

# Why do older adults in assisted living facilities use the emergency department: Are all these visits necessary?

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## Abstract

**Introduction:** Special Care Home (SCH) residents require supervision for activities of daily living but not regular nursing care. Emergency Department (ED) use by seniors in SCHs is poorly studied. A recent study in Nova Scotia found seniors represented over 20% of ED visits. We studied SCH resident ED visits in a community with a population of 30,000 aged over 65 years and with 785 SCH beds, to define reasons for ED visits to a tertiary ED, and if these could be avoided.

**Methods:** We performed a retrospective chart review of SCH residents' visits to an ED (SCH-ED) which has 56,000 total ED (TED) visits over one year. Reasons for visit, admission data, and avoidability were collected. A geriatrician and ED physician independently reviewed visits. Initial disagreement on avoidability (27%) was adjudicated through case discussion.

**Results:** Demographic data revealed 342 ED visits by 111 SCH residents over one year; 37% of visits resulted in admission. 14.1% of residents visited the ED on at least one occasion (average 3.1 visits); mean age 78.4 years; female 66.7%; ambulance arrival 91.0%. Most SCH-ED visits were Canadian Triage and Acuity Scale (CTAS) Level 3 (63.4%, TED 53.3%). Of CTAS Level 3 visits, 35.3% were admitted (TED 12.9%). SCH-ED visits were potentially avoidable in 40.6% of cases. Gastrointestinal (17.8%), respiratory (15.8%), weakness/altered level of consciousness (12.3%), and pain (9.9%) were the most common reasons for visits to the ED, accounting for 55.8% of total SCH visits. Visits to the ED for Behavioural Problems, Genitourinary symptoms and Pain had the highest rates of potentially avoidable visits.

**Conclusion:** ED visits by SCH residents demonstrated increased acuity and admission rates with a high number of repeat visits. Of all SCH-ED visits, 40% were potentially avoidable. Further study may determine if improved community services reduces ED visits or hospital admission.

## Background

- Older adults (65 years of age and older) use more ED services than any other age groups (1), accounting for as much as a quarter of all visits (2).
- A recent study in Nova Scotia found that older adults represented 21.8% of all ED visits over the course of a year (3).
- Older adults are more likely to present to the ED acutely ill (2), and require a greater proportion of hospital resources including diagnostic testing, consultation, visit duration, and admission (3).
- Older adults have a unique pattern of ED use, commonly presenting for reasons including cardiovascular disease, pneumonia, abdominal disorders, urinary tract infections, and fall-related injuries (3).
- Special Care Homes (SCH) are a type of Assisted Living Facility (also called residential care facilities) for adults and seniors who require supervision for their activities of daily living but do not require regular nursing supervision or medical care, unlike Nursing Homes (NH) (4).
- SCHs vary in size from accommodating as few as two to six residents, while others have over 100 residents (5).
- In terms of hospital usage, little is known about the SCH population.

## Methods

- Retrospective ED and hospital inpatient chart review of residents living in one of 71 SCHs in one city who were seen in the ED between June 1, 2014 and May 31, 2015.
- Data was entered into SPSS and analyzed using descriptive and inferential statistics.
- Ethical approval was obtained from the Research Ethics Board of Horizon Health Network.
- Population estimates and bed numbers were obtained from Statistics Canada (6, 7) and New Brunswick Department of Social Development websites (5, 8).

- A rubric was created by two physicians, a geriatrician and an emergency room physician, to determine whether ED visits were potentially avoidable or not. Subsequently, the two physicians independently assessed all ED visits using the rubric. Initial disagreement on avoidability (27%) was adjudicated through case discussion.

## Results

- There were 344 visits to the ED by 111 SCH residents (14.1% of all SCH residents) over one year.
- Two ED visits were excluded from analysis, as one walked out before being seen and one was pronounced dead on arrival. These two patients had multiple visits and therefore were still part of the study.
- The final sample analyzed consisted of 342 ED visits by 111 SCH residents (3.1 visits per resident)

