

Repeat ambulance use by older people was significantly associated with higher subsequent mortality

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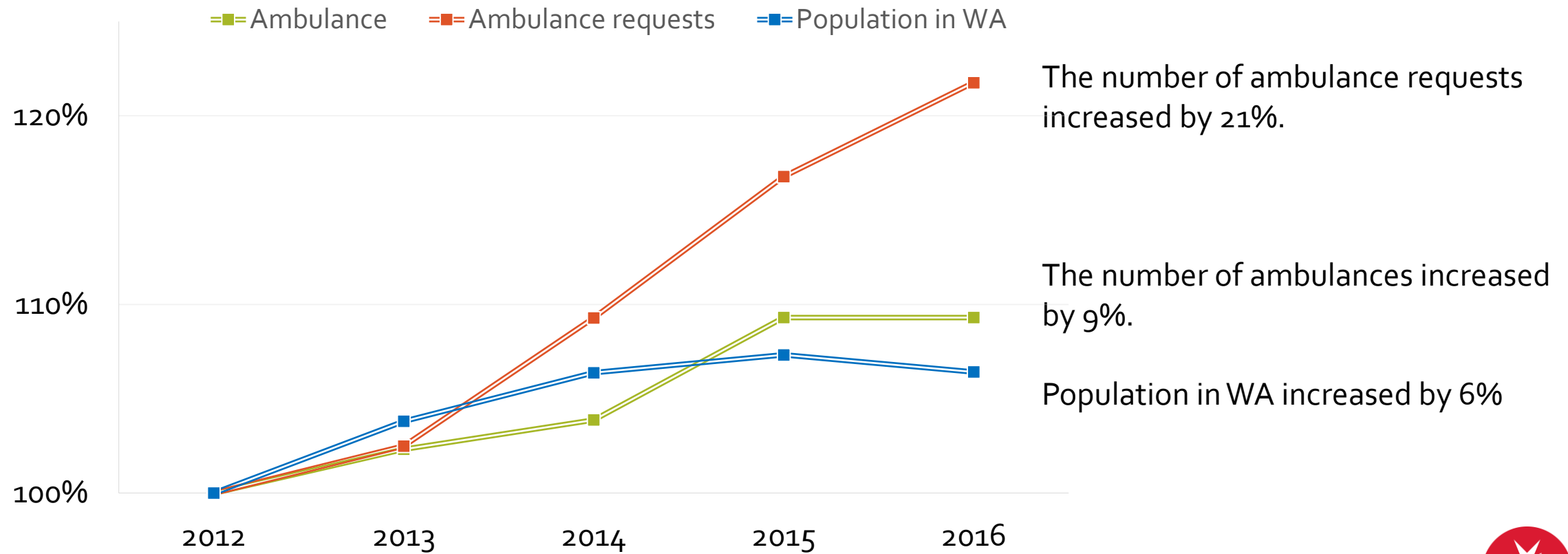
St John

Repeat ambulance users

- People who requested ambulance service twice or more in a certain period
- Singapore: 13.3% of ambulance services were used by repeat ambulance user, which accounted for 2.4% of all patients.
- **Older people** are likely to repeatedly use ambulance services.



Trend of population and ambulance services



Background

- Current available evidence is limited to possible risk factors for repeat ambulance use by older people
- A risk of subsequent mortality of repeat ambulance users is unknown.



Aim

- To determine the association between repeat ambulance use by older people and mortality

Research question

- Is the number of ambulance requests made by older people associated with subsequent mortality within 48 hours and/or 30 days?



