Leaving emergency departments without completing treatment among First Nations and non–First Nations patients in Alberta: a mixed-methods study

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Abstract

Background: Our previous research showed that, in Alberta, Canada, a higher proportion of visits to emergency departments and urgent care centres by First Nations patients ended in the patient leaving without being seen or against medical advice, compared with visits by non–First Nations patients. We sought to analyze whether these differences persisted after controlling for patient demographic and visit characteristics, and to explore reasons for leaving care.

Methods: We conducted a mixed-methods study, including a population-based retrospective cohort study for the period of April 2012 to March 2017 using provincial administrative data. We used multivariable logistic regression models to control for demographics, visit characteristics, and facility types. We evaluated models for subgroups of visits with preselected illnesses. We also conducted qualitative, in-person sharing circles, a focus group, and 1-on-1 telephone interviews with health directors, emergency care providers, and First Nations patients from 2019 to 2022, during which we reviewed the quantitative results of the cohort study and asked participants to comment on them. We descriptively categorized qualitative data related to reasons that First Nations patients leave care.

Results: Our quantitative analysis included 11 686 287 emergency department visits, of which 1 099 424 (9.4%) were by First Nations patients. Visits by First Nations patients were more likely to end with them leaving without being seen or against medical advice than those by non–First Nations patients (odds ratio 1.96, 95% confidence interval 1.94–1.98). Factors such as diagnosis, visit acuity, geography, or patient demographics other than First Nations status did not explain this finding. First Nations status was associated with greater odds of leaving without being seen or against medical advice in 9 of 10 disease categories or specific diagnoses. In our qualitative analysis, 64 participants discussed First Nations patients' experiences of racism, stereotyping, communication issues, transportation barriers, long waits, and being made to wait longer than others as reasons for leaving.

Interpretation: Emergency department visits by First Nations patients were more likely to end with them leaving without being seen or against medical advice than those by non–First Nations patients. As leaving early may delay needed care or interfere with continuity of care, providers and departments should work with local First Nations to develop and adopt strategies to retain First Nations patients in care.

Patients come to emergency departments and urgent care centres because they judge it as their best option for urgent care, but some leave without being seen or against medical advice because of factors such as long wait times and crowding.[1–14] Some studies report lower risk of return visits and death for patients leaving care.[15,16] By contrast, other studies have found higher risks of death and return to hospital.[4,17,18]

Patient demographic factors, including race and ethnicity, are associated with the likelihood of patients leaving[19–21] and Indigenous patients, specifically, have been reported to leave care more often, including in Canada.[22–26]

In a previous study, we found that 6.8% of emergency department visits by First Nations patients ended in the patient leaving without being seen or against medical advice, compared with 3.7% of visits by non–First Nations patients.[22] Understanding whether and how anti-Indigenous racism in health care contributes to First Nations patients leaving without being seen or

against medical advice is important to inform efforts to retain First Nations patients in care.[27–31] This is especially pressing as crowding continues to worsen in emergency departments across Canada, and the proportion of patients leaving emergency department care has risen in several jurisdictions.[32] We sought to determine whether the observed difference between First Nations and non–First Nations patients persisted when controlling for factors such as diagnosis, acuity, geography, or patient demographics other than First Nations status. We also sought to explore reasons for leaving without completing care described by both health care providers and First Nations patients. [2]

Methods

Study design

Since 2018, First Nations and Western researchers based in Alberta have been evaluating the quality of emergency care for First Nations patients using an ongoing sequential, equal status, mixed-methods project (Appendix 1, Supplement 1, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.231019/tab-related-content).[33] The current study involved a population-based retrospective cohort study of administrative health data (Apr. 1, 2012, to Mar. 31, 2017). The results were contextualized using focus groups, interviews, and sharing circles with First Nations patients, First Nations health directors, and emergency providers.

The Alberta First Nations Information Governance Centre (AFNIGC) oversees our team's adherence to First Nations principles of ownership, control, access, and possession (OCAP) of research data.[34,35] First Nations partner organizations participated in the design and conduct of the project, and nominated members of an Elder Advisor group to guide the project. Results are co-interpreted with First Nations partners, university researchers, and Elders. Overall, the project is informed by Indigenous ways of knowing[36,37] and complementary elements of critical Western paradigms.[38] We recognize that research is not a matter of enumerating neutral facts but rather is a purposeful and ethically charged activity that challenges existing arrangements of who has power and where resources are invested. We orient to Elder Willie Ermine's concept of ethical space, which argues that bringing different ways of knowing into dialogue opens the possibility of new ways of thinking and relating across differences.[39]

Setting

First Nations are 1 of 3 broad, internally diverse Indigenous groups in Canada, alongside the Métis and Inuit.[40,41] The provincial boundaries of Alberta cross the territories of the Anishnabé, Blackfoot, Cree, Dene suliné, Dené Tha', Dunne-za, Nakoda, and Tsuu T'ina, and First Nations members from many other Peoples have made their homes in Alberta.[42] Treaties form the contested basis for relations between Indigenous Peoples and settlers within much of Canada.[43] Treaties are promises made between the Crown and Indigenous Peoples that the Crown must uphold, including a treaty right to health.[44] Three treaty areas contain First Nations reserve lands in Alberta (Treaties 6, 7, and 8). A single health authority delivers emergency care in the province, which is provided in about 110 emergency and urgent care centres (depending on year).[45]

Quantitative methods

We conducted a population-based retrospective cohort study by linking administrative health data to First Nations-identifying data. The descriptive results of this cohort have been published previously.[22] Our main comparison was between First Nations and non–First Nations patients. The Alberta Health Care Insurance Plan Population Registry provided First Nations population identifiers,[46] previously described for this project.[22]

Data sources

Alberta Health Services (AHS) and Alberta Health completed data linkage and transferred deidentified data to the research team. We used the National Ambulatory Care Reporting System for data on emergency department visits, including facility type. We used data on diagnoses to analyze specific health conditions and disease categories.[47] In cases where patients leave before diagnosis by a physician, trained nosologists employed by AHS Health Information Management enter diagnoses using information from registration or triage and the most specific description provided in the available documentation. This is often the presenting problem (personal communication, AHS Health Information Management, Nov. 23, 2020).