## Emergency Department Visits

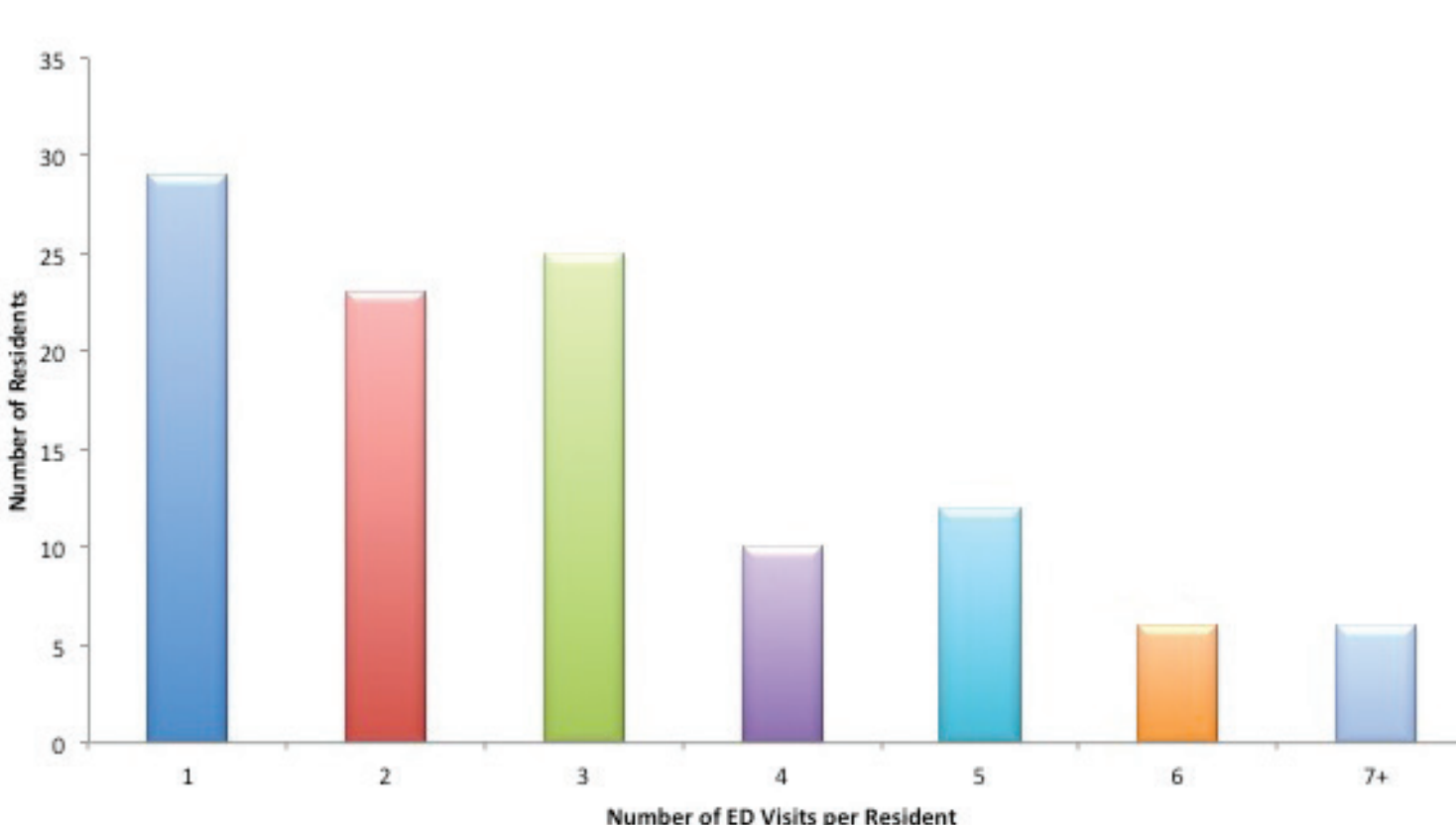
Table 1: Characteristics of Special Care Home Residents seen in the ED (n=111)

Age in Years (mean ±SD)	78.4 ± 13.3
<65 (%)	17 (15.3)
65-69	6 (5.4)
70-74	10 (9.0)
75-79	10 (9.0)
80-84	26 (23.4)
85-89	25 (22.5)
90 or older	17 (15.3)
Sex (%)	
Female	74 (66.7)
Male	37 (33.3)
Marital Status (%)	
Married	24 (21.6)
Widowed	42 (37.8)
Single	31 (27.9)
Divorced/Separated	12 (10.8)
Common Law	2 (1.8)
Number with a Family Doctor (%)	108 (97.3)
Number of visits to ED by ambulance (%)	312 (91.0)

