



# Response of paramedics to terminally ill patients with cardiac arrest: an ethical dilemma

*Evidence*

*Études*

**Veena Guru, BSc; P. Richard Verbeek, MD; Laurie J. Morrison, MD**

## Abstract

**Background:** In an environment characterized by cuts to health care, hospital closures, increasing reliance on home care and an aging population, more terminally ill patients are choosing to die at home. The authors sought to determine the care received by these patients when paramedics were summoned by a 911 call and to document whether do-not-resuscitate (DNR) requests influenced the care given.

**Methods:** The records of a large urban emergency medical services system were reviewed to identify consecutive patients with cardiac arrest over the 10-month period November 1996 to August 1997. Data were abstracted from paramedics' ambulance call reports according to a standardized template. The proportion of these patients described as having a terminal illness was determined, as was the proportion of terminally ill patients with a DNR request. The resuscitative efforts of paramedics were compared for patients with and without a DNR request.

**Results:** Of the 1534 cardiac arrests, 144 (9.4%) involved patients described as having a terminal illness. The mean age of the patients was 72.2 (standard deviation 14.8) years. Paramedics encountered a DNR request in 90 (62.5%) of these cases. Current regulations governing paramedic practice were not followed in 34 (23.6%) of the cases. There was no difference in the likelihood that cardiopulmonary resuscitation (CPR) would be initiated between patients with and those without a DNR request (73% v. 83%;  $p = 0.17$ ). In patients for whom CPR was initiated, paramedics were much more likely to withhold full advanced cardiac life support if there was a DNR request than if there was not (22% v. 68%;  $p < 0.001$ ).

**Interpretation:** Paramedics are frequently called to attend terminally ill patients with cardiac arrest. Current regulations are a source of conflict between the paramedic's duty to treat and the patient's right to limit resuscitative efforts at the time of death.

In an environment characterized by cuts to health care, hospital closures, an increasing reliance on home care and an aging population, more terminally ill patients are choosing to die at home. This trend means that paramedics frequently encounter patients with a known underlying terminal illness who are experiencing cardiac arrest. Many jurisdictions in the United States have developed regulations to allow paramedics to withhold resuscitation of these patients if an appropriate do-not-resuscitate (DNR) request has been completed.<sup>1</sup> There are no published descriptions of any Canadian jurisdiction that has developed out-of-hospital DNR protocols.

Ontario paramedics frequently face conflicting interests when they encounter a terminally ill patient experiencing cardiac arrest. Patients and their advocates have a right to set limits on the scope of resuscitative efforts at the time of death; however, this right of expression can be honoured only by health care practitioners as defined in Ontario's *Health Care Consent Act*.<sup>2</sup> Under this act paramedics are not recognized as health care practitioners, so a conflict arises between the expressed wishes of the patient and the duty-to-treat obligations of the paramedic under the *Ambulance Act*,

Ms. Guru is with the University of Toronto Medical School, Toronto, Ont.; Dr. Verbeek is with the Division of Prehospital Care, Department of Emergency Services, Sunnybrook and Women's College Health Sciences Centre, Toronto, Ont.; and Dr. Morrison is with the Division of Emergency Medicine, Department of Medicine, University of Toronto, Toronto, Ont.

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which mandates initiation of aggressive life support measures.<sup>3</sup> The objectives of the study were to determine the proportion of out-of-hospital cardiac arrest patients who were described by paramedics as having a terminal illness and to compare resuscitative efforts in the presence and absence of a DNR request.

### Methods

The Emergency Medical Services (EMS) system of Toronto serves more than 2.2 million citizens. The enhanced 911 EMS system directs more than 400 000 calls per year to the ambulance service. Level 1 paramedics work in pairs and are trained in automated external defibrillation. Level 2/3 paramedic teams consist of a level 2 paramedic who supports the level 3 paramedic to provide full advanced cardiac life support (ACLS) procedures, including defibrillation, intubation and administration of the drugs typically used for cardiac arrest. In Ontario, medical procedures performed by paramedics are overseen by a regional base hospital system. The Department of Emergency Services at Sunnybrook and Women's College Health Sciences Centre serves as the base hospital for Toronto. Only level 3 paramedics can access the regional base hospital to receive further instructions for management or a pronouncement of death by an emergency physician.

