Question

	OHCA
	EMR offer dispatch assisted CPR
	no bystander CPR
	Neurologically intact survival, Survival of event
	OHCA
	Guideline
	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
	Nil

Assessment

Judgement	Research evidence	Additional considerations
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	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%.	

Judgement	Research evidence	Additional considerations
○ Trivial ○ Small ○ Moderate ● Large ○ Varies ○ Don't know	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 1 month **better**: OR 1.81 (95% CI 1.23 to 2.67) Certainly: Very low Neurologically intact hospital survival **better**: OR 1.52 (1.33 to 1.75): Very low Survival to 1 month **better**: OR 1.63 (1.32 to 2.01): Very low Survival to hospital discharge **better**: OR 1.32 (1.07 to 1.64): Very low Sustained ROSC **better**: OR 1.51 (1.32 to 1.73): Very low All sensitivity analyses confirmed benefit with DA-CPR	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 1 month **better**: OR 1.45 (95% 1.38 to 1.53) Certainly: Very low Neurologically intact hospital survival **better**: OR 2.12 (1.37 to 3.29): Moderate Survival to hospital discharge **better**: OR 1.56 (1.34 to 1.81): Low Sustained ROSC **better**: OR 1.50 (1.14 to 1.98): Very low Other prespecified outcomes not significant.

Judgement	Research evidence	Additional considerations
○ Large ○ Moderate ● Small ○ Trivial ○ Varies ○ Don't know	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 1 month **better**: OR 1.81 (95% CI 1.23 to 2.67) Certainly: Very low Neurologically intact hospital survival **better**: OR 1.52 (1.33 to 1.75): Very low Survival to 1 month **better**: OR 1.63 (1.32 to 2.01): Very low Survival to hospital discharge **better**: OR 1.32 (1.07 to 1.64): Very low Sustained ROSC **better**: OR 1.51 (1.32 to 1.73): Very low All sensitivity analyses confirmed benefit with DA-CPR	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 1 month **better**: OR 1.45 (95% 1.38 to 1.53) Certainly: Very low Neurologically intact hospital survival **better**: OR 2.12 (1.37 to 3.29): Moderate Survival to hospital discharge **better**: OR 1.56 (1.34 to 1.81): Low Sustained ROSC **better**: OR 1.50 (1.14 to 1.98): Very low Other prespecified outcomes not significant.

Judgement	Research evidence	Additional considerations
● Very low ○ Low ○ Moderate ○ High ○ No included studies	Adjusted results from observational studies only. Downgraded for risk of bias. 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	

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.	COSCA: Haywood K, Whitehead L, Nadkarni VM, Achana F, Beesems S, Bottiger BW, et al. COSCA (Core Outcome Set for Cardiac Arrest) in Adults: An Advisory Statement From the International Liaison Committee on Resuscitation. Resuscitation. 2018;127:147-63.

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 1 month **better**: OR 1.81 (95% CI 1.23 to 2.67) Certainly: Very low Neurologically intact hospital survival **better**: OR 1.52 (1.33 to 1.75): Very low Survival to 1 month **better**: OR 1.63 (1.32 to 2.01): Very low Survival to hospital discharge **better**: OR 1.32 (1.07 to 1.64): Very low Sustained ROSC **better**: OR 1.51 (1.32 to 1.73): Very low All sensitivity analyses confirmed benefit with DA-CPR.	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 1 month **better**: OR 1.45 (95% 1.38 to 1.53) Certainly: Very low Neurologically intact hospital survival **better**: OR 2.12 (1.37 to 3.29): Moderate Survival to hospital discharge **better**: OR 1.56 (1.34 to 1.81): Low Sustained ROSC **better**: OR 1.50 (1.14 to 1.98): Very low 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.	

Judgement	Research evidence	Additional considerations
○ Very low ○ Low ○ Moderate ○ High ● No included studies	No relevant published data was identified for review so unable to provide any certainty here.	

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 ● No included studies	Pubmed search: (("Cost-Benefit Analysis"[Mesh]) AND ("Heart Arrest"[Mesh] OR "Out-of-Hospital Cardiac Arrest"[Mesh] OR "Death, Sudden, Cardiac"[Mesh])) AND "Emergency Medical Dispatcher"[Mesh] No relevant published data was identified for review.	One study identified suggested that bystander CPR appeared “cost-effective”: 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.

Judgement	Research evidence	Additional considerations
○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ● Don't know	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).	

Judgement	Research evidence	Additional considerations
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	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).	

Judgement	Research evidence	Additional considerations
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	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.	

Summary of judgements

	No	Probably no	Probably yes	**Yes**		Varies	Don't know
	Trivial	Small	Moderate	**Large**		Varies	Don't know

	Large	Moderate	**Small**	Trivial		Varies	Don't know
	Very low	Low	Moderate	High			No included studies
	Important uncertainty or variability	Possibly important uncertainty or variability	**Probably no important uncertainty or variability**	No important uncertainty or variability			
	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
	Large costs	Moderate costs	Negligible costs and savings	Moderate savings	Large savings	**Varies**	Don't know
	Very low	Low	Moderate	High			**No included studies**
	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**
	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

Strong recommendation against the option	Conditional recommendation against the option	Conditional recommendation for either the option or the comparison	Conditional recommendation for the option	Strong recommendation for the option
○	○	○	○	●

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 of 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 sustained ROSC. 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.
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.

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

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