We used the AHS Distance Tables to determine distance in kilometers from patient postal codes to the nearest emergency department.[48] We used the approximate median distance (5 km) to create 2 categories of travel distance for modelling. The 2016 Canadian Census was our source for neighbourhood-level income data. Our models differentiated the lowest income quintile (< $42 000 average annual individual income) from all other income quintiles. Alberta Health Services used 2 years of inpatient and ambulatory care data for each patient to provide comorbidity information to the research team. Using Charlson comorbidities, plus hypertension, we categorized patients as having either no comorbidities or 1 or more comorbidities.[49] Vital statistics data provided dates of patient death,[50] where applicable.

Outcomes

Given our focus on reasons for leaving emergency care, we defined our primary outcome as visits ending in either leaving without being seen or leaving against medical advice, which we treated as a single outcome. Initial models showed leaving without being seen to be more common in urban sites, and leaving against medical advice to be more common in rural sites, while other patient and emergency department visit factors appeared to have similar associations to both outcomes. As such, geographic factors confounded interpretation when leaving without being seen and leaving against medical advice were analyzed separately. In addition, our research questions were aimed at understanding disparities in care for First Nations patients in Alberta rather than distinctions between leaving without being seen and leaving against medical advice.

We assessed the proportion of patients who left without being seen or against medical advice but returned to the emergency

department within 72 hours, dispositions of return visits, and number of deaths within 3 days of leaving early descriptively as secondary outcomes.

Statistical analysis

We used multivariable logistic models to control for covariates of leaving without being seen or against medical advice, including First Nations status, patient demographics (i.e., sex, age, comorbidities, area of residence, average neighbourhood income), Canadian Triage Acuity Scale (CTAS) score, arrival by ambulance, time of day of presentation, and hospital type. We conducted statistical analyses in R software[51] using the ClusterBootstrap[52] and metaSEM packages.[53]

We included both geography (operationalized as AHS zone)[54] and facility type[55,56] through a composite variable created by the research team. Details are provided in Appendix 1, Supplement 2. Appendix 1, Supplement 3 shows the number of facilities of each type in each AHS zone. Including both geography and facility type as separate factors within our models was not parsimonious and we found the composite to be more interpretable.

We split the data set by year. For each year, we obtained estimates using the logistic model with cluster bootstrap to reflect the clustering of data at the patient level (500 bootstrap samples).[52] We subsequently combined the yearly estimates through meta-analysis using a structural equation modelling approach. We calculated odds ratios (ORs) and 95% confidence intervals (CIs). Significance was set at p less than 0.05. We deleted cases with missing data for covariates because we believed that data were differently missing for First Nations and non–First Nations populations, and we were unable to make confident estimations of how they differed; thus, assumptions for multiple imputations would not be met.

We evaluated models for subsets of patients with 5 preselected episode disease categories[57] and 5 specific diagnoses to assess effects of different reasons for visiting the emergency department on the likelihood of leaving without being seen or against medical advice among First Nations and non–First Nations patients. Elder Advisors and First Nations research partners selected the disease categories and diagnoses a priori. Preselecting conditions for analysis ensured that we focused on conditions of interest to First Nations partners, and mitigated against potential perceptions of reporting bias, which could occur if we examined all conditions and then focused only on significant or noteworthy findings when reporting.

We also ran a model for the overall data using First Nations status as an interaction term with all other variables to consider how covariates of leaving without being seen or against medical advice may be different for First Nations and non–First Nations populations.

Qualitative methods

We employed interviews and a focus group to collect data from heath care providers and First Nations health directors. We recruited First Nations community members to participate in sharing circles. Through purposive sampling, we sought to recruit those with most knowledge of First Nations patients' emergency care, namely First Nations patients, First Nations health directors, and emergency care providers of any background. We also aimed for geographic diversity and held sharing circles in each of the Treaty 6, 7, and 8 areas. We relied on our team's professional and community networks via email and word of mouth to recruit for interviews and the focus group. First Nations partner organizations recruited participants for sharing circles. Two team members (L.M. and P.M.) conducted interviews with health care providers and health directors and a focus group with health directors by telephone from 2019 to 2020. After a training and observation period with both interviewers, 1 team member (L.M.) completed most of the interviews independently. Four team members (L.B., P.M., L.M., and K.C.) facilitated 3 in-person sharing circles from July 2020 to April 2022.

We presented descriptive quantitative results to participants as part of qualitative research and invited participants to comment on them. Audio recordings of qualitative data were transcribed by AFNIGC and transcripts were anonymized before analysis. Two team members (L.M. and K.M.F.) and 3 non-author research assistants coded the overall data set with guidance of 2 research leads (P.M. and L.B.). Further details on our team and qualitative methods are provided in Appendix 1, Supplement 4. An example of presentation slides used to guide sharing circles is available as Appendix 2, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.231019/tab-related-content. We completed coding using NVivo software.[58] For this paper, a research lead (P.M.) considered text coded as related to leaving care, and organized comments on reasons for leaving without being seen or against medical advice using descriptive categories. Each participant quote presenting a unique reason for leaving was the basis of a unique descriptive category. This qualitative descriptive approach is appropriate to this mixed-methods manuscript, where qualitative data were used to understand quantitative findings while remaining close to participants' understandings of the phenomena being studied.[59]

Ethics approval

This study was approved by the University of Alberta Health Research Ethics Board (no. Pro00082440).