Observations made by one of the authors (V.G.) during ambulance calls and unstructured interviews by the same author with practising paramedics defined some of the issues encountered and the descriptors used by paramedics in resuscitating terminally ill patients with cardiac arrest in the out-of-hospital setting.

A chart review was conducted to identify all ambulance calls for nonaccidental cardiac arrest over the 10-month period November 1996 to August 1997. Only charts that described a cardiac arrest ending a terminal illness were included for further analysis. The inclusion criteria specified clearly documented descriptors such as "terminally ill," "expected to die," "discharged home to die" and "terminal cancer." The presence of a DNR request was determined by a clearly documented descriptor such as "DNR requested," "family requests no resuscitation" or "family refuses CPR [cardiopulmonary resuscitation]."

Data were abstracted according to a standardized template. Information abstracted included patient characteristics, the location of the cardiac arrest, the presence or absence of a documented DNR request, the type of DNR request (verbal or written), the resuscitative efforts undertaken by the responding paramedic crew and the final outcome. Differences in the resuscitative effort in the presence or absence of a DNR request were tested by means of 2 x 2 tables for  $\chi^2$ . Other outcomes were described as proportions.

This study was approved by the Ethics Review Board of Sunnybrook and Women's College Health Sciences Centre.

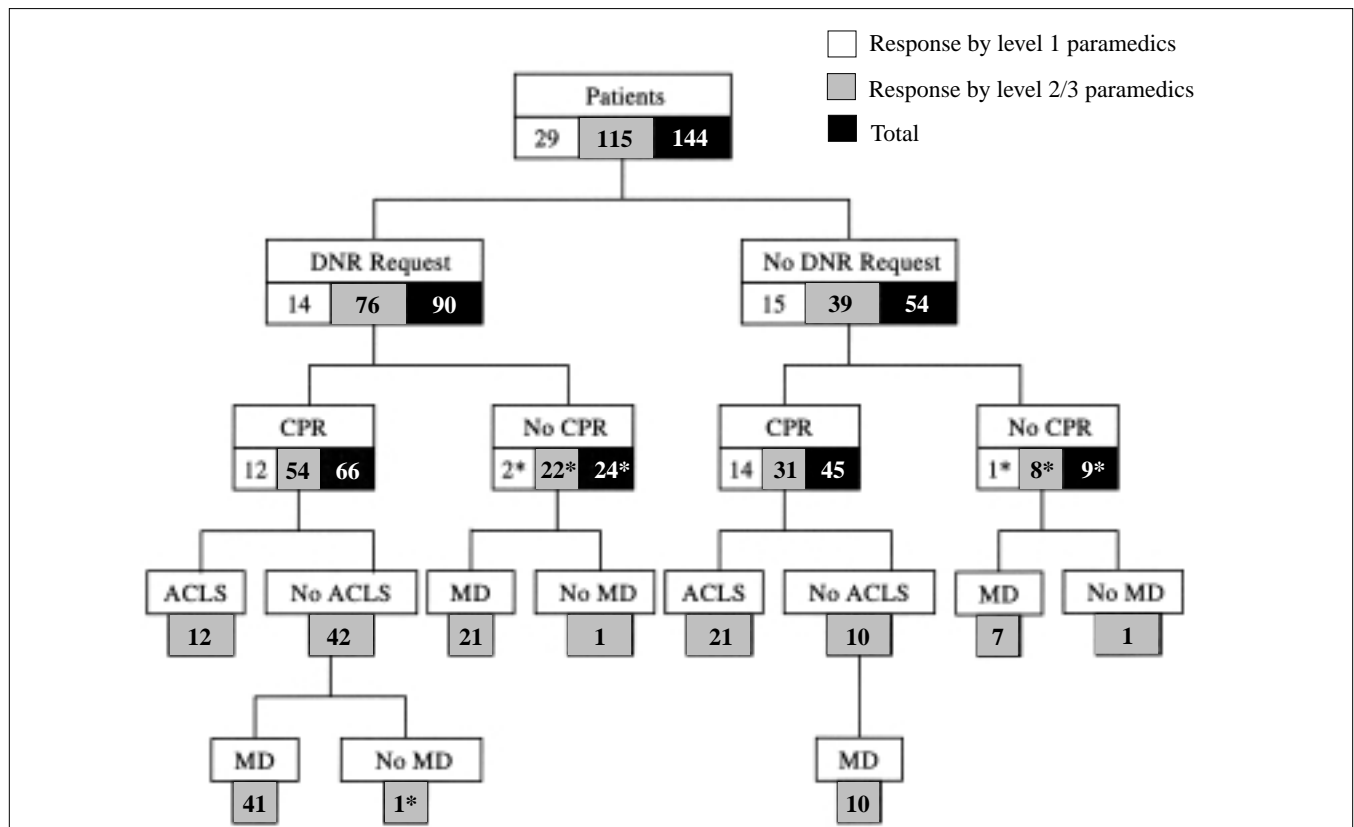


Fig. 1: Response of paramedics in cases of terminally ill patients with cardiac arrest. Numbers represent numbers of patients. Asterisks indicate cases in which current regulations were not followed, either because cardiopulmonary resuscitation (CPR) was not initiated or because level 2/3 paramedics decided not to initiate advanced cardiac life support (ACLS) without contacting and obtaining approval for this decision from a physician at the base hospital. DNR = do not resuscitate, MD = physician at base hospital was contacted, no MD = physician at base hospital was not contacted.



## Results

Toronto ambulance paramedics responded to 1534 calls relating to nonaccidental cardiac arrest during the study period. Of these calls, 144 (9.4%) involved patients described as having a terminal illness, whose records were subject to further analysis. The mean age of the patients was 72.2 (standard deviation 14.8) years (range 11 to 101 years), consisting of 77 males and 67 females. There was a DNR request in 90 (62.5%) of the cases. Caregivers made the DNR request verbally in 63 (70%) cases, whereas DNR requests were in written form in 27 (30%) cases.