## References

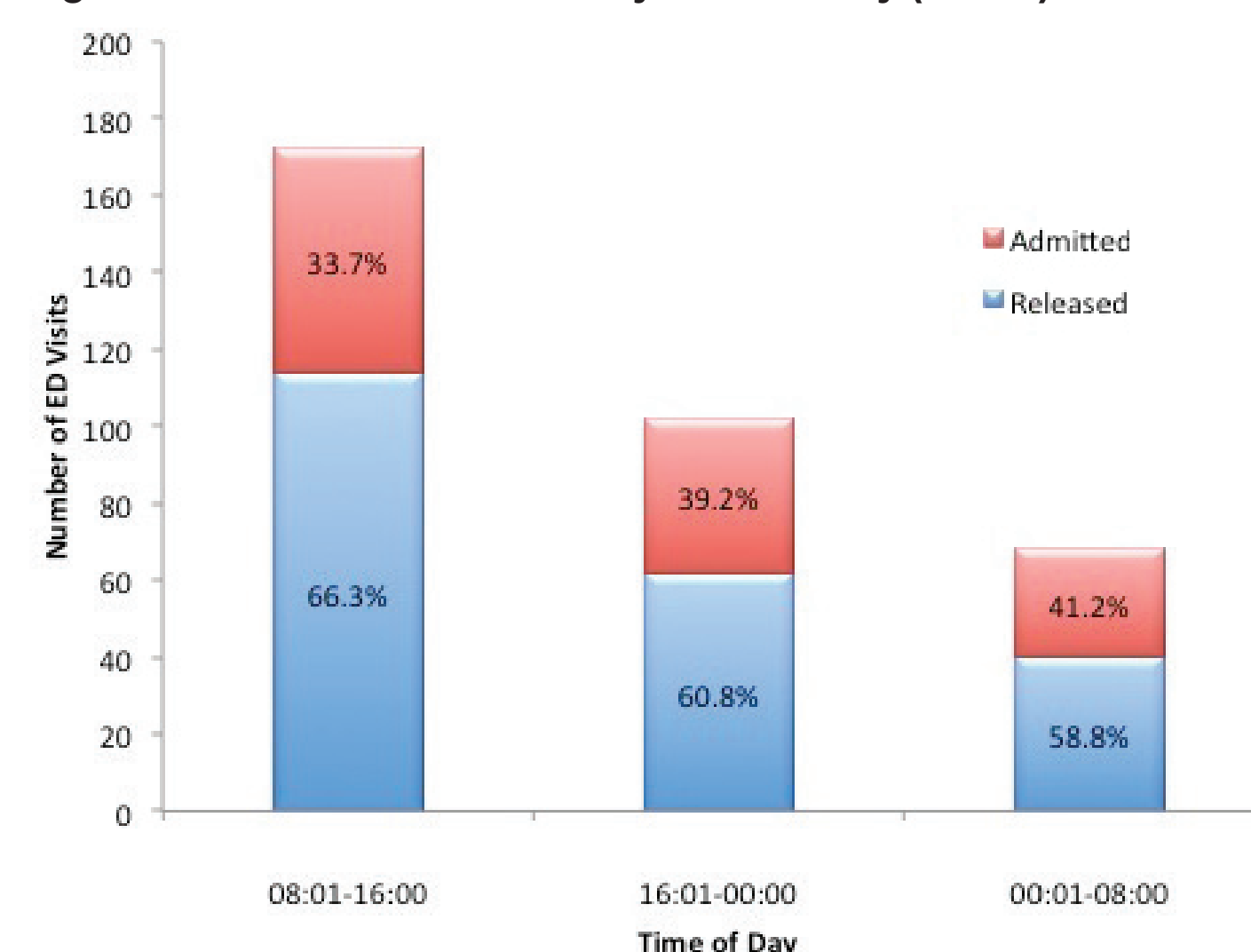
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Figure 1: Number of ED visits per SCH Resident (n=111)



Average of 3.1 visits per resident

Figure 2: Number of ED Visits by Time of Day (n=342)



- The average time spent in the ED was 7.77 hours
  - Non-admitted ED time 4.28 hours
  - Admitted ED time 13.72 hours

Figure 3: Number of ED Visits by Day of the Week (n=342)