Design and setting

- A retrospective cohort study
- Perth metropolitan area, Western Australia in 2016
- St John Ambulance WA: a sole emergency services provider



Data sources

- 2 data sources
 - Data from St John Ambulance WA
 - Western Australia death registry
- These 2 data sources were linked by probabilistic linkage techniques.
- Reported 96% of the accuracy

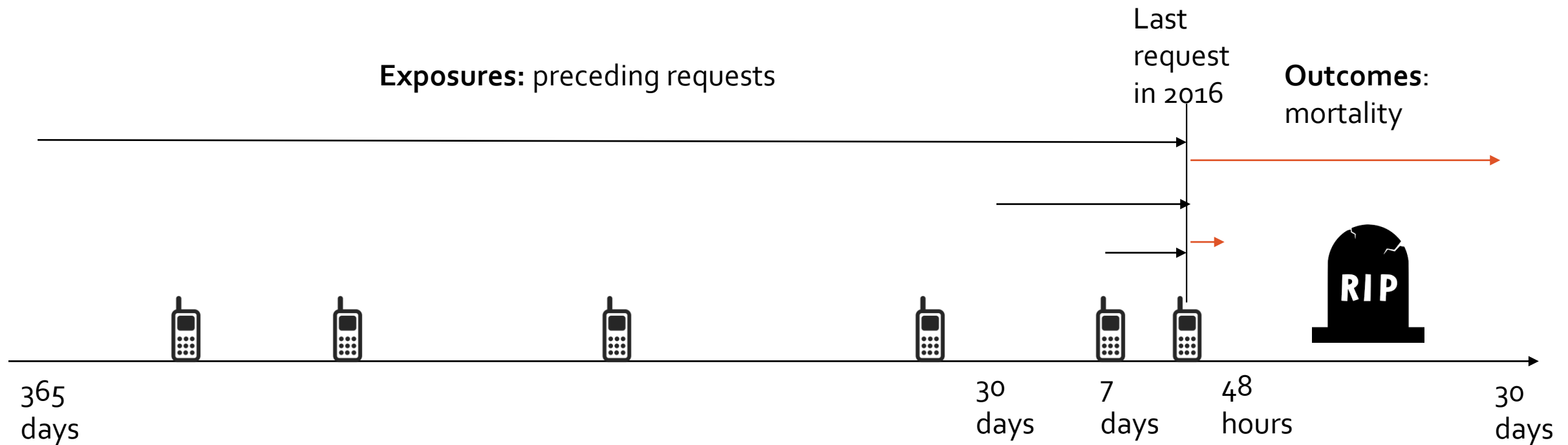


Participants

- **Inclusion:** those who
 1. aged 65 years old or over, and
 2. requested an ambulance at least once in 2016.
- **Exclusions:**
 1. transfers from a hospital,
 2. transports by appointment,
 3. not found at the scene, or
 4. absconded from the scene.



Exposures and outcomes



Analysis

- Multivariate logistic regression analysis
- **Dependent variable:** subsequent mortality within 48 hours or 30 days.
- **Independent variables:** number of ambulance requests in the preceding 7, 30, or 365 days.
- Adjusted for age, sex, triage level determined by paramedics, reason for which an ambulance was requested, type of residence (aged care facility or not)



Results

- Population of people aged 65+ : **191,894**
- Participants: **42,419** unique individuals
- Incidence rate: **22%**
- Mean Age: **80** years
- Female: **55%**



Reasons for ambulance request

Reasons	%
Trauma at home	13.4
Chest pain	8.2
Unspecified illness	6.4
Other trauma	6.1
Abdominal pain	5.3
Respiratory tract infection	4.3

