

Use of One ER by Nursing Home Residents in New Brunswick

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Abstract

Introduction

Information on emergency room use by Canadian nursing home residents is limited.

Methods

Retrospective chart reviews were conducted on all nursing home (NH) residents who visited an emergency room over a one-year period.

Results

A total of 463 residents were transferred to the ER from nine NHs. The most common reasons for transfer included respiratory problems and falls. The most frequent procedures performed were CBC and chest x-rays. The majority of residents were transferred back to the NH. Of those who were hospitalized (41 per cent) the most frequent admission diagnosis was fractured hip (20 per cent), followed by pneumonia (16 per cent) and congestive heart failure (11 per cent).

Conclusions

An examination of how the acute health needs of NH residents are being met raises questions regarding the efficiency and efficacy of the care they receive. The time has come to critically examine the health care available to this vulnerable group and ensure the care they receive is appropriate and humane.

Key Words

Emergency Room

Nursing Homes

Nursing Home Residents

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Introduction

Nursing home (NH) residents are a distinct group of individuals who generally are more frail, and have more health care problems and functional impairments than their counterparts who live in private homes.¹ In fact, 95 per cent of Canadian NH residents suffer from at least one chronic condition, 80 per cent experience activity restriction due to long-term health conditions, and 72 per cent require nursing care for bathing, feeding,

dressing and ambulation.² Thus, NH residents are a vulnerable group who are at risk of recurrent illness. When residents become ill, they are often transferred to an emergency room (ER) for medical attention.

Transfer of NH residents to an acute care hospital is often required because of inadequate physician coverage³ and limited availability of diagnostic procedures in the home.^{4,5} Furthermore, the mandated staffing ratio in nursing homes has resulted in a small number of registered nurses working with and directing the care done by nursing assistants and aids. So when residents become ill, nurses, who already have multiple demanding roles to perform, are challenged to find the time to provide the necessary care.⁶ Transfer to the ER becomes the only viable alternative to ensure the resident's health care needs are met.

Residents do not always want to be transferred to an ER. According to Burron and colleagues⁷ if given the choice, residents would prefer to have their health needs met in the NH. Moreover, the transfer is generally by ambulance, which can be frightening in itself.⁸ In the ER, residents are further exposed to unfamiliar environments, which are busy and noisy; they are also confronted with health care professionals with whom they are not familiar.⁵ This creates stress on the resident, which can further exacerbate the illness that prompted the transfer in the first place.

Residents of nursing homes have been noted to create unique challenges for emergency personnel.^{5,7,8} It has also been reported that emergency care professionals feel less comfortable working with older adults than they do with younger patients.^{8,9} Nursing staff reported older adults demand more time and energy than younger patients; while physicians have identified challenges in assessing and treating the group. Reasons cited for these difficulties included lack of, or inadequate communication between the ER staff and the transferring facility, multiple medications and co-morbid conditions, complexity of illness in the older adult, inability of the patient to communicate, lack of knowledge regarding the extent of treatment the patient is willing to receive, and lack of education and understanding of the needs of older adults.^{7,8,9}

Moreover, Madden and colleagues¹⁰ report it is often difficult to separate new illnesses from pre-existing conditions, particularly if communication between institutions is inadequate. As a result, physicians in an attempt to accurately diagnose and treat, may over-treat, under-treat or misdiagnose.¹¹ Madden et al.¹⁰ discovered in a recent study that up to 25 per cent of older adults assessed and treated in the ER were misdiagnosed.¹¹ Information on the use of Canadian ERs by NH residents is not available. Previous studies on the use of the ER by NH residents in other countries suggest many of the acute health needs of residents could have been managed in the NH if adequate supports were available.^{9,12} The following reports on the use of one Canadian ER by NH residents over a one-year period. The findings reported are those of a pilot study, with the larger study examining the use of ER services by NHs across the province. These findings will be reported at a later date.

Methods

Retrospective chart reviews were conducted on charts of all residents who visited one ER in New Brunswick over a 12-month period. The hospital where the study took place is a large teaching hospital with 529 beds. There are nine NHs in the immediate area that utilize the ER having a total of 767 beds. Data was collected after research and ethical

approval was obtained from the hospital and the university where the researcher was affiliated.

