EM ADVANCES

Patients presenting to the emergency department: the use of other health care services and reasons for presentation

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ABSTRACT

Objective: Some low-acuity emergency department (ED) presentations are considered convenience visits and potentially avoidable with improved access to primary care services. This study assessed the frequency and determinants of patients' efforts to access alternative care before ED presentation.

Methods: Patients aged 17 years and older were randomly selected from 2 urban ED sites in Edmonton. Survey data were collected on use and characteristics of alternative care before the ED visit. Information was also collected on patient demographics and factors influencing their perception of whether the ED was the best care option.

Results: Of the 1389 patients approached, 905 (65%) completed the survey and data from 894 participants were analyzed. Sixty-one percent reported that they sought alternative care before visiting the ED. Eighty-nine of the patients who attempted alternative access before the ED visit felt that the ED was their best care option. Results of the multivariate logistic regression analysis showed that injury presentation, living arrangements, smoking status and whether or not patients had a family practitioner were predictors for seeking alternative care before visiting the ED.

Conclusion: Most ambulatory patients attempt to look for other sources of care before presenting to the ED. Despite this attempted access to alternative care, while patients wait for ED care, they perceive that the ED is their best care option at that point in time.

Key words: emergency department, primary care provider, access to care, triage, overcrowding

RÉSUMÉ

Objectif : Certaines visites peu ou non urgentes à la salle d'urgence (SU) sont considérées comme des visites « pratiques » qui pourraient être évitées si l'accès aux services de soins de première ligne était meilleur. Cette étude a évalué la fréquence, chez les patients, du recours à des sources

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de soins autres que l'urgence ainsi que les facteurs déterminants les démarches entreprises par les patients à cet égard.
Méthodes : Des patients âgés de 17 ans ou plus ont été choisis au hasard dans deux SU urbaines d'Edmonton. Des données d'enquête sur l'utilisation d'autres sources de soins avant la visite à la SU et les caractéristiques de ces sources ont été recueillies. Nous avons aussi collecté des données démographiques sur les patients ainsi que des données sur les facteurs influençant leur perception de la SU comme la meilleure option de soins.
Résultats : Parmi les 1389 patients sondés, 905 (65 %) ont rempli le questionnaire, et les données provenant de 894 participants ont été analysées. Soixante et un pour cent ont mentionné avoir eu recours à d'autres sources de soins avant de se rendre à l'urgence. Parmi ces patients, 89 étaient d'avis que la SU constituait la meilleure option de soins. Selon les résultats de l'analyse de régression logistique multivariée, la présentation avec blessure, les conditions de logement, le tabagisme et l'absence ou la présence d'un médecin de famille étaient des prédicteurs de recours à des sources de soins autres que la SU.
Conclusion : La plupart des patients ambulatoires tentent d'utiliser d'autres sources de soins avant de se présenter à l'urgence. Or, malgré ces démarches, ils perçoivent la SU comme la meilleure option à ce moment-là.

Introduction

There is a scarcity of information about why patients present to emergency departments (EDs) in North America because this topic has been infrequently studied. What is currently known is based on general sociodemographic factors and administrative information from presenting complaints and discharge diagnoses. For example, the highest rates of ED use are among the very young and the elderly.[1] Moreover, the most common reasons to visit an ED in Ontario, Alberta and the United States from 1998 to 2000 were trauma, respiratory diseases, and "signs and symptoms" (indicating non-diagnostic signs and symptoms).[1,2]

Currently, very little else is known about why patients who have less severe disease presentations visit EDs. For example, patients' access to primary care physicians, their relationship with these providers and their reasons for selecting the ED on the day of presentation have been studied infrequently. A primary care physician develops a sustained partnership with patients and offers care that is characterized by continuity, first contact, comprehensiveness and coordination.[3] Han and colleagues showed that patients presenting to the ED who have a primary care physician differ from those who do not.[4]

Understanding why patients present to the ED may help highlight inefficiencies in the health care system and identify sustainable solutions to the problem of ED overcrowding.[5] This information may be especially important for potentially marginalized groups.[6–8] The primary objective of this study was to examine the frequency and determinants of patients' efforts to access alternative care before ED presentation in 2 tertiary hospitals in the Capital Health Region of Alberta. Secondary objectives included the investigation of the association between efforts to access alternative care before ED presentation and a variety of sociodemographic factors, and to explore patients' perception of whether or not the ED was the best available care option.

