

# Describing Senior Fall Patients in North Carolina who Refuse Transport

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## BACKGROUND & OBJECTIVES

- Frequently EMS responds to calls for patients that had simple trips and falls.
- In the younger population these falls might not result in major problems. However, due to the risk factors of aging populations, falls could have serious consequences, even during seemingly minor events.
- Sometimes patients refuse transport following an outwardly minor fall, but there can be significant underlying health issues that cannot be identified without seeking evaluation at the hospital.
- Anecdotally, field providers believe that older patients who refuse transport following a fall often end up calling EMS for care and transport shortly after they refused care.
- Because the EMS patient population is aging, it is important to gain a better understanding of senior patients who refuse transport for traditionally simple injuries, yet find themselves utilizing 9-1-1 services again within 24 hours or one week.
- The objective of this study was to describe North Carolina (NC) prehospital patients that were 65 and older who called 9-1-1 for a fall, refuse transport, and called 9-1-1 again within 24 hours or one week in 2017.

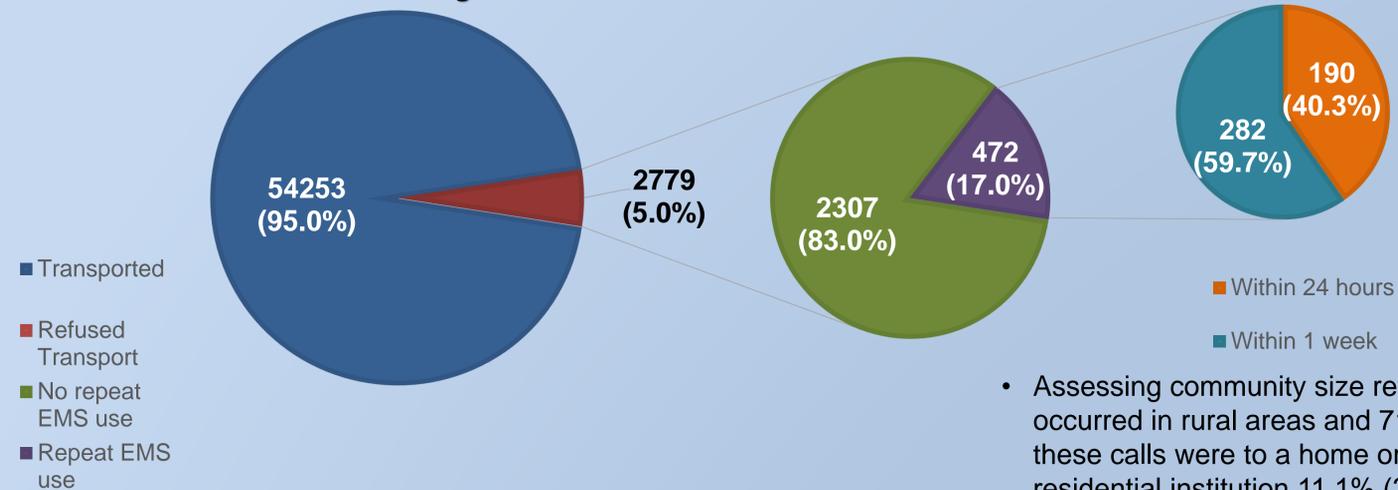
## METHODS

- This retrospective analysis included all 9-1-1 calls from 2017 in which transport was refused and a documented injury cause of “fall” or a documented fall height greater than zero feet was recorded on the Prehospital Care Report.
- EMS calls from the same patient that initially refused transport were also included. Study data were obtained from the NC EMS Data System located within the EMS Performance Improvement Center at the University of North Carolina – Chapel Hill.
- Patient demographics (age, gender, race, and ethnicity), the community size in which the call took place, the incident location, and the EMS provider’s primary impression of the repeat call were evaluated.
- In 2017, NC EMS data was collected in the NEMSIS version 2.2.1 standard and, therefore, categorical data responses described were consistent with this version.
- Comparisons were made among those that had a repeat call within 24 hours and those that had a repeat call within one week.
- Chi-square tests and Fisher’s Exact tests (where appropriate) were performed to assess statistical significance on categorical data. Assessments of continuous data utilized t-tests and/or Wilcoxon Rank Sum tests.
- Data analysis was completed using Microsoft® Excel (Redmond, WA) and STATA® 12.1 (College Station, TX).