Results

Quantitative results

Overall, 11 686 287 emergency department visits occurred during the study period (Table 1). Compared with visits of non–First Nations patients, visits of First Nations patients involved a higher proportion of visits by females or patients of other genders, younger patients, patients who travelled farther, patients from lower-income areas, and patients who arrived by ambulance (including air ambulance). Furthermore, visits among First Nations patients were determined to be less urgent in terms of CTAS, occurred more often in the evening, were more often in community hospitals, were less often in urgent care centres, and were largely in the North Zone. Visits by First Nations status and by visit completion status (completed, patient left before being seen, or patient left against medical advice) are presented in Appendix 1, Supplements 6–8.

Table 1 (part 1 of 2): Characteristics of emergency department visits in Alberta from Apr. 1, 2012, to Mar. 31, 2017

Characteristic	No. (%) of visits*	
	First Nations patients *n* = 1 099 424	Non–First Nations patients *n* = 10 586 863
Sex		
Male	503 173 (45.8)	5 202 606 (49.1)
Female or other	596 251 (54.2)	5 384 257 (50.9)
Age, yr, median (IQR)	30 (17–46)	36 (20–57)
Age group, yr		
< 18	290 487 (26.4)	2 327 673 (22.0)
18–54	655 507 (59.6)	5 335 311 (50.4)
≥ 55	153 424 (14.0)	2 923 844 (27.6)
Missing	6 (0.0)	35 (0.0)
Distance travelled to care, km, median (IQR)	6 (1–24)	4 (2–8)
≤ 5	462 463 (42.1)	5 509 460 (52.0)
> 5	592 583 (53.9)	4 651 775 (43.9)
Missing	44 378 (4.0)	425 628 (4.0)
Neighbourhood income, $, median (IQR)	42 944 (29 978–53 833)	51 696 (44 223–62 119)
Neighbourhood income category, $		
< 42 000	453 783 (42.7)	1 948 677 (19.2)
≥ 42 000	609 458 (57.3)	8 225 009 (80.8)
Missing		
Comorbidities		
None	742 772 (67.6)	7 578 896 (71.6)
1 or more	356 652 (32.4)	3 007 967 (28.4)
Charlson comorbidities		
HIV/AIDS	6932 (0.6)	8581 (0.1)
Cancer	19 383 (1.8)	355 399 (3.4)
Cerebrovascular disease	17 593 (1.6)	249 238 (2.4)
Chronic pulmonary disease	173 761 (15.8)	1 156 560 (10.9)
Congestive heart failure	21 267 (1.9)	311 103 (2.9)
Connective tissue disease or rheumatic disease	17 879 (1.6)	122 109 (1.2)
Dementia	4508 (0.4)	122 856 (1.2)
Diabetes with complications	54 399 (4.9)	437 239 (4.1)
Diabetes without complications	77 929 (7.1)	459 274 (4.3)
Metastatic carcinoma	6305 (0.6)	120 526 (1.1)
Mild liver disease	28 391 (2.6)	100 008 (0.9)
Moderate or severe liver disease	12 576 (1.1)	44 834 (0.4)
Myocardial infarction	19 747 (1.8)	217 676 (2.1)
Paraplegia and hemiplegia	6868 (0.6)	56 173 (0.5)
Peptic ulcer disease	24 526 (2.2)	124 812 (1.2)
Peripheral vascular disease	11 309 (1.0)	148 999 (1.4)
Renal disease	20 643 (1.9)	209 123 (2.0)
Arrival by ambulance		
Yes	173 464 (15.8)	1 066 284 (10.1)
No	925 960 (84.2)	9 520 579 (89.9)

Table 1 (part 2 of 2): Characteristics of emergency department visits in Alberta from Apr. 1, 2012, to Mar. 31, 2017

Characteristic	No. (%) of visits*	
	First Nations patients *n* = 1 099 424	Non–First Nations patients *n* = 10 586 863
Triage		
CTAS 1–2	91 439 (8.3)	1 253 958 (11.8)
CTAS 3	306 481 (27.9)	3 649 685 (34.5)
CTAS 4–5	648 344 (59.0)	5 335 828 (50.4)
Missing	53 160 (4.8)	347 392 (3.3)
Time		
Day (8:01–16:00)	488 736 (44.5)	5 320 816 (50.3)
Evening (16:01–0:00)	479 531 (43.6)	4 029 075 (38.1)
Night (0:01–8:00)	131 157 (11.9)	1 236 972 (11.7)
Facility type		
Tertiary hospital	124 221 (11.3)	1 598 194 (18.3)
Regional hospital	183 055 (16.7)	1 311 361 (15.0)
Large community hospital	357 147 (32.5)	2 132 601 (24.4)
Medium community hospital	226 897 (20.6)	1 437 449 (16.4)
Small community hospital	131 703 (12.0)	804 591 (9.2)
Urgent care centre	35 962 (3.3)	946 277 (10.8)
Ambulatory care	40 439 (3.7)	515 274 (5.9)
AHS zone		
North	509 990 (46.4)	862 415 (8.7)
Edmonton	174 515 (15.9)	3 106 590 (31.4)
Central	156 924 (14.3)	1 639 139 (16.5)
Calgary	143 377 (13.0)	3 106 590 (31.4)
South	108 277 (9.8)	862 415 (8.7)
Missing	6341 (0.6)	327 153 (3.3)
Facility or geography combination†		
Large metro	211 033 (19.2)	3 439 310 (32.5)
Small metro	43 052 (3.9)	752 230 (7.1)
Regional outside metro	96 243 (8.8)	1 311 361 (12.4)
Large community	357 147 (32.5)	2 132 601 (20.1)
Small facilities outside metro	391 949 (35.7)	2 951 361 (27.9)

Note: AHS = Alberta Health Services, CTAS = Canadian Triage Acuity Scale, IQR = interquartile range.
*Unless indicated otherwise.
†Please see definitions in Appendix 1, Supplement 2, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.231019/tab-related-content.

