

7. ICU admission process

Key findings

- Evening was the busiest time for new medical admissions to ICU, followed by night and lastly day.
- One in four patients were admitted to ICU without consultant intensivist involvement.
- Amongst the 40% of cases, where data were available, approximately one in four patients were not reviewed by a consultant intensivist within 12 hours of admission to ICU.

Introduction

Table 1 shows the pattern of admissions to ICU over a 24 hour period. When controlling for the length of each period it can be seen that the busiest time with respect to new admissions was the evening, followed by the night and the daytime slot.

Time of admission	Outcome						
	Died	Survived	Unknown	Total	Admission/hour	Died(%)	Survived(%)
Day	254	457	11	722	72.2	(36)	(64)
Evening	170	312	5	487	81.2	(35)	(65)
Night	126	314	3	443	73.8	(29)	(71)
Sub-total	550	1,083	19	1,652			
Not answered	10	13	2	25			
Total	560	1,096	21	1,677			

Grade of staff accepting patients

Table 2 shows the grade of health worker who accepted the patient for admission to critical care and also shows this by the referring grade. Table 3 shows the influence of time of day on grade of health worker accepting admission. It appears 27% of patients referred for critical care are admitted to ICU without consultant intensivist involvement. This figure is influenced by the time of day and increases to 37% overnight. Further analysis of Table 2 shows that in 146 patients the most senior staff involved in the decision to refer and admit to ICU were SHOs and SpR1/2s. This represents 15% of cases where the grades of staff were returned. The lack of involvement of consultants in intensive care must be questioned, as should the appropriateness of allowing doctors in training to make sole decisions relating to ICU admission.

Table 2. Grade of health worker who accepted patient for ICU admission by referring staff

Grade of accepting ICU staff	Grade of referring staff									Total
	Consultant	Staff / Associate Specialist	SpR 3+	SpR 1/2	SHO	Nurse	Sub-total	Other	Not answered	
Consultant	191	45	125	151	135	6	653	46	411	1,110
Staff / Associate Specialist	6	3	9	5	5	0	28	1	11	40
SpR	23	7	56	66	47	2	201	12	66	279
SHO	6	1	9	7	26	1	50	3	15	68
Nurse	2	3	2	2	3	1	13		5	18
Sub-total	228	59	201	231	216	10	945	62	508	1,515
Other	7	1	2	2	3		15	1	3	19
Not answered	8	3	5	5	6		27	5	30	62
Total	243	63	208	238	225	10	987	68	541	1,596

Table 3. Grade of health worker who accepted patient to ICU by time of day

Accepting grade	Accepting time slot									Total	Total (%)
	Day	(%)	Evening	(%)	Night	(%)	Not answered	(%)			
ICU consultant	435	(82)	354	(72)	214	(63)	107	(62)	1,110	(73)	
Staff / Associate Specialist	5	(1)	18	(4)	11	(3)	6	(3)	40	(3)	
SpR	63	(12)	91	(18)	78	(23)	47	(28)	279	(18)	
SHO	16	(3)	21	(4)	22	(7)	9	(5)	68	(4)	
Registered nurse	12	(2)	4	(1)	2	(1)	2	(1)	18	(1)	
Other	2	(<1)	6	(1)	10	(3)	1	(1)	19	(1)	
Sub-total	533		494		337		172		1,534		
Not answered	8		12		10		32		62		
Total	541		506		347		204		1,596		

Table 4 shows whether or not an ICU consultant was present at the time of admission. Table 5 shows the influence of time of day on consultant presence for new admissions. Overall, an ICU consultant was present for 51% of admissions. Again this figure is influenced by time of day and an ICU consultant was present for only 17% of admissions that occurred overnight (Table 5).

Table 4. Presence of consultant at time of admission		
ICU consultant present on admission?	Total	(%)
Yes	754	(51)
No	713	(49)
Sub-total	1,467	
Unknown	79	
Not answered	50	
Total	1,596	

Table 5. Presence of consultant on admission by time of day										
Consultant present?	Admitting time slot									
	Day	(%)	Evening	(%)	Night	(%)	Not answered	(%)	Total	(%)
Yes	399	(82)	279	(50)	69	(17)	7	(54)	754	(51)
No	88	(18)	279	(50)	340	(83)	6	(46)	713	(49)
Sub-total	487		558		409		13		1,467	
Unknown	24		41		12		2		79	
Not answered	15		24		10		1		50	
Total	526		623		431		16		1,596	

Figure 1 shows the time (in hours) between ICU admission and review by an ICU consultant. It seems unarguable that the gold standard would be to have all referrals to ICU reviewed and immediately assessed by a trained consultant in intensive care medicine. This is unlikely to be achieved. Timely review by an ICU consultant is therefore the best that can be delivered in the current model of care. As can be seen, 76% of patients (473/635) were reviewed by an ICU consultant within 12 hours of ICU admission. This means that one in four patients had been admitted and subject to the process of intensive care for 12 or more hours without direct consultant input. This is well short of the most recent published standard for time to consultant intensivist review⁹. Worryingly, there were still patients who had not been reviewed within 24 hours of ICU admission.

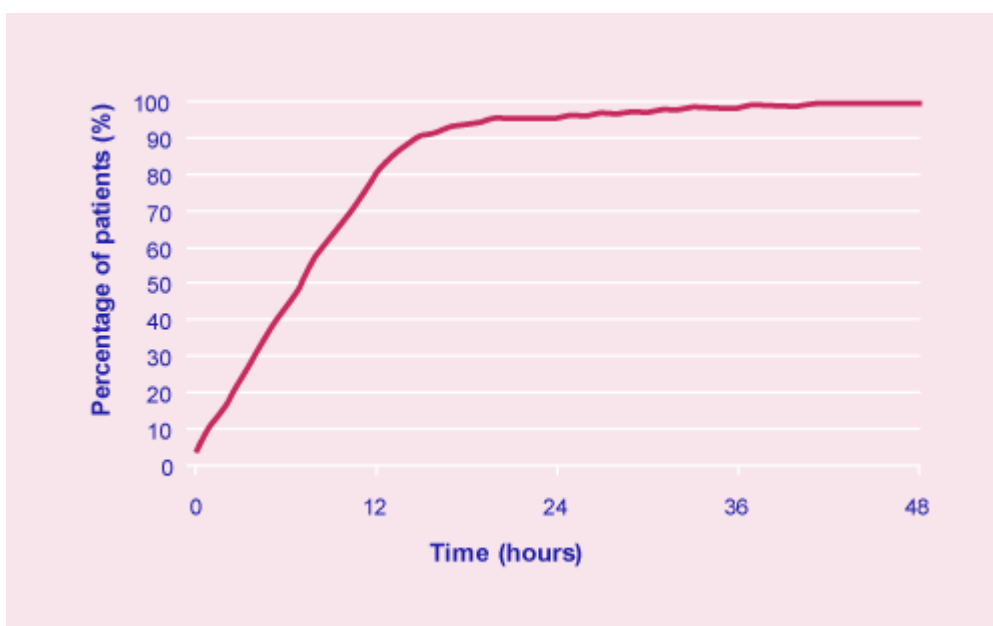


Figure 1. Time between ICU admission and first consultant review $n=635$

Recommendations

- Trusts should ensure that consultant job plans reflect the pattern of demand for emergency admission to ICU and provision should be made for planned consultant presence in the evenings (and perhaps at night in busier units).
- Patients should rarely be admitted to ICU without the prior knowledge or involvement of a consultant intensivist.
- A consultant intensivist should review all patients admitted to ICU within 12 hours of admission⁹. Regular audit should be performed against this standard.