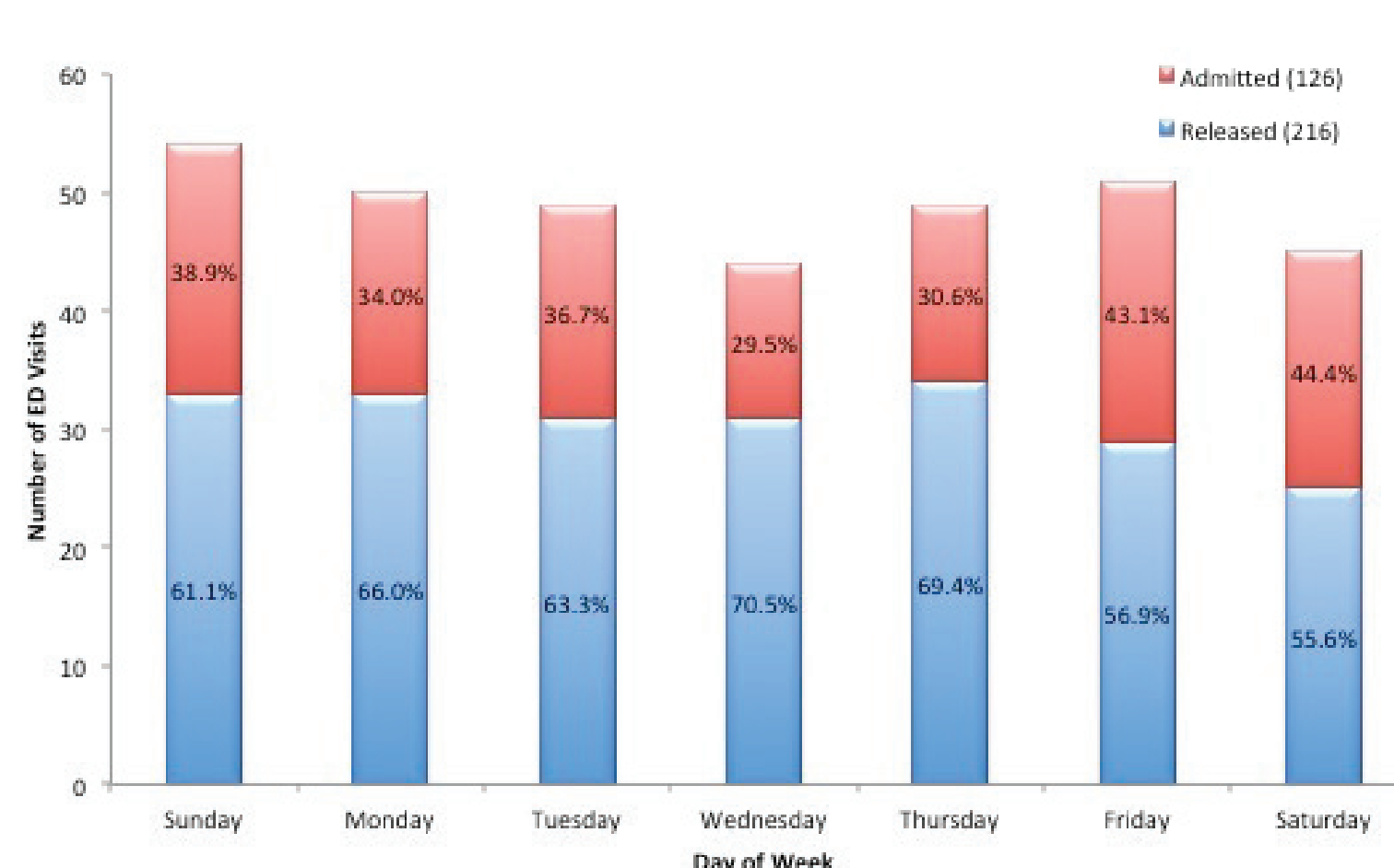


Figure 4: Reasons for ED Visit (n=342)