Adjusted model results for the overall data set are presented in Table 2. First Nations status was associated with greater odds of leaving without being seen or against medical advice, compared with non–First Nations status (OR 1.96, 95% CI 1.94–1.98).

Table 3 presents the OR for leaving without being seen or against medical advice for First Nations status for each of the models of the 5 episode disease categories and 5 diagnoses. First Nations status was associated with greater odds of leaving without being seen or against medical advice in subset models for all 5 disease categories and 4 of 5 diagnoses. First Nations status was not significantly associated with leaving without being seen or against medical advice in the model of opioid-related visits (OR 1.15, 95% CI 0.95–1.36). Descriptive statistics related to leaving without being seen or against medical advice for each model are provided in Appendix 1, Supplement 9, and show a high proportion of visits ending with patients leaving without being seen or against medical advice among both First Nations and non–First Nations patients with opioid-related diagnoses.

Table 4 presents the interaction of First Nations status with each covariate. First Nations patients who arrived in the evening or at night (both compared with daytime arrival) had lower odds of leaving without being seen or against medical advice relative

Table 2: Adjusted association of variables with odds of leaving without being seen or against medical advice*

Variable	OR (95% CI)
First Nations status	
First Nations	1.96 (1.94–1.98)
Non–First Nations	Ref.
Sex	
Male sex	1.07 (1.06–1.08)
Female or other	Ref.
Age category, yr	
≤ 17	0.70 (0.70–0.71)
18–54	Ref.
≥ 55	0.54 (0.53–0.55)
Comorbidities	
0	Ref.
≥ 1	0.88 (0.87–0.88)
Neighbourhood income, $	
< 42 000	1.14 (1.13–1.15)
≥ 42 000	Ref.
Travel distance, km	
≤ 5	Ref.
> 5	0.89 (0.89–0.90)
Ambulance arrival	
Yes	0.82 (0.81–0.83)
No	Ref.
Time	
Day (8:01–16:00)	Ref.
Evening (16:01–0:00)	1.31 (1.30–1.32)
Night (0:01–8:00)	1.27 (1.25–1.28)
CTAS	
CTAS 1–2	0.47 (0.47–0.48)
CTAS 3	Ref.
CTAS 4–5	1.15 (1.14–1.16)
CTAS missing	3.35 (3.30–3.40)
Facility type	
Large metro	2.43 (2.40–2.46)
Small metro	1.95 (1.92–1.98)
Regional outside metro	2.11 (2.08–2.14)
Large community	Ref.
Small facilities outside metro	1.01 (1.00–1.02)

Note: CI = confidence interval, CTAS = Canadian Triage Acuity Scale, OR = odds ratio, Ref. = reference.
*Adjusts for all other variables.

Table 3: Adjusted association between First Nations status and leaving without being seen or against medical advice for different subgroup models*

Variable	OR (95% CI)
Disease category	
Trauma and injury	2.12 (2.07–2.17)
Infection	1.57 (1.51–1.63)
Substance use	1.25 (1.18–1.32)
Breast, obstetrics, and gynecology	1.94 (1.83–2.06)
Mental health	1.74 (1.64–1.85)
Specific diagnosis	
Long bone fractures	3.43 (2.72–4.32)
Acute upper respiratory infection, unspecified	2.14 (1.79–2.56)
Opioid-related diagnoses†	1.15 (0.95–1.36)
Spontaneous abortion	2.43 (2.01–2.94)
Anxiety disorder, unspecified	1.84 (1.66–2.03)

Note: CI = confidence interval, OR = odds ratio.
*Subgroup models contain all variables included in overall analysis, with the exception that models for "breast, obstetrics, and gynecology" and "spontaneous abortion" use only data relating to female patients and therefore do not adjust for the effect of sex.
†For example, opioid poisonings or behavioural issues related to opioid use disorder.

to non–First Nations patients. A CTAS score of 1 of 2 (resuscitation or "emergency), compared with a score of 3 (urgent), was associated with lower odds of leaving without being seen or against medical advice for both patient groups. Visits among First Nations patients with CTAS scores of 4 or 5 (less urgent or non-urgent) were more likely to end with patients leaving without being seen or against medical advice (OR 1.28, 95% CI 1.26–1.31) than those among non–First Nations patients of the same acuity (OR 1.12, 95% CI 1.11–1.13). Where triage score was missing, First Nations patients were more likely to leave without being seen or against medical advice. First Nations patients had lower odds of leaving without being seen or against medical advice at smaller care sites and regional hospitals outside metropolitan centres but higher odds of leaving at large metropolitan sites and small metropolitan sites, relative to large community hospitals. Patient sex, age, distance travelled to care, and average neighbourhood income all made statistically significant but small differences (≤ 0.1 difference in OR) for First Nations versus non–First Nations patients.

