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| Question | |
| **Should prebriefing or debriefing vs. no pre briefing or debriefing be used for cardiac arrest?** | |
| **Population:** | cardiac arrest |
| **Intervention:** | prebriefing or debriefing |
| **Comparison:** | no pre briefing or debriefing |
| **Main outcomes:** | Favorable Neurologic Outcome ; Survival to Discharge; Return of Spontaneous Circulation; Chest Compression Depth; Chest Compression Rate ; Chest Compression Fraction; |
| **Setting:** |  |
| **Perspective:** |  |
| **Background:** |  |
| **Conflict of interests:** |  |

# Assessment

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| Problem Is the problem a priority? | | |
| Judgement | Research evidence | Additional considerations |
| ○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know | Cardiac arrest is a major healthcare issue. Survival rates for IHCA and OHCA remain low despite showing improvements. Debriefing, or a "post-event discussion between two or more individuals in which aspects of performance are analyzed with the goal of improving future clinical practice", provides opportunity for providers to reflect on prior performance, discuss performance gaps, and identify strategies to improve care. In this review, we explored if clinical post-event debriefing, compared with no debriefing, improves process and patient outcomes from cardiac arrest. | Debriefing may have differing effects depending on the clinical presentation. Here we explore the impact of clinical debriefing on cardiac arrest only. |
| Desirable Effects How substantial are the desirable anticipated effects? | | |
| Judgement | Research evidence | Additional considerations |
| ○ Trivial ○ Small ● Moderate ○ Large ○ Varies ○ Don't know | See Summary of Findings Table for details.    For the Critical outcome of Favorable Neurological Outcome we have identified very low certainty evidence from two observational studies (Wolfe 2014, 1688; Couper 2016, 130). One study demonstrated increased survival with favorable neurologic outcome (Wolfe 2014, 1688), while the other demonstrated no significant improvement {Couper 2016 130}. Meta-analysis demonstrates no significant effect from the use of debriefing compared to no debriefing on this outcome (RR, 1.*41*; 95%CI, 0.*86*– 2.*32*; P=0.1*8*; I2=28%).  A screenshot of a cell phone  Description automatically generated For the Critical outcome of survival to discharge, we identified very low certainty evidence from four observational studies {Edelson 2008 1063; Wolfe 2014 1688; Couper 2016 130; Bleijenberg 2017 1}. One study report a trend towards improved survival to hospital discharge {Wolfe 2014 1688}, while three other studies {Edelson 2008 1063; Couper 2016 130; Bleijenberg 2017 1} demonstrated no improvement in survival to hospital discharge. Meta-analysis demonstrates a significant effect from the use of debriefing compared to no debriefing on this outcome (RR, 1.41; 95%CI, 1.03– 1.93; P=0.03; I2=0%).  A screenshot of a cell phone  Description automatically generated  For the Critical outcome of Return of Spontaneous Circulation, we identified very low certainty evidence from three observational studies {Edelson 2008 1063; Wolfe 2014 1688; Couper 2016 130}. One study reports improved ROSC in the intervention group {Edelson 2008 1063}, while the other 2 studies report no improvement in ROSC {Wolfe 2014 1688; Couper 2016 130}. Meta-analysis demonstrates a significant effect from the use of debriefing compared to no debriefing on this outcome (RR, 1.18; 95%CI, 1.03– 1.44; P = 0.02; I2=0%).  A screenshot of a cell phone  Description automatically generated  For the critical outcome of CC Depth (mean depth), we identified very low certainty evidence from three observational studies {Edelson 2008 1063; Wolfe 2014 1688; Couper 2016 130}. One study reports improved mean CC depth {Edelson 2008 1063} and a second study demonstrated no improvement in mean CC depth. A third study that reported improved compliance with CC depth targets was not included in the metanalysis due to differing outcome measures {Wolfe 2014 1688}. Meta-analysis of two studies {Edelson 2008 1063; Couper 2016 130) demonstrates a MD = 4.00 mm [0.18,7.82], indicating a significant effect of debriefing on this outcome.  A screenshot of a cell phone  Description automatically generated  For the critical outcome of CC rate (mean rate), we identified very low certainty evidence from four observational studies {Edelson 2008 1063; Wolfe 2014 1688; Couper 2016 130; Bleijenberg 2017 1}. Two studies report improved mean CC rate {Edelson 2008 1063; Bleijenberg 2017 1} while a third study demonstrated no improvement in mean CC rate {Couper 2016 130}. The last study reported improved compliance with CC rate targets {Wolfe 2014 1688}, but was not included in meta-analysis due to differing outcome measures. Meta-analysis of three studies {Edelson 2008 1063; Couper 2016 130; Bleijenberg 2017 1} demonsrates a MD = 5.81 [-0.08, 11.70], indicating no significant effect of debriefing on this outcome.  A screenshot of a cell phone  Description automatically generated  For the critical outcome of CC fraction, we identified very low certainty evidence from two observational studies {Bleijenberg 2017 1; Couper 2016 130}. One study demonstrated improved CCF {Bleijenberg 2017 1} while the other did not {Couper 2016 130}. Meta-analysis of these studies demonstrates a MD = 4.11% [-1.17, 9.39], indicating no significant effect of debriefing on this outcome.  A screenshot of a cell phone  Description automatically generated  There is a chance that healthcare providers may suffer emotional trauma from discussing the care of cardiac arrest patients. The studies reviewed do not report the frequency of this occurrence. While the potential benefits of debriefing on future cardiac arrest patients may be significant, there may be unintended emotional side effects on the healthcare provider. |  |
| Undesirable Effects How substantial are the undesirable anticipated effects? | | |
| Judgement | Research evidence | Additional considerations |