Methods

Study design

A cross-sectional survey of patients attending the ED was undertaken over a 10-week period from September 2004 to November 2004 at the University of Alberta Hospital (UAH) and the Royal Alexandra Hospital (RAH) in Edmonton, Alberta. Both hospitals are regional referral centres for trauma and together the 2 ED sites manage over 130 000 ED visits per year. The study protocol, which included questionnaire administration, and the informed consent forms signed by all participants were reviewed and approved by the Health Research Ethics Board (Panel B) at the University of Alberta.

Study participants

All consecutive patients aged 17 years and older presenting to the ED and deemed at triage not to require resuscitation (i.e., patients who were assigned a Canadian Triage and Acuity Scale [CTAS][9] 2 or higher) were eligible for inclusion in the study. Patients who felt too unwell (e.g., in too much pain, too violent, intoxicated, etc.) to participate, refused to participate or were unable to communicate in English (unless translation was available) were excluded from the study.

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A 2-stage non-stratified, cluster-based random sampling method was used. In the first stage, ED registration periods from 0700 to 2200 hours over 7 consecutive days were selected using a random number table. Within each cluster (i.e., registration period) a sample of consecutively selected patients who were registered in the ED computerized system were invited to participate in the study.

Survey instrument

A 35-item questionnaire was developed in collaboration with content experts. The face validity of the instrument was assessed by research team members, including an ethicist and an emergency physician. The questionnaire was available in both interviewer- and self-administered computer versions, based on the patients' preferences, ability to read English instructions and computer literacy. The questionnaire took approximately 10 to 15 minutes to complete and included questions regarding the use and characteristics of alternative care sought before the ED visit. Alternative care was defined as any type of health care provided outside of the ED. Information was also collected on symptom severity, injury presentation, smoking status, whether the patient had a family physician and whether an interpreter was required. Patients were asked about factors influencing their perception of whether or not the ED was the best care option for their health complaints. Information on patient demographics (i.e., sex, age, triage level and presenting complaint) was extracted from the ED patient registry.

Each valid postal code collected from the survey was linked to average household income database on census tract estimates from the 2001 Canadian census.[10] The average household incomes were then ranked and grouped into 5 similarly sized population quintiles. Q1 was assigned as the lowest income quintile and Q5 as the highest income quintile.

Sample size

In determining the sample size for this study, a literature review was performed to determine the expected frequency of patients that had accessed alternative care before ED presentation. No direct measures of this outcome were found in the literature. Therefore, we have used the surrogate outcome of the proportion of ED patients that reported no family physician for sample size calculation purposes. Based on previous literature, the proportion of Canadians reporting no family physician in 2004 was as high as 14%.[11] To obtain a proportion to within 3% above or below the point estimate, or better, with 95% confidence, a sample size of 900 patients was required.

Statistical analysis

Data were entered into a Microsoft Excel spreadsheet (Microsoft Corp., Redmond, Wash.) and analyzed using the Statistical Package for the Social Sciences (SPSS Inc., version 13.0, Chicago, Ill.). Dichotomous variables were reported as percentages; continuous variables were reported as means and standard deviations (SDs) or medians and interquartile ranges (IQRs), in the presence of skewed data.

Bivariate analyses (*t* test, Mann–Whitney *U* test, chi-squared test and Fisher's exact test, where appropriate) were used to compare the 2 groups (alternative care sought before ED visit v. no alternative care sought before ED visit). A logistic regression model (with model entry set at $p = 0.2$ and model removal set at $p = 0.15$) was used to determine the factors associated with seeking alternative care before visiting the ED using backward Wald techniques.

A thematic content analysis was performed using patient explanations for why the ED was or was not the best option for their problems. To identify common words and themes, the frequency of all words in the responses were tabulated.

Results

Sampling

Overall, 1389 patients were eligible to participate in the study. Four hundred and forty-four participants were excluded owing to refusal or because they were too ill to participate in the study. Therefore, a total of 945 participants were enrolled and 905 completed the questionnaire (response rate of 96%). Data for 894 participants were included in the analyses (Fig. 1).