After leaving without being seen or against medical advice, 22.7% of visits among First Nations patients were followed by a return to the emergency department within 72 hours (v. 19.9% among non–First Nations patients, $p < 0.001$). Table 5 presents dispositions of return visits within fewer than 3 days of discharge among First Nations and non–First Nations patients. A smaller proportion of return visits among First Nations patients led to hospitalization (5.5% v. 6.1%); however, a larger proportion of return visits among First Nations patients again ended in patients leaving without being seen or against medical advice (14.9% v. 8.8%).

We did not observe a statistical difference in the proportion of visits among First Nations patients where the patient died within 3 days of leaving without being seen, compared with visits among non–First Nations patients (n = 13 visits among First

Table 4: Association of variables with odds of leaving without being seen or against medical advice, from modelling interaction of First Nations status with all other independent variables

Variable	OR (95% CI)		*p* value*
	First Nations patients	Non–First Nations patients	
Sex			
Male	1.11 (1.08–1.13)	1.06 (1.05–1.07)	< 0.001
Female or other	Ref.	Ref.	
Age category, yr			
≤ 17	0.63 (0.61–0.64)	0.69 (0.69–0.70)	< 0.001
18–54	Ref.	Ref.	
≥ 55	0.59 (0.57–0.62)	0.54 (0.53–0.55)	< 0.001
Comorbidities			
0	Ref.	Ref.	
≥ 1	0.91 (0.89–0.93)	0.89 (0.87–0.90)	0.07
Neighbourhood income, $			
< 42 000	1.16 (1.13–1.18)	1.11 (1.10–1.12)	< 0.001
≥ 42 000	Ref.	Ref.	
Travel distance, km			
> 5	0.92 (0.90–0.94)	0.87 (0.86–0.87)	< 0.001
≤ 5	Ref.	Ref.	
Ambulance arrival			
Yes	0.94 (0.92–0.97)	0.78 (0.77–0.80)	< 0.001
No	Ref.	Ref.	
Time			
Day (8:01–16:00)	Ref.	Ref.	
Evening (16:01–0:00)	1.06 (1.04–1.08)	1.38 (1.37–1.39)	< 0.001
Night (0:01–8:00)	1.18 (1.14–1.21)	1.31 (1.29–1.32)	< 0.001
CTAS			
CTAS 1–2	0.46 (0.43–0.48)	0.49 (0.48–0.50)	0.02
CTAS 3	Ref.	Ref.	
CTAS 4–5	1.28 (1.26–1.31)	1.12 (1.11–1.13)	< 0.001
CTAS missing	4.88 (4.71–5.07)	3.23 (3.17–3.30)	< 0.001
Facility type			
Small metro	2.03 (1.94–2.13)	1.65 (1.62–1.69)	< 0.001
Large metro	2.87 (2.79–2.96)	2.41 (2.37–2.45)	< 0.001
Regional outside metro	1.86 (1.79–1.93)	2.05 (2.02–2.01)	< 0.001
Large community	Ref.	Ref.	
Small facilities outside metro	0.89 (0.87–0.92)	1.04 (1.02–1.05)	< 0.001

Note: CI = confidence interval, CTAS = Canadian Triage Acuity Scale, OR = odds ratio.
*Significance of difference of the interaction of First Nations status; significant *p* values indicate that the OR of the variable is significantly different for First Nations patients than non–First Nations patients.

Nations patients v. *n* = 47 visits among non–First Nations patients, *p* = 0.12) or in the proportion of patients who died within 3 days of leaving against medical advice (*n* = 10 visits among First Nations patients v. *n* = 34 visits among non–First Nations patients, *p* = 0.87).

Qualitative results

Sixty-four participants contributed qualitative data in sharing circles, a health directors' focus group or interviews. Sharing circles included 9–17 participants (*n* = 43 total). The health directors' focus group included 4 participants. We conducted 17 individual

Table 5: Emergency department visits that ended with patients leaving without being seen or against medical advice and that resulted in return visits within 3 days of discharge, by disposition of return visit*

Disposition	No. (%) of visits: First Nations patients *n* = 16 879	No. (%) of visits: Non–First Nations patients *n* = 77 449	*p* value
Admission	920 (5.5)	4696 (6.1)	< 0.01
Discharge	13 196 (78.2)	64 777 (83.6)	< 0.001
Transfer to another health care facility	255 (1.5)	1192 (1.5)	0.81
Left without being seen or against medical advice	2508 (14.9)	6784 (8.8)	< 0.001

*Fewer than 20 patients died in the emergency department on return to the emergency department; these data were suppressed because of small cell counts.

Table 6: Demographics of interview, focus group, and sharing circle participants

Characteristic	No. (%) of participants: Sharing circles and First Nations health director interviews or focus groups *n* = 47	No. (%) of participants: Physician, nurse, and liaison interviews *n* = 17
Age group, yr		
20–30	3 (6)	2 (12)
31–40	12 (26)	7 (41)
41–50	9 (19)	3 (18)
51–60	7 (15)	3 (18)
61–70	14 (30)	2 (12)
≥ 71	2 (4)	0 (0)
Gender		
Man	11 (23)	5 (29)
Woman	33 (70)	12 (71)
Two-Spirit	1 (2)	0 (0)
Prefer not to say	2 (4)	0 (0)
Residence		
Urban or metro	6 (13)	13 (76)
Rural	36 (88)	4 (24)
Remote	5 (11)	0 (0)
Self-identified as First Nations		
Yes	42 (89)	1 (6)
No	5 (11)	16 (94)

interviews with health care providers. Table 6 provides participant demographics and Table 7 provides participants' explanations for why First Nations patients may leave care. In some cases, First Nations participants described their own reasons for leaving without completing care in specific past instances. Some reasons given could affect any patient, such as long wait times, transportation considerations, poor communication between patients and providers, the need to attend to other responsibilities, and perceptions that the emergency department could not or would not address patient needs. Negative aspects of the emergency department's environment (e.g., urgency of interactions, the environment not being conducive to rest) could also affect any patient. Other reasons were unique to Indigenous patients. Participants described providers relying on anti-Indigenous stereotypes in diagnostic questions or case management, anti-Indigenous discrimination in providers' attitudes and quality of care, and patients overhearing anti-Indigenous racism expressed by providers. First Nations participants also expressed perceptions of being made to wait longer than White patients who appeared to be in less urgent need of care.

