

Does the Week-End Justify the Means?

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Let's face it—rates of hospital admission are on the rise, but there are still just 7 days in a week. That means that patients are increasingly admitted on weekdays and on the weekend, requiring more nurses and doctors to look after them. Why then are there no lines for coffee on a Saturday? Does this reduced intensity of staffing translate into worse care for our patients?

Since one of its earliest descriptions in hospitalized patients, the “weekend effect” has been extensively studied in various patient populations and hospital settings.¹⁻⁵ The results have been varied, depending on the place of care,⁶ reason for care, type of admission,^{5,7} or admitting diagnosis.^{1,8,9} Many researchers have posited the drivers behind the weekend effect, including understaffed wards, intensity of specialist care, delays in procedural treatments, or severity of illness, but the truth is that we still don't know.

Pauls et al. performed a robust systematic review and meta-analysis examining the rates of in-hospital mortality in patients admitted on the weekend compared with those admitted on weekdays.¹⁰ They analyzed predetermined subgroups to identify system- and patient-level factors associated with a difference in weekend mortality.

A total of 97 studies—comprising an astounding 51 million patients—was included in the study. They found that individuals admitted on the weekend carried an almost 20% increase in the risk of death compared with those who landed in hospital on a weekday. The effect was present for both in-hospital deaths and when looking specifically at 30-day mortality. Translating these findings into practice, an additional 14 deaths per 1000 admissions occur when patients are admitted on the weekend. Brain surgery can be less risky.¹¹

Despite this concerning finding, no individual factor was identified that could account for the effect. There was a 16% and 11% increase in mortality in weekend patients associated with decreased hospital staffing and delays to procedural therapies, respectively. No differences were found when examining reduced rates of procedures or illness severity on weekends compared with weekdays. But one must always interpret subgroup analyses, even prespecified ones, with caution because they often lack the statistical power to make concrete conclusions.

To this end, an important finding of the study by Pauls

et al. highlights the variation in mortality risk as it relates to the weekend effect.¹⁰ Even for individuals with cancer, a disease with a relatively predictable rate of decline, there are weekend differences in mortality risk that depend upon the type of cancer.^{8,12} This heterogeneity persists when examining for the possible factors that contribute to the effect, introducing a significant amount of noise into the analysis, and may explain why research to date has been unable to find the proverbial black cat in the coal cellar.

One thing Pauls et al. makes clear is that the weekend effect appears to be a real phenomenon, despite significant heterogeneity in the literature.¹⁰ Only a high-quality, systematic review has the capability to draw such conclusions. Prior work demonstrates that this effect is substantial in some individuals, and this study confirms that it perseveres beyond an immediate time period following admission.^{1,9} The elements contributing to the weekend effect remain undefined and are likely as complex as our healthcare system itself.

Society and policy makers should resist the tantalizing urge to invoke interventions aimed at fixing this issue before fully understanding the drivers of a system problem. The government of the United Kingdom has decreed a manifesto to create a “7-day National Health Service,” in which weekend services and physician staffing will match that of the weekdays. Considering recent labor tensions between junior doctors in the United Kingdom over pay and working hours, the stakes are at an all-time high.

But such drastic measures violate a primary directive of quality improvement science to study and understand the problem before reflexively jumping to solutions. This will require new research endeavors aimed at determining the underlying factor(s) responsible for the weekend effect. Once we are confident in its cause, only then can careful evaluation of targeted interventions aimed at the highest-risk admissions be instituted. As global hospital and healthcare budgets bend under increasing strain, a critical component of any proposed intervention must be to examine the cost-effectiveness in doing so. Because the weekend effect is one of increased mortality, it will be hard to justify an acceptable price for an individual's life. And it is not as straightforward as a randomized trial examining the efficacy of parachutes. Any formal evaluation must account for the unintended consequences and opportunity costs of implementing a potential fix aimed at minimizing the weekend effect.

The weekend effect has now been studied for over 15 years. Pauls et al. add to our knowledge of this phenomenon, confirming that the overall risk of mortality for patients admitted on the weekend is real, variable, and substantial.¹⁰ As

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more individuals are admitted to hospitals, resulting in increasing numbers of admissions on the weekend, a desperate search for the underlying cause must be carried out before we can fix it. Whatever the means to the end, our elation will continue to be tempered by a feeling of uneasiness every time our coworkers joyously exclaim, “TGIF!”

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