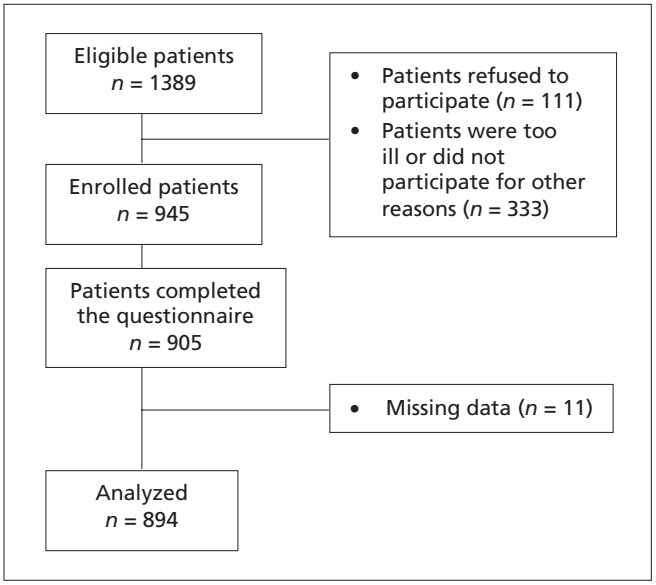

Fig. 1. Patient recruitment flow diagram.

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Participant characteristics

Characteristics of patients in the study are summarized in Table 1. Age (mean 44.1 yr, SD 19.7), and level of household income (mean Can$61 700, SD Can$24 200) were normally distributed among participants. Twenty-two percent of participants presented with injuries, and 53% had a CTAS of 2 or 3 at triage.

Of the study cohort, 548 (61%) patients reported that they attempted to access at least 1 source of alternative care or advice before visiting the ED. The univariate analyses showed that there were no statistically significant differences in age, disease severity, household income, sexual orientation or the need for an interpreter at the ED visit between participants who sought alternative care before the ED and those who did not. Nevertheless, some variables that were considered clinically important as potential predictors of patients seeking alternative care before the ED visit were retained in the multivariate logistic regression analysis (i.e., need for an interpreter, sexual orientation and ethnic background).

Table 1. Demographic characteristics of patients who did and did not attempt to access alternative care prior to the emergency department visit

Variable	Group; no. of patients (and %)* Total participants; *n* = 894*	Attempted alternative access; *n* = 548*	No alternative attempted; *n* = 346*	MD (95% CI) or OR (95% CI)†
Female sex	456 (51)	295 (54)	161 (47)	0.7 (0.5–0.9)
Mean age (and SD), yr	44.1 (19.7)	44.0 (19.4)	44.1 (20.2)	0.0 (–2.7–2.6)
Required interpreter	5 (1)	5 (1)	3 (1)	1 (1–1)
Injury presentation	*n* = 885 192 (22)	*n* = 543 86 (16)	*n* = 342 106 (31)	0.4 (0.3–0.5)
Severity (CTAS score 2–3)	*n* = 889 473 (53)	*n* = 547 293 (54)	*n* = 342 180 (53)	0.9 (0.7–1.2)
Marital status	*n* = 885	*n* = 542	*n* = 343	0.5 (0.4–0.7)
Married or common-law	424 (48)	289 (53)	135 (40)	
Not married	461 (52)	253 (47)	208 (60)	
Living arrangements	*n* = 868	*n* = 529	*n* = 339	0.5 (0.4–0.7)
Live with someone	670 (77)	429 (81)	241 (71)	
Live alone	198 (23)	100 (19)	98 (29)	
Residence, *n* = 895	*n* = 884	*n* = 539	*n* = 345	0.3 (0.1–0.9)
Assisted living	15 (2)	5 (> 1)	10 (3)	
Non-assisted living or other	869 (98)	534 (99)	335 (97)	
Ethnic background	*n* = 885	*n* = 542	*n* = 343	0.9 (0.5–1)
White	629 (71)	395 (73)	234 (68)	
Aboriginal	91 (10)	43 (8)	48 (14)	
Asian	54 (6)	39 (7)	15 (4)	
Ukrainian	49 (6)	10 (2)	8 (2)	
Other	44 (5)	29 (5)	20 (6)	
Black	18 (2)	26 (5)	18 (5)	
Education level	*n* = 882	*n* = 538	*n* = 334	1.5 (1.1–2)
≤ high school	511 (58)	290 (54)	221 (66)	
> high school	371 (42)	248 (46)	123 (36)	
Employment status/12 mo	*n* = 887	*n* = 545	*n* = 342	0.7 (0.5–1)
Employed	427 (48)	275 (50)	152 (44)	
Unemployed or other	460 (52)	270 (49)	190 (56)	
Mean household income (and SD), Can$	*n* = 671 61 700 (24 200)	*n* = 436 62 500 (22 900)	*n* = 323 60 000 (26 300)	2500 (–1300 to 6400)
Sexual orientation	*n* = 830	*n* = 507	*n* = 235	0.6 (0.2–1.4)
Non-heterosexual	24 (3)	12 (2)	12 (5)	
Current smoker	331 (37)	178 (33)	153 (44)	0.6 (0.4–0.8)
Has a family physician	705 (79)	449 (82)	256 (74)	0.6 (0.4–0.8)

