FRAILTY SYNDROMES CODED WITHIN SECONDARY USER SERVICE DATA PREDICT INPATIENT MORTALITY AND LONG LENGTH OF STAY

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Introduction
Frailty is an increasingly important phenomenon in the acute care setting. Frailty measurement that is robust and scalable will allow identification of patients for intervention, appropriate allocation of resources, and to track the effect of interventions. We have previously developed and validated a frailty metric at national level utilising English Hospital Episode Statistic data (1-3). We aim to explore the feasibility and performance of this methodology at hospital level.

Methods
Patients ≥ 65 years with emergency admission to West Middlesex University Hospital in 2016 were included in the study. Data was extracted and assembled from the hospital Secondary User Service (SUS) using previously described methodology (3). Outcomes include inpatient mortality and upper quartile Length of Stay (LoS) for hospital. Trends for prevalence of coded frailty syndromes and descriptive statistics for outcomes were calculated. Multivariable logistic regression of frailty syndromes (age adjusted) for outcomes, with Area under the Receiver Operator Characteristic Curve (AUC) from predicted probabilities were plotted.

Figures 1, 2, 3 show the trend of coded frailty syndromes by week. Of the n=16989 patients included, the prevalence of frailty syndromes was coded as follows: Falls and Fractures 18.00%, Dementia 17.37%, Mobility Problem 16.77%, Anxiety/Depression 9.60%, Delirium 6.29%, Pressure Ulcers 5.81%, Incontinence 3.57%, Functional Dependence 3.45% (Figure 4).

Average inpatient mortality was 4.09% and LoS displayed positive skew (kurtosis 69.5; mean 4.9 days; median 1 day) (Figure 5).

Delirium, dementia, mobility problems and pressure ulcers were significant predictors of inpatient mortality.

Discussion
Frailty Syndromes are feasibly coded using this methodology on hospital level data. The prevalence of frailty syndromes coded are higher compared to national data (1) (Falls and fracture 8.7%, Dementia 7.1%, Anxiety/Depression 2.4%, Delirium 0.5%, Mobility problems 2.0%, Incontinence 1.1%, Pressure Ulcers 1.1%, Functional dependence 1.0%), and may reflect local coding practices. Predictive powers for inpatient mortality and upper quartile LoS are moderate (AUC <0.6 poor, >0.6-0.8 moderate, >0.8 good).

Conclusion
This methodology of measuring frailty is scalable form national to local trust level. Differences in coded prevalence of frailty syndromes may reflect local coding practices. Limitations include multivariable regression was not adjusted for gender or co-morbidity, and methodology is dependent on coding quality.

References