

PERSPECTIVE



Excellent Hospital Care for All: Open and Operating 24/7

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Nights and weekends are the times when most people are admitted to the hospital. They are also synonymous with reduced staffing levels and fewer specialized diagnostic, procedural, and treatment options. Indeed, there is increasing evidence suggesting that patient care is compromised during these times. Equally important is the inefficient use of capital investments during nights and weekends, and inappropriate utilization of hospital beds caused by poor weekend discharge flexibility. We believe that these findings should be of concern not just to hospital care providers, but across care settings and to the general public. In this perspective article, we highlight how our current office-hours system of running hospitals threatens the lives of our sickest, most vulnerable patients, describe solutions currently implemented in hospitals that may alleviate this disparity, and discuss challenges to wider scale implementation.

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Hospitals provide a safety net for people who need access to vital health care. This is especially true for those requiring care during nights and weekends, where traditional means of accessing health care are largely unavailable. In fact, nights and weekends are the times when most people are admitted to the hospital. Increasingly, however, there is evidence suggesting that patient care, especially for those with time-sensitive conditions, is compromised during these times and that the safety net in place leaves patients unnecessarily vulnerable. We believe that these findings should be of concern not just to hospital care providers, but across care settings and to the general public. In this perspective article, we highlight how our current office-hours system of running hospitals threatens the lives of our sickest, most vulnerable patients, describe solutions currently implemented in hospitals that may alleviate this disparity, and discuss challenges to wider scale implementation.

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CURRENT SITUATION

For the majority of hospitals here in the United States and Canada, nights and weekends are synonymous with reduced staffing levels and fewer specialized diagnostic, procedural, and treatment options. Weekends pose a particularly challenging problem. They comprise an extended period of time with limited staffing, wide physician cross-coverage, and lack of resource-intensive services, yet they experience demands for care that are comparable to weekdays. This potentially long period of inactivity multiplies the risk of adverse events and sub-optimal patient care and outcomes. Indeed, a large body of research has shown that patients with time-sensitive conditions like stroke, acute myocardial infarction, upper gastrointestinal bleeding, acute pulmonary embolism, and pneumonia are more likely to die if admitted to hospital on weekends compared to weekdays.^{1–3} Nights and weekends are also associated with less aggressive care⁴ higher rates of surgical complications⁵ and medical errors,⁶ and mortality from in-hospital cardiac arrest.⁷ Factors cited as contributing to this disparity include skeleton medical and nursing coverage, often exacerbated by less experience, supervision, and patient familiarity than their weekday counterparts.^{8,9} Limited specialized clinics, complex medical care, inter-professional expertise, and breakdowns in communication further compromise care during these times.¹⁰

INNOVATIVE SOLUTIONS

Just as the pace of research characterizing night/weekend care disparities has accelerated, there has also been an increase in the number of studies reporting no significant differences in care and outcomes during nights and weekends. These studies highlight potential workable solutions that remove the unnecessary variation in patient outcomes based on time of day and day of the week. In particular, studies that have evaluated round-the-clock 24/7 ICU and trauma staffing found no variability between arrival time and outcomes of care.^{11,12} In a recent study of a general medicine service that maintains the same staffing ratio on weekends as that on weekdays, researchers found that night or weekend admission was not associated with worse patient outcomes and suggested that consistent staffing, coordinated handoffs, and rotation schedules that protected against discontinuity may facilitate narrowing the gap in disparity.¹³ Moreover, in a study that evaluated policies to improve communication in surgical care, including resident-attending notification regarding routine weekend patient status and weekend patient visits by an attending, results showed significant reductions in potentially

harmful communication breakdowns.¹⁴ Other studies have suggested centralization of resources within a hospital (e.g., Code Blue Teams¹⁵) and within a community (e.g., Trauma and Stroke centers¹⁶) to provide uniform, formalized, dependable staffing and resources in the face of capacity constraints. Collectively, these studies illustrate innovative staffing and process solutions that have had a positive effect on improving off-hours care. The applicability and practicality of these solutions need to be determined in other teaching, community, and small hospital settings. Nonetheless, to the best of our knowledge, no study has demonstrated that inconsistent staffing or resources are associated with better or comparable patient care and outcomes.