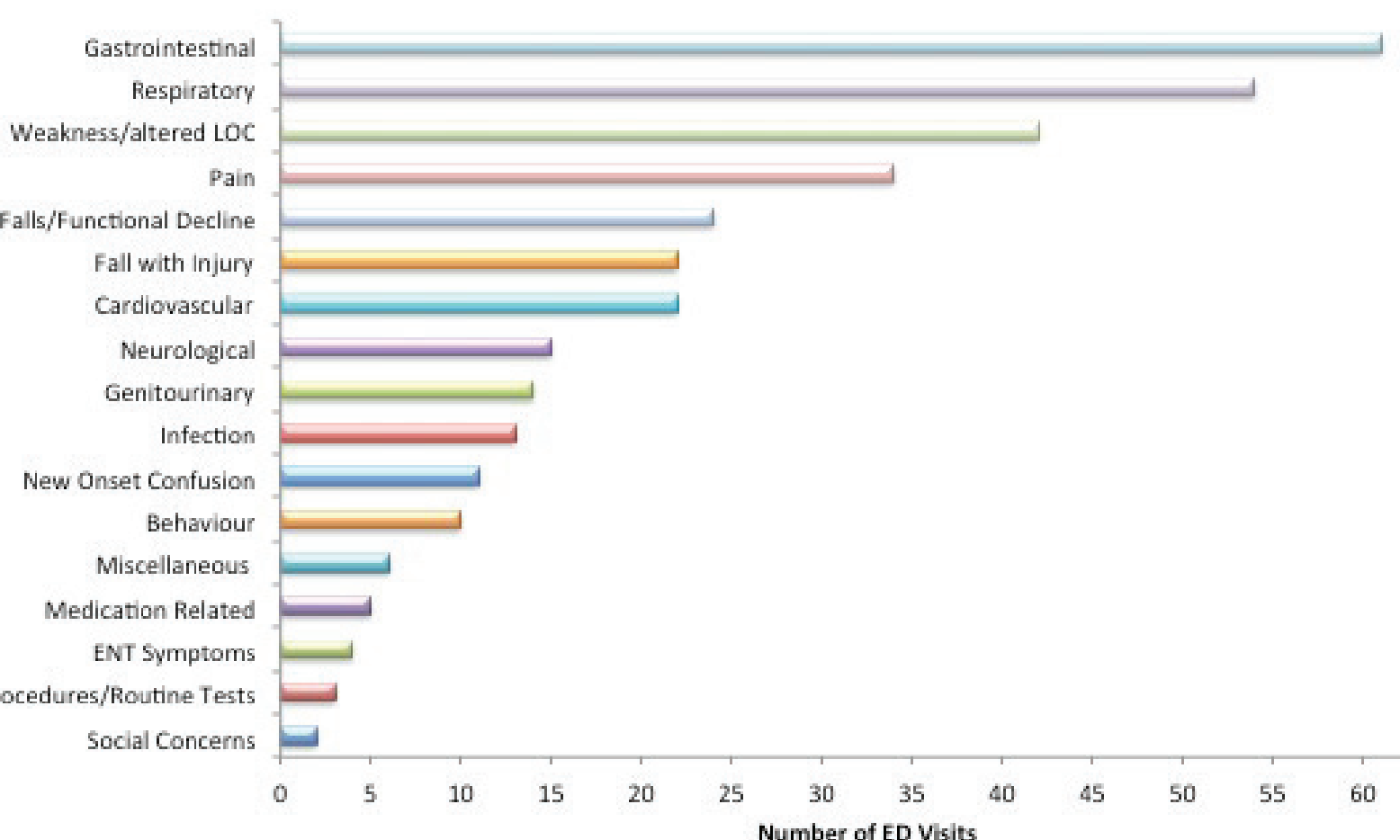


Figure 5: Percentage of ED Visits by CTAS Level