Statistical analysis

Using a standardized tool, a research assistant collected data from each ER cover sheet. Data collected was entered into SPSS 11.5 statistical software. Descriptive statistics were calculated on demographic data, mode of arrival, chief complaint, labs/studies ordered, treatments/procedures performed, consults and disposition. Expected usage rates were calculated for age groups (64 and under; 65-75; 76-85; 86 and over) and usage by NH under the hypothesis of homogeneous usage with a chi square goodness of fit procedure. Frequency distribution tables were also constructed to identify peak times of day, and day of week usage times.

Results

Between April 1, 2002 and March 31, 2003, a total of 463 NH residents visited the ER. Of these, 14 were transferred directly from emergency departments in nearby rural areas for further assessment and were therefore excluded from the study. A total of 449 charts were included in data analysis.

The age of NH residents who visited the ER ranged from 48 years to 104 years, with a mean age of 81.98 years (SD 10.476). Of those, 66.8 per cent were female (n=300) and 33.2 per cent were male (n=149). Residents over 85 years of age made more visits than any other age group, accounting for 41.6 per cent of all NH visits during the study period. Residents under 65 years of age made fewer visits than any other age group. Using the chi square goodness of fit procedure ($\chi^2 = 139.8$, $df=3$, $p<.001$) the null hypothesis of homogeneous usage of the ER by age was rejected. Of the nine NH in the region who used the ER, two facilities accounted for almost 60 per cent of all visits. Using the chi square goodness of fit procedure ($\chi^2 = 134.38$, $df=8$, $p<.001$) the null hypothesis of homogeneous usage of the ER by facility was rejected. Table 1 outlines actual versus observed ages and facilities of residents in study.

Table 1. Actual versus Observed Ages and Facility of Residents

Ages	Actual	Observed in the ER
Under 65	47 (6.12 per cent)	35 (7.79 per cent)
65years-75years	71 (9.35 per cent)	62 (13.8 per cent)
76years-85years	299 (38.9 per cent)	165 (36.7 per cent)
86 years and Over	350 (45.6 per cent)	187 (41.6 per cent)
TOTAL	767	449

Facility	Actual # of Residents in ER per facility	Observed # of Residents per facility
1	79 (10.3 per cent)	42 (9.4 per cent)
2	80 (10.4 per cent)	36(8.0 per cent)
3	46 (6.0 per cent)	10(2.2 per cent)
4	148 (19.3 per cent)	45(10.0 per cent)
5	48 (6.3 per cent)	3 (0.67 per cent)
6	40 (5.2 per cent)	17 (3.8 per cent)

7	66 (8.6 per cent)	38 (8.5 per cent)
8	194 (25.3 per cent)	183(40.8 per cent)
9	66 (8.6 per cent)	75 (16.7 per cent)
TOTAL	767	449

More visits were made to the ER during the winter months, with almost 47 per cent of all visits occurring between December and March. In contrast, the fewest number of visits occurred during the month of August (2.4 per cent). Almost 60 per cent of all visits occurred during the day between 7:00 a.m. and 6:00 p.m., with only nine per cent of visits occurring during the night shift, between 11:30 p.m. and 7:00 a.m. There was little variation in frequency of visits by day of week, in particular, there were no more visits on weekends than during the week. In fact, fewer residents visited the ER on Saturday and Sunday combined than any two days during the week.

Figure 1. Number of visits by day and month

[note: insert figure 1 tables]

The most common reason for transfer to the ER was respiratory symptoms, which included shortness of breath and cough, accounting for nearly 26 per cent of all visits. Falls were the next most frequent reason for visiting the ER and accounted for almost 22 per cent of visits. Other common reasons included, in decreasing order of frequency, cardiac complaints, which included chest pain, palpitations and bradycardia, abdominal pain, weakness, vomiting, generalized pain, decreased level of consciousness and urinary problems, which included urinary retention and blocked catheters. Table 2 outlines presenting complaints of residents seen in the ER during the study period. As noted below, residents presented a broad range of complaints.

