

Older Emergency Department Patients: Does Baseline Care Status Matter?



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ABSTRACT

Background

Little is known about the prognostic differences between older emergency department (ED) patients who present with different formal support requirements in the community. We set out to describe and compare the patient profiles and patterns of health service use among three older ED cohorts: home care clients, nursing home residents and those receiving no formal support.

Methods

We conducted a secondary analysis of the Canadian cohort from the interRAI multinational ED study. Data were collected using interRAI ED contact assessment on patients 75 years of age and older ($n = 2,274$), in eight ED sites across Canada. A series of descriptive statistics were reported. Adjusted associations were determined using logistic regression.

Results

Older adults receiving no formal support services were most stable. However, they were most likely to be hospitalized. Older home care clients were most likely to report depressive symptoms and distressed caregivers. They also had the greatest odds of frequent ED visitation post-discharge (OR=1.9; 95% CI=1.39–2.59). Older adults transferred from a nursing home were the frailest but had the lowest odds of hospital admission (OR=0.14; 95% CI=0.09–0.23).

Conclusion

We demonstrated the importance of inquiring about community-based formal support services and provide data to support decision-making in the ED.

Key words:

older adults, emergency department, formal support services, home care, nursing home

INTRODUCTION

Emergency departments (ED) are uniquely situated as the gateway into the hospital system, acting as a conduit for people in search of immediate medical attention. In Canada, EDs are the focal point of discussion for many health-care professionals and policy makers, as these departments frequently operate above capacity.⁽¹⁾ Current literature has shown that a small group of ED patients contribute an disproportionate number of visits,⁽²⁻⁴⁾ with older adults identified as a distinct cohort of complex patients at-risk for frequent visitation.⁽⁵⁻⁸⁾ Older adults contribute a higher proportion of ED visits than younger persons and are more likely to visit for an urgent reason, resulting in hospital admission.⁽⁹⁻¹²⁾ Multimorbidity and frailty are strongly associated with age,^(13,14) subjecting older adults to a greater risk for adverse health events both within the ED and post-discharge.^(15,16)

Aging is an idiosyncratic process, resulting in a heterogeneous group of older ED patients presenting with varying baseline health care statuses and support needs for daily living.⁽¹⁷⁾ The majority of community-dwelling older adults live in a private household and receive no formal support services.⁽¹⁸⁾ However, approximately 25% of older Canadians require medical, physical, or psychosocial support from healthcare providers in their homes to support their independent living.⁽¹⁹⁾ These services are referred to as home care. When patient complexity and needs extend beyond the resources available in the residential setting, older adults are eligible for admission to a nursing home where they will receive 24-hour care. This is the case for approximately 5% of older Canadian citizens.⁽¹⁸⁾

Geriatric syndromes are complex clinical conditions that are most commonly found in aging populations, including, but not limited to, cognitive impairment, delirium, falls, depression, functional impairment, and malnutrition.⁽²⁰⁾ While a plethora of literature has examined the profiles and health service patterns of older ED patients, the majority of these

studies lack data on geriatric syndromes and assessments. This shortcoming is likely the downstream effect of a much larger problem; geriatric syndromes are commonly overlooked and undocumented by emergency clinicians and traditional ED care pathways.^(21,22) In Canada, residents and those receiving home care services present to the ED having had geriatric syndromes and frailty assessed and documented in their respective care settings. However, older adults receiving no publicly funded formal support services often receive fragmented care in the community, with clinical management focused narrowly on disease and pathology. Little is known about this cohort, and how their geriatric features and syndromes differ from older ED patients receiving formal support services in the community.

We set out to describe and compare the patient profiles of three distinct geriatric cohorts in the ED: (a) home care clients, (b) nursing home residents, and (c) those receiving no formal support services in the community. Secondly, we aimed to compare the health service utilization patterns and post-disposition outcomes across these three ED cohorts. Understanding these profiles will determine the value of inquiring about formal support services in the community, so that emergency management pathways can be adapted to meet the unique needs of the patient. We hypothesized that, of the three cohorts, older adults receiving no publicly funded formal support services would be the least frail and would, therefore, contribute the lowest rates of hospital use.

