

Why Bystanders Decline Telephone Cardiac Resuscitation Advice

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Abstract

Objectives: The aim of this study was to evaluate the rate and reason for refusal of telephone-based cardiopulmonary resuscitation (CPR) instruction by bystanders after the implementation of the dispatch center's systematic telephone CPR protocol.

Methods: Over a 15-month period the authors prospectively collected all case records from the emergency medical services (EMS) dispatch center when CPR had been proposed to the bystander calling in and recorded the reason for declining or not performing that the bystander spontaneously mentioned. All pediatric and adult traumatic and nontraumatic cases were included. Situations when resuscitation had been spontaneously initiated by bystanders were excluded.

Results: During the study period, dispatchers proposed CPR on 264 occasions: 232 adult nontraumatic cases, 17 adult traumatic cases, and 15 pediatric (traumatic and nontraumatic) cases. The proposal was accepted in 163 cases (61.7%, 95% confidence interval [CI] = 54.6% to 66.5%), and CPR was eventually performed in 134 cases (51%, 95% CI = 43.2% to 55.3%). In 35 of the cases where resuscitation was not carried out, the condition of the patient or conditions at the scene made this decision medically appropriate. Of the remaining 95 cases, 55 were due to physical limitations of the caller, and 33 were due to emotional distress.

Conclusions: The telephone CPR acceptance rate of 62% in this study is comparable to those of other similar studies. Because bystanders' physical condition is one of the keys to success, the rate may not improve as the population ages.

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The overall survival rate for out-of-hospital cardiac arrests barely exceeds 5%, even in industrialized countries.^{1,2} Early initiation of life support maneuvers by bystanders improves survival rates and global outcomes from cardiac arrests.^{1,2} In Switzerland, out-of-hospital cardiac arrest is one of the main causes of mortality but bystander cardiopulmonary resuscitation (CPR—in this article we use this term to include chest compressions with or without mouth-to-mouth

ventilation) performance rates are low. Telephone CPR advice and instruction has been shown to increase bystander CPR rates.^{3,4} This procedure has been recently simplified by the 2005 recommendations of the American Heart Association (AHA) to focus on chest compression resuscitation (CCR) alone during adult nontraumatic arrests.⁵ Following the 2005 AHA's revised guidelines for resuscitation, about half (54% in one study,⁶ 47% in another⁷) of callers to emergency medical services (EMS) dispatch centers accept telephone resuscitation advice. To improve bystander CPR rates, we recently implemented systematic telephonic instruction of bystanders in CPR by our dispatch center.⁸

The aim of this study was to measure the acceptance rate of telephone CPR instruction by bystanders and to identify the reasons why bystanders may decline or fail to perform CPR. We use the term "bystander" to refer to anyone calling the dispatch center, whether or not they have a health care education or CPR training.

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A related commentary appears on page 989.

METHODS

Study Design

This study was a prospective observational investigation. All the data came from a special database that did not contain any information about patient or caller identity.

Study Setting and Population

Cases were collected from throughout the state of Vaud in western Switzerland. A centralized prehospital dispatch center in the state covers a population of 670,000 and handles 80,000 calls per year. Two emergency medical dispatchers are on duty at all times. All dispatchers are paramedics or nurses with at least 5 years of field experience. Dispatchers do not use the Medical Priority Dispatch System or any similar product; they rely on their own medical background and personal experience to ask the questions they deem appropriate to the situation. They do use an electronic dispatching application using "key words" (such as "chest pain," "dyspnea," "unconscious") to help in sending the appropriate rescue vehicles (ambulance or rescue helicopter) and personnel (paramedics or emergency physicians) to the scene.

The same dispatcher is in charge of the interview, rescue dispatching, and proposing CPR to the caller. Dispatchers recommend CCR in all cases of adult non-traumatic cardiac arrest. They give instruction on hand positioning and chest compression depth and frequency, but propose mouth-to-mouth ventilation (full CPR) only for pediatric or asphyxiation cases.