Table 2. Presenting Complaints (n= 447)

Presenting Complaint	Total #	Per cent of Visits	Per cent Admitted (n)
Respiratory	115	25.6 per cent	54 per cent (62)
Falls	97	21.7 per cent	42 per cent (41)
Abd Pain	26	5.8 per cent	46 per cent (12)
Cardiac	25	5.8 per cent	48 per cent (12)
Weakness	24	5.4 per cent	63 per cent (15)
Vomiting	23	5.1 per cent	61 per cent (14)
Urinary Problems	21	4.7 per cent	9 per cent (2)
Generalized Pain	19	4.2 per cent	26 per cent (5)
Decreased LOC	15	3.3 per cent	26 per cent (4)
Seizure	12	2.7 per cent	25 per cent (3)
Leg Swelling	11	2.5 per cent	0 per cent (0)
Rectal Bleeding	8	1.8 per cent	75 per cent (6)
Infections	7	1.6 per cent	57 per cent (4)
Psychological Distress	5	1.1 per cent	20 per cent (1)
Hypo/Hyperglycemia	6	1.3 per cent	16 per cent (1)

Rash	4	0.9 per cent	0 per cent (0)
Difficulty Swallowing	3	0.7 per cent	33 per cent (1)
Other	25	6.9 per cent	20 per cent (5)

Four patients were pronounced dead in the ER; one was transferred due to a fall (0.8 per cent), one with shortness of breath (0.8 per cent), one with abdominal pain (3.8 per cent), and one with decreased level of consciousness (6.6 per cent).

The most common laboratory test performed was a routine blood test (complete blood count, electrolytes, urea, creatinine and glucose) and was done on 43 per cent of all residents.

Other common laboratory tests performed included cardiac markers (15 per cent), urinalysis (14 per cent), urine for culture and sensitivity (9.6 per cent), and type and screen (8.7 per cent). Residents who presented cardiac complaints, rectal bleeding and abdominal pain were more likely to have laboratory investigations than those with any other complaint; 100 per cent had blood drawn. Other complaints that accounted for high laboratory testing included falls (37 per cent), weakness (80 per cent), vomiting (74 per cent), and psychological distress (40 per cent). Almost 40 per cent of all residents had no blood drawn.

The most common diagnostic procedures performed were X-Rays and electrocardiograms. Twenty-one per cent of residents had no diagnostics tests performed, while 15 per cent had no diagnostics or laboratory procedures performed. The most common treatment rendered in the ER was the administration of intravenous fluids followed by medications. One quarter of all residents had no treatments performed during their visit. Table 3 documents common laboratory tests, diagnostic procedures and treatments rendered in the ER.

Table 3. Common laboratory and diagnostic procedures performed

Test	# of Residents	Per cent of Visits
CXR	217	48 per cent
Routine Blood	194	43 per cent
ECG	172	38 per cent
Cardiac Markers	67	15 per cent
Hip XRay	66	15 per cent
Abd Series	47	11 per cent
Urine Culture	43	10 per cent
Blood Cultures	39	8 per cent
Pelvis Xray	25	6 per cent
*Ct Scan	14	3 per cent
Treatment Rendered		
IV Fluids	179	40 per cent
IV Meds	135	30 per cent
Oral meds	94	21 per cent
Oxygen	67	15 per cent
Catheter	47	10 per cent
Puffers	39	9 per cent
Dressing Changes	9	2 per cent

Enema 8 2 per cent
Ct Scans; 8 head, 1 abdominal, 2 hip, 2 chest, 1 neck

Forty-three per cent of all residents received at least one consult. Of the 195 residents who were consulted to specialty services, 11 were consulted to two different services while one was consulted to three different services, for a total of 208 consults. Residents were consulted to a hospitalist (a family physician with hospital admitting privileges) more than any other service, accounting for a total of 81 or almost 40 per cent of all consults.

Other services frequently consulted included orthopedics (22 per cent), internal medicine (13 per cent), surgery (10 per cent), urology (four per cent) and cardiology (three per cent). No medical diagnosis was documented for five residents. Of the 444 residents who had a documented diagnosis, the most common was fracture (13 per cent) followed by pneumonia (11 per cent) and urinary problems (six per cent). The majority of residents were transferred back to the NH after being assessed by ER personal (57 per cent), while 42 per cent were admitted and one per cent died in the ER.

