What do junior doctors do during weekend shifts? A time and motion study

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1. Introduction

Patient admitted to hospital on weekends have a greater risk of mortality than patients admitted on weekdays; a phenomenon known as ‘the weekend effect’. This may be due to the existing health status of particular patient groups, limited access to some services and reduced quality of care on the weekend due to fewer/less experienced staff. Thus, the availability of services and different staffing schedules between weekdays and weekends may contribute to the weekend effect. An important element of designing effective interventions to reduce the weekend effect is a greater understanding of the work practices of junior medical officers (JMOs) on weekends because they make up the majority of staff at this time. Although previous research has quantified JMOs’ work practices on weekdays and weeknight shifts, we know little about the weekend shift. We aimed to quantify the time JMOs spent on specific work tasks, and to quantify the number and types of interruptions to work, and the amount of multi-tasking done during weekend shifts. A secondary aim was to compare weekend work practices to weekday and night shift work practices of JMOs in order to identify any differences in work practices between weekends, weekday and night shifts.

2. Method

We conducted an observational time and motion study of JMOs working in the general wards of a Sydney teaching hospital during weekend shifts (Saturday- Sunday, 0800 – 1900). In total, 16 JMOs were observed for 132 hours over a 13-week period. Predefined tasks were captured using the Work Observation Method by Activity Timing (WOMBAT) software. The validated WOMBAT software captures the complex work and communication patterns of health professionals in real-time. WOMBAT automatically captures the duration of tasks, and describes interruptions to work (breaks in work flow) and multi-tasking (tasks conducted simultaneously). Descriptive statistics were used to determine the proportion of total observed time spent in each task, as well as the amount of multitasking and the rate of interruptions.

3. Results

JMOs’ time was predominately spent in tasks that indirectly benefit the patient, this is, in indirect care (32%). JMOs also spent time in direct care (23%), professional communication (23%) and documentation (14.6%). Nearly all professional communication took place in person with nurses, who were observed to frequently interrupt JMOs in order to discuss work related issues. JMOs spent a small amount of time in social activities on weekends (8.5%). Social activities included time spent going to the bathroom, eating, resting or any non-work related tasks. JMOs appeared to have very little time for resting or eating, usually taking a quick 1.5 minute break to go to the bathroom. Doctors also spent very little time in supervision/education tasks (0.6%). JMOs spent 21% of their time multitasking, and they were interrupted at a rate of 5.8 interruptions per hour, or once every 10 minutes. The majority of interruptions were made by colleagues initiating work related discussion (66%). Although JMOs experienced high interruption rates and a large amount of multitasking, they spent the majority of their time alone on weekends (73.5%). Computers were used for 26.5% of the shift duration and phones for 7.2% of the time.

4. Discussion
When we compared the proportion of time spent in tasks on the weekend to the proportion spent during the week, we observed some interesting findings. JMOs on the weekend spent half of the time in social tasks that doctors spent on weekdays and almost a third of that spent in social tasks at night. The interruption rate on weekends was double the rate found on weekdays, and more than four times the interruption rate observed during weeknights. On weekends, JMOs spent most of their time performing indirect care tasks (mainly reviewing patient files), which was higher than that seen during the week, and they spent more time in direct patient care than those working during the week. Less time was spent in education/supervision tasks on weekends than during the week.

To our knowledge, this was the first study to utilise an electronic tool to quantify JMO work practices during the weekend shift, including with whom, with what resources and the amount of multi-tasking and rate of interruptions they experience. We found that JMOs working on weekends were interrupted very frequently, undertook high levels of multi-tasking and had inadequate rest/meal breaks during their shifts. They spent little time in supervision/education tasks and spent the bulk of their time engaging in both indirect care and direct patient care. Factors that may be contributing to the weekend effect include high workload, insufficient rest breaks, frequent interruptions and inadequate supervision/education. Our results highlight a need for 1) a reassessment of the working arrangements of JMOs on weekends in order to maximize the opportunity for rest breaks and 2) a redesign of the task management processes on weekends to reduce unnecessary interruptions. The results of this study provide a sound basis for further research on workload and interruptions experienced by JMOs’ on the weekend.

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