

POSTER PRESENTATION

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# After hours admission to icu - impact on mortality

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## Introduction

Patients admitted to intensive care units (ICU) after hours have higher mortality rates in several studies. This effect is, however, negated in most studies upon correction for disease severity.

## Objectives

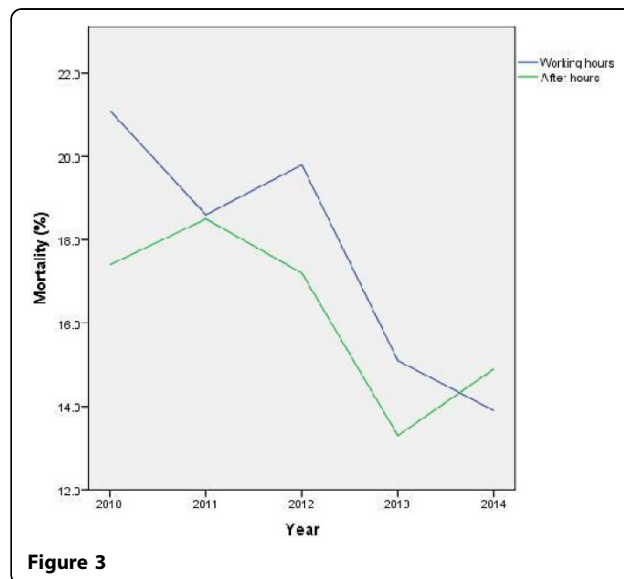
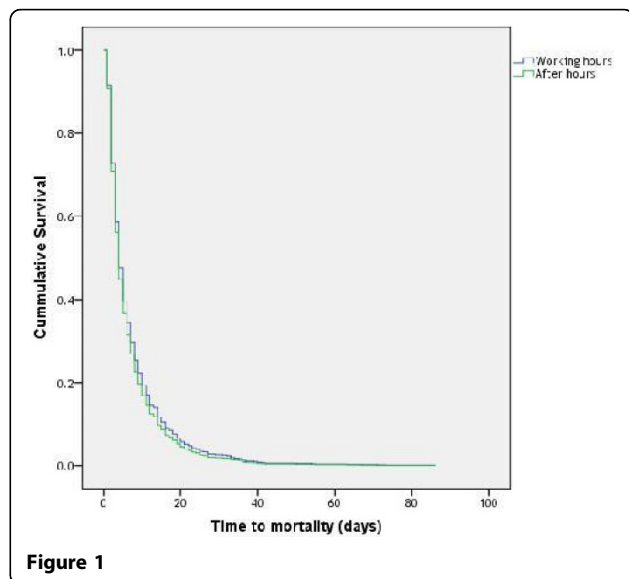
We aim to explore differences in mortality between patients admitted during working hours (8am-5pm on weekdays and 8am-11am on weekends) compared to those admitted after hours.

## Methods

This is a retrospective cohort study of admissions to a medical ICU in a tertiary teaching hospital between 2010-2014. All patients with known APACHE II scores were analysed. Primary outcome measure was that of ICU mortality adjusted for disease severity and secondary outcome measure was length of ICU stay.

## Results

A total of 4266 admissions were included in this study. 1165 (27.3%) were admitted during working hours while 3101 (72.7%) were admitted after hours. There was no significant difference in APACHE II scores ( $24.0 \pm 8.7$  - working hours;  $24.2 \pm 8.9$  - after hours,  $p = 0.492$ ). Adjusted survival analysis did not demonstrate significant difference in mortality between the 2 groups (HR 0.923, 95%CI 0.782-1.089,  $p = 0.343$ ) (figure 1). Patients



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Year	Group	Mortality	p-value	Length of stay	p-value	APACHE II scores	p-value
2010	Working hours	15/71 (21.1%)	0.519	6.6±0.8	0.573	23.0±8.1	0.643
	After hours	23/132 (17.4%)		7.6±1.0		22.4±7.3	
2011	Working hours	45/242 (18.6%)	0.980	7.2±0.6	0.142	23.1±8.2	0.027
	After hours	105/567 (18.5%)		6.3±0.3		24.6±9.5	
2012	Working hours	53/268 (19.8%)	0.350	6.7±0.5	0.322	24.7±9.2	0.921
	After hours	122/709 (17.2%)		6.1±0.2		24.8±9.0	
2013	Working hours	36/238 (15.1%)	0.468	6.5±0.4	0.200	24.5±8.8	0.150
	After hours	96/724 (13.3%)		6.0±0.2		23.5±8.5	
2014	Working hours	48/346 (13.9%)	0.627	6.9±0.5	0.045	23.9±8.8	0.519
	After hours	145/970 (14.9%)		5.7±0.3		24.3±8.9	

**Figure 2**

admitted after hours have a significantly shorter ICU stay ( $5.8 \pm 0.1$  versus  $6.5 \pm 0.2$ ,  $p = 0.007$ ) if they survive their ICU stay. Year by year analysis also demonstrated no difference in mortality between cohorts (Figure 2) with a decrease in mortality seen in both in and out of hours admissions (figure 3).

### Conclusions

Timing of acute admission had no impact on ICU mortality over a 4 year period. These data which are contradictory to some published observational studies may reflect working patterns among our medical and nursing staff, and that traditional definitions of “in-hours” may need to be revisited. The lack of mortality difference provides reassurance that our current workflows, and acute management protocols are unaffected by working hours, and has ramifications for manpower planning.

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