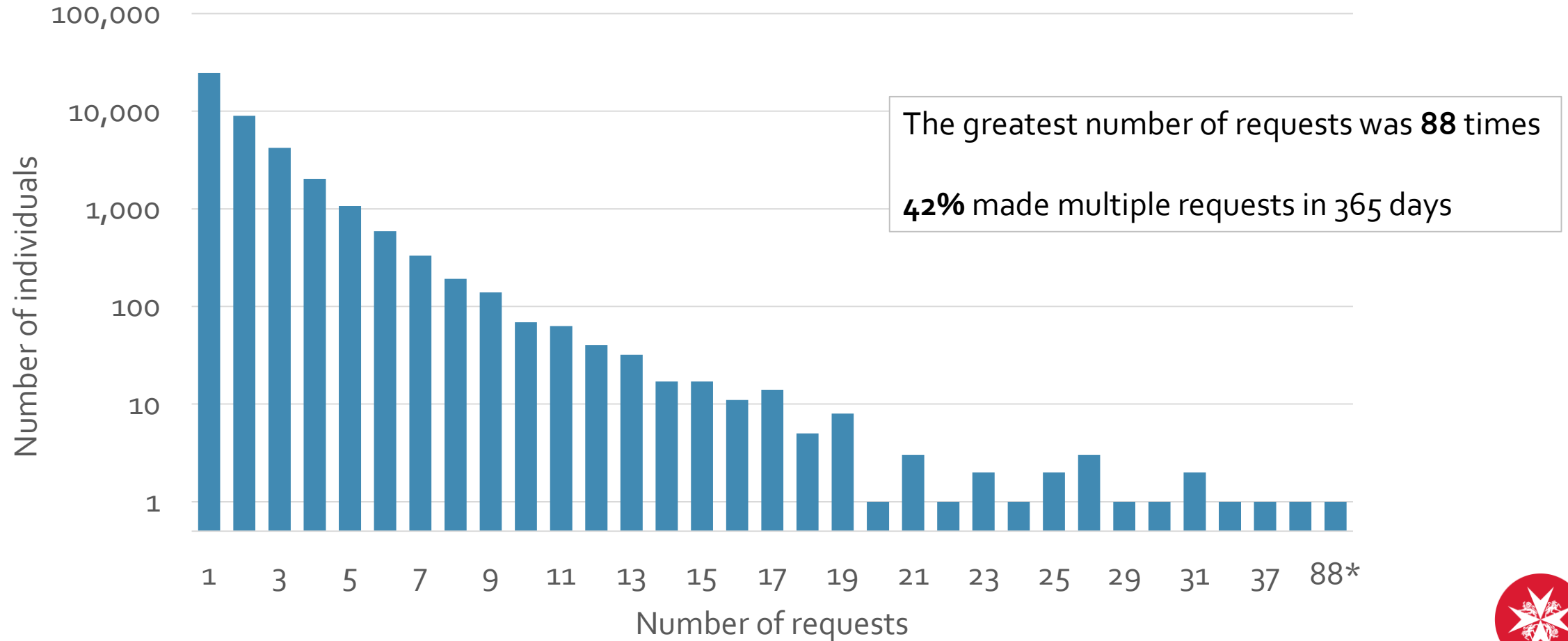


Results

- The number of requests: **69,778** requests made by **42,419** individuals
- Average: **1.6** requests/person/year

