Consultant delivered seven-day health care: results from a medical model on a diabetes base ward

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Abstract
There is increasing emphasis on consultant delivered health care outside normal working hours, although its impact on outcomes away from emergency assessment units is not well known. We introduced structured seven-day working for consultants on a 28 bedded diabetes base ward. Subsequent evaluation of its impact on patient throughput measures is presented.

We measured discharge patterns and rates, length of stay and 30-day readmission following the introduction of seven-day consultant working including weekend ward rounds. Data collected over an identical seven-month period before and after the introduction of weekend consultant ward rounds were compared.

Sixty percent of discharged patients in both periods compared had diabetes. The number of discharges during the study period (seven months) increased from 459 to 496 almost entirely owing to increase in weekend discharges (45 to 83). The overall length of stay (LOS) was largely unchanged (11.3±15.4 vs 10.5±7.9), although there was a significant reduction in the LOS of weekend discharges (11.2±10.3 vs 7.9±6.4, p<0.01). Thirty-day emergency readmission fell from 132 to 107. Effectively this translated to 625 potential bed days gained over a seven-month period representing an annual saving of approximately £123 000 at basic tariff.

We concluded that consultant seven-day working is effective in facilitating increased discharges with reductions in LOS and readmissions, and has significant economic benefit. Additional work is needed to evaluate the impact on quality measures, especially with regard to specialty specific outcomes. Copyright © 2014 John Wiley & Sons.

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Key words
consultant led; seven-day working; patient safety; length of stay; readmissions

Introduction
There is a growing body of evidence that lack of access to clinical services, particularly at weekends and out of hours, can lead to suboptimal care and ultimately to poorer clinical outcomes. As an example, retrospective data from the Dr Foster Unit suggest that there is significant variation in outcomes from stroke between weekdays and weekends. This study demonstrated an 11% unadjusted increase in mortality for Sunday admissions (adjusted odds ratio 1.26 [95% CI 1.16–1.37] compared to a weekday). The same study suggested that if performance demonstrated on weekdays were to be mirrored across the weekend there would be a significant reduction in morbidity and mortality. Although this difference in mortality for stroke has not been replicated in other studies, the difference in provision of care between weekdays and weekends is unequivocal. Negative outcomes among weekend admissions, albeit with variable intensity of effect, have been shown to occur in a wide variety of health care settings including acute admissions and across surgical and medical specialties and in different countries.

Some of the causes for variability may include differences in staffing levels, access to diagnostics, senior clinical input, or service delivery etc. For example, Palmer et al. demonstrated that, even with the much wider accessibility to CT scanning, there was still a significant difference in the proportion of stroke patients offered a same-day scan on weekends compared to weekdays. There is also the question of variation in practice, access to guidance and standardisation of care. The set-up of services such as hyperacute stroke units (HASU) with a consultant
on-call rota for end of telephone advice has abrogated but not neutralised the effect of the weekend and out-of-hours effect on inequities in health care. Despite standardisation of guidelines and practice and increase in staffing on weekends, there are variations noted suggesting that other issues such as access to investigations and allied health care input may also be playing a part. The NHS has traditionally relied on middle ranking staff to deliver out-of-hours and weekend care but there is now increasing emphasis on a consultant-led/delivered health care service, although its impact on outcomes away from emergency assessment units is not well known.

The NHS improvement project on seven-day health care delivery mentions four levels of service delivery in a seven-day NHS (see Box 1), underpinning patient safety in three key domains:

- Admission prevention.
- Early diagnosis and intervention.
- Safe facilitated discharge.

This is complemented by the standards and benefits of consultant delivered care set out in the Academy of Medical Royal Colleges report published in 2012. The key aspects that are highlighted in this report include competence, rapid and effective decision making, appropriate diagnosis, effective and efficient use of resources, accessibility to primary care, and provision of training opportunities.

We therefore wanted to look at the impact of consultant delivered health care in an elective medical setting away from the traditional ‘front door’ of the hospital with particular emphasis on the weekend. The study was undertaken in a 700 bedded district general hospital with a busy emergency department.

**Methods**

A seven-day consultant working system was introduced where previously only two to three consultant ward rounds were in place. As part of this, routine ward rounds were introduced on Saturdays and Sundays (and any additional bank holidays) in addition to pre-existing structured ward rounds (on Mondays, Wednesdays and Fridays) and daily board rounds. The nominated weekend consultant had a mandatory handover of patients on Friday afternoons and the emphasis of the weekend presence was on reviewing new admissions, potential discharges, unwell patients and specialty patients (Diabetes & Endocrinology [D&E]). In addition, the weekend consultant also offered specialty (D&E) cover for emergency areas. This was in addition to, and where possible tied in with, general medical on-call commitments. The weekend ward round was without junior doctor presence, but with subsequent junior doctor input for task completion.

Since it is difficult to obtain data on changes in mortality, morbidity and patient safety measures, surrogate measures of quality were adopted to assess the influence of the change in clinical care delivery. Data were collected through the information team within IT services on discharge patterns and rates, length of stay and 30-day readmission over seven consecutive months (2012) following the introduction of seven-day consultant working (post-7d-CW), and compared with that from an identical seven-month period in the previous year before the introduction of seven-day working (pre-7d-CW). In addition, data were collected for bed availability and bed occupancy to ensure minimisation of confounding effects. Student’s t-test was used to compare summary data between the two periods.

