The Scottish Government
Riaghaltas na h-Alba

Exploring the knowledge, attitudes, and behaviour of the general public to responding to out-of-hospital cardiac arrest

HEALTH AND SOCIAL CARE

social research

INSTITUTE FOR SOCIAL MARKETING

University of Stirling & The Open University
Stirling FK9 4LA Scotland

Exploring the knowledge, attitudes, and behaviour of the general public to out-of-hospital cardiac arrest

Fiona Dobbie, Anne Marie MacKintosh and Linda Bauld

January 2016

Final report prepared for the
Resuscitation Research Group at the University of Edinburgh
and the Scottish Government

ISM Institute *for* Social Marketing
A collaboration between the University of Stirling and The Open University

ACKNOWLEDGEMENTS

We are grateful for the support and advice on the research from those involved in the Out of Hospital Cardiac Arrest Strategy for Scotland including:

Dr Gareth Clegg, Resuscitation Research Group Lead, University of Edinburgh.

David Cline, Paul Gowens and Karen MacNee Healthcare Quality and Strategy Directorate, the Scottish Government.

Connie Smith and Rebecca Stirzaker (PhD Student internship) Directorate for Finance, e-Health and Analytics, the Scottish Government Health and Social Care Directorate.

Contents

Contents 3
Executive Summary 4
Chapter 1 Introduction 6
1.1 Background 6
1.2 Aim and research objectives 7
1.3 Methods 7
1.3.1 Sample and analysis 7
Chapter 2 Results from the Survey 9
2.1 CPR training 9
2.1.1 Delivery of CPR training 10
2.1.2 Time elapsed since CPR training 11
2.1.3 Attitudes towards CPR training 12
2.2 Administering CPR 13
2.2.1 Experience and willingness to administer CPR 15
2.2.2 Attitudes towards CPR 16
Chapter 3 Conclusions and Next Steps 18

Executive Summary

Bystander CPR is a key determinant of survival after Out-of-Hospital Cardiac Arrest (OHCA). Increasing rates of bystander CPR is a core element of Scotland's Strategy for OHCA.

This study collected data to inform Scotland's Out-of-Hospital Cardiac Arrest Strategy[1] and help create a social marketing strategy and health behaviour change activities to address the barriers to responding to OHCA and improve the rate of bystander Cardio-Pulmonary Resuscitation (CPR) in Scotland. Data were gathered through the TNS-BMRB Scottish Opinion Survey (SOS); a rolling general population face-to-face omnibus survey of a sample of 1027 of the Scottish adult population (aged 16 and over) in early August 2015.

This report presents the key findings and conclusions in addition to the research aims and objectives; method, sample and analysis. The attached document contains the core data tables produced from the survey.

Key findings - CPR training

The proportion of respondents who were trained in CPR was 52%. However most were trained some time ago - 44% over five years and just 28% within the last year. The median time elapsed since CPR training was more than 2 years but less than 5 years. The majority of respondents who were CPR trained received this training because it was a requirement of their employment or was offered to them through their employment or voluntary work (78%). Over two fifths (42%) of respondents who had not been CPR trained said it was something they would like to do. The main reasons for not being CPR trained were because 'the thought had never occurred' (28%) or respondents had not been given the opportunity (29%).

Key findings - Administering CPR

One fifth (21%) of respondents said that they would not know if CPR was required and half (50%) would not be confident to administer CPR. As would be expected, confidence to conduct CPR was higher amongst respondents who had received training (93% trained compared with 70% not trained). It is also important to note that over a quarter (27%) of respondents who were trained in CPR said that they would not be confident to administer CPR. Levels of confidence in attempting CPR improved significantly to 82% in the situation where it was indicated that a 999 call handler would talk respondents through what to do.

Just over one in ten respondents (13%) had previously administered CPR. The majority (72%) of respondents indicated that they would be likely to give CPR if they were the only bystander present. Of particular note is that over two fifths (44%) of respondents who were CPR trained said it was unlikely or they did not know if they would act if they were the only person. When respondents were asked why they thought people would not give CPR 34% felt it may be because the person did not have the skills or confidence to give CPR, a further 30% cited fear of making

[1] Scottish Government (2015) Out-of-hospital Cardiac Arrest: A Strategy for Scotland; Edinburgh: Scottish Government. Accessed on 19/01/2016 at http://www.gov.scot/Publications/2015/03/7484

things worse or of being sued. There was strong public support for administering CPR – 77% agreed that everyone should be trained in CPR and 83% agreed that they would rather try giving CPR than do nothing.