Based on our previous data we estimated that a sample size of 200 cases would be needed; consequently, we prospectively collected all records where dispatchers gave the caller advice regarding CPR over a 15-month period (May 1, 2008, to July 30, 2009). All pediatric and adult traumatic and nontraumatic cases were included. Cases where resuscitation was spontaneously initiated or when the dispatcher did not propose CPR were excluded.

Study Protocol

Dedicated forms were developed in advance, based on previous internal quality control and on the recent literature (Table 1), and used by the dispatchers to collect data. For each case, dispatchers completed the forms and checked one of the nine possible reasons spontaneously mentioned by the bystander to decline CPR. While developing the form, we noted that callers never gave more than one reason that instructions were refused, and we hence forced a single response for data collection to simplify the analysis. Callers were not directly questioned regarding their reasons for refusal. If the bystander accepted the proposal but in the end did not perform CPR, dispatchers completed a second form listing seven possible explanations. Again, there was no direct question to the caller. All forms were completed on the day of the call.

All incoming calls and radio communications are recorded and available to EMS senior officers to satisfy legal requirements and to allow for quality control. The EMS medical director is a senior physician of the

Table 1
Reasons for Declining or Not Performing Resuscitation Advice

Bystander-generated reasons for declining	
Physical limitation	
Patient is probably dead	
Fear of infections	
Afraid to hurt the patient	
Believes patient is alive	
Remote from patient	
Emotional distress	
Patient terminally ill	
Other	
Bystander-generated reasons for not performing once advice accepted	
Physical limitation	
Believes patient is alive	
Paramedics arrive	
Does not understand instructions	
Bystander left telephone	
Emotional distress	
Other	

emergency department of the Lausanne University Hospital and is responsible for the training and the quality control of the EMS dispatch center. The EMS medical director collected all data forms and listened to all the tape recordings during his daily hour dedicated to "audio quality control." He cross-checked the dispatchers' answers against the tapes and confirmed the reasons mentioned by the dispatcher. Whenever there were diverging opinions or conflicting information, the medical director clarified this with the dispatcher as soon as possible. The medical director and dispatchers disagreed on only eight occasions, always on the same items: one would choose "physical limitation," and the other "emotional distress." The medical director's choice was final. The cases were split equally with the dispatcher choosing physical limitation in four cases. As a consequence, the decision did not affect the statistical analysis.

Data Analysis

The questionnaires were deidentified and pooled in a computerized database (Microsoft Access, Microsoft Corp., Redmond, WA). We used descriptive statistics (medians, ranges, proportions) to assess sample characteristics. Rates of telephone advice acceptance and reasons for declining to perform CPR were calculated for each group (adult nontraumatic cardiac arrest, adult trauma-related cardiac arrest, and pediatric cardiac arrest), and when relevant, odd ratios (ORs) were estimated. The statistical analysis was performed using Stata Statistical Software Release 9.0 (StataCor, College Station, TX).

RESULTS

The dispatch center recorded 738 calls in which cardiac arrest was later documented. The 489 cases where resuscitation was spontaneously initiated, or when dispatchers did not propose CPR, were excluded. During the 15 months, dispatchers proposed CPR on 264 occasions (Figure 1): 163 recommendations (61.7%, 95% confidence interval [CI] = 54.6% to 66.5%) were