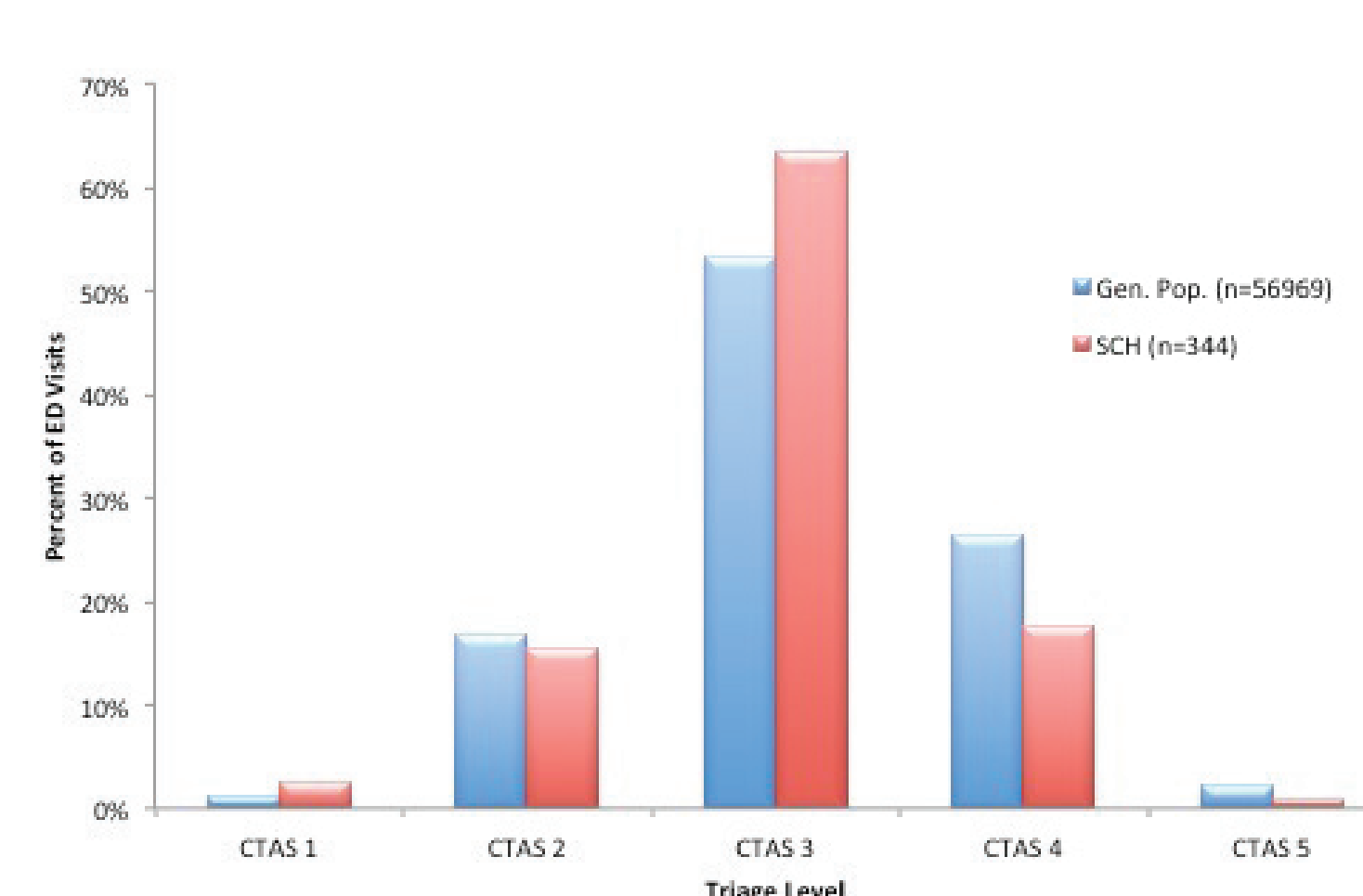


Figure 6: Physician Review of Appropriateness of ED Visits (n=340)