Key findings – Social factors associated with responses
In this initial analysis we found three factors associated with knowledge, experience, and attitudes toward bystander CPR:

- **Age** - the older a person is, the less likely they were to be CPR trained and show willingness to be CPR trained. They were also more likely to have had CPR training more than five years previously and be the least confident to administer bystander CPR. These findings are particularly relevant considering that most OHCA happen in the homes of older people.
- **Social grade**[2] – people in professional managerial and non-manual occupations (according to the household's main income earner's occupation) were more likely than those in manual, unskilled occupations and long-term unemployed people (social grades C2DE) to be CPR trained and be more confident to administer CPR if talked through by a call handler.
- **Working status** - people who were working were more likely to be CPR trained, be trained more recently and show higher levels of confidence to administer CPR.

Based on the findings from this study our suggested priorities for a social marketing strategy to improve the rate of bystander CPR include:

- Engagement with people who are not CPR trained and improve the number of people who would like to be CPR trained.
- Specially target older people, people in social grade C2DE and people who are not required to be CPR trained for their employment or voluntary work.
- Address the barriers to administering CPR by building confidence and addressing myths/fears around administering CPR (e.g. making things worse; fear of being sued or catching a disease).

[2] Social grade was calculated using the NRS (National Readership Survey) classification where A represents 'upper middle class', B is 'middle class', C1 is 'lower middle class', C2 is 'skilled working class', D is 'working class' and E is 'non-working'.

Chapter 1 Introduction

This research was funded by the Scottish Government to inform the Scotland's Out-of-Hospital Cardiac Arrest Strategy[3] and associated activities. It presents findings from an omnibus survey of Scottish adults. The report starts with this introductory chapter which presents: background to the study; the research aims and objectives; method, sample and analysis. Chapter two discusses key findings and the focus of the last chapter is conclusions and next steps. The attached document contains the core data tables produced from the survey.

1.1 Background

Survival rates from out-of hospital cardiac arrest (OHCA) in Scotland are currently estimated at 1 in 20 adults[4]. Victims of OHCA who receive bystander Cardio-Pulmonary Resuscitation (CPR) are far more likely to survive to hospital discharge than those who do not. Internationally, the largest improvements in survival after OHCA are associated with an increase in the rates of bystander CPR[5]. In March 2015 the Scottish Government launched Scotland's Out-of-Hospital Cardiac Arrest Strategy which seeks to;

"improve outcomes after out-of-hospital cardiac arrest (OHCA) and an ambition that by 2020 Scotland will be an international leader in the management of OHCA"[6].

The study was funded by the Scottish Government to inform delivery of four strategy aims which centre on public administration of CPR:

- To ensure that those who witness an out-of-hospital cardiac arrest (OHCA) promptly call 999 and are enabled to carry out immediate CPR and use a Public Access Defibrillator (PAD), where available, until support arrives.
- To increase the rate of bystander CPR.
- To equip an additional 500,000 with CPR skills by 2020 and create a nation of life savers.
- To encourage a greater public awareness of the 'right thing to do' and an increased willingness to help when present as a bystander at an OHCA.

[3] Out-of-hospital Cardiac Arrest: A Strategy for Scotland (2015) Scottish Government, 2015. Accessed on 16/01/2016 at http://www.gov.scot/Publications/2015/03/7484

[4] Resuscitation Research Group, Edinburgh and Scottish Ambulance Service – unpublished data 2012-14.

[5] e.g. Wissenberg M, Lippert FK, Folke F, Weeke P, Hansen CM, Christensen EF, et al. Association of National Initiatives to Improve Cardiac Arrest Management With Rates of Bystander Intervention and Patient Survival After Out-of-Hospital Cardiac Arrest. Jama 2013;310:1377. doi:10.1001/jama.2013.278483.

[6] Out-of-hospital Cardiac Arrest: A Strategy for Scotland (2015) Scottish Government, 2015. Accessed on 16/01/2016 at http://www.gov.scot/Publications/2015/03/7484

1.2 Aim and research objectives

The overall aim of the study was to inform the OHCA Scotland Strategy, in particular to improve people in Scotland's understanding, knowledge, experience of, and attitudes to, bystander CPR. A primary purpose for this is to inform a social marketing strategy and/or health behaviour change activities to address the barriers to responding to OHCA and improve the rate of bystander CPR.

Linked to these were four research objectives:

1. To gather baseline information on the number of people trained in CPR (along with how and when this took place) from which to monitor progress over the five year lifespan of Scotland's OHCA strategy.

2. To understand why people are not CPR trained and assess interest in receiving CPR training.

3. To explore the barriers and facilitators to administering bystander CPR.

4. To explore public attitudes and behaviour towards bystander CPR.

1.3 Methods

A face-to-face survey was the most appropriate method to collect robust data. To make the best use of resources, data was collected from questions in a rolling general population, face to face, omnibus survey. An omnibus survey is a cost effective and time saving mode of survey data collection with samples that are large enough to be representative of the Scottish adult population. The Institute for Social Marketing (ISM) commissioned questions in the TNS-BMRB Scottish Opinion Survey (SOS) which is conducted in the home, using CAPI (Computer Assisted Personal Interviewing). Qualitative follow-up research to explore findings in more detail may be the focus of a subsequent study and future funding is being sought for that.