METHODS

Design

We conducted a secondary analysis of the Canadian cohort from an international prospective cohort study, the interRAI Multinational ED study.^(23,24) Data were collected between November 2009 and April 2012 from eight ED across five provinces in Canada (Ontario, Nova Scotia, Manitoba, Saskatchewan and British Columbia). Patients 75 years and older were screened and recruited at ED registration. Patients were excluded if: they expected to die within 24 hours of ED presentation, they were in severe medical distress, or they did not speak English or present with a valid interpreter. Data were collected between 0800 and 1900 hours due to staff availability and to capture the highest proportion of older adults, who tend to present during daytime hours.⁽²⁵⁾ Ethics approval was obtained from the respective academic institutions and research ethics boards of all participating hospitals.⁽²⁶⁾

Measurement

All eligible patients received a formal geriatric assessment in the ED by a nurse or allied health care professional using the interRAI ED Contact Assessment.⁽²⁷⁾ The interRAI ED Contact Assessment has 39 items across eight domains including: cognition and physical function, mood, comprehension, fall history, nutritional status, pain, and the presence of dyspnea. This brief assessment is a standardized clinical decision support tool to inform treatment and discharge

decision-making in an emergency setting.⁽²⁷⁾ The items of the ED Contact Assessment have established test content validity in acute care,⁽²⁸⁾ demonstrated inter-rater reliability,^(29,30) and established predictive validity in the ED setting.^(23,31) After the initial assessment in the ED, a standardized follow-up was conducted at 90 days post-ED or hospital discharge to ascertain study outcomes. Those admitted for in-patient care at the time of follow-up underwent a manual chart review. Those discharged back to the community were contacted via telephone in addition to a manual chart review.⁽²³⁾

Variables

All items and assessments of the interRAI ED Contact Assessment were utilized for this study. The pre-morbid time frame was defined as the three-day period prior to the onset of the acute illness resulting in an emergency presentation. The admission time frame was defined as the current health state during the geriatric assessment in the ED.⁽²⁷⁾ Data were collected on both health states (pre-morbid and admission) when items allowed. The items of the ED Contact Assessment were used to produce frailty scores using the ED frailty index previously created by Brousseau *et al.*⁽³¹⁾ The ED frailty index is a cumulative health deficit model and is presented as a fraction, with the number of health deficits as the numerator and the total number of possible deficits as the denominator.⁽³¹⁾ Triage acuity was measured using the Canadian Triage and Acuity Scale (CTAS), a five-item ordinal scale used in EDs across Canada to assess and sort patients based on the severity of illness.

Patient profiles were compared across three distinct ED cohorts: those receiving no formal support services, home care clients and nursing home residents. For the purposes of this study, we defined no formal support as older adults who lived within a private dwelling and received no provincially funded home care services. Home care clients were defined as older adults who presented to the ED already enrolled in a provincially funded home care program. Finally, nursing home residents were defined as any patient who presented to the ED as a direct transfer of care from a nursing home.

Outcome Measures

A series of post-disposition outcomes were compared across the three geriatric cohorts of interest: hospital admission, hospital length of stay, repeat hospital use and frequent ED visitation. Hospital admission was defined as any patient that was referred and admitted for in-patient care through the ED. An extended hospital length of stay was defined as any hospital length of stay greater than the 75th percentile of all persons admitted for in-patient care. Repeat ED visitation was defined as any ED use within 30 days of discharge from the index ED visit or hospital stay. Post-discharge hospitalization was defined as any admission for in-patient care that occurred within 90 days of discharge. Finally, frequent ED visitation was defined as any person who presented to the ED two or more times within the 90-day follow-up period. All outcome variables were measured in a dichotomous fashion. Older

adults who died during in-patient care were excluded from future measures of health service use.

Data Analysis

Measures of frequency, along with confidence intervals, were calculated to provide prevalence estimates of the sample characteristics. A series of chi-square and Kruskal-Wallis analyses were conducted to provide unadjusted comparisons of patient profiles and outcome event rates across the three ED cohorts. Binary logistic regression was performed to determine the adjusted observed relationships between the level of formal support and post-disposition outcomes, while adjusting for triage acuity and patient frailty. Data were screened for the presence and pattern of absent data; cases with missing data were deleted within each analysis. Data were managed and analyzed using R version 3.6.0.⁽³²⁾

RESULTS

The cohort contained 2,274 older adults who presented to the ED for care. Overall, missing data was scant, with 0.7% of all data missing, ranging from 0% to 3.9% across variables. From the ED Contact Assessment, we were only able to calculate ED frailty index scores for 89% of the sample ($n = 2,024$), due to minimal missing data across independent variables. The majority of patients lived in a private dwelling and received no formal support services (78%), followed by home care clients (16.6%) and nursing home residents (5.3%). The median age of the sample was 82.5 (interquartile range [Q1-Q3] = 77.4 – 87.9). Most patients presented to the ED for an urgent complaint (80%), defined as a CTAS score of three or less. Table 1 displays additional patient demographics and baseline characteristics. An unadjusted comparison of patient profiles across the three ED cohorts is exhibited in Table 2.