Since it is common for admitted patients to remain in the ER for one or more days prior to being transferred to a hospital bed, and because the ER chart only requires the documentation of the time patients leave their department and not the date, it was impossible to determine the average length of stay in the ER. Records obtained from the local ambulance service demonstrated the average time required to transfer a patient from a NH to a hospital was 55 minutes. Thus, for the 447 residents who arrived by ambulance (data on mode of arrival was not recorded for two residents) 410 hours were required to transfer the residents to the ER.

Discussion

Limited data is available on the health of NH residents in Canada. Even less is known about the availability and accessibility of medical care to meet their health needs. Data from this study provides a beginning understanding of the health needs of this cohort. Findings demonstrated the broad range of clinical complaints that require ambulance transfer from NHs to one ER. The frequency of transfers that occurred during regular working hours was surprising, considering these hours generally represent those times when staffing levels are highest and physicians are most easily accessible. The availability of health services during regular working hours may have reduced the number of transfers required. The most frequent reasons for hospital transfer were respiratory complaints and falls, accounting for almost half of all visits. It was not the intent of this study to determine if transfers were appropriate or to determine quality of care within each home. However, examination of data raises questions regarding consistencies in practice and access to health care. For example, almost half the falls that presented to the ER were from one facility, while a second facility had no residents presenting the same complaint.

Since it is well known that falls are a common occurrences amongst older adults, particularly those in long-term care, it is unknown if some facilities have significantly more falls, or if others facilities assess residents on site when they do fall. Regardless, criteria for transporting residents to ERs within each facility should be examined to

ensure equal access to health care for all residents, regardless of the facility where they reside.

In Canada, like most other countries, people over the age of 65 constitute the fastest growing segment of the population. Within this group, the largest growth is amongst those 85 years of age.¹³ Although only a small percentage of older adults actually require long-term care in their later years, the likelihood of institutionalization rises with age. For example, in 2001 only four per cent of all Canadians over 65 years of age were living in an institution as compared to 41 per cent of those 85 years and older.¹³ With the projected aging of the population, it is expected that demand for long-term care will grow, particularly for those 85 years of age and older.

In the current study, those over 85 years accounted for almost 42 per cent of all visits. If demographic predictions are true, these numbers will continue to rise resulting in a higher proportion of older residents (over 85 years) who have more health problems. If current practices remain unchanged there is potential for a substantial increase in the demand for acute care services by NH residents. Alternate strategies to meet the acute health needs of residents should be explored. Given the difficulties many homes have in accessing physicians, incentive programs, such as modest financial compensation, could be offered by governments. Nursing homes can also offer family physicians space within their facilities to operate their offices in return for their services. NHs could adapt a workload measurement system, similar to that in most acute care hospitals, where staffing would be dictated by resident acuity and not by mandated staffing ratios. If staffing patterns reflected workload requirements, many residents may be able to be cared for in the home and not require transfer to the ER. The provision of basic acute health services within the NH's could also be explored.

In an earlier study³ hospitalization of this population was reduced by as much as 50 per cent by allowing NHs to manage intravenous. However, if such practices are to be considered in Canada, they must be accompanied by appropriate increases in staffing and educational opportunities for nurses in the long-term care.

Although all NHs in this study provided 24-hour care by RNs (registered nurses), data showed many of the residents were transferred to the ER for issues that fell within their scope of practice. Yet, for unknown reasons, decisions were made to transfer residents from NHs to the ER. For example, nine residents required dressing changes, and 21 had urinary problems that required catheterization or unblocking of an existing catheter. It would be interesting to examine the criteria used to determine when a resident requires transfer to an ER and the factors considered in these decisions. The effects of government cuts to NH budgets, decreased RN to resident ratio and limited availability of ongoing educational opportunities for staff in these settings should be explored. The implications of existing policies within these NHs should also be explored. For example, in New Brunswick, NH policy restrict the scope of practice of RNs by specifying the type of care nurses can provide and the frequency of procedures.

As well, RNs are only permitted to perform dressing changes up to three times per day; residents requiring more frequent changes may be required to leave the home for a higher level of care. The use of oxygen is also restricted. Residents requiring oxygen therapy may require hospitalizations although the NH has nursing staff to monitor and administer its use. These practices have broader implications for residents, nursing staff and health care in general.