Interpretation

First Nations status was associated with greater odds of leaving without being seen or against medical advice and this was not explained by other factors such as diagnosis, acuity, geography, or patient demographics. Subgroup results showed that First Nations patients were more likely to leave without being seen or against medical advice, even when they receive the same diagnosis as non–First Nations patients, including for such emergent conditions as long bone fractures. Few First Nations and non–First Nations patients who left without being seen or against medical advice died within 3 days of an emergency department visit; however, a greater proportion of First Nations patients returned to the emergency department within 72 hours of leaving than non–First Nations patients. About 1 in 20 patients in both groups required hospitalization upon returning to the emergency department, suggesting that leaving without being seen or against medical advice is disrupting continuity of care and delaying needed care in at least some cases.

We believe these findings indicate that leaving without being seen or against medical advice is disproportionately disrupting and delaying care for First Nations patients. Qualitative results suggested discrimination and stereotyping as reasons why more First Nations patients leave without being seen or against medical advice. Transportation availability may also disproportionately affect First Nations populations. Travel distance, availability of

Table 7 (part 1 of 2): Reasons for leaving the emergency department without being seen or against medical advice, with example quotes

Reason	Quote
Stereotyping	"This doctor didn't even know me. First thing he asked me was how much have you had to drink? What? I got up and walked out. I was so pissed off, like, I walked out, and I went to [rural hospital 5]." (SC1_04) "I'm going to speak on my own past experiences. A few years ago, I rolled my own vehicle, I was travelling late. By the time I got to the emergency, I was feeling dizzy. Instead of doing the proper evaluation, they brought in an addictions counsellor. They thought that I was on drugs or something in the waiting room. I asked them, 'Who are you?' They told me and asked if I am on anything. I never do that stuff. That's not why I'm here. They locked me in the back. So, I said I don't need that kind of treatment if that is all you can provide here, I need to see an actual doctor. So, as I was walking out of the emergency, my usual doctor, I have a family physician, seen me, and he knows I don't go in, so he came up and he asks, 'What's going on?' I rolled my vehicle on the highway, my head, and so he evaluated me right there and he says, 'You have a concussion'." (SC3_08)
Discrimination	"A lot is racism, in our area. And the lack of professionalism at times. We've had to have clients leave the hospital in [rural hospital 3] and [rural hospital 4] area and take off to a different hospital when they've had very sick children, because of the quality of care and attitude they were receiving. So we've had one that could've, well we've had a few that could've died if they didn't go to a different hospital. And then they get flown out to Edmonton or Grande Prairie. And we're dealing with the racism issue and the hospital is well aware of it and they are trying to fix that." (HD19)
Overhearing racism	"I saw a girl who was First Nations who had abdominal pain and I was thoroughly convinced she had appendicitis. … And the physician who I was working with…was running her mouth about "Indians" like going on like a big racist rant. Like out loud at the nurses' station in the emergency department. And the patient was in a bed that was just kitty corner to the desk and she can hear what was going on and she got up and she took the IV out of her arm and she was bleeding on the floor. … And she left. And I said to her, 'Can you please go to another hospital? Like please, I understand why you're leaving but please go somewhere else, you need to receive care'. And I don't know what happened to her." (P7)[60]
Long waits	"You go into emergency and its hours, people will end up leaving." (SC3_06) "They are often left for hours waiting. It's almost like they're put somewhere to wait it out. And they wait and they wait and they wait. And like, I'm not quite sure what to say. But they're basically left waiting so these people get frustrated and they walk out because they don't feel important enough to be seen. … It can lead to different health repercussions." (HD_18) "Sometimes it's the patience and it's individual, they don't have patience to be waiting on a stretcher for 1 to 2 days. They don't understand that there's no beds available. They may feel ignored and not attended to." (Cultural liaison) "We had a patient who started to get, uh, infection in the skin of his leg and he got a fever. Um, and then he, it turned out that he actually had HIV and [he] wasn't on medications and we'd somehow missed that. And he hadn't said anything. So I was thinking, well, this is really bad. Like he needs to go in right away and they need to see him. … I assumed they would see him right away, because this is an at-risk person. We got him stabilized on a medication. He wasn't withdrawing, he wasn't aggressive. He was fine. He was there for help. But he's out there for 6 hours all by himself until he finally got tired of it and left and just went AWOL in [rural town]. And I've never seen him again. I don't even know if he's alive. So that was a huge missed case for something that was really serious. And I started to understand, like, there's no point in sending people there. This is, if they can't even treat somebody who's actually really sick, what are they going to do?" (SC2_15, P) "And I've seen clients where they wait and wait and they say, forget it, and they leave. Sometimes they end up going back by ambulance. Like its just ridiculous. And that's because they make them wait so long or they're mistreated. And they say forget it. Especially a lot of our young people." (HD_19)
Perceptions of being made to wait longer than others	"When you go through they'll put you in a room and then you're waiting there and waiting there, and that's what I was saying. Someone else comes in and they're of a different colour and then they'll get treated right away." (HD_19) "If I have been waiting for 3 hours and I see another person walk in and this person is checking in after half an hour, how would I feel, if I don't know anything? It feels like discrimination. You take the White guy first of me, I'm sitting here for 3 hours? They're not going to look after me so I'm just going to leave." (HD_20)

drivers for First Nations' medical transportation services, and complicated policies around transport coverage provided by the Non-Insured Health Benefits program are factors that may affect transit to and from emergency care for First Nations patients.