## RESULTS

- In 2017, there were 57,032 9-1-1 calls for falls where the patient was at least 65 years old. Of these, 2,779 (4.9%) refused transport. There were 190 fall patients who called 9-1-1 within 24 hours following a refusal of transport and 282 who called 9-1-1 within one week. (Figure 1)

Figure 1: North Carolina Senior Falls Patients



- Of the patients who had a repeat call within 24 hours 47.9% (91) were male and 52.1% (99) were female. The average age was 80.2 years ( $\pm$  8.2). When evaluating race, 7.7% (14) of patients were black or African American, 92.3% (167) were white, and there were no patients categorized as other. There were 0.6% (1) that were Hispanic.
- With respect to community size, 25.8% (47) of these incidents occurred in rural areas and 74.2% (135) in urban areas.
- Further, the majority of these calls were to a home or residence 78.6% (132) followed by a residential institution 8.3% (14), health care facility 7.1% (12), trade or service 3.6% (6), and “other” location 2.4% (4).
- Most of repeat calls within 24 hours had a provider’s primary impression listed as traumatic injury (68.1%, n=62), 9.8% (9) altered mental status, behavioral or psychiatric disorder 3.3% (3), syncope or fainting 3.3% (3), diabetic symptoms 2.2% (2), stroke or CVA 2.2% (2), seizure 2.2% (2), respiratory distress 2.2% (2), poisoning or drug ingestion 2.2% (2), cardiac rhythm disturbance 1.1% (1), hypothermia 1.1% (1), hypovolemia or shock 1.1% (1), and chest pain or discomfort 1.1% (1).

- When evaluating senior fall patients who refused transport and had a repeat call to 9-1-1 within one week, 44.6% (125) were male and 55.4% (155) were female. The average age was 79.9 years ( $\pm$  8.0). When evaluating race and ethnicity, 15.4% (40) of patients were black or African American, 83.4% (216) were white, and 1.2% (3) were categorized as other. There were 2.0% (5) that were Hispanic.

- Assessing community size revealed that 29.0% (81) of these incidents occurred in rural areas and 71.0% (198) in urban areas. The majority of these calls were to a home or residence 77.5% (196) followed by a residential institution 11.1% (28), “other” location 5.9% (15), health care facility 4.4% (11), and trade or service 1.2% (3).
- Also, a majority of repeat calls had a provider’s primary impression listed as traumatic injury (53.5%, n=46), 9.3% (8) syncope or fainting, 7.0% (6) respiratory distress, 7.0% (6) abdominal pain or problems, 5.8% (5) behavioral or psychiatric disorder, 3.5% (3) diabetic symptoms, 3.5% (3) altered level of consciousness, 2.3% (2) cardiac arrest, 2.3% (2) cardiac rhythm disturbance, 2.3% (2) chest pain or discomfort, 1.2% (1) allergic reaction, 1.2% (1) stroke or CVA, and 1.2% (1) hyperthermia.
- When comparing those that had a repeat call within 24 hours to those that had a repeat call within one week, statistically significant differences were noted with respect to race ( $p=0.01$ ), incident location ( $p<0.001$ ), and the provider’s primary impression ( $p<0.001$ ).

## CONCLUSIONS

- Approximately 5% of senior prehospital fall patients refuse transport and, of those, almost 20% end up utilizing 9-1-1 services again within 24 hours or one week. This study emphasizes the need for transport to a hospital following a fall for senior prehospital patients. This study also suggests that it would be prudent for EMS agencies to implement a screening tool to evaluate the appropriateness for refusal as well as develop a Community Paramedic program to follow-up with at risk patients. Future studies should seek to evaluate the outcomes of senior fall patients who refuse EMS transport.