A level 1 paramedic team constituted the responding crew for 29 (20.1%) of the calls, and a level 2/3 crew responded to the other 115 (79.9%) calls (Fig. 1). Of the 29 calls to which level 1 paramedics responded, 14 (48%) involved a DNR request. CPR was initiated according to current regulations in 12 (86%) of these 14 patients, despite the fact that CPR was clearly against the patients' or the caregivers' stated wishes. Level 1 paramedics disobeyed regulations and did not initiate CPR in 3 patients, for 2 of whom there was a DNR request.

Level 2/3 paramedic crews responded to 115 (79.9%) of the calls. They encountered a DNR request in 76 (66.1%) of these cases, and began CPR in 54 (71%) of them. Level 2/3 paramedics disobeyed regulations and did not initiate CPR in a total of 30 patients, 22 of whom had DNR requests. It is noteworthy that 8 patients did not receive CPR from level 2/3 crews despite the *absence* of a DNR request.

There was no difference in the likelihood that CPR would be initiated between cases in which there was a DNR request and those in which there was no such request (66/90 [73%] v. 45/54 [83%],  $p = 0.17$ ). In cases in which CPR was initiated, level 2/3 paramedics were much more likely to withhold ACLS protocols in the presence of a DNR request: level 2/3 paramedics provided full ACLS resuscitation for only 12 (22%) of 54 patients with a DNR request, whereas they provided ACLS to 21 (68%) of 31 patients for whom there was no DNR request ( $p < 0.001$ ).

Overall, there were 34 (23.6%) cases in which the paramedic crews did not follow current regulations either because they failed to initiate CPR (33 cases) or because they decided not to initiate ACLS measures without contacting and obtaining approval for this decision from the physician at the base hospital (1 case). None of the 144 patients survived to discharge from hospital.

Notes in the paramedics' ambulance call reports indicated that caregivers called 911 even when they were in contact with or had attempted to contact the appropriate health care personnel (i.e., appropriate for the death of a terminally ill patient). Paramedics reported that the 911 service was called under the following circumstances: on the advice of the family doctor, contacted by the family at the time of death; when a home care nurse was present in the home; and after failure of attempts to contact the family

doctor or home care nurse who had specifically instructed the family to call her or him at the time of death.

