

# Admitting practices of junior doctors may be behind 'weekend effect' in hospitals, study suggests

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The 'weekend effect' of increased hospital mortality has been well documented, including a 2015 study linking this to 11,000 extra UK deaths annually, which led to controversial contract changes for junior doctors as the UK government sought a "seven-day" National Health Service.

But the underlying causes have been poorly understood: are hospitals really less safe on weekends or do other factors lead to a comparison-skewing weekday reduction of the risk of mortality?

A new study led by University of Cambridge researchers, based on nearly 425,000 emergency department attendances over seven years at Addenbrooke's Hospital in Cambridge, confirms the weekend effect. This appears to be because [junior doctors](#) are more likely to admit patients with lower mortality risk during the week. The results are reported in the *Emergency Medicine Journal*.

The research found that junior doctors (qualified doctors still in training) based in the emergency department admitted less-sick patients at half the rate at weekends compared to weekdays, diluting the risk pool of weekday mortality and contributing to the weekend effect.

In contrast, the admitting patterns of senior doctors was the same on weekends and weekdays, and the data did not provide evidence of a weekend effect among patients admitted by senior doctors.

The researchers found that the weekend effect was associated with seniority of the physician working in the emergency department, that the case-mix of patients at the weekend was of a higher acuity and that junior doctors admitted fewer standard patients at the weekend than on weekdays.

"There has been previous research on how physician-level factors

influence patient care, but our study instead focuses specifically on how seniority affects admitting patterns and in turn how this relates to the [weekend effect](#)," said co-author Stefan Scholtes, Dennis Gillings Professor of Health Management at Cambridge Judge Business School. "It's clear that the admitting patterns of junior doctors changes at the weekend."

In a commentary about the new study, also published in *Emergency Medicine Journal*, the President of the Royal College of Emergency Medicine, Dr Katherine Henderson, said the study had "given us a lot to think about" – describing as "surprising" the finding that junior doctors admitted more relatively well patients on weekdays.

"The NHS needs to use its resources as effectively as possible," she wrote. "We should only admit patients who need to be admitted. This paper suggests it would be a good idea to make sure we are using our senior decision makers where they can be most valuable – seeing sick patients and actively evaluating all borderline admission/discharge decisions."

The study is co-authored by Larry Han of Cambridge Judge Business School and Harvard University's Department of Biostatistics; Jason Fine of the University of North Carolina; Susan M. Robinson and Adrian A. Boyle of the Emergency Department at Cambridge University Hospitals NHS Foundation Trust; Michael Freeman of Cambridge Judge Business School and INSEAD Singapore; and Stefan Scholtes of Cambridge Judge Business School.

**More information:** Larry Han et al. Is seniority of emergency physician associated with the weekend mortality effect? An exploratory analysis of electronic health records in the UK, *Emergency Medicine Journal* (2019). [DOI: 10.1136/emered-2018-208114](https://doi.org/10.1136/emered-2018-208114)

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