MD = mean difference; CI = confidence interval; OR = odds ratio; CTAS = Canadian Triage and Acuity Scale.
*Unless otherwise indicated.
†Unadjusted.

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Factors associated with seeking alternative care before the ED visit

The multivariate logistic regression identified the following statistically significant associations with not seeking alternate care before the ED visit: injury presentation, living alone, smoking and not having a family practitioner (Table 2). The adjusted odds ratios for these factors ranged from 0.4 to 0.7.

Alternatives selected

Among the patients who attempted alternative access before the ED visit (Table 3), 56% visited a physician and 20% visited other health care professionals. Other strategies included calling a physician's office (47%) or a regional health information line (14%). Patients who called a physician's office and received advice (75%) were directed to visit a family physician (3%), a health care professional (9%) or the ED (63%), whereas 0.8% received only reassurance. Recommendations were given to patients who called a regional health information line. They included going to the ED (58%), seeing a primary care physician (6%) or seeing another health care professional (3%). More than one-half (58%) of the remaining patients who did not call a regional health information line were at least aware of the availability of these services.

Of the 548 patients who attempted to access alternative care before the ED visit, 485 (89%) decided that the ED was their best care option.

Table 2. Predictors of seeking alternative care prior to emergency department visit

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Male sex	0.7 (0.5–0.9)	NA*
Required interpreter	1.0 (1.0–1.0)	NA*
Injury presentation	0.4 (0.3–0.5)	0.4 (0.2–0.5)
Marital status (single or other)	0.5 (0.4–0.7)	NA*
Living alone	0.5 (0.4–0.7)	0.6 (0.4–0.8)
Residence (assisted living)	0.3 (0.1–0.9)	0.4 (0.1–1.2)
Ethnic background (non-white)	0.9 (0.5–1.0)	NA*
Education level (> high school)	1.5 (1.1–2)	1.3 (0.9–1.7)
Employment status/12 mo (unemployed or other)	0.7 (0.5–1)	0.8 (0.6–1.0)
Non-heterosexual	0.6 (0.2–1.4)	NA*
Current smoker	0.6 (0.4–0.8)	0.7 (0.5–0.9)
No family physician	0.6 (0.4–0.8)	0.7 (0.5–0.9)

OR = odds ratio; CI = confidence interval; NA = not applicable.
*Excluded from the final model.

Thematic content

Thematic content analysis elucidated 8 major categories of reasons, including patients' perceived severity of their health problems (n = 230), quality of care in the ED (n = 185), physician availability (n = 137), professional referral (n = 100) and perceived rapidity of care in the ED (n = 80). Seventy-six participants felt that the ED was their only option; 58 did not find any physician available elsewhere; and 71 visited the ED for their convenience. Patients who did not believe the ED was the best care option (11%) stated that they would have preferred to see another physician (n = 34), would have to wait too long (n = 27) or perceived that their problem was not urgent (n = 27). Other respondents felt that their problem improved while waiting (n = 3), or felt dissatisfaction with the ED environment (n = 3).