Comparison of Patient Profiles and Geriatric Syndromes

Nursing Home Residents

Older adults transferred from a nursing home had the highest median age (86.4; $p < .001$) and the highest median frailty index scores (0.45; $p < .001$). Nursing home residents presenting to the ED had the highest rates of cognitive impairment (67.5%; $p < .001$) and impaired comprehension (27.3%; $p < .001$). Older adults living in a nursing home were most likely to present with ADL impairment (88.4%; $p < .001$). However, they were the least likely to present with an acute decline in functional status (e.g., bathing, personal hygiene, dressing lower body, and ambulation).

Home Care Clients

Older adults receiving home care services were most likely to present with depressive symptoms (25.4%; $p = .004$) and a poor baseline self-reported health (11.9%; $p = .002$). This cohort was also most likely to present to the ED with an informal caregiver, expressing feelings of distress, anger or depression (29.7%; $p < .001$). While baseline nutritional

TABLE 1.
Sample and visit characteristics (N = 2,274)

Variable	N% (95% CI)
Age ^a	82.5 (77.4 – 87.9)
Gender (Female)	61.3 (59.3 – 63.3)
Living Arrangement	
Community-Dwelling (No Homecare)	78.1 (76.3 – 79.8)
Community-Dwelling (Homecare Client)	16.6 (15.1 – 18.2)
Nursing Home Resident	5.3 (4.5 – 6.3)
Caregiver Distress ^b	18.7 (17.1 – 20.3)
Cognitive Impairment ^c	
Pre-morbid ^d	18.3 (16.8 – 19.9)
Admission ^e	23.7 (21.9 – 25.6)
Potential Delirium ^f	14.7 (13.3 – 16.3)
ADL Impairment	
Bathing	
Pre-morbid ^d	37.4 (35.4 – 39.4)
Admission ^e	59.1 (57 – 61.1)
Acute Decline from Pre-morbid ^g	21.5 (19.9 – 23.4)
Personal Hygiene	
Pre-morbid ^d	16.8 (15.2 – 18.4)
Admission ^e	28.1 (26.2 – 30)
Acute Decline from Pre-morbid ^g	11.6 (10.3 – 13.1)
Dressing Lower Body	
Pre-morbid ^d	25.1 (23.3 – 26.9)
Admission ^e	44.5 (42.4 – 46.6)
Acute Decline from Pre-morbid ^g	19.7 (18.1 – 21.4)
Locomotion	
Pre-morbid ^d	17.1 (15.6 – 18.8)
Admission ^e	43.1 (41.1 – 45.2)
Acute Decline from Pre-morbid ^g	26.1 (24.2 – 27.9)
Any ADL Pre-Morbid Impairment ^h	39.8 (37.8 – 41.9)
Any ADL Impairment at Admission ^h	64.1 (62.1 – 66)
IADL Status	
Difficulty with Medications ⁱ	31.8 (29.9 – 33.8)
Difficulty with Stairs ^j	60.9 (58.9 – 62.9)
Impaired Comprehension ^k	4.7 (3.9 – 5.7)
Conditions and Symptoms	
Poor Self-Reported Health ^l	
Pre-morbid ^d	7.8 (6.7 – 9)
Admission ^e	19.4 (17.8 – 21.1)
Depressive Symptoms ^m	19.7 (18.1 – 21.4)
Hallucinations or Delusions	6.4 (5.4 – 7.5)
Any Falls (last 90 days)	32.5 (30.6 – 34.5)
Traumatic Injury	7.3 (6.3 – 8.5)
Daily and Severe Pain ⁿ	18.5 (16.9 – 20.2)
Dyspnea ^o	
Pre-morbid ^d	20.1 (18.5 – 21.8)
Admission ^e	27.8 (25.9 – 29.7)
Unstable Condition ^p	47.7 (45.6 – 49.8)
Decrease food/fluids ^q	29.5 (27.6 – 31.4)
Weight Loss ^r	8.6 (7.5 – 9.9)
ED Visitation Prior 90 Days	40.9 (38.8 – 42.9)

