Targeting cardiac patients and their family members for cardiopulmonary resuscitation training: A feasibility study

Ms Susie Cartledge, RN, PhD Candidate
A/Prof Susan Feldman, Dr Janet Bray, Dr Dion Stub, Professor Judith Finn

@susiecartledge @aus_roc
Out of hospital cardiac arrest

72% → 76%

46% witnessed → Spouse unlikely to have CPR skills

7% discharge

Ambulance Victoria, 2017
Chain of Survival

- Early recognition and call for help: to prevent cardiac arrest
- Early CPR: to buy time
- Early Defibrillation: to restart the heart
- Post resuscitation care: to restore quality of life
Targeted CPR training

- Public CPR training since 1970s
- Targeted CPR training has been advocated for over 30 years
  - Parents of high-risk infants
  - Family members of high-risk cardiac patients

- Locations trialled for targeted training to date:
  - Public
  - Homes
  - Inpatients, before hospital discharge
  - Outpatients, return to hospital
Cardiac rehabilitation

- Secondary prevention program
- Combination of exercise and education
- Readmission rates and mortality reduced by 30% Heran et al. 2011
- Family members can also attend
- Ideal catchment and environment for training interventions
- 24% programs include CPR training
  - Lack of resources
  - Lack of awareness
  - Lack of time
Aim & Methods

To determine if cardiac rehabilitation is a feasible environment for CPR training to patients and family members
- Uptake of training
- Confidence and willingness
- Skills
- Rate of secondary training

Methods
- Single centre, prospective study
- Self-instructional video training
- Pre, post and one month
Self instructional video training
## Results: Demographics

<table>
<thead>
<tr>
<th></th>
<th>Patients  n = 56</th>
<th>Spouses  n = 27</th>
<th>Total  n = 83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolment rate</td>
<td>56 (73%)</td>
<td>27</td>
<td>83</td>
</tr>
<tr>
<td>Male</td>
<td>45 (80%)</td>
<td>5 (19%)</td>
<td>50 (60%)</td>
</tr>
<tr>
<td>Age, years (mean, SD)</td>
<td>65 (10)</td>
<td>65 (12)</td>
<td>65 (11)</td>
</tr>
<tr>
<td>Previous CPR training</td>
<td>24 (43%)</td>
<td>14 (52%)</td>
<td>38 (46%)</td>
</tr>
<tr>
<td>Self rated CPR knowledge: Poor/Fair</td>
<td>36 (64%)</td>
<td>19 (70%)</td>
<td>55 (66%)</td>
</tr>
</tbody>
</table>
Results: Confidence

How confident do you feel to provide CPR in an emergency?

- Pre-training
  - 58% Confident / Very Confident
  - 18% Not confident / Somewhat confident
  - 13% Confident

- Post-training
  - Confident / Very Confident

- One month
  - Confident / Very Confident
Results: Willingness

How **willing** are you to use CPR skills?

Pre-training: 41% Agree / Strongly Agree, 44% Strongly disagree / Disagree, 11% strongly disagree / Disagree

Post-training:

One month:

Strongly disagree / Disagree, Agree / Strongly Agree
## Results: Anxiety & Depression

### Kessler 10: Anxiety & Depression scale

<table>
<thead>
<tr>
<th></th>
<th>Total n = 80</th>
<th>Patients n = 54</th>
<th>Spouses n = 26</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre</strong>-training score (median, IQR)</td>
<td>14 (5)</td>
<td>14 (6)</td>
<td>12 (4)</td>
</tr>
<tr>
<td><strong>Post</strong> training score, one month follow up (median, IQR)</td>
<td>11 (3)*</td>
<td>12 (3)</td>
<td>11 (3)</td>
</tr>
</tbody>
</table>

**Scores <15 = low psychological distress**

* *p < 0.001
Results: Skills

Skill reporting

- 54% participants completed
- 1 minute, un-coached, compression only CPR

<table>
<thead>
<tr>
<th>1st attempt</th>
<th>Patients n = 27</th>
<th>Spouses n = 18</th>
<th>Total n = 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average mean rate</td>
<td>110bpm</td>
<td>116bpm</td>
<td>112bpm</td>
</tr>
<tr>
<td>Average mean depth</td>
<td>50mm</td>
<td>45mm</td>
<td>48mm</td>
</tr>
<tr>
<td>Correct hand position</td>
<td>84%</td>
<td>85%</td>
<td>84%</td>
</tr>
</tbody>
</table>
Feasibility study: results

1\textsuperscript{st} attempt: no coaching

\textbf{12\%}

2\textsuperscript{nd} attempt: coached

\textbf{99\%}
Feasibility study: results

Secondary training

We trained 83

They trained 87

Total 170

Average: 3
Maximum: 15
Limitations

- Feasibility study- therefore no control comparator
- One site
- Private hospital

Future Directions:

- Multicentre, randomised controlled trial
- Victorian cardiac rehabilitation programs
- Test best method for co-ordinators to include CPR training
Conclusions

- First Australian perspective
- Cardiac patients and their spouses are interested in CPR training
- Cardiac rehabilitation is **feasible** and an **acceptable** environment for targeted CPR training
  - Patients are interested
  - Environment is feasible
- Self-instructional video training
  - Increases confidence and willingness
  - Needs face to face support
Acknowledgements

- Co-authors & PhD Supervisors
  - Professor Judith Finn
  - Dr Janet Bray
  - Dr Dion Stub
  - Associate Professor Susan Feldman

- All patients and family members
- Cabrini Hospital
- Volunteers who assisted with data collection

- Funding
  - PhD Scholarship
    - National Health and Medical Research Council
    - Aus-ROC PhD Scholarship
  - Laerdal Australia: in-kind support for training kits
Questions?

susie.cartledge@monash.edu

@susiecartledge

@aus_roc

Aus-ROC
Australian Resuscitation Outcomes Consortium

www.ausroc.org.au
## Results: Staff responses

<table>
<thead>
<tr>
<th>Feature</th>
<th>Agreement</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate topic</td>
<td>✔</td>
<td>100% strongly agree or agree</td>
</tr>
<tr>
<td>Suitable training length</td>
<td>✔</td>
<td>100% strongly agree or agree</td>
</tr>
<tr>
<td>Suitable modality</td>
<td>✔</td>
<td>100% strongly agree or agree</td>
</tr>
<tr>
<td>Running training:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feel comfortable</td>
<td>✔</td>
<td>75% agree</td>
</tr>
<tr>
<td>Feel confident</td>
<td>✔</td>
<td>75% agree</td>
</tr>
</tbody>
</table>
Determine current prevalence of CPR training in cardiac rehab

- Online national survey, cardiac rehabilitation coordinators
- 47% response rate (n = 253)
- 24% Australian programs provided some form of CPR training

Barriers to providing CPR training:
- Lack of resources
- Lack of time
- Lack of awareness

Program of PhD research

1. Systematic review
2. Victorian CPR training rates
3. Qualitative interviews
4. Cardiac rehabilitation survey
5. Feasibility study
Program of research

1. Systematic review
2. Victorian CPR training rates
3. Qualitative interviews
4. Cardiac rehabilitation survey
5. Feasibility study
Out of hospital cardiac arrest (OHCA)

~ 30,000 cardiac arrests in Australia
66% males
Median age 68 years
75% thought to be cardiac aetiology
Iceland!!!