Discussion

This study examined the frequency and determinants of patients' efforts to access alternative care before ED presentation at 2 urban EDs. Overall, this study showed that many patients made concerted efforts to avoid the ED visit. Almost two-thirds of the patients tried at least 1 alternative before seeking care in the ED. There is an often-cited misuse of the ED in Canada and North America.[12] The results of the current study, however, suggest that this misuse could have more to do with poor access to primary care or a failure to receive adequate help at another source than it does with failure to seek other alternatives for care. Health planners in Canada should consider these results and

Table 3. Type of actions taken to get alternative care prior to the emergency department visit

Factor	No. of patients (and %) who attempted alternative care access; n = 548
Visited a physician	309 (56)
Visited other health care professional	110 (20)
Physiotherapist or chiropractor	15 (3)
Nurse or midwife	7 (1)
Dentist	13 (2)
Complementary and alternative medicine	4 (1)
Other	71 (13)
Called a physicians offi ce	259 (47)
Called regional health information line	78 (14)
Believed ED was the best option	485 (89)

ED = emergency department.

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address these problems before blaming patients for ED overuse and overcrowding.[1]

This study identified a number of important factors associated with seeking or not seeking alternative care. For example, individuals who presented with injuries, lived alone, were current smokers and who did not have a family doctor were all less likely to attempt alternative care before the ED visit. While these factors will not assist clinicians at the bedside, they represent factors that health planners should consider when attempting to reduce the use of EDs in Canada. Patients need health care alternatives and the ED is clearly perceived as the appropriate location for care by many patients, no matter how long the wait.

This study also suggests that an important percentage of patients who present to the ED have no primary care physician (21%). This statistic is higher than the national average reported by large population-based surveys (12%–14%).[13] This further supports evidence that suggests ED users are different from the general population in some important ways. The inability of individuals to find a regular doctor may have implications for the health care system, as these people are 3.5 times more likely to visit a doctor in the ED than those with a primary care physician.[13]

Almost one-half of the patients in this study came to the ED for a low-acuity visit (CTAS 4 or 5). A previous survey estimated that 55% of ED visits are for conditions that do not require immediate medical attention and might be more effectively handled in a primary care setting.[14] The results of the current study support previous evidence that low-acuity patients may present to the ED because of physician inaccessibility[15] or poor access to primary care,[16] such as having no primary care physician. This study did not, however, attempt to differentiate between urgent and nonurgent problems. While relatively stable, patients with CTAS 4 and 5 clearly do require treatment that can require hospital admission.[17]

Owing to the problem of ED overcrowding, much attention has been focused on reducing low-acuity patients in the ED. Most of the published articles on nonurgent patients emphasize strategies to decrease nonurgent ED use. These strategies may include increasing access to primary care physicians, requiring a primary care physician to act as a gatekeeper for ED use, and encouraging and educating patients to see their primary care physicians before ED visits. Diverting patients away from the ED to alternate sources of care is an area of ongoing research.[18] Further research is clearly required to determine the clinical and economic impact of nonurgent and low-acuity patients on EDs.

The majority of patients who sought alternative care before the ED visit felt that the ED was their "best option" for expedited health care. This study thus supports previous studies that report that the majority of ED patients perceive their problems as urgent.[19]

Limitations

There were several limitations in this study. First, the sampling excluded patients with CTAS 1 or those deemed too unwell by ED staff, indicating that severe illness was under-represented in this study. Second, the study was conducted at 2 urban EDs only, which limits the generalizability of the results across other areas. Third, we did not sample the overnight period, largely owing to the fact that we felt the ED represented the only source of care for patients during those times. Similar research using different hospitals, in different areas (rural v. urban) and using all time periods may provide additional granularity to these conclusions.

Conclusion

Notwithstanding these limitations, this study represents one of the largest surveys of ED patients with respect to prior actions designed to prevent an ED visit. The high response rate and the comprehensiveness of the data collection contribute to the validity of these results. Specifically, the inclusion of a measure of urgency that incorporated patient expectations and preferences was unique. While only one-half of patients received a high acuity score (CTAS 2 or 3), almost 9 out of 10 patients in this study believed that the ED was the best option for their problem.

The results confirm that many patients using EDs do not have access to a primary care physician. Despite this, they appear to make considerable attempts to avoid the ED by seeking care elsewhere. The ED is perceived as the most appropriate place for care for most patients and remains an important safety net within North American health care systems. Finally, these results should stimulate further research to identify the barriers these patients face and how to improve access to alternative health care.

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