9. Outreach

Key findings

- **There was geographical inequality in the presence of outreach services, with the majority being provided in English hospitals.**
- **One in four hospitals did not use some form of track and trigger system to allow early identification of deteriorating patients.**

Introduction

One of the approaches to the recognition and management of seriously ill patients has been the development of early warning systems and outreach services. This was proposed as a solution in England by the Department of Health in 2000 [10] and has been endorsed by the Royal College of Physicians in 2002 [7].

It is not clear how outreach services should be organised and there are a number of different models of outreach care [25,36]. The main differences are the trigger that prompts review by an outreach service, the availability of the outreach service throughout the 24 hour period and the composition of the outreach team that responds to the trigger. It is unlikely that the trigger used is of great importance, so long as it is suitably sensitive and specific, but it is of no use highlighting deteriorating patients through an early warning system if there is no link to a robust and effective team response and critical care service.

Availability of outreach services

We have earlier shown that the presence of outreach systems was variable and geographically biased towards England (Table 1). This lack of uniformity is unacceptable given the support to outreach from the Department of Health, the Intensive Care Society and the Royal College of Physicians. Unfortunately, we did not collect data concerning the availability of outreach services throughout the 24 hour period.

Table 1. Outreach services available in the United Kingdom

	Outreach service			
Country	**Yes**	**No**	**Not answered**	**Total**
England	108	65	2	175
Independent hospitals	5	7	1	13
Wales	3	9	0	12
Northern Ireland	0	9	0	9
Guernsey	0	1	0	1
Isle of Man	0	1	0	1
Total	**116**	**92**	**3**	**211**

In addition, many hospitals did not use a track and trigger system to allow early recognition of patients who are at increased risk of death (Table 2).

Table 2. Hospitals' use of early warning systems		
Early warning system	**Total**	***(%)***
Yes	153	*(73)*
No	58	*(28)*
Total	**211**	

This study was not designed to show any effect of outreach on outcome but has uncovered data of interest.

Table 3. Presence of outreach by review time slot										
Review time slot	**Outreach service**									
	Yes	***(%)***	**No**	***(%)***	**Unknown**	***(%)***	**Not answered**	***(%)***	**Total**	***(%)***
Day	103	*(48)*	217	*(32)*	42	*(43)*	20	*(38)*	382	*(36)*
Evening	79	*(37)*	286	*(42)*	34	*(35)*	23	*(43)*	422	*(40)*
Night	33	*(15)*	183	*(27)*	22	*(22)*	10	*(19)*	248	*(24)*
Sub-total	**215**		**686**		**98**		**53**		**1,052**	
Not answered	22		94		32		35		183	
Total	**237**		**780**		**130**		**88**		**1,235**	

Table 3 shows the time of day that patients were reviewed by critical care services for hospitals with and without an outreach service. It can be seen that hospitals with an outreach service were more likely to highlight patients during daytime and have reduced referrals at night. This may be due to earlier recognition of deteriorating patients and would be consistent with the rational for outreach services.

The advisor groups considered the appropriateness and timeliness of admission to ICU (Tables 4 and 5). As can be seen in this study there was no measurable effect of outreach services on either variable. In a study of this size it is not surprising that no measurable effect on these domains could be shown. The effect of outreach on these variables is likely to be lessened by other factors that we have shown earlier in the report. These factors (lack of senior doctor involvement in patient management and admission decisions, delays in ICU review and admission, lack of 24 hour 7 day per week cover by outreach services) will potentially reduce the proposed benefit of outreach. However, the result that there is no measurable difference in this small study should not be interpreted as lack of evidence of benefit of outreach.

Table 4. Appropriateness of admission by presence of outreach				
	Outreach service?			
Admission appropriate?	**Yes**	**No**	**Not answered**	**Total**
Yes	245	96	16	361
No	31	12	6	49
Sub-total	**276**	**108**	**22**	**410**
Insufficient data	22	5	2	29
Total	**298**	**113**	**24**	**439**

Table 5. Timeliness of admission by presence of outreach				
	Outreach service?			
Referral at correct time?	Yes	No	Not answered	Total
Yes	202	73	14	289
No	52	23	6	81
Sub-total	**254**	**96**	**20**	**370**
Insufficient data	27	9	2	38
Not answered	21	8	2	31
Total	**302**	**113**	**24**	**439**

Table 6 shows patient outcome according to the presence of an outreach service. It can be seen that there was no positive association between outreach services and outcome within this study. Again this is not surprising given the confounding factors mentioned above. In addition, it may be that hospitals with an effective outreach team will facilitate management of some patients on the ward and avoid admission to ICU. This will have the effect of increasing the severity of illness of patients admitted to ICU (by removing the less unwell patients who remain on the ward) and may worsen crude ICU mortality.

It should be noted that a large multi-centre study evaluating the utility of outreach services has been commissioned by the Department of Health and is being taken forward by the Intensive Care National Audit and Research Centre(ICNARC). Results from this study should be available in 2007.

Table 6. Outcome by presence of outreach					
Outcome	Hospital outreach service?				
	Yes	No	Sub-total	Not answered	Total
Died on ICU	366	139	505	55	560
Survived	643	351	994	102	1,096
Sub-total	**1,009**	**490**	**1,449**	**157**	**1,656**
Unknown	0	1	1	1	2
Not answered	9	8	17	2	19
Total	**1,018**	**499**	**1,517**	**160**	**1,677**

Recommendations

- **Each hospital should have a track and trigger system that allows rapid detection of the signs of early clinical deterioration and an early and appropriate response.**
- **Although this recommendation does not emerge from the findings in this report, NCEPOD echoes other bodies and recommends that trusts should ensure each hospital provides a formal outreach service that is available 24 hours per day, seven days per week. The composition of this service will vary from hospital to hospital but it should comprise of individuals with the skills and ability to recognise and manage the problems of critical illness [7,10,25,36].**
- **Outreach services and track and trigger systems should not replace the role of traditional medical teams in the care of inpatients, but should be seen as complementary.**