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Heightened hospital weekend death risk common in several developed countries

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The heightened risk of death after admission to hospital at the weekend—the so-called 'weekend effect'—is a feature of several developed countries' healthcare systems, and not just a problem for hospitals in England, reveals research published online in *BMJ Quality & Safety*.

The international nature of the findings suggests that this is a systematic phenomenon that not only crosses time, but also space, say the researchers.

In a bid to look in more detail at the evidence for the link between higher rates of death for patients admitted to hospital at weekends compared with other days of the week, the researchers drew on international data from the Global Comparators project.

This is a database to which more than 50 different hospitals in the UK, USA, Australia, The Netherlands, Italy, Spain, Belgium, Finland, Norway and Denmark now contribute outcomes data on admissions.

For the current study, the researchers looked at data on almost 3 million admissions between 2009 and 2012 from 28 metropolitan teaching hospitals in England, Australia, USA and The Netherlands.

They focused on deaths occurring in hospital within 30 days of an emergency admission or planned (elective) surgery.

They found that, after taking account of influential factors, the risk of dying within 30 days was higher for emergency admissions at weekends at hospitals in three out of the four countries.

This risk was 8% higher in 11 hospitals in England, 13% higher in five of the US hospitals, and 20% higher in six Dutch hospitals.

There was no significant daily variation in the heightened risk of death within 30 days for emergency admissions at weekends in the Australian hospitals, and these hospitals between them had the largest proportion of emergency admissions. But a weekend effect became apparent for deaths within 7 days.

And, across the board, all patients admitted at the weekend for planned surgery were more likely to die within 30 days than those admitted on other days of the week, the findings showed.

Furthermore, the data indicated a 'Friday effect' for patients undergoing planned surgery in the hospitals in The Netherlands: their risk of death was 33% higher if admitted on a Friday than on a Monday.

The researchers acknowledge that the number of participating hospitals in this study was small, but these hospitals represent varying models of service delivery, they say.

"Although these results are limited to the small number of participating hospitals, the international nature of our database suggests that this is a systematic phenomenon affecting healthcare providers across borders," they write.

The researchers speculate on the reasons for the findings, pointing out that no one single factor is going to be responsible.

They suggest that certain diagnoses and procedures may be particularly sensitive to reduced access to test results and diagnostics at weekends. Similarly, weekend staff may be fewer in number and less experienced, while patients requiring urgent care may have to wait longer, which might affect the success of any treatment and interventions.

In a linked editorial, Professor Richard Lilford and Dr Yen-Fu Chen of Warwick Medical School, caution against rushing to conclusions, on the grounds that the data are unlikely to be nationally representative.

They suggest that the time has come to focus more on shedding light on the causes behind the 'weekend effect' rather than just proving its existence across time and space.

"Understanding the weekend effect is an extremely important task since it is large, at about 10% in relative risk terms and 0.4% in percentage point terms. This amounts to about 160 additional deaths in a hospital with 40,000 discharges per year," they write.

"But how much of the observed increase results from service failure? And here is the rub, for while a 0.4 percentage point represents a large, potentially scandalous, number of deaths, it is quite a small proportional change," they add.

More information: The Global Comparators project: international comparison of 30-day in-hospital mortality by day of the week, DOI: 10.1136/bmjqs-2014-003467

Editorial: The ubiquitous weekend effect: moving past proving it exists to clarifying what causes it , DOI: 10.1136/bmjqs-2015-004360