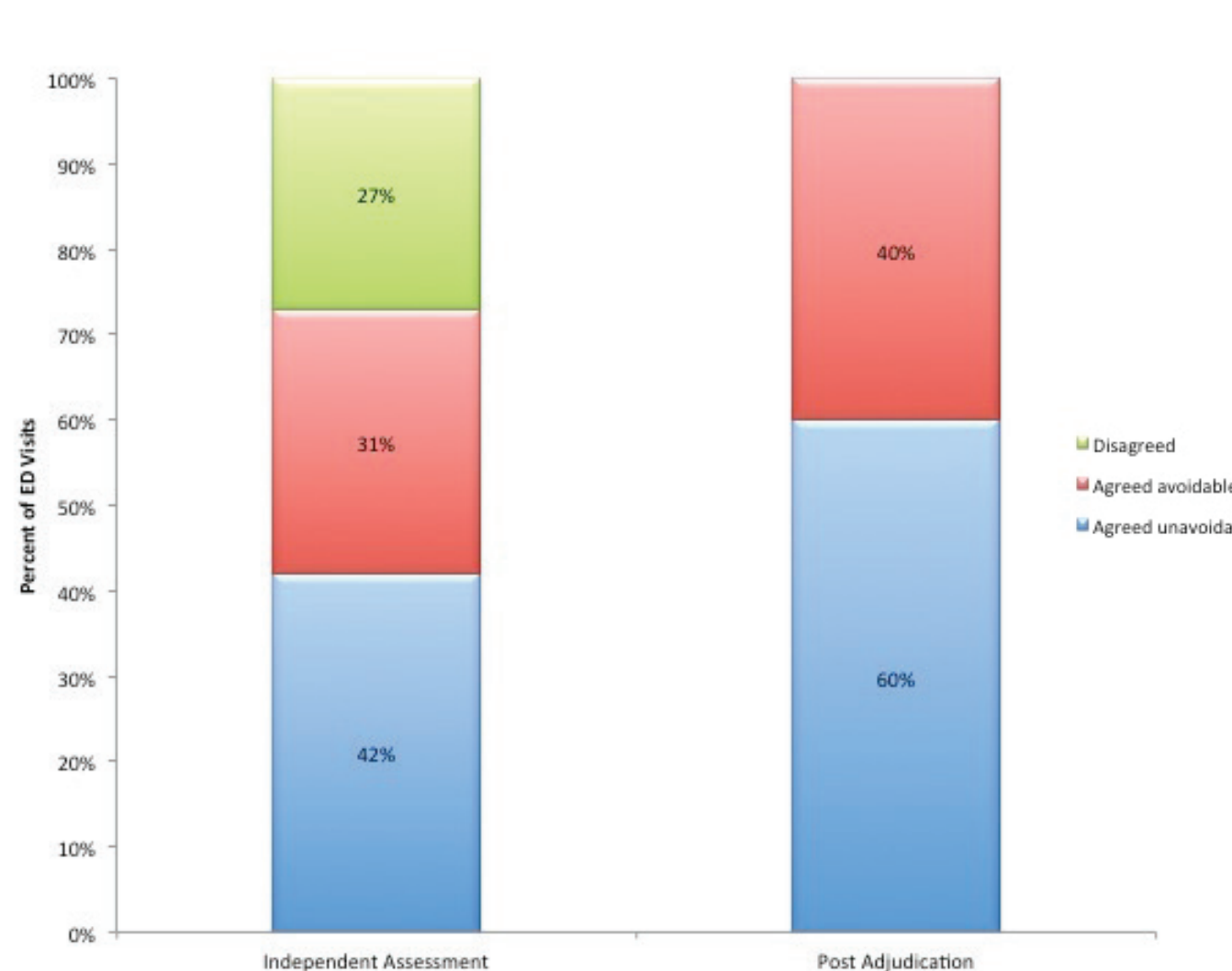
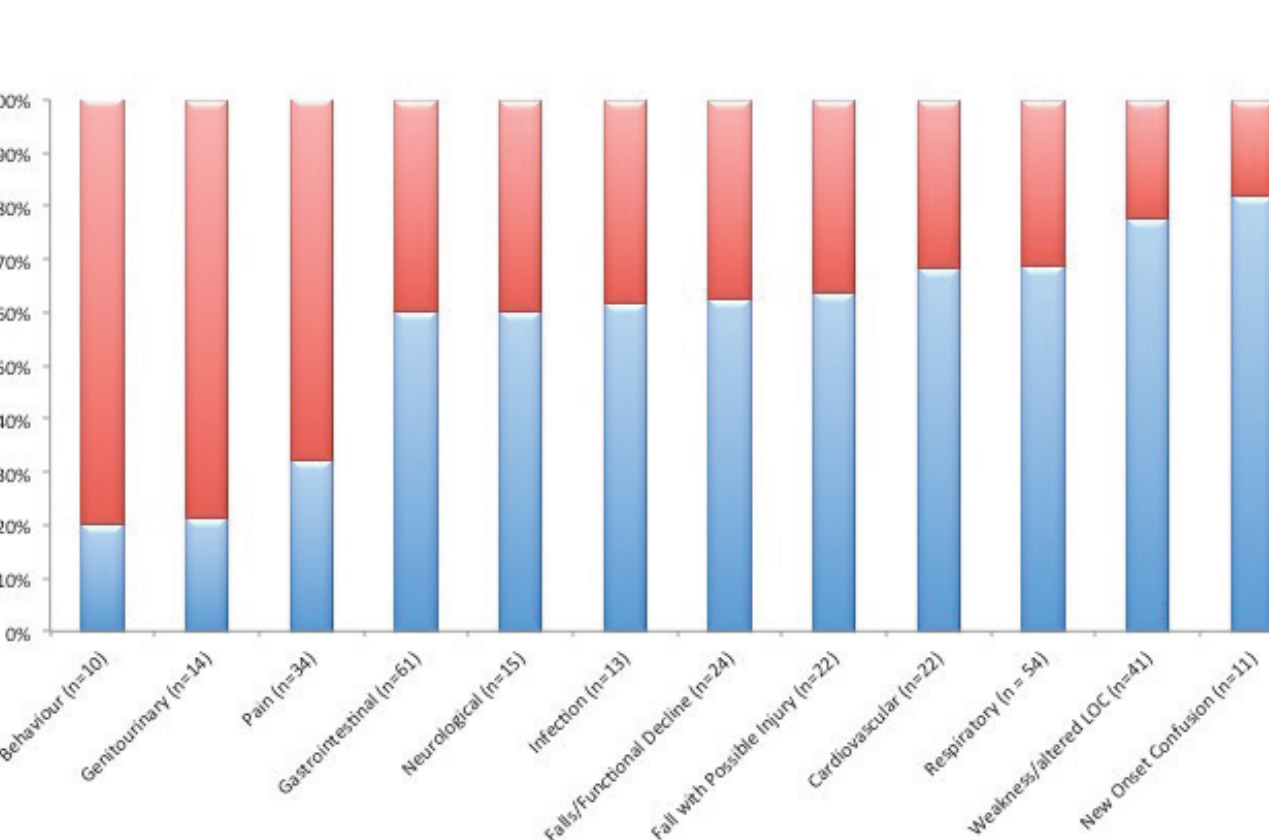