| ○ Large ○ Moderate ○ Small ○ Trivial ○ Varies ● Don't know | See Summary of Findings Table for details.  There is a chance that healthcare providers may suffer emotional trauma from discussing the care of cardiac arrest patients. The studies reviewed do not report the frequency of this occurrence. While the potential benefits of debriefing on future cardiac arrest patients may be significant, there may be unintended emotional side effects on the healthcare provider. |  |
| Certainty of evidence What is the overall certainty of the evidence of effects? | | |
| Judgement | Research evidence | Additional considerations |
| ● Very low ○ Low ○ Moderate ○ High ○ No included studies | The studies we reviewed had different study populations (IHCA vs OHCA), different intervention designs (group vs individual debriefings), and some studies were unpowered to show a difference in the outcome measured. This is reflected in the high inconsistency reported in the meta-analysis of continuous outcomes (eg. CC depth, CC rate, CCF). |  |
| Values Is there important uncertainty about or variability in how much people value the main outcomes? | | |
| 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 | The studies we reviewed report both clinically relevant outcomes (i.e. survival, intact neurological survival, ROSC) and important process outcomes (i.e. depth and rate, CCF). The resuscitation community typically places value on these clinical and process outcomes, so we judge there is no important uncertainly or variability in how much people value these outcomes. |  |
| Balance of effects Does the balance between desirable and undesirable effects favor the intervention or the comparison? | | |
| 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 | Given the fact that the studies we identified report several positive outcomes with no mention of undesirable effects (ie. emotional trauma), we believe the desirable effects outweigh the undesirable effects. We exercise some caution in making this judgment due to the existence of literature describing the importance of defusing emotions after stressful or traumatic events. | We have not conducted a formal review of literature related to defusing conversations or post-traumatic stress in healthcare providers after cardiac arrest events. |
| Resources required How large are the resource requirements (costs)? | | |
| Judgement | Research evidence | Additional considerations |
| ○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ● Varies ○ Don't know | The studies we reviewed did not describe the costs associated with implementing a clinical debriefing program. We acknowledge the needs for additional resources to support an effective clinical debriefing program, which include (but are not limited to): data collection during cardiac arrest (eg. CPR quality data), a private space for debriefing, facilitator training and protecting time for providers to attend debriefing. These costs are likely to be variable depending upon the existing availability of these resources within the clinical environment. | Some programs have facilitators who have already received debriefing training (e.g. simulation educators), with skills that can be readily applied during clinical debriefing. |
| Certainty of evidence of required resources What is the certainty of the evidence of resource requirements (costs)? | | |
| Judgement | Research evidence | Additional considerations |
| ○ Very low ○ Low ○ Moderate ○ High ● No included studies | The studies we reviewed did not explore the costs of resources, so we are not able to make an evidence-informed judgement. |  |
| Cost effectiveness Does the cost-effectiveness of the intervention favor the intervention or the comparison? | | |
| 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 | The studies we reviewed did not explore the cost effectiveness of debriefing, so we are not able to make an evidence-informed judgement. |  |
| Equity What would be the impact on health equity? | | |
| Judgement | Research evidence | Additional considerations |
| ○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ● Don't know | The studies we reviewed did not explore the relative effectiveness of debriefing for disadvantaged subgroups, so we are not able to make an evidence-informed judgement on this matter. |  |
| Acceptability Is the intervention acceptable to key stakeholders? | | |
| Judgement | Research evidence | Additional considerations |
| ○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know | The intervention is likely acceptable to key stakeholders. Debriefing has many potential benefits, including: improved teamwork, improved culture within institutions/departments/programs, improved communication, identification of latent safety threats, and improvement of clinical performance and patient outcomes. Relatively speaking the harms are minimal. Given the that the potential benefits outweigh potential harms, we suspect the intervention would be acceptable to most stakeholders. | The acceptability of the intervention may be dependent upon local perception of debriefing, clinical workload, local workplace culture. |
| Feasibility Is the intervention feasible to implement? | | |
| Judgement | Research evidence | Additional considerations |
| ○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know | The main issues with feasibility relate to facilitator training, provider willingness to participate in debriefing, and institutional support. Facilitator training is important as it ensures debriefings are conducted in a standardized fashion. Many institutions can leverage facilitators who have received debriefing training through their local simulation programs. The other option, when facilitator training is not feasible, is to use a debriefing tool or script to support facilitators. Providers are most likely to participate in debriefings if the activity is supported by leadership, and if the program (and facilitator) has created a psychologically safe environment for the debriefing. Based on our review of the evidence, we believe implementation of a clinical debriefing program is likely feasible in most institutions. |  |

