) of the trauma-

related deaths were due to suicide. The number of deaths from suicide increased steadily after our study period, from 13 in 2015, to 16 in 2016, to 22 in 2017.¹⁹ The suicide rate in Nunavik from 2010 to 2018 reported by the Quebec Coroner's Office was 116 per 100 000 residents,¹⁹ compared to the national rate of 11.5 per 100 000 in 2009.²⁰ Major health determinants that drive these disparities include enduring effects of colonization, and socioeconomic and employment disparities compared to the general population.^{2,21}

The number of trauma cases in villages did not necessarily correlate with the size of their populations. For instance, although Kangirsuk is inhabited by fewer people than Kangiqsujuaq (549 v. 696), the number of trauma cases from Kangirsuk was almost twice that from Kangiqsujuaq (89 v. 47). We also found up to a fourfold difference in the 10-year population mortality rate between villages (39.6 in Kuujuarapik v. 9.9 in Tasiujaq).

The intervillage variability in trauma incidence and population trauma-related mortality rate underlines that, although villages in Nunavik are exposed to similar external factors, they are not homogeneous and face different types and levels of trauma burden. It is therefore important to consider each village and its inhabitants as unique and to plan appropriate interventions that respond to their unique needs.

Data for transferred patients were extracted from 2 different sources in separate settings. The MGH trauma registry includes data only for patients admitted to MGH for definitive care or monitoring, and excludes those seen in the emergency department and discharged without being admitted. Patient transfers documented in the CSTU paper charts missed a considerable number of more acutely ill patients who were transferred directly to MGH without being admitted to the CSTU. The 2 data sources complemented each other, which allowed us to capture the full spectrum of trauma transfers to Montréal, from patients whose condition was stable and who were transferred primarily for CT imaging, to those who needed urgent surgical intervention.

Given that documentation of transfer from the CSTU chart review provided the indication for transfer for each patient, we used it to study the subset of patients who were transferred for CT imaging alone (122 [26.5%]), an important adjunct in trauma assessment that was not available at the CSTU during the study period. We were interested in finding out whether CT imaging was truly indicated in these patients or influenced patient care (e.g., led to further surgical or medical intervention). A majority of these patients (85.2%) met the indications for CT imaging according to established guidelines used at the McGill University Health Centre.^{16–18} More than two-thirds (68.0%) had normal results or did not undergo CT imaging, and only a small subset (9.8%) required medical or surgical intervention. These data show that many patients with trauma need CT imaging to guide care and

also suggest that, if CT imaging had been available at the CSTU, a large number could have avoided transfer to MGH. Medical evacuation of patients with trauma places a substantial burden on available health care resources for both Nunavik and MGH. The patient must be accompanied by at least 1 health care professional during transport. In the majority of cases, a first responder or nurse, or both, accompanies the patient, whereas critically ill patients (including those receiving mechanical ventilation) are accompanied by a physician. The decision regarding the composition of the medical transport team is made jointly by the CSTU physician and the MGH trauma team leader. Transferred patients also face major psychosocial consequences, as they spend a substantial amount of time separated from their family and community in an unfamiliar setting. Our findings were presented to the local health care professionals and the Nunavik Regional Board of Health and Social Services to advocate for installation of CT imaging, which was approved for 2020.

Another major problem with patient transfers is the long waiting time for medevac by air, from peripheral villages to Kuujuaq and from Kuujuaq to Montréal. Several barriers to timely patient transfer were documented in the nursing sheet, including adverse weather conditions, technical problems with the aircraft and limited aircraft availability. In addition, the type of medical personnel accompanying patients is highly variable depending on availability and patient status; in some cases, patients are accompanied by a first responder, who must complete a 5-day training course to qualify. Northern Quebec is outside the golden hour, and the long delays, together with health care professionals' variable training and comfort level in managing trauma in the initial assessment and stabilization of patients with trauma, likely contribute to poor patient outcomes. Fatovich and Jacobs¹¹ quantified the relation between remoteness and trauma-related deaths in Western Australia and found that the rate of death from trauma in very remote areas was more than 4 times higher than that in major cities, and that delay in discovery and in accessing the trauma care system partly contributed to this increased mortality. Improved and more specialized training of local medical professionals could help address this unique challenge in Nunavik. Studies have shown that the Rural Trauma Team Development Course significantly reduced delays in the transfer of rural patients with trauma.^{22,23}

