Comparing length of stay for acute medical admissions at weekends and overnight versus normal working hours
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BACKGROUND

There is a call for acute medical services to provide full medical cover “24/7” with a view to potential improvements in patient safety. This is based on studies which show increased mortality for patients admitted at weekends compared to weekdays.

Whether the same is true of overnight admissions, and whether there is an effect on other outcomes is assumed but less well-documented.

AIMS

This study investigated whether the current system of reduced out of hours general medical staffing levels has a detrimental effect on duration of hospital admissions and critical care bed occupancy. This may have implications from both patient satisfaction and cost-effectiveness perspectives.

The study also addressed whether the current out of hours medical rota at Salford Royal affects patient outcome, as may be expected based on previous studies.

PATIENT SELECTION

All acute adult medical admissions to Salford Royal Hospital during the financial year starting 1st April 2012 were included.

Patients were excluded if admitted to a tertiary medical speciality (renal, dermatology, stroke).

A comparison was made between admissions on weekdays versus weekends (Monday to Thursday versus Friday to Sunday), and daytime versus night time (09:00-20:59 versus 21:00-08:59).

ANALYSIS

Outcomes measured were total length of stay (LoS) from time of admission, transfer to level 2 or level 3 care during admission, and death either during the admission or within 30 days of discharge.

Continuous variable endpoints were assessed using one way ANOVA and binary endpoints using χ² test.

In cases of statistical significance, multivariate regression analyses were performed controlled for patient age, gender and case mix, to confirm results when adjusted for potential confounders.

RESULTS 1: POPULATION DATA

There were 11,979 admissions over 365 days (32.9±6.7 admissions per day). 6,205 were female (51.8%), and the mean age was 64.0 ± 20.3 years. There was no difference in case mix between the times of admission (A, left, p=0.69), nor in age of the patients (B, right, p=0.23).

RESULTS 2: LENGTH OF STAY

The median LoS was 2.38 days (range 0–383). 2,996 patients were admitted for >7 days (25%). Time of day and day of week were not associated with LoS analysed as a continuous variable (C, left, p=0.67). However, patients admitted Monday to Thursday between 09:00 and 20:59 were statistically more likely to be admitted for >7 days (D, right, p<0.01).

RESULTS 3: PATIENT OUTCOME

1,070 patients required level 2 or 3 care during their admission (8.9%). There was no statistical effect of time of admission but patients admitted during weekday daytime were numerically less likely to require higher level care (E, left) with near statistical significance (p=0.06). Mortality was no different between the groups (F, right, p=0.95).

DISCUSSION

Unexpectedly, patients admitted Monday to Thursday 09:00 to 20:59 were more likely to be in-patients for more than 7 days. The authors postulate that this is because such patients are more likely to be ready for discharge at a weekend than patients actually admitted at a weekend. Despite best efforts, weekends are associated with delayed discharges for non-medical reasons and this is perhaps highlighted in this finding.

Although not statistically significant, that proportionately fewer weekday daytime admissions required level 2 or 3 care cannot be ignored. Pleasantly, this did not translate into a difference in mortality.

Both of these findings are consistent with a reduced medical workforce “out of hours”. It is easy to suggest increasing medical manpower during these periods. However, this would require either reduced staffing levels during office hours, or a potential dilution in staffing standards with greater overall manpower. One cannot determine how these measures themselves would affect outcome.

REFERENCES

1. “Shape of the Medical Workforce”. CWFI, Feb 2012.