Mode of Arrival and Hospital Mortality:  
St James Hospital 2002-2011  
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Introduction
Emergency Medical Services, private transport and walk-in arrivals account for the majority of arrivals at the Emergency Department (ED). There are some data 1,2 suggesting that the mode of arrival influences the outcome. We have assessed any relationship with 30-day in-hospital mortality for emergency medical admissions over the past decade.

Methods
St James’s AMAU has a database of 62,000 patient episodes, with full demographic, biochemical and hospital mortality data. We studied unique patients; their arrival at hospital was classified as EMS (emergency medical services – ambulance), car/taxi, bus/tram or ‘walk-in’. We determined the significance of mode of arrival on 30-day in-hospital mortality in a univariate and multivariate logistic regression model (Stata 12.2) adjusting for know risk predictors including illness severity (initial biochemical profile and troponin status), co-morbidity 3, deprivation status 4.

Results
31059 unique patients were included, with an average annual mortality of 8.7% (95% CI 8.4 – 9.0) over the 10 years studied. EMS arrivals were more likely to die by day 30 (14.8%) compared with arrivals by car/taxi (2.9%), bus/tram (1.1%) or ‘walk-ins’ (2.1%). Multiple logistic regression, adjusted for age, illness severity, comorbidity and deprivation group confirmed EMS as an independent predictor of 30-day mortality with an adjusted OR of 2.78 (95% CI 2.49 – 3.11: (p<0.001).

Conclusion
The mode of arrival at hospital (especially EMS) independently of co-morbidity, illness severity and deprivation, is an independent predictor of the 30-day hospital mortality. The highest risk of death occurred for patients with shortest triage times, but was consistently higher for EMS compared with other modes of arrival.

| Predictor       | Odds Ratio | [95% CI] | P>|z| |
|-----------------|------------|----------|---------|
| Illness Severity| 3.86       | 3.62, 4.12 | 0.001   |
| Charlson Index  | 1.39       | 1.29, 1.45 | 0.001   |
| Deprivation Index| 1.11     | 1.07, 1.14 | 0.001   |
| EMS arrival     | 2.78       | 2.49, 3.11 | 0.001   |

Figure 2: EMS arrivals had an increased risk of a 30-day death – compared with other modes of arrival at the Emergency Department, The wait durations (time from presentation to ward) are < 2.5 hr, > 2.5 – 4 hr, > 4 – 6hr, > 6 – 9 hr and > 9 hr. Triage may explain the fall of risk with increased wait times

References