Based on our findings, we suggest the following initiatives to improve trauma care in northern Quebec:

- Given the health resource expenditure and negative psychosocial impact on patients associated with trauma transfers, we propose the following to prevent unnecessary transfer of those who are not critically ill:
 - Installation of a CT machine and hiring of a trained local CT technician at the CSTU (already approved by the local health board).

- Collaborative, interactive training of local health care professionals and trauma team leaders at tertiary centres through case-based scenarios to prevent overtriaging of patients and improve communication.
- To allow for continued preventive medicine and outcome research in Nunavik, dedicated provincial or federal health research funding should be made available to interested health care professionals and researchers, with preference given to local Indigenous personnel.
- Improved screening, intervention and ongoing support for mental health disorders, including funding for a dedicated multidisciplinary team (including a psychologist, a social worker and a crisis worker, preferably local or Indigenous professionals) to support and follow patients in the long term.
- Implementation of a culture-appropriate public health policy delivered in Inuktitut, preferably led by trained local personnel, aimed to increase the wearing of helmets when driving or riding on an all-terrain vehicle, motorcycle or snowmobile.

Limitations

We focused our study on patients from Kuujuaq and the 6 surrounding villages, which are served by the CSTU. The remaining Nunavik regions are served by the Centre de santé Inuulitisivik. At the beginning of our study, we had assumed that the populations covered by the 2 main Nunavik hospitals would be similar in sociodemographic characteristics, types of trauma, geography, climate and health care resources, which would mitigate the selection bias of studying only the regions served by the CSTU. However, during our analysis of data from the Coroner's Office, we discovered that, although Puvirnituk had a smaller population than Kuujuaq (1779 v. 2754), it had more deaths from trauma over our study period (54 v. 42). Regions covered by the Centre de santé Inuulitisivik had about twice as many trauma-related deaths as regions covered by the CSTU (195 v. 100). Studying the trauma cases and trauma system in Puvirnituk and surrounding villages would allow for comparison of the 2 regions of Nunavik and uncover potential reasons for the observed differences in trauma mortality and burden. We plan to perform a retrospective chart review at the Centre de santé Inuulitisivik to address this limitation and expand our study to better understand trauma in the entire Nunavik region.

We collected our data partially from paper charts at the CSTU, which excluded patients who were observed and treated in village clinics without being transferred to Kuujuaq. This may have led to selection bias: owing to several factors (e.g., distance, transport to the CSTU and expertise of available health care professionals), patients with minor injury in Kuujuaq were more likely than those with the same injury in peripheral villages to

have been admitted for a short CSTU stay and therefore have been captured in our data.

Finally, data on transport delay is only 1 of the problems related to transfer of patients with trauma from Nunavik to Montréal. Although a small number of properly documented transfer sheets provided insight into potential barriers to safe and efficient patient transfer, there was much interrecorder variability and inconsistency in documentation, which precluded us from making meaningful conclusions or suggestions for future practice.

CONCLUSION

Our study showed major disparity in trauma incidence and mortality rate between Nunavik and the province of Quebec. We also found long and variable wait times for patient transfer to the tertiary care centre. Our findings triggered ongoing communication and collaboration with the local physicians, primary responders and the Nunavik Regional Board of Health and Social Services to make data-driven recommendations on health policy and injury prevention. Local physician leadership plans to implement a trauma registry in the CSTU emergency department for ongoing trauma data analysis.

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