For residents, this means they may either not receive a treatment that would be beneficial, or they must leave their NH and be admitted to hospital. For nursing staff, they are denied the opportunity to provide the basic nursing care they are qualified to perform - care they know will enhance the health and well being of those with whom they are entrusted. It can also be very demoralizing for nurses, sending the implicit message that they lack the prerequisite knowledge and skills, which can lead to burnout and negatively impact recruitment and retention. For the hospital sector, they may be required to admit patients that could otherwise remain in the HN.

Considering the health and functional profile of residents within long-term care facilities in our country² it was not surprising the residents in this study required ambulance transfer from the NH to the ER. Although information was not obtained on treatments received by the attendants during the transfer, data received from ambulance service indicated the average time required for transfer in this population was 55 minutes per resident per call. With 447 residents who were transferred to the ER by ambulance (data not recorded for two residents) and 253 residents sent back to the NH, a total of 642 ambulance hours were required to transport residents to the ER for health care. The strain this placed on the emergency resources within the geographical area was substantial. For example, in this study alone, a total of 16 weeks of one emergency vehicle was required. Considering each ambulance was staffed with two paramedics, a total of 1284 paid hours for paramedic services were required for transport only. Although it appears that many residents were acutely ill and required rapid transport by trained professionals, many did not. Current practice of ambulance transfers for all ER visits has repercussions for society as a whole by affecting overall access to ambulance services and placing a heavy drain on public funds. Alternate means of transport for health care should be explored, particularly for residents with non-acute complaints, such as sore fingers, problems with catheters and dressing changes.

Although beyond the scope of this study, it would appear many of the transfers could have been avoided if NHs had access better access to health care. For example, seven residents arrived in the ER with diagnosed infections that required follow-up. Data on the availability of physician services in Canadian NHs is not available,¹⁴ however studies conducted in the United States and the United Kingdom described physician services in long-term care facilities as less than adequate.^{5,7} It is suspected that this is also true in Canada. NHs residents, like older people in general, typically have chronic health problems requiring on-going monitoring if they are to be managed effectively. Without adequate physician coverage within the NHs, subtle changes in these conditions can go undetected leading to exacerbations and acute illness. For example, in the current study, 40 residents presented to the ER with respiratory complaints secondary to congestive heart failure (CHF). It is conceivable that many of these transfers could have been avoided if the resident had appropriate monitoring and adjustment of treatment regimen. Although currently not routinely available in NHs across Canada, nurse practitioners could respond to changes in resident conditions, perform the ongoing assessments and care to residents, potentially preventing unnecessary illness in this cohort. The effectiveness of nurse practitioners in this area is well documented.

Other recognized benefits of NPs in long-term care include the co-ordination of care amongst others involved in the residents' care, including family and significant others, the delivery of formal and informal educational services with NH staff to ensure best

practices, ongoing quality assurance to monitor and respond to issues such as falls, and facilitating early hospital discharge through the provision of following up care post acute illness and hospitalization.^{15,16}

Perhaps the most interesting finding of this study was the lack of co-ordination that appeared to exist between long-term and acute care services. Each represented a separate organization with its own funding and operational policies. It appeared that NHs, when lacking resources or policies to support the provision of appropriate care, could transfer residents to the ER. In turn, ERs accepted the residents, and in many cases, returned the resident to the NH without performing any treatments or procedures. Caught in the middle were ambulance services that spent considerable resources in transporting residents back and forth. The inadequacies created by the separation of acute and long-term care services needs to be further explored.

The results reported in this study do not necessarily reflect the situation across Canada. It must be acknowledged that long-term care in Canada falls within the mandate of individual provinces and territories. Therefore, policies and standards within NHs vary across the country; it is conceivable that NH staff in some provinces/territories may be required to transfer residents more frequently than others. It should also be recognized that residents in this study were probably seen and examined by multiple ER physicians (although this information was not obtained), whose practices could have varied in terms of treatments and procedures, diagnosis given and disposition orders. Finally, because this study involved retrospective chart reviews, results should be interpreted as exploratory only.

Conclusion

A fundamental principle underlying the Canadian Health Care system is equal access to quality health care. An examination of how the acute health needs of NH residents are being met raises questions regarding the efficiency and efficacy of the care they receive. The time has come to critically examine the health care available to this vulnerable group and ensure the care they receive is appropriate and humane.

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