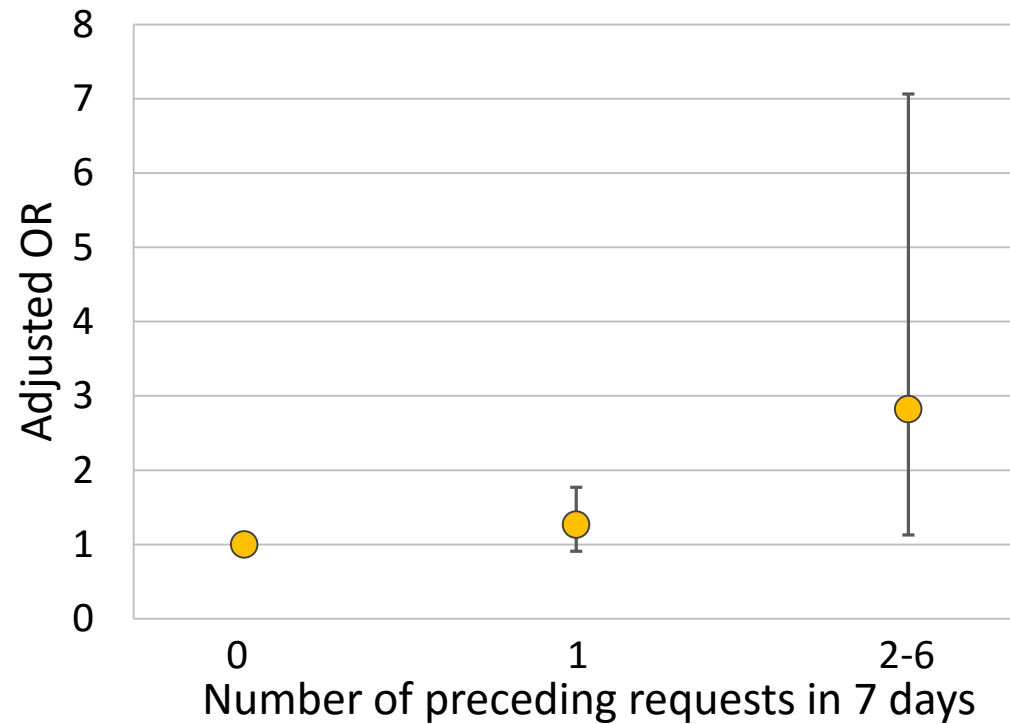


Distribution of the number of requests

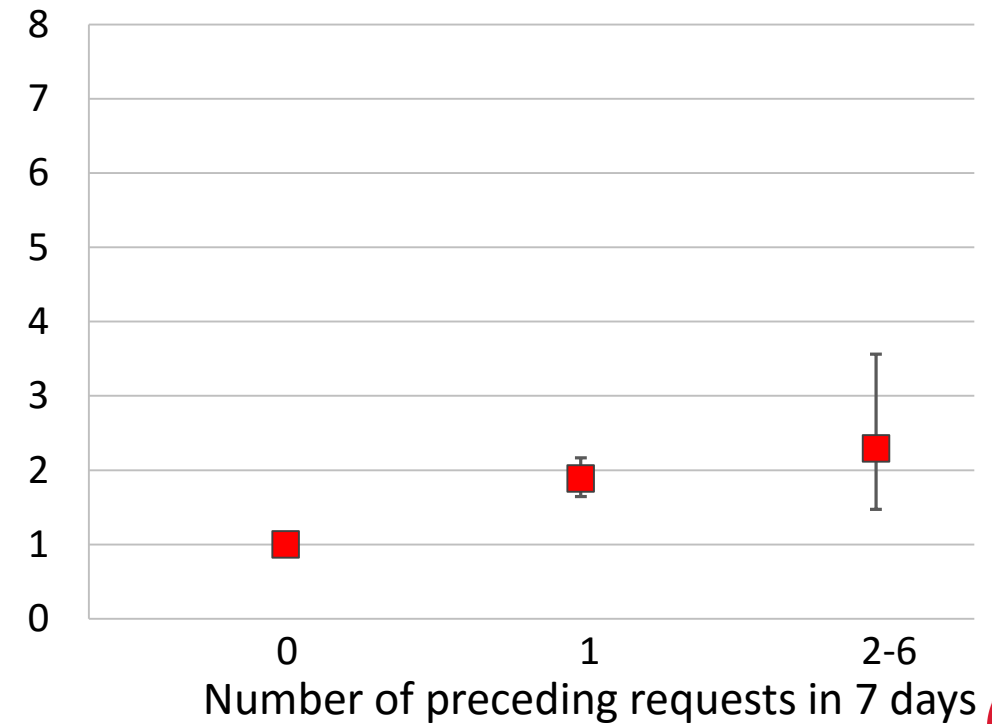


