### Question

<table>
<thead>
<tr>
<th>OHCA</th>
<th>EMS offer dispatch assisted CPR</th>
<th>EMS not offer dispatch assisted CPR</th>
<th>Neurologically intact survival, Survival of event, CPR rates</th>
</tr>
</thead>
</table>

### Assessment

#### Judgement

- **No**
- **Probably no**
- **Probably yes**
  - Yes
  - Varies
  - Don't know

**Research evidence**

Out-of-hospital cardiac arrest (OHCA) is a significant cause of death worldwide with an annual rate of over 400,000.

Survival rates for OHCA victims, the current average rate remains very low at approximately 10%.

A victim is almost 4 times more likely to survive a cardiac arrest event when someone witnesses their arrest and performs CPR while emergency personnel are enroute.

Up to 85% of all cardiac arrests occur in homes and public places and more than half are witnessed by someone who could intervene - unfortunately, unassisted bystander CPR rates have remained astoundingly low over the past decade, rarely exceeding 35%.

#### Additional considerations

Desirable effects best estimated by the evaluation of the adjusted results from the included studies. Unadjusted results were available for more studies, and a larger number of patients.

**Unadjusted results are included below for comparison:**

- Neurologically intact survival at 1 month **better:** OR 1.47 (95% CI 1.03 to 2.09): Certainty Very low
- Neurologically intact survival to hospital discharge **better:** OR 1.67 (1.13 to 2.47): Very low
- Survival to hospital admission **better:** OR 0.97 (0.70 to 1.34): Very low
- Sustained ROSC: OR 1.14 (0.88 to 1.48): Very low
- Bystander CPR **better:** OR 5.74 (2.25 to 13.72): Very low

All sensitivity analyses indicated benefit for DA-CPR, which was statistically significant for all outcomes except for survival with good neurological recovery at 1 month.

#### Judgement

- **Trivial**
- **Small**
- **Moderate**
  - Large
  - Varies
  - Don't know

**Research evidence**

Likelihood to provide CPR dramatically increased but barriers to performing CPR remain. Rescuers are however given the option to follow instructions. Unfortunately the desired outcome (survival of the event) is not guaranteed and rescuers may suffer trauma either way.

**Adjusted results:**

- Neurologically intact survival at 1 month **better:** OR 1.47 (95% CI 1.03 to 2.09): Certainty Very low
- Neurologically intact survival to hospital discharge **better:** OR 1.67 (1.13 to 2.47): Very low
- Survival to hospital discharge **better:** OR 1.33 (1.07 to 1.66): Very low
- Survival to hospital admission: OR 0.97 (0.70 to 1.34): Very low
- Sustained ROSC: OR 1.14 (0.88 to 1.48): Very low
- Bystander CPR **better:** OR 5.74 (2.40 to 13.72): Very low

Additional considerations include: rates of recognition of OHCA, motivation of dispatchers, time to deliver DA-CPR, time to arrival of EMS, existing bystander CPR rates, willingness of bystanders to commence CPR, and quality of CPR delivered.

Desirable effects best estimated by the evaluation of the adjusted results from the included studies. Unadjusted results were available for more studies, and a larger number of patients.

**Unadjusted results are included below for comparison:**

- Neurologically intact survival at 1 month **better:** OR 1.10 (95% CI 1.03 to 1.17): Certainty Very low
- Neurologically intact survival to hospital discharge **better:** OR 1.70 (1.21 to 2.37): Very low
- Sustained ROSC **better:** OR 1.17 (1.08 to 1.27): Very low
- Bystander CPR **better:** OR 3.10 (2.25 to 4.25): Very low

Other prespecified outcomes not significant.

#### Judgement

- **Large**
- **Moderate**
  - Small
  - Trivial
  - Varies
  - Don't know

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Other prespecified outcomes not significant.
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All sensitivity analyses indicated benefit for DA-CPR, which was statistically significant for all outcomes except for survival with good neurological recovery at 1 month.

Judgement | Research evidence | Additional considerations
--- | --- | ---
• Very low uncertainty or variability
○ Low
○ Moderate
○ High
○ No included studies
Observational studies only, downgraded for risk of bias.

Judgement | Research evidence | Additional considerations
--- | --- | ---
○ Important uncertainty or variability
○ Possibly important uncertainty or variability
● Probably no important uncertainty or variability
○ No important uncertainty or variability
Main outcome is survival, and neurologically intact survival. People may actually vary in whether they desire CPR in the event of a cardiac arrest, but COSCA has confirmed importance of these outcomes. The vast majority of the population have not declared that they don’t.
No published evidence regarding this intervention for quality of life in survivors.