**Results**

Comparison of the two periods studied showed that bed occupancy rates (occupied vs available bed days) were similar for both periods (99.17% for 2011 vs 99.15% for 2012). There were no differences in mean bed occupancy pre-7d-CW vs post-7d-CW patterns (838.14±34.21 vs 835.28±18.55; p=0.05) nor bed availability (845.1±29.43 vs 842.43±19.12). On this specialty-based diabetes/general medical ward, nearly 60% of discharged patients had diabetes in both study periods. The number of discharges during the study period (seven identical months in each year studied) increased from 459 in the pre-7d-CW pattern to 496 post-7d-CW pattern. All of this increase was contributed to by an increase in weekend discharges (45 to 83). The mean monthly weekend discharge rate of 6.4±1.1 (95% CI 5.6–7.3) pre-7d-CW compared to 11.9±3.2 (95% CI 9.5–14.2) post-7d-CW, showed a significant difference (p=0.002). There was a numerical increase in discharges for every day of the week except for Friday where there was a small drop (see Figure 1).

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Consultant delivered seven-day health care

Figure 1. The percentage of discharges achieved for every day of the week before and after the introduction of seven-day consultant working

Figure 2. Average length of stay for patients by day of admission

Discussion

This study demonstrates that consultant seven-day working is effective in facilitating increased discharges with reductions in LoS and readmissions and has significant economic benefit. While the impact was felt across the week, differences were particularly visible on weekends, suggesting that consultant-led health care delivery can improve patient throughput and drive patient flow. Furthermore, this provides evidence that the benefits that have already been shown in acute areas of care and in other specialties can be replicated on a medical ward. There are implications for readmission rates which are a measure of quality of care. This study is proof that the first standard that has been mandated by the Academy of Medical Royal Colleges can be delivered with changes in working patterns. The figure derived for likely cost savings, while being crude, serves to underline the potential impact of such changes. The pressure on emergency departments and acute hospital admissions exerted by increased demand, particularly since the beginning of 2013, is evident. Changes to working practices in the modern NHS and the speed of implementation are vital to reverse these trends.

Over the last decade there have been significant changes in the way health care is delivered in the NHS. This has included the introduction of two key initiatives, the Junior Doctor New Deal and the European Working Time Directive (EWTD) to improve working patterns and, thereby, quality and safety of care. Initial reports showed no adverse impact on patient safety nor quality of care but were conflicting in terms of junior doctor welfare. A recent report by the GMC, following a survey of junior doctors across the UK, has highlighted the ongoing inadequacies within existing rotas to ensure that exhaustion, demotivation and variation in staffing levels are eradicated despite the introduction of the EWTD. There is no doubt that there have been significant gains with the introduction of EWTD but such gains come at the cost of loss of ‘continuity of care’, multiple handovers, loss of team working and a move to task-oriented care. There has also been a reduction in the actual cohort of junior doctors available to deliver day-to-day care. These very factors work to increase fragmentation of the patient journey and experience, and potentially are implicated in increased LoS. By adopting seven-day working and consultant delivered health care, the real advantages may lie in the continuity offered combined with experience.

There are many limitations to such a study. We aimed to limit obvious confounders such as seasonal variations in admissions (comparing similar months in each year), variations in bed occupancy due to ward...
closures, and variations in bed availability. We accept that variations in comorbidities, nursing, and junior staffing levels are some of the other confounders that need to be taken into account. There were no major re-configurations in junior staffing level during the week on the base ward and weekend cover was identical. The consultant body did not have dedicated junior staff that accompanied them on the weekend ward round, but were helped by a senior member of the nursing team who facilitated handover. The resulting tasks, such as further blood tests, chasing of results and further review to enact a recommended plan of action, were generated as a task list to be handed to the juniors covering medical wards. It is difficult to say if the study could be replicated in exactly the same fashion as there is constant change within health care with most NHS organisations focusing on patient flow and quality and outcome measures. A potential means of comparison would be undertaking a similar study within two clinical areas with similar patient demographics in the same organisation and allocating one to consultant seven-day input to evaluate more precisely the effect of such measures. Even so, variability in practice, experience and expertise between consultants would be obvious confounders.

Consultant presence on weekends led to a reduction in the amount of time junior doctors may otherwise have invested in dealing with this group of patients and can only be a positive in respect of quality of care. The perceived gains from consultant-led health care delivery have been much wider than these figures convey in terms of staffing morale, patient satisfaction with continuity of care, and general improvements in health care delivery. Additional work is needed to evaluate the impact on quality measures, although the reduction in readmissions, combined with reductions in LoS, reflects positively in this regard.16 Specially-specific outcomes need to be evaluated in detail along with patient satisfaction, particularly with regard to diabetes care. The delivery of such care was made possible by careful re-working of job-plans and allocation of extra programmed activities and appointment of an additional consultant colleague. There are some cost implications to such measures. However, the demonstrable improvements in patient throughput and improvements in the quality measures studied – along with potential savings in bed days and improved patient safety – are expected to offset the costs accrued. Interestingly, the disparity between weekday and weekend admissions remained even with the introduction of this initiative. This underlines the problem of ‘bed blocking’ in the modern NHS which cannot be solved purely by increasing medical input out of hours. A true seven-day service would have the same levels of allied health care and support staff any day of the week, and we are some way from achieving this.

On the whole, the findings of this study are positive but we caution that in order for consultant-delivered care to have a more significant impact, other components of the health care journey must also fall into place, including supporting clinical staff, diagnostic and therapeutic services, administrative and clerical support, and ‘safe haven’ community care at discharge. We welcome the Department of Health initiatives to roll out a true 24/7 health care service.1,22

Key points
- Previous studies have demonstrated the impact of consultant-led health care in the acute setting
- This study shows the application and results from seven-day working in a medical specialty
- The impact of consultant delivered health care on patient flow, quality of care and economic measures are discussed

Declaration of interests
There are no conflicts of interest declared. No funding was received for this study.

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