Running parallel to this commission were two complimentary but separate studies to provide evidence for the Out of Hospital Cardiac Arrest Strategy for Scotland. First was a literature review conducted by Rebecca Stirzaker, a PhD student intern with the Scottish Government Health Analytical Services. Second, is a qualitative study seeking to better understand the experience and impact of administering CPR. This research is ongoing, led by the Resuscitation Research Group in Edinburgh, funded by the Resuscitation Council UK, and primarily involves semi-structured interviews with approximately 40 people who have administered 'bystander' CPR. The literature review informed the survey questions and both studies will provide evidence to develop a social marketing strategy intended to increase the rate of bystander CPR.

1.3.1 Sample and analysis

Data collection took place over a two week period in early August 2015 with a sample of 1027 adults aged 16 or over. Data were weighted to ensure the sample

was representative in terms of age, sex and social grade. The sample prolife is shown in Table 1.

Table 1: Sample profile

Base = 1027	Unweighted %	Weighted %
Gender		
Male	(N=475) 46%	(N=493) 48%
Female	(N=552) 56%	(N=534) 52%
Age		
16-24	(N=115) 11%	(N=148) 14%
25-34	(N=137) 13%	(N=161) 16%
35-44	(N=144) 14%	(N=167) 16%
45-54	(N=177) 17%	(N=184) 18%
55-64	(N=133) 13%	(N=156) 15%
65+	(N=321) 31%	(N=211) 21%
Social Grade		
AB	(N=202) 20%	(N=221) 22%
C1	(N=275) 27%	(N=292) 28%
C2	(N=215) 21%	(N=207) 20%
DE	(N=335) 33%	(N=307) 30%

Descriptive statistics are presented in the report. To ensure that the sample reflects the demographic profile of the wider population of Scotland weighted data is presented.

This report includes bivariate analysis to examine potential differences by gender, age, social grade[7], and working status. Where statistically significant differences were found, by demographic characteristics, these are noted (denoted by a p value less than 0.05, meaning that there is a less than 5% risk of concluding that a difference exists when there is no actual difference).

[7] Social grade was calculated using the NRS (National Readership Survey) classification where A represents 'upper middle class', B is 'middle class', C1 is 'lower middle class', C2 is 'skilled working class', D is 'working class' and E is 'non-working'.

Chapter 2 Results from the Survey

Respondents were asked a total of 12 questions, focusing on two key elements - CPR training and administering CPR. Key elements of the former were questions on respondents trained in CPR, along with when and why they were trained. For those not trained, questions were asked to ascertain the reasons for this and assess whether they would take up CPR training given the opportunity. In addition, data were collected on experience of administering CPR, as well as exploring the perceived barriers to administering CPR and public attitudes towards administering CPR.

2.1 CPR training

Table 2 presents findings on CPR training. Over half of respondents were trained in CPR (52%), with an even gender split (53% of men compared with 52% of women). There was significant variation by:

- Age – the likelihood of being trained in CPR decreased with age. For example 35% of respondents aged 65 and over were trained in CPR in comparison with 60% of respondents aged 35-44.
- Social grade – people in professional, managerial and non-manual occupations (according to the household's main income earner's occupation) were more likely than those in manual, unskilled occupations and long-term unemployed people to be to be CPR trained (57% (ABC1) compared with 48% (C2DE), $p<0.01$.) and be more confident to administer CPR if talked through by a call handler (86% compared with 78%, $p<0.001$).
- Working status - employed respondents were more likely to be CPR trained (59% compared with 45% not employed, $p<0.001$).

Table 2: CPR Training

Base = 1027	CPR trained	Not CPR trained/ don't know	P
Whole sample	52%	48%	N/A
Gender			
Male	53%	47%	
Female	52%	49%	
Age			<.001
16-17[8]	[46%]	[54%]	
18-24	54%	46%	
25-34	59%	41%	
35-44	60%	40%	
45-54	56%	44%	
55-64	55%	45%	
65+	35%	65%	
Social Grade			<.01
ABC1	57%	43%	
C2DE	48%	52%	
Working status			<.001
Working	59%	41%	
Not working	45%	55%	

