LETTER

Emergency medical admissions at weekends are older and more functionally dependent than those admitted on weekdays

The recent announcement by the UK's Health Minister of the need for reform in the delivery of inpatient medical care has seemingly been triggered by evidence showing poorer outcomes for patients admitted to hospital at the weekend.[1] While differences in staffing levels might have a part to play in this, other factors may also be important.

We analysed the characteristics of patients admitted to the Acute Medical Unit at the Royal Victoria Hospital, Belfast during November 2012. This is a large unit in a major teaching hospital. Data relating to 536 consecutive admissions were collected. The nature of patients admitted between the hours of 17:00 on Friday and 09:00 on Monday (weekend admissions) were compared with those admitted at other times (weekday admissions). Since weekends comprise proportionally more night shifts than working weeks (2 days and 3 nights vs 5 days and 4 nights), we also compared the characteristics of patients presenting on weekday and weekend 'days' (09:00–17:00) and 'nights' (17:01–08:59). T tests were used to compare continuous variables between groups and the Mann-Whitney U test was used to compare ordinal variables.

Patients admitted at the weekend were significantly older than those admitted on weekdays (mean 68.61 (SD 18.3) vs 65.07 (20.5) years, p=0.045), and had higher measures of global disability as assessed on the modified Rankin scale (median score 3 vs 2, p=0.013). In contrast there was no statistically significant difference in National Early Warning Score (a compound measure of physiological well-being), white cell count, haemoglobin concentration, total carbon dioxide concentration and albumin concentration between groups. Patients admitted during daytime hours at the weekend were significantly more functionally dependent than those admitted during a weekday (median score 3 vs 2, p=0.012), although no difference was noted at night. Data are shown in table 1.

These findings illustrate major differences in the age and functional dependence of patients admitted to hospital at weekends. This may fully or partially explain the increased mortality that has been publicised. Additionally, the lack of difference in physiological and laboratory markers of illness acuity presented here questions the plausibility of the inference that increased senior medical presence at the weekend would improve outcomes. Evidence used to guide major changes in hospital workforce planning must be robust and scrutinised for the effects of confounding factors such as those demonstrated here.

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1 http://www.bbc.co.uk/news/health-33542940 (accessed 24 Jul 2015).

Table 1 Differences in characteristics between patients admitted at weekends and during weekdays

	All weekday admissions	All weekend admissions	p Value for difference	Weekday day admissions	Weekend day admissions	p Value for difference	Weekday night admissions	Weekend night admissions	p Value for difference
Mean age (years)	65.07	68.61	**0.045**	67.07	70.60	0.147	62.42	66.92	0.104
Median modified Rankin score	2	3	**0.013**	2	3	**0.012**	2.5	3	0.487
Median National Early Warning Score	2	3	0.474	2	2	0.719	3	3	0.244
Mean white cell count ($\times 10^9$/L)	10.6	10.7	0.884	10.4	10.5	0.892	10.9	10.8	0.962
Mean haemoglobin concentration (g/L)	127.5	129.3	0.364	128.7	127.5	0.724	125.9	130.8	0.053
Mean total CO_2 concentration (mmol/L)	24.1	23.7	0.271	24.5	23.7	0.142	23.5	23.7	0.763
Mean albumin concentration (g/L)	41.3	41.9	0.384	40.6	42.8	**0.021**	42.3	41.2	0.234

Bold indicates p<0.05.

EMERGENCY MEDICINE JOURNAL

Patients admitted as weekend emergencies significantly older and more disabled

This may help explain seemingly higher death toll for weekend hospital admissions, say researchers

Patients admitted as medical emergencies at the weekend are significantly older and more dependent than those admitted to hospital on other days of the week, indicates a study of one major acute hospital, published in ***Emergency Medicine Journal.***

While staffing levels may have a part to play, the profile of the intake may help explain the seemingly higher death toll of patients admitted as medical emergencies at weekends, suggest the researchers.

They base their findings on an analysis of 536 patients admitted to the acute medical unit of a large teaching hospital in Belfast during November 2012.

They compared the profile of patients admitted as medical emergencies between 1700 hours on Friday and 0900 hours on Monday with those admitted on other days of the week.

Because there are proportionally more night shifts worked during weekends than on week days, the researchers also compared the profile of patients arriving in the unit during both the day and night at weekends and on week days.

Their analysis showed that there were no major differences in the severity of illness between patients admitted on weekdays and weekends, as evidenced by key clinical indicators and test results.

But patients admitted at the weekend as medical emergencies were significantly older—on average, more than 3.5 years—than those admitted at other times of the week.

They were also more physically incapacitated than patients admitted during the week, as measured by a validated disability scale (Rankin scale), attracting an average score of 3 compared with 2 for weekday admissions.

Patients admitted during the day at weekends were also more functionally dependent than those admitted during the day on other days of the week.

This study reflects the experience of only one acute hospital, so may not be indicative of patterns elsewhere.

But the researchers point out: "These findings illustrate major differences in the age and functional dependence of patients admitted to hospital at weekends. This [difference in profile] may fully or partially explain the increased mortality that has been publicised."

They also question the belief that greater numbers of senior doctors at the weekend would make any difference to the survival of patients.

"Additionally, the lack of difference in physiological and laboratory markers of illness acuity presented here questions the plausibility of the inference that increased senior medical presence at the weekend would improve outcomes," they write.

They conclude that if arguments are to be made about the number and seniority of staff required at the weekend, these need to be based on solid evidence and take account of other factors that may potentially influence death rates.