Paramedics' observations also dramatized the difficult situations they sometimes face. In several cases resuscitation was initiated despite the repeated objections of caregivers. In the face of these objections, the paramedics sometimes had to move the patient to the ambulance, out of sight of the caregivers, to begin resuscitation, knowing full well that this delay would render the attempt futile.

## Interpretation

Out-of-hospital cardiac arrests ending a terminal illness were relatively common, accounting for 9.4% of all nonaccidental deaths in our EMS system over the 10-month study period. Caregivers specifically requested no resuscitation in 62.5% of these cases. Most of these requests (70%) were expressed verbally.

The paramedics did not follow current regulations mandating resuscitation in 23.6% of the cases. However, it did not appear that the paramedics' decisions about whether to begin basic CPR were influenced by the presence or absence of a DNR request. Current regulations do not oblige level 2/3 paramedics to begin full ACLS protocols in cases in which the caregivers request no resuscitation. They have the option of beginning CPR and calling the base hospital physician for further instructions. Given this option, level 2/3 paramedics were influenced by a DNR request in their decision about whether to implement ACLS protocols. Only 22% of patients attended by a level 2/3 team and for whom there was a DNR request received full ACLS, whereas 68% of those without such a request received full ACLS. These findings suggest that paramedics are willing to honour DNR requests when they have the option and will take steps to avoid unwanted resuscitation when empowered to do so.

Ideally, the 911 EMS system should not be activated in the case of expected death in the home of a patient who has expressed a wish not to undergo resuscitation. The Office of the Chief Coroner of Ontario has recently expressed concern about physicians' refusal to certify deaths occurring at home.<sup>4</sup> The Coroner's office<sup>4</sup> and the Ontario Medical Association<sup>5</sup> have issued guidelines for physicians regarding the appropriate actions to be taken when there is an expected death in the home. Both have stressed that caregivers must be educated about whom to call when death occurs. Specifically, they should be told not to call 911, because such a call activates a tiered response from ambulance and fire services and triggers mandatory resuscitative efforts. Ironically, in this process, public resources are expended in resuscitating some patients who clearly do not wish to be resuscitated.

The experiences of paramedics and caregivers argue strongly for the creation of a dignified option in the form of an out-of-hospital DNR protocol that applies to paramedics responding to such calls. There would be several



benefits to such a protocol. The obvious ethical dilemma would be avoided, the patient's right to decide would be preserved, stress for both the caregiver and the paramedics would be alleviated, resources would not be spent on patients who do not wish to be resuscitated, and public safety would be enhanced by the reduction in the number of ambulances speeding to the nearest emergency department. Guidelines for DNR orders in the out-of-hospital setting have been developed,<sup>6-9</sup> the ethical issues debated,<sup>10-13</sup> and implementation strategies outlined.<sup>14-16</sup> A survey of emergency physicians found that 95% of respondents agreed with the need for a formal out-of-hospital DNR policy.<sup>17</sup>

Most out-of-hospital DNR policies rely on a formal patient registration system with standardized forms or patient bracelets.<sup>1,11,14,15</sup> The forms must be signed by the patient (or a legal advocate) and countersigned by a physician. In these circumstances, resuscitative measures need not be taken, but paramedics could still serve a useful function by notifying the appropriate authorities and offering support to the caregivers. It has been shown that families are comfortable accepting termination of unsuccessful out-of-hospital cardiac resuscitation.<sup>18</sup> It is likely that they would also accept the withholding of resuscitation within an out-of-hospital DNR program.

Our results have documented that paramedics frequently encounter patients experiencing cardiac arrest at the end of a terminal illness. Current regulations are a source of conflict between the paramedic's duty to treat and the patient's right to limit resuscitative efforts at the time of death. Paramedics frequently do not (or cannot) comply with current regulations. Formal protocols must be developed so that the DNR requests of these patients can be honoured in the event of cardiac arrest, even when the 911 service is called.

Competing interests: None declared.

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**Reprint requests to:** Dr. P. Richard Verbeek, BG-15, Department of Emergency Services, Sunnybrook and Women's College Health Sciences Centre, 2075 Bayview Ave., Toronto ON M4N 3M5; r.verbeek@utoronto.ca

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