**Emergency Hospital Admissions in Older Adults from Residential and Nursing Homes: Frequency, Characteristics and Outcomes**

**Appendix 1: Supplementary Information for the Methods**

The following information supplements the methodology detailed in the published short report.

Patient Characteristics

We retrieved all emergency admission episodes in older adults (>75 years) presenting to our hospital between 1st October 2014 and 26th November 2016. Patient characteristics and clinical outcomes were available for large scale retrospective analysis due to the introduction of an electronic medical record system, Epic Corporation System.

We were able to retrieve information on clinical frailty and cognitive status since our centre routinely assesses these factors in all older adults (>75 years) who present as an emergency. This is carried out within 72 hours of admission by the Specialist Advice for the Frail Elderly team who operate at the front door of the hospital. Frailty is measured using the Clinical Frailty Scale (permission granted for clinical use by the principal investigator at Dalhousie University, Halifax, Canada) and patients score between 1 (robust) and 8 (very severely frail) with a separate category for those deemed terminally ill but not otherwise frail (category 9). Cognition is assessed using two screening questions: ‘Is there a history of dementia?’ (yes, no) and ‘is there current evidence of acute confusion?’ (yes, no). If either of these were recorded as ‘yes’ then the patient was deemed to have a ‘history of dementia or cognitive concern’.

Illness acuity in the Emergency Department (ED) is recorded using the ED-Modified Early Warning Score. This score ranges from 0–15 and quantifies the deviation of bedside vital signs from the normal range (see Table 1 below). Higher scores indicate higher illness severity, with a score of ≥4 triggering an immediate clinical review in our hospital. The laboratory values retrieved for this study included the following ED point of care blood tests: C-reactive protein (CRP;mg/L), white cell count (WCC; 109/L]) urea (mmol/L), creatinine (µmol/l), and haematocrit (%). Although we did not have information on admission diagnoses, all discharge diagnoses were coded using the tenth version of the World Health Organization International Classification of Diseases and this was used to retrospectively calculate the Charlson Co-morbidity Index for each patient.

**Supplementary Table 1: The Emergency Department Modified Early Warning Score**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **3** | **2** | **1** | **0** | **1** | **2** | **3** |
| **HR** | <40 | 41-50 | 51-60 | 61-90 | 91-110 | 111-129 | >130 |
| **RR** | <6 | 7-8 | - | 9-14 | 15-20 | 21-29 | >30 |
| **SBP** | <70 | 71-80 | 81-100 | 101-180 |  | >181 |  |
| **AVPU****GCS** | U | P | V | A15 | 14 | 9-13 | <8 |
| **Temp** |  | <35.0 | - | 35.0-38.4 | - | 38.5-39.0 | >39.0 |

HR- heart rate; RR- respiratory rate; SBP- systolic blood pressure; AVPU- alert, voice, pain, unresponsive; GCS- Glasgow Coma Scale; Temp- temperature (celcius).

Patient outcomes

The electronic patient record system routinely captures 30-day readmission and inpatient mortality. Deaths during the first 30 days of admission were calculated using dates of admission and death. Date of both admission and discharge were used to calculate length of inpatient stay (LOS, days), and prolonged length of stay was defined as ≥10 days. Delayed discharge (yes, no) was calculated as a length of stay at least 1 day longer than the last recorded ‘clinically fit date’ (CFD). This is the date when patients are determined medically fit for discharge by their treating clinical team. Those who died during the admission were excluded from analyses for delayed discharge and 30-day readmission.

Data Analysis

All analyses presented in the published short report were performed in Stata (version 12). Descriptive statistics were compared between groups using chi‐square, ANOVA or the Mann‐Whitney U test as appropriate.

**Appendix 2**

**Supplementary Figure 1 (A): Kaplan-Meier Survival Curves.**

30 day inpatient mortality by care home status (own home vs residential bed vs nursing bed) (N=14,766; 904 deaths)



**Supplementary Figure 1 (B): Age and Sex Adjusted Cox Regression Survival Curves.**

30 day inpatient mortality by care home status (own home vs residential bed vs nursing bed) (N=10,146, 536 deaths)