2.1.1 Delivery of CPR training

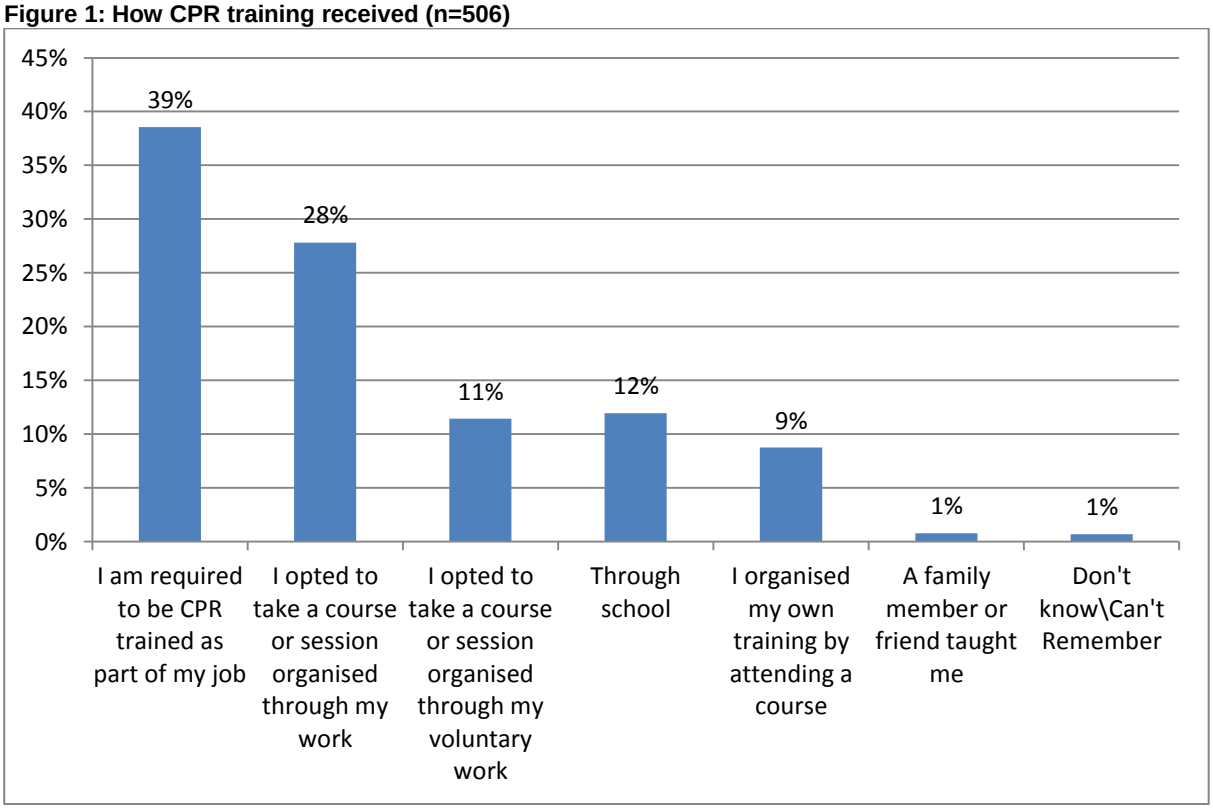
Those who had been trained in CPR were asked how they received their CPR training (Figure 1). More than two-thirds (67%) of those trained in CPR had been required to have CPR training as part of their employment (39%) or were offered training through their employment (28%). A further 11% had opted to take training through their voluntary work. Employment or voluntary work related training therefore accounted for a majority of those trained in CPR (78%).

12% of respondents received their CPR training through school and this varied by age. For example for those CPR trained, 16-24 year olds were the group most likely to have been trained in schools (47% of 16 -24 year olds compared with 6% of respondents aged 25 and over, p<0.001). More people in C2DE than ABC1 social grades had received training in school (16% of C2DE compared with 9% of ABC1,

8 Very small base for 16-17 year olds, 12 people.

p<0.05) as had those not in employment compared to those in employment (16% compared with 10%, p<0.05). Despite caution required around the small sample size (just 64 respondents had been trained through school) these findings may in part reflect activities such as the October 2014 launch of the British Heart Foundation's 'Creating a Nation of Lifesavers' initiative to target CPR training in schools in priority areas across the UK.[9] 10% of respondents had organised training themselves or were taught by a family member or friend. It is interesting to note that social grade groups C2DE were more likely to do this (11% compared with 7% in social grade ABC1, p<0.05) as were respondents who were not in employment (13% compared with 6% who were in employment, p<0.01).

Figure 1: How CPR training received (n=506)



2.1.2 Time elapsed since CPR training

Figure 2 presents data on when respondents were CPR trained. Over two fifths were trained more than 5 years ago (44%), with the median (i.e. the middle range) more than 2 years but less than 5 years. However medians varied by:

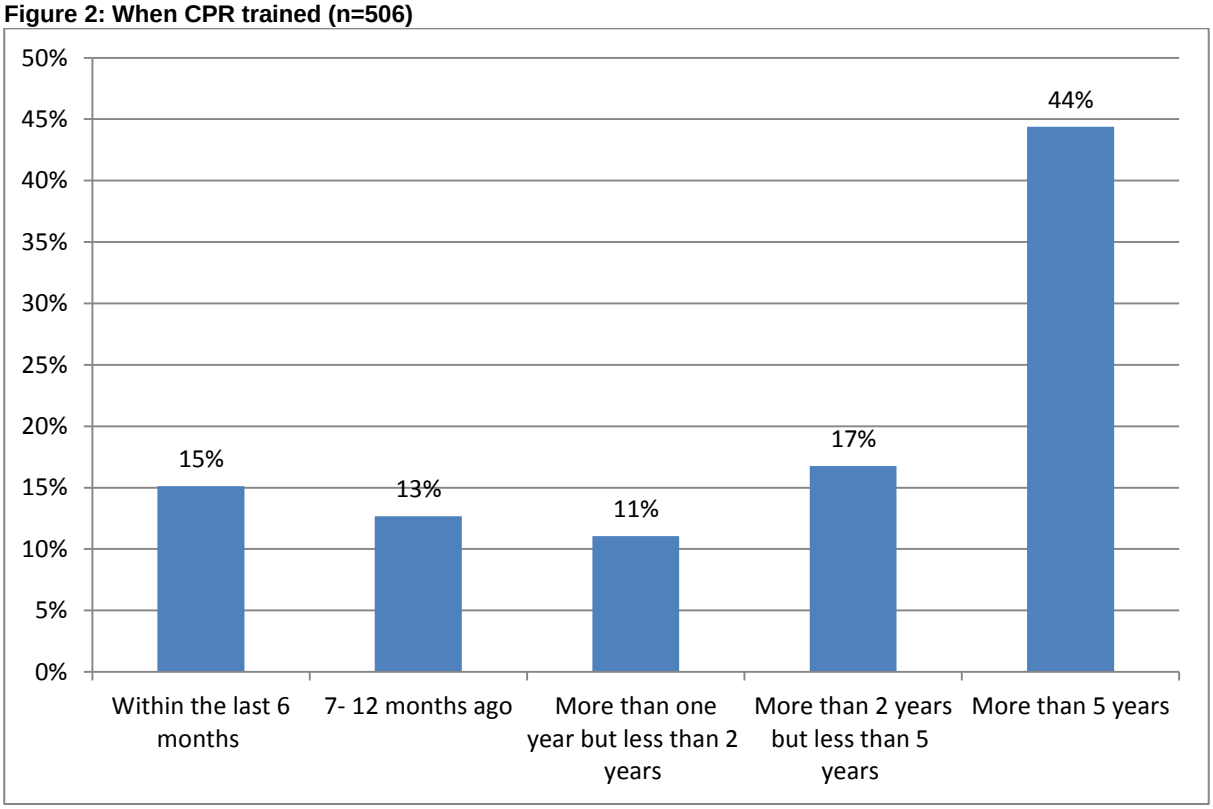
- Age - the older a respondent was the more likely they were to have been CPR trained more than 5 years ago (p<0.001). For example, the median response for 16 - 34 year olds was more than one year but less than 2 years, for 35-54 year olds it was more than 2 years but less than 5 years and for respondents aged 55 and older was more than 5 years.
- Working status – respondents were more likely to have been CPR trained more recently if they were working (p<0.001). The median

[9] https://www.bhf.org.uk/~/media/files/publications/policy-documents/final_nation_of_lifesavers_policy_statement_14102014.pdf

response for non-working was more than 5 years and the median response for working was more than one year but less than 2 years.

- Location - respondents living in a rural location were more likely to have median response of being CPR trained more than 5 years ago in comparison to the median for respondents living in an urban or conurbation location which each had medians of more than 2 years but less than 5 years ago ($p<0.01$).

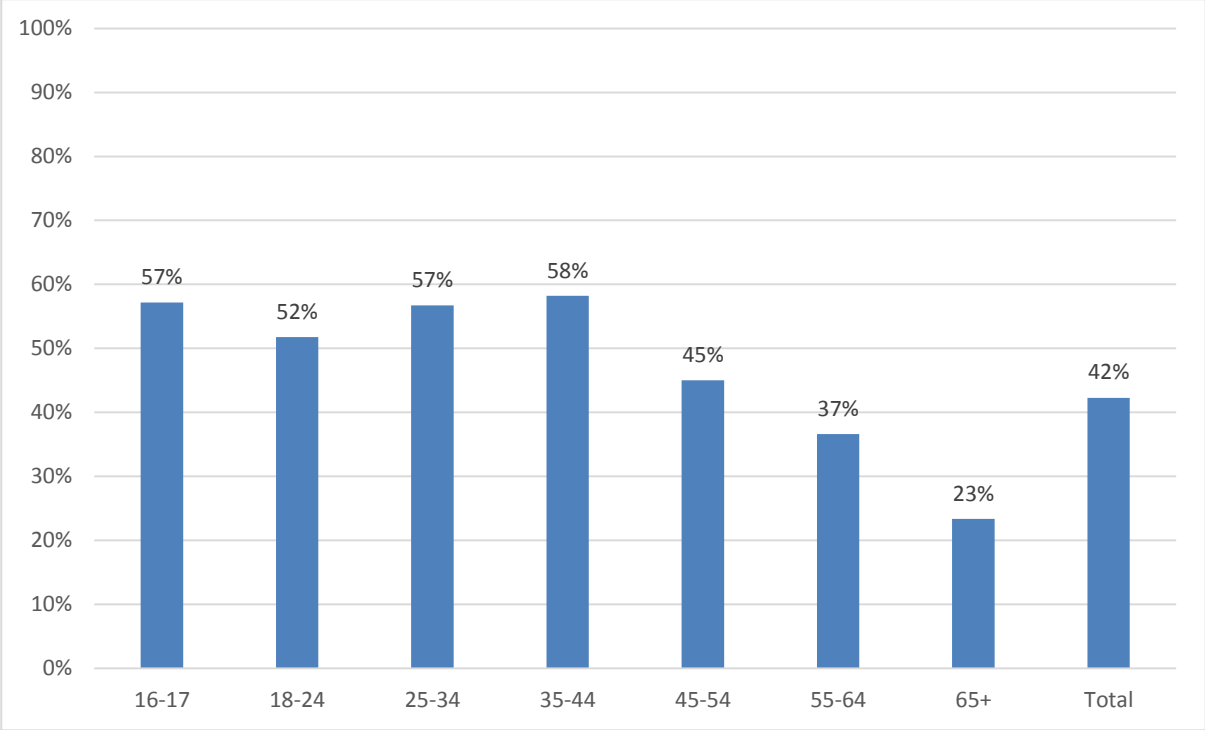
Figure 2: When CPR trained (n=506)



