Is the public equipped to act in out of hospital cardiac emergencies?

K L Smith, P A Cameron, A D McR Meyer, J J McNeil

Study objective: This study aimed to determine whether the people in Australia are informed about and prepared to intervene in a cardiac emergency.

METHODS

Survey instrument

The questionnaire contained sections regarding participant demographics, CPR training, knowledge of CPR, and the emergency number and potential barriers to performing chest compressions and mouth to mouth.

Study design

Ethical approval was obtained from the Alfred Hospital Ethics Committee. The study was a cross sectional telephone survey, which contained sections regarding participant demographics, cardiopulmonary resuscitation (CPR) training, knowledge of CPR, and the emergency contact number and potential barriers to performing chest compressions and mouth to mouth.

RESULTS

A total of 1489 people completed the questionnaire. Only 11% of the population had recently (<12 months) trained in CPR. When presented with a cardiac arrest scenario most participants stated that they would telephone 000. Significantly more respondents believed that they would give mouth to mouth to a family member compared with a stranger. A bleeding victim and fear of not having the skills were the most common barriers that reduced the participants perceived willingness to perform chest compressions and mouth to mouth.

Conclusion: This study suggests that a low percentage of the public is currently trained in CPR and also that they are unprepared to act in a cardiac emergency.
Only 52% of the study sample were trained in CPR and only 11% within the past 12 months. Of those CPR trained, 53% said they still felt confident about their CPR skills. Respondents were significantly more likely to have received CPR training if they were younger than 56 years of age (OR 3.3, 95% CI 2.6 to 4.3, p < 0.001) and if they had training in a trade (OR 2.1, 95% CI 1.5 to 3.0, p < 0.001) or a tertiary education (OR 1.9, 95% CI 1.4 to 2.5, p < 0.001) compared with high school only.

Respondents were asked unprompted to name actions they believed they would take if faced with a collapse situation at home or in the street. Most participants stated that they would telephone 000. Significantly more respondents believed that they would give mouth to mouth to a family member compared with a stranger. Women were less likely than men to say that they would give chest compressions (regardless of the scenario) (table 1).

Respondents who had received CPR training were more likely to say that they would give chest compressions, mouth to mouth, and check for “Danger, Response, Airway, Breathing and Circulation” than non-trained respondents (p < 0.01) (table 1).

A bleeding victim and fear of not having the skills were the most common barriers that reduced the participants perceived willingness to perform chest compressions and mouth to mouth (table 2).

DISCUSSION
A significant finding from this study is the low level of people who have current CPR training. Only 11% of participants had trained in CPR within the previous 12 months. The American Heart Association has suggested that to reduce morbidity and mortality rates from out of hospital cardiac arrest at least 20% of adults need to be currently trained in CPR.13

Respondents were more likely to have received training if they were younger than 56 years of age. The association between age and likelihood of being trained in CPR has been reported in previous studies.14,15 CPR courses attract a predominance of young, healthy adults.16-20 This contrasts strongly with the type of person most likely to witness a cardiac arrest.7

Participants who had CPR training were no more likely to say that they would call 000. This response is disappointing as the concept of “phoning first” in a cardiac emergency (where the victim is aged over 8 years) is part of the current Australian Resuscitation Basic Life Support Guidelines.21 It seems that the public would waste valuable time before activating the EMS.

The fear of incorrectly performing CPR and fear of catching a disease, seen in this study have been reported previously.10,18 Disease transmission in particular has been proposed as a reason that CPR is not more commonly started.19-20 In Sweden 94% of trained lay rescuers interviewed believed that there was a small to large risk of disease transmission from performing CPR.20 This fear seems to be unfounded as the risk of acquiring an infection from CPR is extremely low.21 Rowe et al suggest that barriers identified in studies such as this, need to be tackled by CPR instructors to allay fears regarding basic life support.10

This study has several limitations. The possibility of a volunteer sampling effect means that the data presented may overestimate the public’s knowledge of the appropriate actions in a cardiac arrest situation. Also, the respondents were not tested on their actual performance or behaviour, which again may cause an overestimation of preparedness.

This lack of knowledge observed in the public, may contribute to the poor survival rates that have been reported for Melbourne (<5%) and in other areas of Australia.22-24 Innovative CPR training delivery methods (such as video training) and public awareness campaigns require exploration.25-28 It may also mean that awareness programmes should target specific
components of the full CPR training courses such as, recognising an arrest, dialling 000, and providing chest compressions alone.

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**Contributors**

Karen Smith initiated and coordinated the formulation of the research idea, sought project funding and ethical approval, participated in the initial design of the questionnaire, piloted and refined the questionnaire, discussed core ideas, designed the study database, coordinated data collection, performed the statistical analysis and participated in the writing of the paper. Peter Cameron initiated and coordinated the formulation of the research idea, participated in the initial design of the questionnaire, discussed core ideas and the data analysis and participated in the writing of the paper. Alastair Meyer participated in the formulation of the research idea and in the initial design of the questionnaire and contributed to an initial grant application. John McNeil initiated and coordinated the formulation of the research idea, participated in the initial design of the questionnaire, discussed core ideas and the data analysis and participated in the writing of the paper. Alastair Meyer initiated and coordinated the formulation of the research idea, participated in the initial design of the questionnaire, discussed core ideas and contributed to an initial grant application. John McNeil initiated and coordinated the formulation of the research idea, participated in the initial design of the questionnaire, discussed core ideas and the data analysis and participated in the writing of the paper. Alastair Meyer participated in the formulation of the research idea and in the initial design of the questionnaire and contributed to an initial grant application. John McNeil initiated and coordinated the formulation of the research idea, participated in the initial design of the questionnaire, discussed core ideas and the data analysis and participated in the writing of the paper.

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**REFERENCES**


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<tr>
<th>Characteristic</th>
<th>Chest compressions</th>
<th>Mouth to mouth</th>
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<tr>
<td></td>
<td>Willing</td>
<td>Unwilling</td>
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<td>Person was the same sex</td>
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<td>84.0</td>
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<td>Other witnesses</td>
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<td>9.4</td>
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<td>Complete stranger</td>
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<td>Person looked dirty</td>
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<tr>
<td>Fear of disease</td>
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<td>Person had vomited</td>
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<td>Fear of legal consequences</td>
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<tr>
<td>Fear of not having the skills</td>
<td>56.2</td>
<td>19.8</td>
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<tr>
<td>Person was bleeding</td>
<td>55.0</td>
<td>19.0</td>
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