Number of requests in 7 days & mortality

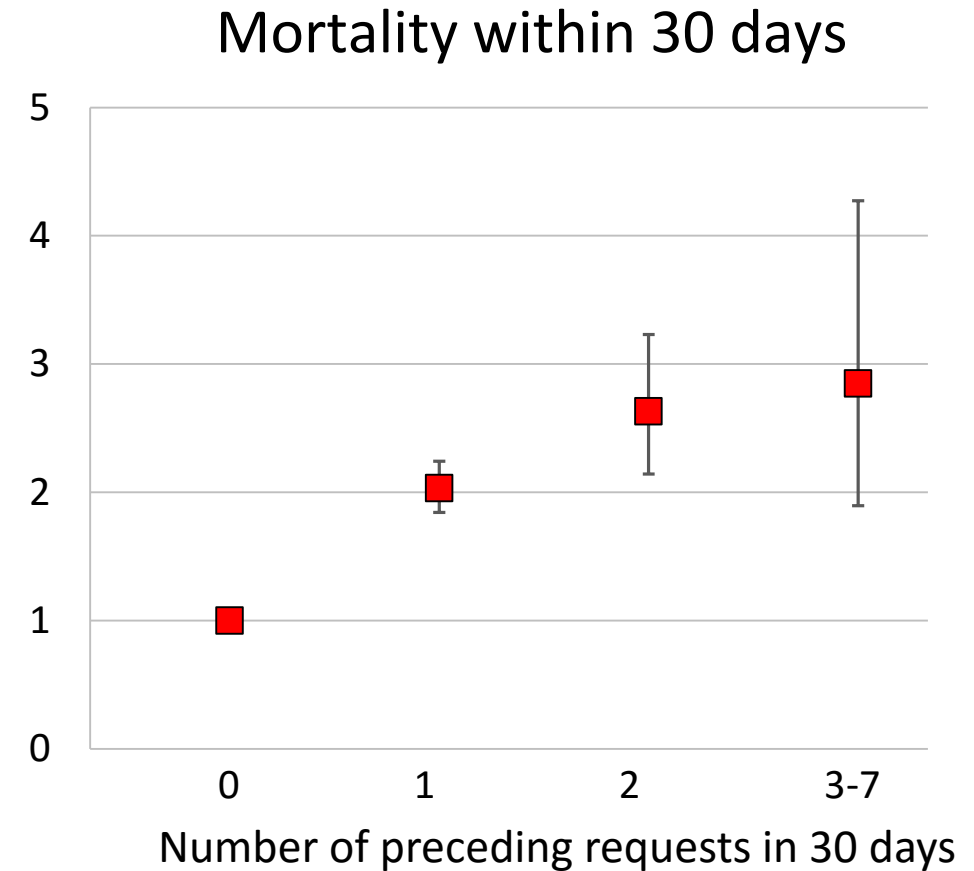
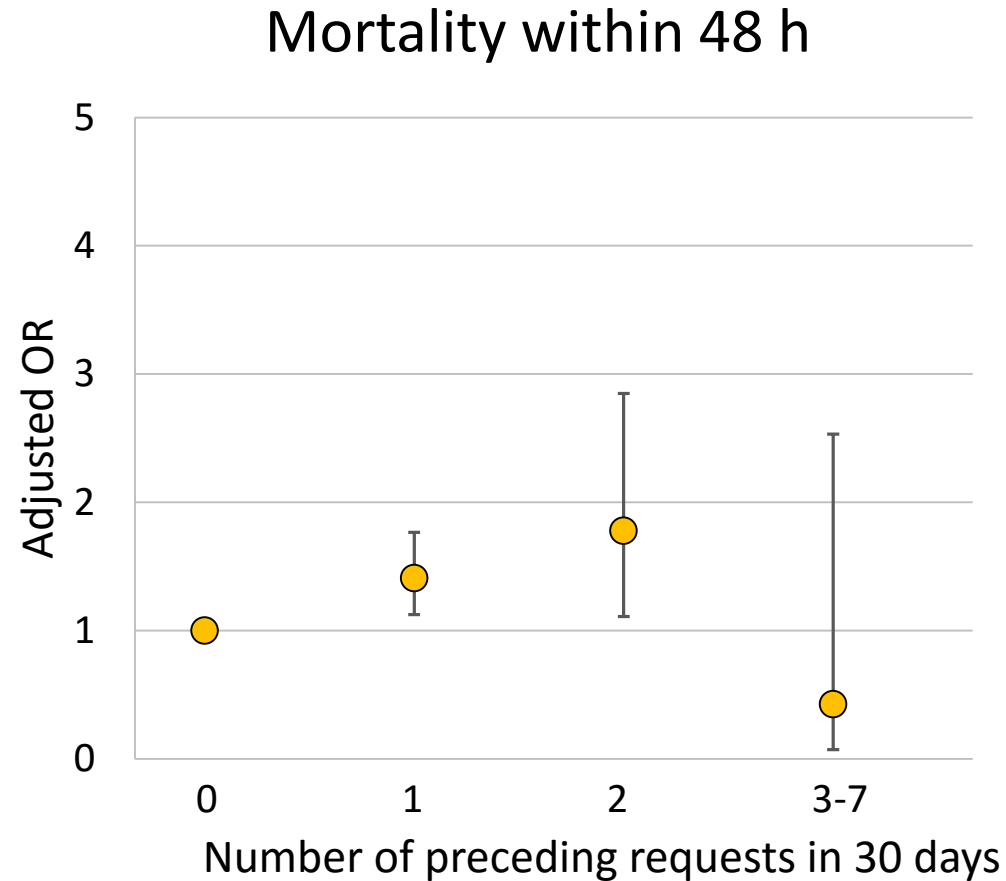
Mortality within 48 h