# Summary of judgements

|  | **Judgement** | | | | | | |
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| **Problem** | No | Probably no | Probably yes | **Yes** |  | Varies | Don't know |
| **Desirable Effects** | Trivial | Small | **Moderate** | Large |  | Varies | Don't know |
| **Undesirable Effects** | Large | Moderate | Small | Trivial |  | Varies | **Don't know** |
| **Certainty of evidence** | **Very low** | **Low** | Moderate | High |  |  | No included studies |
| **Values** | Important uncertainty or variability | Possibly important uncertainty or variability | Probably no important uncertainty or variability | **No important uncertainty or variability** |  |  |  |
| **Balance of effects** | 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 |
| **Resources required** | Large costs | Moderate costs | Negligible costs and savings | Moderate savings | Large savings | **Varies** | Don't know |
| **Certainty of evidence of required resources** | Very low | Low | Moderate | High |  |  | **No included studies** |
| **Cost effectiveness** | 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** |
| **Equity** | Reduced | Probably reduced | Probably no impact | Probably increased | Increased | Varies | **Don't know** |
| **Acceptability** | No | Probably no | **Probably yes** | Yes |  | Varies | Don't know |
| **Feasibility** | No | Probably no | **Probably yes** | Yes |  | Varies | Don't know |

# Type of recommendation

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| Strong recommendation against the intervention | Conditional recommendation against the intervention | Conditional recommendation for either the intervention or the comparison | **Conditional recommendation for the intervention** | Strong recommendation for the intervention |
| ○ | ○ | ○ | **●** | ○ |

# Conclusions

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| Recommendation |
| We suggest data-driven, performance-focused debriefing of rescuers after IHCA for both adults and children (weak recommendation, very low certainty of evidence).  We suggest data-driven, performance-focused debriefing of rescuers after OHCA in both adults and children (weak recommendation, very low certainty of evidence). |
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| Justification |
| We justify this recommendation based on the evidence suggesting positive effects of debriefing on patient and process-related outcomes for cardiac arrest, balanced against the undesirable effects (i.e. emotional trauma) that were not reported by the studies we reviewed. While the certainty of evidence is very low and inconsistency high (for performance related variables), the associated costs to implement debriefing are likely to be low in many institutions. We also consider the high likelihood that this intervention is both acceptable to stakeholders and feasible to implement in most institutions. |

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| Subgroup considerations |
| None |

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| Implementation considerations |
| When implementing clinical debriefing, programs should consider collecting and integrating objective performance data (e.g. CPR quality metrics) to support the discussion of key points. Programs should also consider training facilitators to conduct debriefing in a standardized fashion using one of the previously published debriefing frameworks. Debriefing tools or scripts can support implementation and assist with data collection. |

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| Monitoring and evaluation |
| Programs should consider collecting learning points from debriefing and distributing them to front-line care providers to assist with dissemination. Clinical issues, such as latent safety threats, that are identified during debriefing should be escalated to the appropriate stakeholders to ensure they are addressed. |

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| Research priorities |
| We identified many gaps in the published literature. These include that no studies addressed comparisons related to individual feedback vs. group debriefings, hot vs. cold debriefings, data-driven vs. no data debriefings, or facilitated vs. non-facilitated debriefings. Data-driven CPR quality metrics were included as a key component of debriefing in all studies. However, no study was powered adequately to investigate effects on patient outcome, such as survival-to-discharge or favorable neurological outcome. One study was aiming at assessing the feasibility of intervention delivery rather than effectiveness. Thus, future study design should aim at quantitative and qualitative endpoints related to process measures and patient outcomes.    Other future research questions may include:  - How should facilitators be trained? Does facilitator training improve the impact of clinical debriefings?  - What type of data should be included to improve the effectiveness of clinical debriefings?  - What is the optimal length of clinical debriefings?  - Do providers experience emotional side effects are participating in clinical debriefings, and if so, what is the incidence and nature of these effects? |