Continued

TABLE 1.
Continued

Variable	N% (95% CI)
Triage Score ^s	
CTAS 1 (Most Urgent)	0.6 (0.3 – 1.1)
CTAS 2	20.6 (18.9 – 22.4)
CTAS 3	58.7 (56.6 – 60.7)
CTAS 4	16.1 (14.5 – 17.6)
CTAS 5	4 (3.2 – 4.9)
ED Frailty Index ^{a,t}	0.24 (0.14 – 0.38)

ADL = activities of daily living; IADL = impaired activities of daily living.

^aData are reported as median (interquartile range, Q1 – Q3).

^bPrimary informal helper(s) expresses feelings of distress, anger or depression.

^cModified independent or any impairment in making decisions regarding tasks of daily living.

^dPre-morbid: the 3-day period prior to the onset of a current acute illness or episode.

^eAdmission: the past 24 hours or time since acute illness or episode that prompted the ED visit.

^fAcute change in mental status from person's usual functioning (e.g., restlessness, lethargy, difficult to arouse, altered environmental perception).

^gAcute decline from pre-morbid state: at admission, new impairment relative to pre-morbid.

^hAny supervision or any physical assistance in bathing, personal hygiene, dressing lower body or locomotion.

ⁱDifficulty remembering to take medicines, opening bottles, taking correct drug dosages, giving injections or applying ointments.

^jSupervision or the need for any assistance while walking a full flight of stairs (12 to 14 stairs).

^kSometimes, rarely or never understands direct communication.

^lWhen asked, "In general, how would you rate your health?" person responds "Poor."

^mWhen asked, patient reports feeling sad, depressed or hopeless in past 3 days.

ⁿPain that is excruciating or daily in past 3 days.

^oDyspnea at rest or present when performing normal day-to-day activities.

^pCondition/disease that make cognitive, ADL, mood or behaviour patterns unstable (fluctuating, precarious, or deteriorating).

^qNoticeable decrease in the amount of food usually eaten or fluids usually consumed.

^rWeight loss of 5% or more in the last 30 days, or 10% or more in the last 180 days.

^sMeasured using the Canadian Triage and Acuity Scale (CTAS).

^tMeasured using the Frailty Index Emergency Department (FI-ED).

intake did not decrease significantly for any particular cohort, those receiving home care services were most likely to present with unintentional weight loss (13.4%; $p < .001$).

No Formal Support Services

Older adults receiving no formal support services had the lowest median frailty index scores (0.22; $p < .001$). This cohort was the least likely to present to the ED with an unstable condition or disease (44.5%; $p < .001$). They were also least likely to present with a change in cognitive status (13.1%; $p < .001$).

Post-Disposition Outcomes

Approximately one-half (51%) of all older adults who presented to the ED for care required hospital admission, with 6.4% ($n = 147$) dying during the index hospital stay. There was no difference in the rate of in-hospital death between those with no formal support services (6.6%), home care clients (6.8%), or nursing home residents (6.3%; $p = .13$). Of the remaining 2,127 patients, 31% ($n = 659$) returned to the ED within 30 days of hospital discharge, and 21% ($n = 454$) were admitted for in-patient care within 90 days of discharge. Table 3 displays the unadjusted comparison of post-disposition outcomes across the three ED cohorts.

Table 4 displays the logistic regression model and the probabilities for each outcome across study cohorts, after adjusting for triage acuity and frailty scores. All multivariable models had a good model fit ($p < .05$) using the Hosmer-Lemeshow goodness-of-fit test. When compared to older adults receiving no formal support services, those transferred from a nursing home had an 86% reduction in the odds of being admitted to the hospital for in-patient care (OR = 0.14; 95% CI = 0.09–0.23). Similarly, those actively receiving home care services at the time of ED visitation had a 65% reduction in the odds of being admitted (OR = 0.35; 95% CI = 0.26–0.45).