In addition to Canadian literature,[22–24] our results align with Australian findings of greater rates of leaving emergency care among Aboriginal and Torres Straight Islander people.[26] In Australian inpatient settings, both racism and

Table 7 (part 2 of 2): Reasons for leaving the emergency department without being seen or against medical advice, with example quotes

Reason	Quote
Transportation	"Even your ride, you may get dropped off, [and the person who drove you] says, 'Ok, I have a few things to do, I'll come in and pick you up in an hour,' you didn't get through triage yet, you're still waiting [but you think] 'Ok, my ride's leaving back, my home is 1.5 hours away, how am I going to get home if I wait it out?' So there's those things that come back again. And it's really those social determinants that sort of come into play at that time." (HD_21)
Communication	"Once they see the doctor, maybe there's a lack of communication between the patient and the doctor. Because sometimes they come in there and they walk right out. They see you, they talk to you, and then they walk out without like, and then you're kind of like, 'Ok, am I done?' So sometimes there's that lack of complete communication. Like I've been told, 'We're going to do chest x-rays,' and then I'm waiting and then they're like, "Oh no, you need to come back for those.' Like I'm waiting and the nurse comes into change the room and says, 'Oh, we thought you were done.' And I'm like 'I'm waiting for chest x-rays,' and she's like 'Oh no, the doctor wants you to come back for those in a few days. We'll give you a call.' I'm like, 'Ok well that would've been nice to know a half hour ago'." (HD_18)
Responsibilities	"Other First Nation families walk down the hall just with their head down. And I just know that feeling, that wondering. And when you have other kids to take care of too, how that role is really challenging. And then you have your work, school, whatever else, your personal goals that you're still trying to achieve as well. So, I really can connect to one of the families that have to navigate through the daunting administration process that they have, and it's always, always, a fight for us to access services and benefits." (SC2_09) "This mom, a single mom with 4 children went in. Her 14-year-old was sick … it was a headache and sore bones … they told her, 'You have to go to the clinic.' And this was emergency. And so, she went to the clinic and they said, 'No, you can't come to the clinic, you have to go to emergency.' Like, and [I] didn't know why the client was sent all over. So she went back to the emergency, meanwhile the 14-year-old could barely walk, he was so sore, he was walking all over the hospital. And plus, the mom was scared because of COVID. She doesn't want him walking all through, all over the place. She phoned me, she was just crying. She was worried and she's got all her kids walking through the hospital and the baby is only 3. So they went to [rural town], which is half an hour away, and then she had to get some medication and stuff for her son." (HD_19)
Not receiving needed care	"My experience with emergency is mental health … going to emergency when I felt suicidal. It was the first time in [rural town], and they just made me wait. No one was asking me questions about how I was doing, they just made me wait there. And I was tired of waiting with all these thoughts. I was tired of waiting. I'm just, I'm just putting myself in this situation where no one cares that I'm going through this, so I left. … I needed emergency care now, I needed someone to tell me to not go off the ledge at that time. … I don't go to the emergency anymore for those situations. There's nothing created there to help our people with emergency and there's been so many suicides in our community." (SC3_12) "The other thing that the health director and I were talking about yesterday is a lot of the staff, either I don't know if they're not trained, or they just don't know how to deal with mental health issues. We have community members … with some mental health concerns and when they do go into the emergency, whether it's addictions, drug-induced, any kind of slightly off behaviour, they're either ushered out or just give them something to calm down, which is not fair." (SC3_06) "When I had COVID, I went to the hospital and they told me to leave the hospital because they had families to protect. I also did as well. I was really, really sick. And one nurse told me if I could, make it to Calgary. And at that time, I was just really, I felt like I was beaten down already. So I didn't go. But that nurse told me to come back tomorrow because this doctor isn't on. So, I did, I went back the next day. I got [inaudible] and fluids. I couldn't believe the way that they, they turned me away. I was really, really sick." (SC2_17)
Negative experience of emergency department environment	"I think it's that they're rushed. A lot of people, umm, I guess they're uncomfortable with the, everyone coming to them and all the questions asked and… and the rush. The urgency. And they just want to rest and recover and they're disturbed, you know? They're constantly disturbed or disrupted by what's going on around. And it can be stressful for them as well. … So, they want to leave, you know. … I have a lot of clients that are left without being seen. … It can be many factors, it could be um, not coping, withdrawal … they don't feel that it's fair, others are seen and not them …" (Cultural Liaison)

Note: AWOL = absent without leave, HD = First Nations Health Director, IV = intravenous,P = physician, SC = Sharing Circle.

discrimination have been reported as reasons Aboriginal patients leave care.[61] Askew and colleagues[61] highlighted how overhearing staff saying derogatory things about them led patients to leave care, which was also reported by participants in our study.

