

PREHOSPITAL CARE

Outcome of patients identified as dead (beyond resuscitation) at the point of the emergency call

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Objective: Currently, an emergency ambulance is dispatched to all cardiac arrest victims. This study aimed to determine the outcome of patients with a dispatch code of 09B01 ("obvious death") and considers the appropriateness of dispatching a non-emergency response.

Methods: Dispatch records, patient report forms, and hospital records were reviewed to determine patient outcome.

Results: Within the one year study period 141 emergency calls were coded as 09B01. Records were obtained for 59 of these cases (42%). Ambulance crews diagnosed 54 as beyond resuscitation (91.5%, 95% CI 79.5% to 96.2%). Three received resuscitation attempts (5.1%, 95% CI 1.1% to 14.2%): two were subsequently pronounced dead at scene and one on arrival at hospital. Two patients were not in cardiac arrest (3.4%, 95% CI 0.4% to 11.7%): one was a transiently unconscious assault victim, and one had a hand injury after a road accident. Three patients coded as 09B01 were transported to hospital for treatment other than confirmation of death (5.1%, 95% CI 1.1% to 14.2%).

Conclusion: Not all patients coded 09B01 by dispatchers are assessed as "dead beyond resuscitation" by attending ambulance crews. Although poor data recovery and a small sample size limited the study, its findings suggest that it is inappropriate to allocate a non-emergency response to 09B01 (obvious death) calls.

In 1996, a UK Department of Health Working Group recommended that emergency ambulance calls were categorised as:

- Category A—life threatening conditions
- Category B—serious, but not immediately life threatening
- Category C—neither life threatening or serious.¹

The introduction of category C was deferred pending further research, although if it were implemented more emergency ambulances could be available to deal with life threatening and serious cases without incurring the costs associated with deploying additional personnel and vehicles.^{2,3} This might improve compliance with response time standards, which UK ambulance services are under pressure to meet.^{4,5}

With encouragement from the Department of Health,⁶ several ambulance services are considering alternative approaches to non-urgent calls.^{7,8} A medical consensus on dispatch codes suitable for a non-emergency response has been described.⁹ However, this report emphasised the need for research based on patient outcome before changing dispatching practice. It has been suggested that prioritisation systems cannot be expected to identify all potentially life threatening cases,¹⁰ and there are concerns about the safety of some dispatch systems.^{11,12}

Since 2001 most UK ambulance services have used the Medical Priority Dispatch System (MPDS) to prioritise emergency calls.¹³ This system includes simple questions to aid dispatchers in determining the probable urgency of each patient's condition, and to allocate an appropriate dispatch code.

In addition to allowing paramedics to identify patients not suitable for resuscitation, many ambulance services also permit dispatchers to allocate a 09B01 (obvious death) MPDS dispatch code if certain circumstances are identified at the point of the emergency call:

- Decapitation
- Decomposition
- Non-recent death (confirmed as being greater than six hours)
- Incineration (100% charring with no signs of life)
- Submersion (confirmed as being greater than 24 hours)

While providing an emergency response to all 09B01 calls may eliminate the possibility of poor public perception, this must be balanced against the risk of an ambulance unnecessarily using lights and sirens being involved in an accident.¹⁴ However, there are no published data on the appropriateness with which the 09B01 code is applied. Although this code includes only 0.1% of emergency calls,⁹ research is essential to minimise risk before allocation of a non-emergency response can be considered.

METHODS

This was a retrospective observational study. Records of emergency telephone calls and patient report forms (PRFs) completed by ambulance crews were searched for cases assigned dispatch code 09B01. Information from hospital records was also sought:

- (1) Did the patient receive any treatment?
- (2) Was resuscitation attempted?
- (3) Was the patient alive when transferred or discharged from the accident and emergency department?

The PRFs and hospital records were used to determine outcome for each patient. It was assumed that the patient was dead beyond resuscitation if treatment was not started

Abbreviations: CPR, cardiopulmonary resuscitation; PRF, patient report forms; MPDS, Medical Priority Dispatch System

by the ambulance service or accident and emergency department.