Judgement | Research evidence | Additional considerations
--- | --- | ---
○ Favors the comparison
○ Probably favors the comparison
○ Does not favor either the intervention or the comparison
○ Probably favors the intervention
● Favors the intervention
○ Varies
○ Don't know
**Adjusted results:** Neurologically intact survival at 1 month better: OR 1.47 (95% CI 1.03 to 2.09): Certainty Very low
Neurologically intact survival to hospital discharge better: OR 1.67 (1.13 to 2.47): Very low
Survival to 1 month better: OR 1.45 (1.09 to 1.94): Very low
Survival to hospital discharge better: OR 1.33 (1.07 to 1.66): Very low
Survival to hospital admission: OR 0.97 (0.70 to 1.34): Very low
Sustained ROSC: OR 1.14 (0.88 to 1.48): Very low
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Other prespecified outcomes not significant.

Judgement | Research evidence | Additional considerations
--- | --- | ---
○ Large costs
○ Moderate costs
○ Negligible costs and savings
○ Moderate savings
○ Large savings
● Varies
○ Don't know
No relevant published data was identified for review.
Existing systems may be in place, but additional training will be required to introduce Dispatch Assist instructions.
Widespread availability of phone equipment (landline/mobile), phone reception, and loudspeaker mode may be a limitation and require resources.
Community education may increase likelihood of following instructions.
<table>
<thead>
<tr>
<th>Judgement</th>
<th>Research evidence</th>
<th>Additional considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Very low ○ Low ○ Moderate ○ High ● No included studies</td>
<td>No relevant published data was identified for review so unable to provide any certainty here.</td>
<td></td>
</tr>
<tr>
<td>○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the intervention ○ Favors the intervention ○ Varies ● No included studies</td>
<td>Pubmed search: (&quot;Cost-Benefit Analysis&quot;[Mesh]) AND ( &quot;Heart Arrest&quot; [Mesh] OR &quot;Out-of-Hospital Cardiac Arrest&quot;[Mesh] OR &quot;Death, Sudden, Cardiac&quot;[Mesh]) AND &quot;Emergency Medical Dispatcher&quot;[Mesh] No relevant published data was identified for review. One study identified suggested that bystander CPR appeared &quot;cost-effective&quot;: Geri G, Fahrenbruch C, Meischke H, Painter I, White L, Rea TD, Weaver MR. Effects of bystander CPR following out-of-hospital cardiac arrest on hospital costs and long-term survival. Resuscitation. 2017 Jun 1;115:129-34.</td>
<td></td>
</tr>
<tr>
<td>○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ● Don't know</td>
<td>No relevant published data was identified for review. There may be populations that reflect geographical and cultural issues where the interventions may be less effective (widening the potential gap between outcomes).</td>
<td></td>
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<td>○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ● Don't know</td>
<td>No relevant published data was identified for review. Rescuers have requested assistance and could expect instructions for them to carry out. Unaware of any perverse community implications (other strategies to promote CPR are widely accepted).</td>
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<td>○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know</td>
<td>Some limitations to the maximal benefit of implementation that were identified in existing studies include: how instructions for DA-CPR are delivered (DA protocol, dispatcher handling delays induced by the caller); motivation of dispatcher, the previous training experience and compliance rate of bystanders; and the quality of the CPR provided.</td>
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<td></td>
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<th>Don’t know</th>
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</table>

| Favors the comparison               | Probably favors the comparison                | Does not favor either the intervention or the comparison | Probably favors the intervention | Varies    | Don’t know |
| Reduced                             | Probably reduced                              | Probably no impact                             | Probably increased                   | Increased | Varies    | Don’t know |
| No                                  | Probably no                                   | Probably yes                                   | Yes                                    | Varies    | Don’t know |
| No                                  | Probably no                                   | Probably yes                                   | Yes                                    | Varies    | Don’t know |

### Type of recommendation

<table>
<thead>
<tr>
<th>Strong recommendation against the option</th>
<th>Conditional recommendation against the option</th>
<th>Conditional recommendation for either the option or the comparison</th>
<th>Conditional recommendation for the option</th>
<th>Strong recommendation for the option</th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
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### Conclusions

*Draft from ESR:*

**We recommend that emergency medical dispatch centers have systems in place to enable call handlers to provide CPR instructions for adult patients in cardiac arrest. (strong recommendation, very-low-certainty evidence)**

**We recommend that emergency call takers provide CPR instructions (when required) for adult patients in cardiac arrest. (strong recommendation, very-low-certainty evidence)**

Desirable effects best estimated by the evaluation of the adjusted results from the included studies. This resulted in a smaller number of trails being included and a smaller number of patients having their outcomes evaluated. Adjusted results confirmed improvements in neurologically intact survival at 1 month and hospital discharge, survival to 1 month and hospital discharge, and bystander CPR. Seven sensitivity analyses were conducted for 5 of 9 critical and 1 of the 2 important outcomes that were reported for this comparison. All sensitivity analyses confirmed benefit with DA-CPR.

Discordant recommendation made despite very low quality evidence as the evidence suggests benefit in a life threatening situation and the associated risks/harm are considered small.

Comments include: available evidence, and concerns about unlikely further RCTs.

Important outcome with limited downside

Prespecified:

- Existing system for DA-CPR
- Short response times.
- Bystander CPR rates.
- Mobile phone uptake and coverage.

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- Short response times.
- Bystander CPR rates.
- Mobile phone uptake and coverage.