Participants' descriptions of stereotyping often related to provider assumptions of substance use, echoing societal racist stereotypes of Indigenous people as being prone to substance use.[62] Stigmatization of substance use has been reported as a reason patients leave care in general.[63] Indeed, in a previous

publication, a physician participant noted how substance-using patients can be led to leave care by ignoring them.[60] This reflects a long-reported tendency for emergency departments to see patients who present with substance use as problems for their department's operations, rather than presenting with medical issues pertinent to the emergency department.[64] Several of our qualitative examples of patients leaving related to mental health and substance use, while our quantitative data showed higher proportions of leaving without being seen or against medical advice among patients presenting for substance use and mental health problems (compared with injuries, infections, and women's health issues) among both First Nations and non–First Nations patients, but with higher proportions among First Nations patients.

Lack of clear communication of treatment plans is also a reason patients leave care, observed both in our data and in the literature.[63] First Nations patients whose first language is not English may have language barriers, and communication issues can arise when providers and paperwork use unfamiliar, English-language medical terminology. In our previous study, some emergency providers in Alberta reported frustration with the communication style they perceived First Nations patients to use and made judgments about patients because of their First Nations "accent."[60] Such factors put First Nations patients at a greater risk of poor communication and interactions with providers.

Wait times also affect leaving without being seen. Our previous research showed that First Nations patients received less-acute triage scores than comparable non–First Nations patients,[65] and that providers made judgments about whether a patient deserved emergency care based on their perceptions of the patient's place in society.[60] Racial stereotyping, discrimination, and biased provider judgments may lead to under-triage, longer wait times, and abbreviated care for First Nations patients, and therefore increased motivation to leave the care environment. Furthermore, First Nations members have described how they cannot generally know whether a negative experience in the emergency department (such as a long wait) is related to racism or not, but that racism is always a stress-inducing possibility.[66]

Child care concerns have been reported as a reason for leaving emergency department.[67,68] Given the age distribution of the First Nations population in Alberta, with higher numbers of children among First Nations people than non–First Nations people,[69] First Nations patients may be more affected by the need to leave care for childrearing responsibilities. Moreover, given disproportionate apprehension of Indigenous children by Child and Family Services,[70] First Nations parents and guardians may be especially reluctant to leave their children in care of friends and relatives for the duration of a long emergency department visit or hospital admission.

A strength of our research is that it was conducted through Western and Indigenous lenses. Co-leadership by First Nations researchers and close collaboration with Elders improved the cultural safety of the research and its relevance to Indigenous people. Results from this work may inform quality-improvement efforts to retain First Nations patients in care. Such efforts should be co-developed with and overseen by First Nations organizations representing the population that uses each particular emergency department. An example of an intervention trialed in Australia involved a specialized care team seeing Aboriginal patients and efforts to ensure continuity of care between their emergency department visits.[71] Efforts to promote equity-oriented care in British Columbia have resulted in a reduction in rates of leaving care at 1 of 3 pilot sites.[72] Interventions involving communicating with patients about their next steps and offering comfort items and reassurance to waiting patients may be avenues to explore.

The form and operation of emergency care facilities may also be important elements influencing decisions to remain in care. First Nations patients may be more willing to remain in care in Indigenous–owned and operated facilities employing Indigenous ways on Indigenous lands (i.e., Indigenous-led services). Spaces using Indigenous design, languages, and architecture may also be perceived as more welcoming and safer by First Nations patients.

Efforts to retain patients in emergency care have usually focused on changes to processes in the emergency department (e.g., at triage, creating diagnosis and treatment tracks for different categories of patients) to improve efficiency and reduce wait times.[73–75] However, solutions may not lie primarily within emergency departments. Admitted patients waiting for hospital beds in the emergency department are a primary driver of wait times,[32] and this issue requires system-level solutions. Any efforts to address leaving the emergency department without being seen or against medical advice must be rigorously evaluated. In a study conducted in the United States, efforts to fast-track patients with less urgent conditions to treatment in chairs, as opposed to regular treatment spaces with beds, was associated with Black patients being disproportionately treated in chairs compared with White patients with similar conditions.[76]

Limitations

Identifiers of First Nations status used in our analysis undercount First Nations members; therefore, a large number of First Nations people in Alberta are counted as non–First Nations in our data. We may have thus underestimated differences in proportions of visits that ended in patients leaving without being seen or against medical advice between First Nations and non–First Nations patients. Diagnoses for patients who left without being seen were based on presenting problems and may not reflect the final diagnoses that physicians would have reached if the patient had remained in care. Our analysis is also limited in that we did not have data on patient housing status, which may be related to leaving without being seen or against medical advice. Our economic variable relied on neighbourhood-level income measures rather than individual economic circumstances. Missing income and travel distance data (both derived from census data) were associated with higher proportions of visits that ended in patients leaving without being seen or against medical advice, but we excluded visits with missing

data for income and travel distance from our models on the grounds they may be systemically missing for different reasons for First Nations and non–First Nations populations. As a result, our models excluded groups with high proportions of visits that ended in patients leaving without being seen or against medical advice. However, only 4% were missing overall for this data set. Our administrative data sets did not include all the possible factors a person considers when seeking emergency care, such as perceived or actual wait times, or perceptions of specific hospitals. We also chose to examine the composite outcome of leaving without being seen or against medical advice. Separate analyses of leaving without being seen and leaving against medical advice by First Nations status could be conducted as quality-improvement analyses for individual emergency departments. Finally, we dichotomized a number of variables to produce interpretable models, and this may have concealed nonlinear relationships between independent and dependent variables.

Conclusion

In this retrospective cohort study, First Nations status was associated with greater odds of leaving the emergency department without being seen or against medical advice. We consider that systemic racism and inequity in health care contribute to this outcome, which is supported by our qualitative data. As leaving without being seen or against medical advice may delay needed care or interfere with continuity of care, providers and departments should work with local First Nations to develop and adopt strategies to retain First Nations patients in care.

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