After adjusting for triage acuity and frailty, the level of formal support was not associated with the occurrence of a repeat ED visit or an extended hospital length of stay. Interestingly, not a single nursing home transfer resulted in an extended hospital length of stay (greater than 20 days). With regard to frequent ED visitation, home care clients had roughly double the odds of returning to the ED two or more times during the 90-day follow-up period (OR = 1.9; 95% CI = 1.39–2.59). Older adults transferred from a nursing home had a 54% reduction in the odds requiring hospital admission within 90 days of hospital discharge when compared to those receiving no formal support services (OR = 0.46; 95% CI = 0.45–0.79). An 0.1 unit increase in the ED frailty index score was associated with all outcomes, excluding frequent ED visitation. Triage acuity was only associated with hospital admission, with those assigned an urgent CTAS score of three or less having roughly twice the odds of being admitted for in-patient care (OR = 2.25; 95% CI = 1.79–2.84).

DISCUSSION

To our knowledge, this is the first study to compare both detailed patient profiles and health service utilization patterns among older ED patients requiring different levels of formal support in the community. We addressed weaknesses in the existing literature by reporting a comprehensive set of geriatric syndromes and functional assessments not commonly available in an emergency setting.

Main Findings

Older adults who receive no formal support in the community were most stable and had the greatest odds of hospital admission through the ED. Home care clients were most likely to

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TABLE 2.
Unadjusted comparison of prognostic factors across different formal support requirements

Variable	No Formal Support (N = 1776)	Home Care Patients (N = 377)	Nursing Home Residents (N = 121)	p
Age ^a	82 (77–86.9)	84.1 (79.5–90)	86.4 (80.3–90.6)	< .001
Gender (Female)	1048 (59.6%)	242 (65.2%)	87 (74.3%)	.001
Caregiver Distress ^b	296 (16.7%)	112 (29.7%)	17 (14%)	< .001
Cognitive Impairment ^c				
Pre-morbid ^d	232 (13.1%)	109 (29.1%)	73 (60.8%)	< .001
Admission ^e	327 (18.6%)	126 (33.8%)	81 (67.5%)	< .001
Potential Delirium ^f	229 (13.1%)	76 (20.2%)	27 (22.5%)	< .001
ADL Impairment				
Bathing				
Pre-morbid ^d	501 (28.6%)	234 (62.3%)	106 (88.3%)	< .001
Admission ^e	921 (53.1%)	289 (76.9%)	108 (90%)	< .001
Acute Decline from Pre-morbid ^g	424 (24.4%)	55 (14.7%)	2 (1.7%)	< .001
Personal Hygiene				
Pre-morbid ^d	203 (11.5%)	107 (28.4%)	69 (57%)	< .001
Admission ^e	387 (22%)	165 (43.8%)	83 (68.5%)	< .001
Acute Decline from Pre-morbid ^g	187 (10.7%)	60 (16%)	14 (11.5%)	.01
Dressing Lower Body				
Pre-morbid ^d	312 (17.6%)	163 (43.3%)	93 (76.9%)	< .001
Admission ^e	674 (38.2%)	232 (61.7%)	101 (83.5%)	< .001
Acute Decline from Pre-morbid ^g	367 (20.8%)	70 (18.8%)	8 (6.6%)	< .001
Locomotion				
Pre-morbid ^d	233 (13.2%)	75 (20%)	80 (66%)	< .001
Admission ^e	695 (39.7%)	181 (48.3%)	94 (77.7%)	< .001
Acute Decline from Pre-morbid ^g	460 (26.5%)	106 (28.5%)	15 (12.5%)	.002
Any ADL Pre-Morbid Impairment ^h	557 (31.4%)	243 (64.5%)	107 (88.4%)	< .001
Any ADL Impairment at Admission ^h	1042 (58.7%)	306 (81.2%)	109 (90.1%)	< .001
IADL Status				
Difficulty with Medications ⁱ	443 (25%)	171 (45.3%)	108 (89.3%)	< .001
Difficulty with Stairs ^j	975 (55.1%)	288 (77.2%)	116 (95.9%)	< .001
Impaired Comprehension ^k	53 (2.9%)	22 (5.8%)	33 (27.3%)	< .001
Conditions and Symptoms				
Poor Self-Reported Health ^l				
Pre-morbid ^d	128 (7.2%)	45 (11.9%)	5 (4.1%)	.002
Admission ^e	335 (18.8%)	94 (24.9%)	12 (9.9%)	.001
Depressive Symptoms ^m	336 (18.9%)	96 (25.4%)	17 (14.4%)	.004
Hallucinations or Delusions	105 (5.9%)	24 (6.4%)	16 (13.2%)	.006
Any Falls (last 90 days)	519 (29.7%)	160 (43%)	49 (41.5%)	< .001
Traumatic Injury	126 (7.3%)	23 (6.5%)	11 (9.5%)	.54
Daily and Severe Pain ⁿ	342 (19.2%)	59 (15.6%)	20 (16.5%)	.22
Dyspnea ^o				
Pre-morbid ^d	352 (19.8%)	87 (23.1%)	19 (15.7%)	.16
Admission ^e	492 (27.7%)	114 (30.2%)	26 (21.5%)	.17
Unstable Condition ^p	797 (44.5%)	221 (58.8%)	72 (59.5%)	< .001
Decrease food/fluids ^q	522 (29.6%)	118 (31.3%)	26 (21.7%)	.12
Weight Loss ^r	141 (8%)	50 (13.4%)	3 (2.5%)	< .001
ED Visitation Prior 90 Days	673 (37.9%)	216 (57.3%)	41 (33.9%)	< .001
Urgent Triage Score (≤ 3) ^s	1388 (78.1%)	286 (75.8%)	88 (72.7%)	.27
FIED Score ^t	0.22 (0.12–0.33)	0.33 (0.2–0.46)	0.45 (0.33–0.56)	< .001

