

## 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.<sup>1</sup> 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 con-

tinuous 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.

Paul K Hamilton,<sup>1</sup> Mark V Roberts,<sup>2</sup> Jonathan Dawson,<sup>3</sup> Michael Trimble<sup>4</sup>

<sup>1</sup>Department of Clinical Biochemistry, Royal Victoria Hospital, Belfast Health and Social Care Trust, Belfast, UK

<sup>2</sup>Acute Medical Unit, Craigavon Area Hospital, Southern Health and Social Care Trust, Portadown, UK

<sup>3</sup>Anaesthetic Department, Ulster Hospital, South Eastern Health and Social Care Trust, Dundonald, UK

<sup>4</sup>Acute Medical Unit, Royal Victoria Hospital, Belfast Health and Social Care Trust, Belfast, UK

**Correspondence to** Dr Paul K Hamilton, Specialty Registrar in Chemical Pathology, Department of Clinical Biochemistry, Royal Victoria Hospital, Belfast Health and Social Care Trust, Grosvenor Road, Belfast BT12 6BA, UK; paul.hamilton@belfasttrust.hscni.net

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### REFERENCE

- 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	<b>0.045</b>	67.07	70.60	0.147	62.42	66.92	0.104
Median modified Rankin score	2	3	<b>0.013</b>	2	3	<b>0.012</b>	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 <sub>2</sub> 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	<b>0.021</b>	42.3	41.2	0.234

Bold indicates  $p<0.05$ .