2.1.3 Attitudes towards CPR training

Over two fifths (42%) of respondents who had not been CPR trained said it was something they would like to do. Age and employment status were associated with people's expressed willingness to become CPR trained. A smaller proportion of older people reported wanting to be CPR trained. For example, Figure 3 shows that 23% of respondents aged 65 would like to be CPR trained in comparison with 58% of 35-44 year olds ($p<0.001$). Those in employment were more likely to want to be trained than those who were not (53% compared with 33%, $p<0.001$). The main reasons respondents gave for not being CPR trained were because the thought had never occurred to them (28%) or they had not been given the opportunity (29%).

Figure 3: Would like to be CPR trained, by age (n=521)



2.2 Administering CPR

One fifth (21%) of respondents would not know if CPR was required and half (50%) would not be confident to administer CPR. As shown in Table 3, levels of confidence to administer CPR were influenced by:

- Age - respondents aged 65+ were less likely than 16-64 year olds to be confident ($p<0.001$).
- Working status - those not working were less likely to be confident than those who were working (42% compared with 54% working, $p<0.001$).
- CPR training - respondents who were not trained in CPR were less likely to be confident than those who were trained (23% compared with 72%, $p<0.001$). However, it is also important to note that over a quarter (27%) of respondents who **were** trained in CPR said that they would **not** be confident to administer CPR.

Table 3: Confidence to administer CPR

Base = 1027	Confident to administer CPR	Not confident to administer CPR	P
Whole sample	49%	50%	N/A
Age			<.0001
16-17	45%	55%	
18-24	47%	53%	
25-34	50%	49%	
35-44	55%	44%	
45-54	59%	39%	
55-64	47%	50%	
65+	36%	63%	
Working status			<.0001
Working	54%	45%	
Not working	42%	56%	
CPR trained			<.0001
Yes	72%	27%	
No	23%	74%	

Table 4 illustrates that 82% of respondents felt confident to administer CPR if a 999 call handler talked them through. Again levels of confidence were significantly influenced by:

- Age - respondents aged 65+ were less likely to be confident than 16-64 year olds ($p<0.001$).
- Social grade - ABC1's were more likely to be confident than C2DE's (86% compared with 78%, $p<0.001$).
- Working status – respondents who were not working were less likely to be confident than those who were working (75% compared with 88% working, $p<0.001$).
- CPR training - respondents not CPR trained were less likely to be confident than those who were (70% compared with 93% who were not, $p<0.001$).

Table 4: Confidence to administer CPR with call handler instruction

Base = 1027	Confident to administer CPR with call handler	Not confident to administer CPR with call handler	P
Whole sample	82%	17%	N/A
Age			<.0001
16-17	85%	9%	
18-24	81%	18%	
25-34	84%	16%	
35-44	86%	13%	
45-54	89%	10%	
55-64	83%	16%	
65+	70%	28%	
Social grade			<.01
ABC1	86%	13%	
C2DE	78%	21%	
Working status			<.0001
Working	87%	11%	
Not working	75%	24%	
CPR trained			<.0001
Yes	93%	6%	
No	70%	28%	