Study population

Data on all available cases allocated the 09B01 dispatch code between 1 April 2000 and 31 March 2001 were collected. No cases were excluded.

Statistical analysis

The 95% confidence intervals were calculated for proportions using statistical software (StatsDirect version 2.2.1, StatsDirect Limited, UK).

Ethical approval

The Welsh Multi-centre Research Ethics Committee (MREC) granted ethical approval and local research ethics committees were informed of the study.

The MREC agreed to the acquisition of minimal information from hospital notes by use of a standard form and ruled that consent was not required to do so.

Outcome measures

The proportion of patients coded 09B01 by dispatchers:

- for which ambulance crews attempted resuscitation;
- transported to hospital for treatment (other than confirmation of death);
- for which further resuscitation was attempted in the accident and emergency department;
- the outcomes of the patients involved in these cases.

RESULTS

Complete datasets were available for 59 of the 141 cases coded 09B01. Ambulance crews diagnosed 54 patients as dead beyond resuscitation. Three patients received resuscitation attempts and two were not in cardiac arrest (table 1).

The lack of complete data was attributable to missing ambulance report forms rather than untraceable dispatch and hospital records.

DISCUSSION

A resuscitation attempt was made by ambulance crews for 5% of patients coded 09B01, and 3% of patients had not suffered a cardiac arrest and were conscious when the ambulance arrived.

Errors in coding may be attributable to the inappropriate inclusion of certain indicators of "obvious death", dispatcher error, or inaccurate information provided by the caller.^{13 15 16}

Telephone instructions are provided to enable emergency callers to provide cardiopulmonary resuscitation (CPR) before the ambulance arrives, to increase cardiac arrest survival rates.^{17 18} First responders are increasingly used by ambulance services to shorten the time to defibrillation, as this is also an important predictor of survival.¹⁹⁻²¹ Telephone CPR instructions are not provided to callers when the 09B01 code is assigned, and first responders are not dispatched. The combination of these factors may reduce the likelihood of survival for miscoded patients. Given the small number of 09B01 cases and the serious consequences of under-triage, it seems reasonable to propose that all such calls should be audited with the aim of reducing errors.

Limitations

We recovered complete data for less than half of our sample and this made it impossible to determine whether there were demographic differences between the cases with full and missing data. Examples of inappropriate coding may have been missed and it was not possible, given the limited sample size, to identify repeated errors. As audiotapes of the emergency calls had been stolen, we were unable to determine if poor compliance to protocol was the cause of miscoding. It was also not clear if ambulance crews attempted resuscitation because they believed patients had a genuine chance of survival, or if they did so solely to provide reassurance to the patient's family or onlookers.

We did not attempt to measure the sensitivity of our dispatch systems in detecting patients who were "obviously dead". Ambulance resources may be being wasted in attempting to reach patients who are beyond resuscitation but are not identified as such.

Conclusion

The inappropriate allocation of a 09B01 code to some patients presents a significant clinical risk, suggesting that until errors can be eliminated it would be inappropriate to allocate a non-emergency response for such calls. Further research is required before considering changes to current dispatch priorities. Ambulance services should implement quality assurance measures for all cases coded as 09B01 to identify and eliminate errors.

Contributors

Leighton Harvey contributed to the study design, conducted the study, collected the data and assisted with its analysis, and wrote the first draft of this paper. Malcolm Woollard conceived the idea for the study, analysed the data, and edited the paper.

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Table 1 Results of the study

Outcome	Number (%; 95% CI)
09B01 cases within study period	141
Complete patient datasets retrieved	59 (42)
Patients diagnosed as dead beyond resuscitation by ambulance crews	54 (91.5, 79.5 to 96.2)
Patients receiving resuscitation attempts by ambulance crews:	3 (5.1, 1.1 to 14.2)
Two were subsequently pronounced dead at the scene	
One was pronounced dead on arrival at hospital	
Patients not requiring resuscitation:	2 (3.4, 0.4 to 11.7)
One assault victim who had transiently lost consciousness	
One road accident victim with a hand injury	
Patients transported to hospital for treatment other than confirmation of death (included above)	3 (5.1, 1.1 to 14.2)

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