Investments in 24/7 care can also pay dividends in hospital efficiency. The reality for the hospital sector is that underutilization of capital investments during nights and weekends is a waste of expensive resources. Equally important is the inappropriate utilization of hospital beds caused by poor weekend discharge flexibility. As beds remain occupied by patients who could be safely discharged, the impact ripples throughout the hospital system, and clinical gridlock ensues in the Emergency Department (ED), ICU, and surgical services. The common response is a call for more beds. A more rational response is to first ensure that current operations are running as efficiently as possible so that existing resources deliver their maximum output. For hospitals, this translates to standardizing care processes so that weekends run exactly as they do on weekdays, scheduling of imaging procedures and interventions during nights and weekends¹⁷; and consistently discharging patients every day of the week.¹⁸ Such strategies are likely to serve both inpatient and outpatient needs, improve equipment return on investment, shorten queues for service, reduce unnecessary length of stay, and alleviate ED congestion. A recent simulation study found that smoothing inpatient discharges over the course of the week reduced ED length of stay and the number of ED beds occupied by patients waiting for ward transfer by ~30%.¹⁹

CHALLENGES TO WIDE-SCALE IMPLEMENTATION

Even as research clearly demonstrates the disparity in off-hours care and provides potential solutions to narrow this gap, change has been slow and disappointing. Challenges to wider scale implementation of 24/7 hospital solutions are broad and include costs, provider preferences, and availability of services outside of the hospital. First, the upfront costs of maintaining weekday staffing levels during nights and weekends are not trivial. Indeed, a common strategy for hospitals trying to contain operating costs is to reduce staffing levels. However, the longer term consequences of these actions have not proven cost-effective. Staff reductions have been shown to negatively impact the safety and quality of hospital care, and as a result, drive the costs per patient discharge up.²⁰ And while there is a dearth of quantified evidence of the costs and utility of 24/7 care, research is beginning to fill in the gaps. In a recent study that analyzed the savings-cost ratio of increased ICU nurse-to-patient ratios on prevention of adverse events, it was found that even the most expensive staffing model generated net savings from avoided patient adverse events.²¹ Specifically, savings from prevented adverse events ranged from \$2.2 million to \$13.2 million, while nurse staffing costs for the same time frame were \$1.36 million. Additionally, in a 2-year prospective study to evaluate the introduction of night-shift coverage to provide continuous 24-h on-site critical care specialists, the study authors

found that in addition to reductions in ICU complication rates and hospital length of stay, there were improved processes of care and staff satisfaction.²²

Second, provider feasibility of 24/7 care is tempered by conflicting views. On the one hand, clinicians are increasingly expressing quality of life as a priority, making night and weekend coverage more unpopular.^{23,24} On the other hand, high-quality patient care is a major if not the most important factor in increasing job satisfaction among nurses and physicians.²⁵⁻²⁷ Therefore, future cost-utility analyses should also incorporate considerations of provider preferences, especially in our current environment of workforce shortages. It is clear that we need to implement and evaluate new models that would encourage providers to reorganize so that they have incentives to take responsibility for off-hour patient outcomes and more efficient utilization of precious resources.

Another critical consideration for hospitals looking to improve weekend care is the disparity that exists outside in the community. Even with adequate hospital staffing and resources to prepare and coordinate weekend hospital discharge, hospitals rely on community resources (home care, transportation, professional services) and post-acute care facilities (long-term care, rehabilitation, palliative care) for the safe transition from hospital to home. Currently, few health care providers along the care continuum have the resource capacity to accept new patients on weekends.²⁸

Finally, the tendency for hospitals and health care sectors in general to wait for the financial sector to impose incentives or penalties as a means to change is worth acknowledging. Currently, there is neither reward for reducing nor punishment for maintaining the disparities in off-hours care. While linking improvements in off-hours care and outcomes to reimbursements may be a promising way forward, we believe hospitals need to take the lead in acknowledging and seriously addressing the safety, quality, and efficiency gaps in night and weekend care.

CONCLUSION

Night and weekend disparities in hospital care represent a legitimate and challenging issue. Hospitals, like other emergency industries including firefighting and police services, need to function identically on weekends as on weekdays; staffing and service levels need to be indistinguishable 7 days a week. For nights, we advocate for full staffing in areas where early intervention is crucial for positive outcomes, including the ED, ICU, and trauma services. Additional investments in 24-h staffing and resources for other hospital services can be prioritized using critical event and cost-benefit analyses.

Now is the time for providers and policy makers alike to take up the challenge and raise off-hours care to the forefront as a target area for innovative change and reform. If we really are committed to providing excellent, safe, efficient quality care for all, our hospitals need to be open and operating 24/7.

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