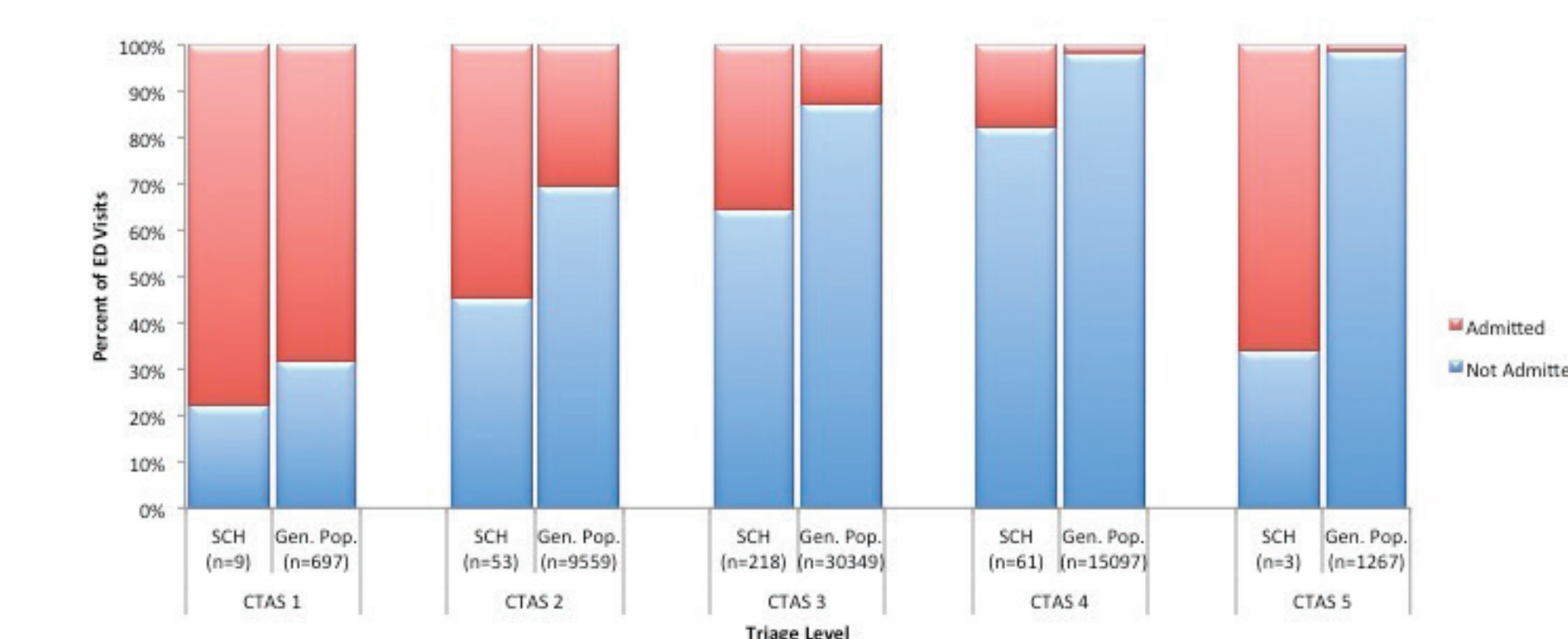
Figure 7: Most Common ED Visit Reasons by Avoidability



## Hospital Admissions from the ED

- Of the 342 ED visits, 126 visits (36.8%) resulted in a hospital admission by 80 SCH residents, compared to an overall admission rate of 13.4% in the total ED population.

Figure 9: Admission Rate of SCH Residents and Gen. Pop. by Triage Level



## Key Findings

- 14.1% of all SCH residents visited the ED on average 3.1 times in a one year period.
- The average time in the ED was 7.7 hours.
- The percentage of ED visits and admissions varied according to the time of day and day of the week.
- The majority of the visits to the ED were for Gastrointestinal symptoms followed by Respiratory, Weakness/altered Level of Consciousness and Pain.
- The majority of the SCH residents' visits to the ED were triaged as CTAS Level 3.
- A physician review of ED visits determined that 40% were potentially avoidable visits.
- ED visits for reasons categorized as Behavioural, Genitourinary and Pain had the highest rates of potentially avoidable visits
- X-rays and ECGs were the most common tests performed during the ED visits, but less so in those who had potentially avoidable visits.
- SCH residents seen in the ED were admitted to hospital at three times the rate (36.8%) of the general population seen in the ED.
- Admission rates were higher for SCH residents for CTAS levels 2, 3, and 4.

## Limitations

- Patients were identified by searching the electronic records in one hospital using data collected in the ED and this was cross checked with addresses. Despite this way of identifying SCH residents visiting the ED, some may have been missed.
- Information about the visits was obtained by a Retrospective chart review.
- Lacks a comparison with residents living in a Nursing Home.
- Special Care homes generally can provide a higher level care than a usual Assisted Living Facility that offers no formalized ADL assistance so these results may not be generalizable to ALL Assisted Living Facilities.
- Data from only one year.
- Data specific to only one health region within one province.

## Acknowledgements

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## Conclusions

ED visits by SCH residents demonstrated increased acuity and admission rates with a high number of repeat visits. Of all SCH-ED visits, 40% were potentially avoidable. Further study may determine if improved community services could reduce ED visits or hospital admissions in this population. Reasons for ED visits related to behaviour, genitourinary tract and pain may be areas that could be focused on as potentially preventable reasons that could be targeted in the community.