2.2.1 Experience and willingness to administer CPR

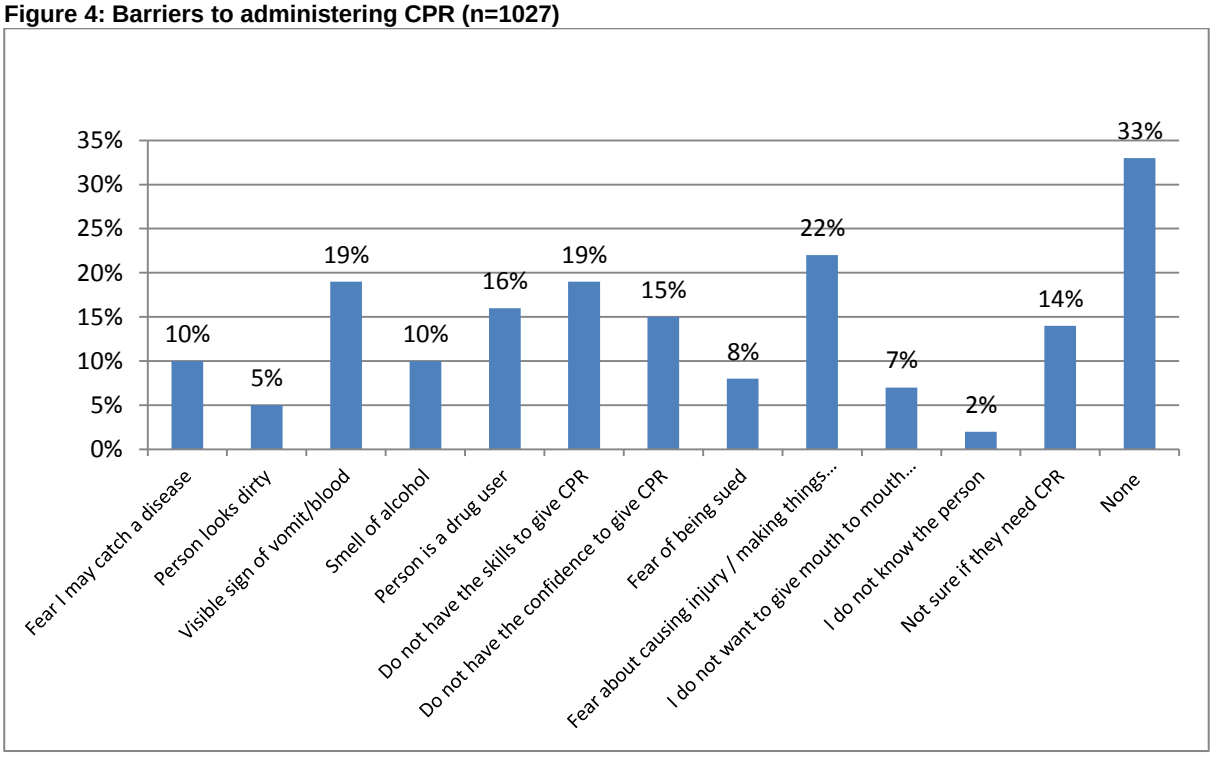
Just over one in ten respondent's (13%) had previously administered CPR. As would be expected, those who were not CPR trained were less likely to have given CPR than those who were CPR trained (3% compared with 21%, p<0.001).

The majority (72%) of respondents would be likely to give CPR if they were the only bystander present. Again important factors were:

- Age – those less likely to administer CPR were younger people aged 16-17 (54%) and those aged 55 and over (64%).
- Working status - those who were not working were less likely to say they would give CPR than those who were working (67% compared with 77%, p<0.001).
- CPR trained or not - those who were CPR trained were more likely to act (87% compared with 56% p<0.001) of non-trained.

Respondents were given a list of reasons which might explain why someone would not administer CPR and were asked to indicate which ones might apply to them. The most commonly noted reasons were fear about causing injury/making things worse (22%), visible signs of vomit/blood (19%), lack of skills (19%), lack of confidence (15%) or concern that the person might be a drug user (16%) (Figure 4). One third (33%) said that none of the answer options were relevant to them.

Figure 4: Barriers to administering CPR (n=1027)