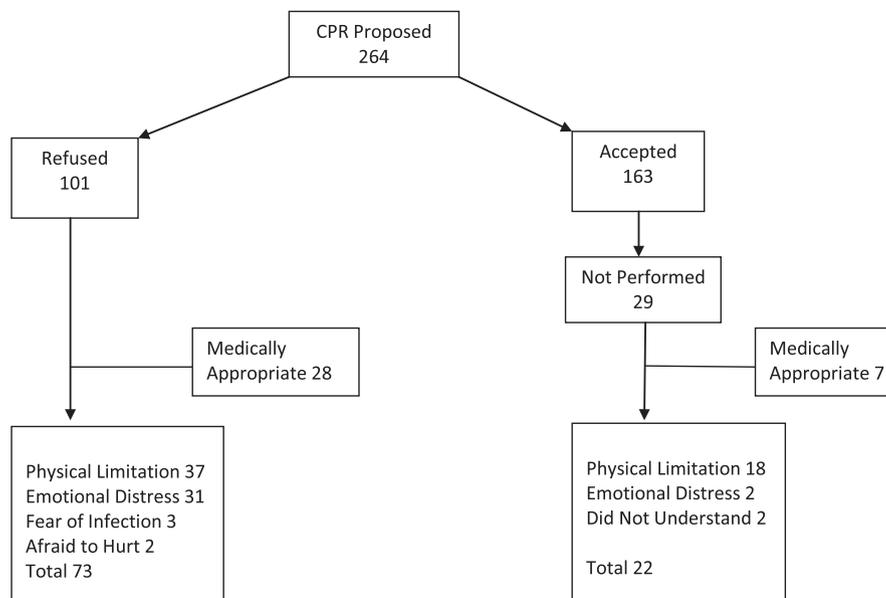


Figure 1. Flow chart of CPR proposals. Numbers are number of cases. Medically appropriate reasons included the following: caller remote from scene, two cases; ambulance arrived before CPR could be started, two cases; patient had terminal disease, six cases; prolonged down time (obviously dead), 17 cases; patient was thought to have pulse or respirations at time of call, eight cases. CPR = cardiopulmonary resuscitation.

accepted. CPR was eventually performed in 134 cases (51%, 95% CI = 43.2% to 55.3%).

Acceptance was particularly high for pediatric cardiac arrest, with only one refusal of 15 cases. It was also better for adult nontraumatic cardiac arrest than adult traumatic cardiac arrest, with an estimated OR of acceptance of 1.5 (95% CI = 1.15 to 1.95). Although adult traumatic arrest is a relatively frequent event, the number of cases that could be appropriate for CCR advice is low because in most cases the caller is at a location remote from the victim, patients are difficult to access, or they are still obviously alive at the time of the call. Nevertheless, in this very small group, advice was accepted in 9 of 17 of cases.

If medically appropriate reasons for not performing CPR (ambulance arrived before resuscitation could be started, bystander was remote from scene, patient with terminal illness, bystander believes patient is alive, or prolonged down time) are excluded, then the bystander's physical condition was responsible for 55 of 95 (57.9%) of cases (95% CI = 42.2% to 80.8%) and emotional distress for 33 of 95 (34.7%; 95% CI = 28.0% to 46.9%) in which CPR was not carried out. This includes the two branches of Figure 1: CPR refusals and CPR not performed once advice accepted.

DISCUSSION

This study confirms that in more than half of the cases, bystanders are willing to perform CPR when proposed to do so by a dispatcher. This finding is similar to the telephone CPR rates documented in two studies that were conducted following the 2005 AHA revised guidelines (54%⁶ and 47%⁷), but may be a bit lower than those shown in studies conducted prior to 2005 when dispatchers proposed full CPR in all cases (70%⁹

and 77%¹⁰). However, our study was not designed to provide direct comparison to these prior studies. Infections have never been reported from performing CPR,¹¹ and fear of infections has never been a major issue for bystanders, only accounting for two cases of 52 refusals in a 2003 study¹⁰ and three cases of 95 in our study.

LIMITATIONS

Systematic CPR/CCR advice was recently implemented in our EMS dispatch center and more experienced dispatchers might be better at convincing callers to perform it. Finally, all quality control was performed by the first author. As EMS Dispatch Center medical director, he was the only person authorized to review the tapes. Although little dispatch data were changed by his review, an independent reviewer would have been helpful.

CONCLUSIONS

The telephone cardiopulmonary resuscitation acceptance rate of 62% in this study is comparable to those of other similar studies. Because the physical condition of bystanders was the major reason for not performing CPR, the gradual aging of the population may make bystander CPR more difficult to arrange in the future. Countries with different demographics (younger population) may have fewer refusals for physical reasons if a similar procedure (telephone advice) is available.

Prehospital CPR rates might be increased by increasing the rate of dispatcher CPR proposals, for example, by improving their recognition of and systematically initiating CPR in prearrest situations such as agonal

breathing^{9,12} or by increasing the rate of spontaneous bystander CPR by providing training to a broader segment of the general population.

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