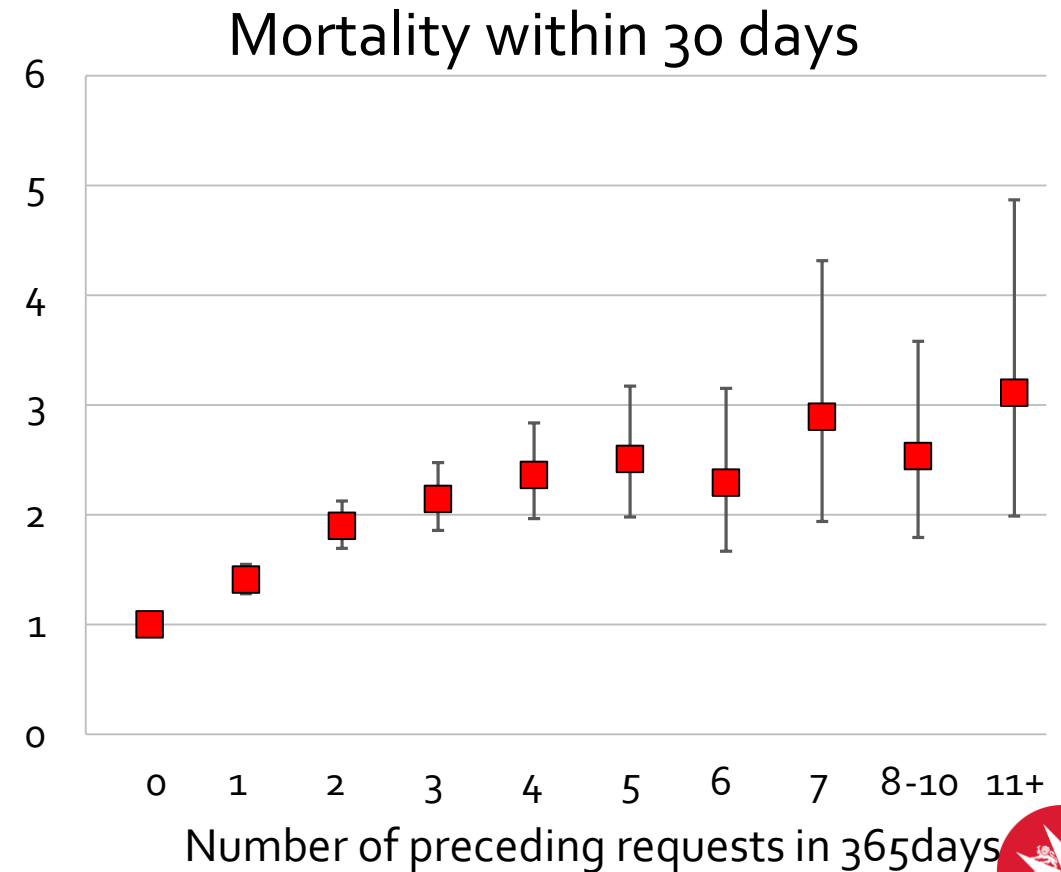
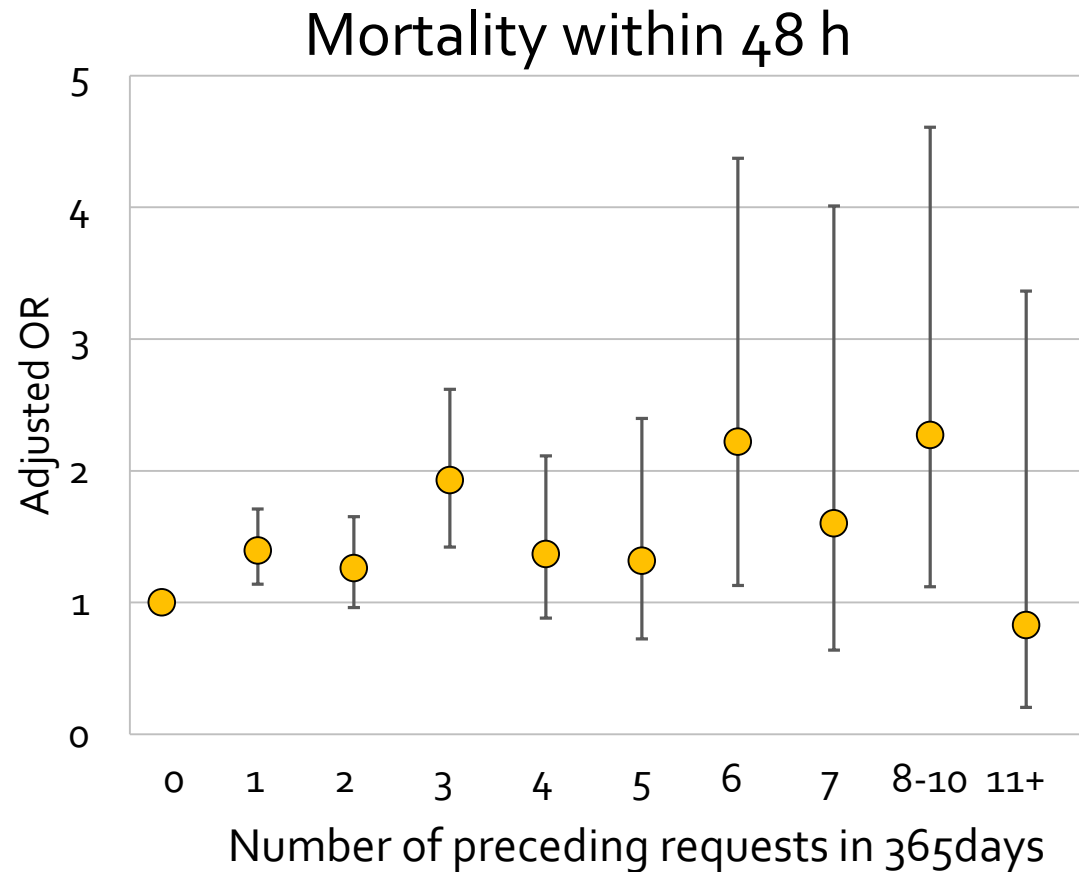
Mortality within 30 days



Number of requests in 30 days & mortality



Number of requests in 365 days & mortality



Summary of results

- 42% were repeat users.
- 30 day mortality was significantly higher in repeat users
- 48 hour mortality fluctuated as the number of requests increased.



Discussion

- A review by Viasus et al. concluded that:
 - Mortality within 48h— severity of the disease upon admission; and
 - Mortality in 30 days — coexisting diseases.
- Repeat use of ambulance may be related to patient's chronic conditions rather than acute conditions.

Review Article

Early, short and long pneumonia

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Contributions: (I) Conception and design: D materials or patients: All authors; (IV) Collection writing: All authors; (VII) Final approval of m

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Viasus D et al. Annals of Research Hospitals. 2018;2:5.



Conclusions

- Repeat ambulance use by older people was significantly associated with higher subsequent mortality.
- The association was evident when using mortality within 30 days as an outcome.
- Alternative protocols to deal with repeat ambulance users may be useful.

