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| Question |  |
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| **Population:** Among resuscitation systems who are caring for patients in cardiac arrest in any setting |  | Background:  |  |
| **Intervention:** System performance improvement |  |  |
| **Comparison:** No system performance improvement |  |  |
| **Main outcomes:** Survival with favorable neurologic outcome at discharge (critical); Survival to hospital discharge (critical); Skill performance in actual resuscitations (important); Survival to admission (important); System level variables (important) |  |  |
| **Setting:** Prehospital or in-hospital settings |  |  |
| **Perspective:**  |  |  |

| Assessment |
| --- |
|  | **Criteria**  | **Judgements**  | **Research evidence**  | **Additional considerations**  |
| Problem | **Is there a problem priority?**  | ○ No ○ Probably no ○ Uncertain ○ Probably yes ● Yes ○ Varies  | Cardiac arrest is an important healthcare issue. Survival rates for IHCA and OHCA remain low. Therefore, it is paramount to increase the survival rate of cardiac arrest. |  |
| Benefits & harms of the options | **What is the overall certainty of this evidence?**  | ○ No included studies ● Very low ○ Low ○ Moderate ○ High  | **The relative importance or values of the main outcomes of interest:**

| **Outcome** | **Relative importance**  | **Certainty of the evidence (GRADE)**  |
| --- | --- | --- |
| **survival with favorable neurologic outcome at discharge** | **Critical** | **moderate to very low quality evidence** |
| **survival to hospital discharge**  | **Critical**  | **moderate to very low quality evidence** |
| **skill performance in actual resuscitations** | **Important** | **moderate to very low quality evidence** |
| **survival to admission** | **Important** | **moderate to very low quality evidence** |
| **system level variables** | **Important** | **very low quality evidence** |

The outcomes that were chosen were commonly used in the resuscitation society.System performance improvement could show a large effect size in a beneficial direction.The cost of the initiative will vary depending on what it is. |  |
| **Is there important uncertainty about how much people value the main outcomes?**  | ○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ○ No important uncertainty or variability ● No known undesirable outcomes  |
| **Are the desirable anticipated effects large?**  | ○ No ○ Probably no ○ Uncertain ● Probably yes ○ Yes ○ Varies  |
| **Are the undesirable anticipated effects small?**  | ○ No ○ Probably no ○ Uncertain ● Probably yes ○ Yes ○ Varies  |
| **Are the desirable effects large relative to undesirable effects?**  | ○ No ○ Probably no ○ Uncertain ○ Probably yes ● Yes ○ Varies  |
| Resource use | **Are the resources required small?**  | ○ No ● Probably no ○ Uncertain ○ Probably yes ○ Yes ○ Varies  | The cost of performance improvement initiatives can be incrementally small, but to go from nothing to everything would be expensive |  |
| **Is the incremental cost small relative to the net benefits?**  | ○ No ○ Probably no ○ Uncertain ● Probably yes ○ Yes ○ Varies  | Interventions to improve system performance have been shown to increase survival with independent life among patients with cardiac arrest. Systems that self-assess quality also build consumer confidence / patient confidence |  |
| Equity | **What would be the impact on health inequities?**  | ○ Increased ○ Probably increased ○ Uncertain ● Probably reduced ○ Reduced ○ Varies  | All the residents or patients in the system benefit from system performance improvement if such interventions are successful. |  |
| Acceptability | **Is the option acceptable to key stakeholders?**  | ○ No ○ Probably no ○ Uncertain ● Probably yes ○ Yes ○ Varies  | Although interventions to improve system performance may increase the workload of personnel and increase some expenses, upfront costs may be paid for by long term savings brought by better performance. |  |
| Feasibility | **Is the option feasible to implement?**  | ○ No ○ Probably no ○ Uncertain ● Probably yes ○ Yes ○ Varies  | It has been shown that many interventions to improve system performance are successful not only to improve the process but also improve the outcomes of patients in many studies. However, some systems may not have adequate resources to implement system performance improvement. |  |

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| Recommendation Question: |
| **Balance of consequences**  | Undesirable consequences clearly outweigh desirable consequences in most settings | Undesirable consequences probably outweigh desirable consequences in most settings | The balance between desirable and undesirable consequences is closely balanced or uncertain | Desirable consequences probably outweigh undesirable consequences in most settings | Desirable consequences clearly outweigh undesirable consequences in most settings |
|  | ○ | ○ | ○ | ○ | ● |

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| --- | --- | --- | --- | --- |
| **Type of recommendation**  | We recommend against offering this option | We suggest not offering this option | We suggest offering this option | We recommend offering this option |
|  | ○ | ○ | ○ | ● |
| **Recommendation**  | **We recommend that organisations or communities that treat cardiac arrest evaluate their performance and target key areas with the goal to improve performance. (Strong recommendation, Very low certainty of evidence)** |
| **Justification**  | **We recognize that the evidence in support of this recommendation comes from studies, most of which are of low to very low quality. However, the majority of studies found that interventions to improve system performance not only improve system level variables and skill performance in actual resuscitations among rescuers, but also clinical outcomes of patients with out-of-hospital or in-hospital cardiac arrest, such as survival to hospital discharge and survival with favorable neurologic outcome at discharge. We recognize that such interventions need money, personnel, and stakeholder buy-in to improve system performance. Some systems may not have adequate resources to implement system performance improvement.** **Values and preferences statement: In making this recommendation we place increased value on the benefits of system performance improvement, which have no known risks, given our knowledge that system performance improvement could show a large effect size in a beneficial direction.** |
| **Subgroup considerations**  |  |
| **Implementation considerations**  |  |
| **Monitoring and evaluation**  |  |
| **Research possibilities**  | **(1) Identify the most appropriate strategy to improve system performance.****(2) Better understand the influence of local community and organizational characteristics.** **(3) To evaluate the cost-effectiveness of the individual interventions for improving system performance.**  |