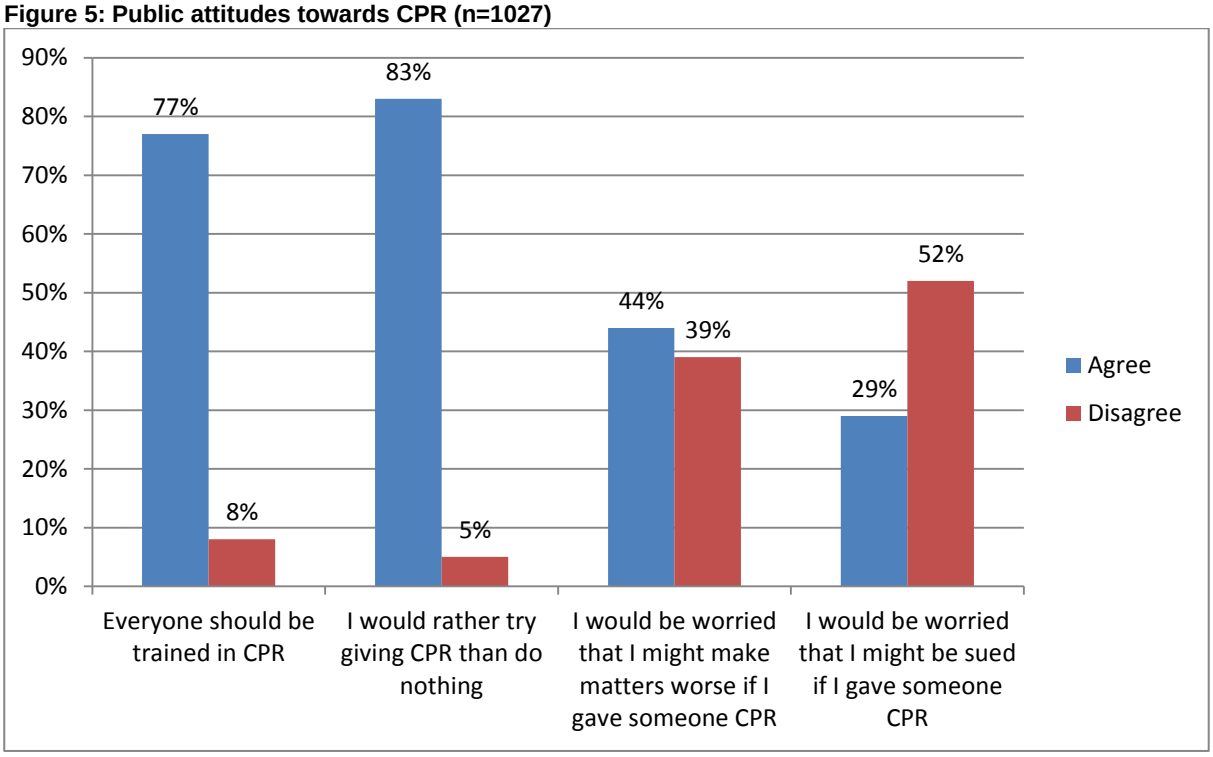


2.2.2 Attitudes towards CPR

Figure 5[10] indicates strong public support for administering CPR – 77% agreed that everyone should be trained in CPR and 83% agreed that they would rather try giving CPR than do nothing. However there was concern around making things worse (44% agreed) or being sued (29% agreed).

10 To assess public opinion toward CPR respondents were read four statements and asked to say whether they strongly agree, agree, neither agree nor disagree, disagree or strongly disagree. For ease of presentation, strongly agree and agree have been combined into 'agree' and strongly disagree and disagree into disagree'. Respondents who said they neither agreed or disagreed have been excluded.

Figure 5: Public attitudes towards CPR (n=1027)



Chapter 3 Conclusions and Next Steps

The overall aim of this study was to collect data on people's knowledge, experience of, and attitudes to, bystander CPR to inform a social marketing strategy and/or health behaviour change activities to address the barriers to responding to OHCA and improve the rate of bystander CPR. In this initial analysis we have found that knowledge, experience, and attitudes towards bystander CPR is not evenly spread but differentiated according to socio-economic factors, primarily age; social grade and employment status:

- **Age** - the older a person is, the less likely they are to be CPR trained and show willingness to be CPR trained. They are also more likely to have had CPR training more than five years previously and be the least confident to administer bystander CPR. These findings are particularly relevant considering that most OHCA happen in the homes of older people.
- **Social grade** – people in professional managerial and non-manual occupations (according to the household's main income earner's occupation) are more likely than those in manual, unskilled occupations and long-term unemployed people (social grades C2DE) to be CPR trained and be more confident to administer CPR if talked through by a call handler.
- **Working status** - people who were working were more likely to be CPR trained, be trained more recently and show higher levels of confidence to administer CPR.

Based on the findings from this study our suggested priorities for a social marketing strategy to improve the rate of bystander CPR include:

- Engagement with people who are not CPR trained and improve the number of people who would like to be CPR trained.
- Specially target older people, unemployed and social class C2DE and people who are not required to be CPR trained for their employment or voluntary work.
- Address the barriers to administering CPR by building confidence and addressing myths/fears around administering CPR (e.g. fear of being sued, catching a disease).

How to access background or source data

The data collected for this social research publication:

☒ are available in the accompanying data tables document

social research

The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

This document is also available from our website at www.gov.scot.
ISBN: 978-1-78544-988-8

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for
the Scottish Government
by APS Group Scotland
PPDAS64272 (02/16)
Published by
the Scottish Government,
February 2016

GSR
GOVERNMENT SOCIAL RESEARCH
Social Science in Government

Social Research series
ISSN 2045 6964
ISBN 978-1-78544-988-8

Web and Print Publication
www.gov.scot/socialresearch

PPDAS64272 (02/16)