Note: Refer to Table 1 for abbreviations and legend.

TABLE 3.
Comparison of post-disposition outcomes across ED cohorts

<i>Outcome</i>	<i>No Formal Support</i>	<i>Home Care Client</i>	<i>Nursing Home Resident</i>	<i>p</i>
Admitted to Hospital	963 (54.2%)	156 (41.4%)	44 (36.3%)	< .001
Extended Hospital Length of Stay ^a	235 (24.5%)	53 (33.9%)	0 (0)	< .001
Repeat ED Use ^b	488 (29.3%)	125 (35.6%)	46 (40.7%)	.004
Repeat Hospitalization ^c	342 (20.5%)	94 (26.7%)	18 (15.9%)	0.01
Frequent ED Visitor ^d	221 (13.2%)	82 (23.3%)	14 (12.3%)	< .001

^aHospital length of stay greater than the 75th percentile of all admissions.

^bED use within 30 days of ED or hospital discharge.

^cHospital admission within 90 days of ED or hospital discharge.

^dTwo or greater ED visits during the 90-day follow-up period.

TABLE 4.
Adjusted comparison of post-disposition outcomes across ED cohorts

	<i>Odds Ratio (95% CI)</i>				
	<i>Hospital Admission</i>	<i>Repeat ED Use^a</i>	<i>Repeat Admission^b</i>	<i>Frequent ED Visitor^c</i>	<i>Extended Hospital Length of Stay^d</i>
Formal Support Requirements					
Nursing Home Resident	0.14 (0.09–0.23)	1.37 (0.89–2.1)	0.46 (0.25–0.79)	0.86 (0.44–1.56)	–
Home Care Client	0.35 (0.26–0.45)	1.28 (0.98–1.67)	1.2 (0.89–1.6)	1.9 (1.39–2.59)	1.25 (0.82–1.87)
No Formal Support Service	–	–	–	–	–
Urgent Complaint ^e	2.25 (1.79–2.84)	1.12 (0.89–1.42)	0.79 (0.61–1.03)	0.77 (0.58–1.03)	0.9 (0.61–1.33)
ED Frailty Index ^f	1.55 (1.46–1.66)	1.08 (1.01–1.14)	1.1 (1.03–1.18)	1.03 (0.95–1.11)	1.37 (1.26–1.5)

^a ED use within 30 days of ED or hospital discharge.

^b Hospital admission within 90 days of ED or hospital discharge.

^c Two or greater ED visits during the 90-day follow-up period.

^d Hospital length of stay greater than the 75th percentile of all admissions.

^e Urgent triage score defined as a CTAS score of three or less.

^f Measured as the odds of the outcome for every 0.1 unit increase in the ED frailty index.

present with depressive symptoms and distressed caregivers, and they had the greatest odds of utilizing the ED in a frequent manner post-discharge. Despite frequent repeat ED presentation, home care clients were least likely to be admitted for in-patient care following hospital discharge. Nursing home residents presented to the ED with the highest frailty scores and the greatest support needs for daily living.

Comparison to Previous Literature

To date, only one other study has aimed to describe the health service utilization patterns of older ED patients with differing formal support requirements. However, this study had insufficient data to compare geriatric syndromes between the three distinct cohorts.⁽³³⁾ Similar to our study, Wilson and Truman found that home care clients contribute the greatest number of ED visits out of the three cohorts, and nursing home residents had the fewest hospitalizations. In contrast to our study, Wilson and Truman found that home care clients contributed the most hospital admissions and the longest hospital lengths of stay. The prior study is limited by key three factors, which may explain these differences in findings: (a) the prior study only

calculated unadjusted comparisons, while we elected to adjust for triage acuity and frailty, (b) data from the prior study was collected over two decades ago, and (c) the prior study utilized the age of 65 and older in their eligibility criteria, whereas our data were collected on those 75 years of age and older.

Clinical and Policy Implications

Our findings depict high rates of repeat hospital use among older ED patients. Approximately one-third of older adults returned to the ED within a month, and one-fifth required hospitalization within three months of hospital discharge. These findings highlight the importance of adapting ED management pathways to meet the unique needs of older ED patients, as they drive health service use and often present to the ED as the first point of contact.⁽³⁴⁾ As a nexus between the hospital and community-based care, the ED is uniquely situated to set the health care trajectory for older adults in search of medical attention.⁽⁹⁾

We demonstrated the informational value of inquiring about formal support services received in the community. We found that older adults with varying formal support needs

present with different clinical presentations, care requirements, and disposition outcomes. Inquiring about formal support status in the community adds context to clinical decision-making in the ED and provides information to supplement discharge planning. Geriatric referral should be considered during discharge planning, as contact with geriatric medicine services has been shown to decrease future hospital use in older adults.⁽³⁵⁾ This is particularly true for medically stable older adults with lower geriatric complexity.⁽³⁵⁾ In our sample and across Canada, the majority of older adults receive no formal support services in the community, suggesting that most older ED patients would benefit from contact with a geriatrician or geriatric services post-discharge. Interestingly, our study found that community-dwelling older adults without home care services were most likely to be admitted for in-patient care. A possible reason for this finding is that emergency clinicians may assume a certain level of safety when discharging these patients. It may be perceived that older adults actively enrolled in home care or long-term care services are more likely to receive timely follow-up upon return from their hospital visit. However, this belief may be inaccurate, given that many home care clients and nursing home residents receive inadequate care, reporting only partially met needs in their respective care settings.^(36,37)

Finally, our study identified a unique cohort of home care clients who frequently present to the ED without the need for in-patient care, suggesting non-emergent use of the ED and possibly caregiver distress. Insufficient and fragmented home care visits often compel family and friends to act as informal caregivers to supplement the provincially funded care available to them. Thus, screening for the well-being of informal caregivers supporting older home care clients in the ED may be beneficial, as caregiver distress is associated with poor patient outcomes, unwarranted health service use, and increased costs.^(38,39) This is especially true of the many home care clients awaiting long-term care beds, as these complex patients are most likely to require additional support above and beyond home care services.

Limitations

The secondary nature of the study limited our analyses to only those available in the archived data. Diagnostic information would have provided supplementary information and context to better understand the clinical reasoning behind the ED disposition. However, prior work has demonstrated that geriatric syndromes are highly informative and predictive of health service use in older ED patients.^(7,23) Next, data were collected during daytime hours. Patient and visit characteristics may differ during nighttime visitation. Additionally, only 5% of our sample was transferred from a nursing home. While this is representative of the figures across Canada, a greater number of nursing home residents would increase confidence in the inferences drawn from this cohort. Finally, we were unable to provide an adjusted comparison of mortality due to a low event rate in our sample. Future research should aim to replicate this study with larger sample sizes.

CONCLUSION

We found that older adults with varying levels of formal support services in the community present to the ED with vastly different geriatric syndromes, care needs, and health service patterns. Our study demonstrated the informational value of inquiring about baseline formal support requirements. Advanced knowledge of formal support needs in the community can be used to supplement clinical decision-making during emergency management and discharge.

CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

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