This template guides the Task Force (TF) chair or TF lead on how to draft the consensus on science with treatment recommendation (CoSTR). This template is used for all CoSTRs derived from systematic reviews.

The CoSTR posted on the ILCOR website is based on this template and is to be submitted to the TF chair and assigned SAC representative. The SAC representative needs to approve the CoSTR, evidence-to-decision framework and complete the CoSTR checklist. SAC representative then sends the final CoSTR to ilcor@heart.org for posting online. The final CoSTR may be adjusted based on public comments.

User Instructions:

- Please use the Calibri size 10 and black font for text.
- Prior to submission, delete all instructions and examples (red text).
- Please use Endnote for referencing, when available, as this facilitates combining CoSTRs in our annual summary. References should be cited in the text as superscripted numbers, with a full reference list provided at the end of the COSTR document, using the Circulation journal style.
- Document should be saved as Taskforce_PICOST #_Short Title from PICOST_SR_CoSTR (YEAR CoSTR published on ilcor.org)
- Remember to upload documents to the project file in Proofhub.

Red text is a placeholder and should be deleted before submission for review.

Title

Insert the short title of the review and include the review number, Task Force abbreviation and type of review (e.g. Removal of foreign body airway obstruction (BLS 368): Systematic Review)

Conflict of Interest Declaration

Insert the relevant conflicts of interest using the text below.

The following Task Force members and other authors were recused from the discussion as they declared a conflict of interest: (insert names or declare 'none applicable')

The following Task Force members and other authors declared an intellectual conflict of interest, and this was acknowledged and managed by the Task Force Chairs and Conflict of Interest Committee: (insert names or declare 'none applicable')

CoSTR Citation

Insert citation for ILCOR.org posting of CoSTR. Include the following:

- Authors from the CoSTR writing group
- Acknowledge the relevant Task Force(s) with the text "on behalf of the International Liaison Committee on Resuscitation (insert Task Force name(s)) Task Force(s)"
- add full the title including the text "Consensus on Science with Treatment Recommendations [Internet] Brussels, Belgium"
- Date of CoSTR approval by SAC rep

Example:
Pocock H, Nicholson T, Szarpak L, Soar J, Berg KM on behalf of the International Liaison Committee on Resuscitation Advanced Life Support Task Force. Mechanical CPR Devices, Consensus on Science with Treatment Recommendations [Internet] Brussels, Belgium: International Liaison Committee on Resuscitation (ILCOR) Advanced Life Support Task Force, November 1, 2024.

Background

Insert the text below and add the citation of any previous ILCOR systematic reviews, CoSTR documents and citation of the current review. Briefly add any additional relevant methods if needed.

The continuous evidence evaluation process to produce this Consensus on Science with Treatment Recommendations (CoSTR) followed Morley PT, et al. Methodology and conflict of interest management: 2025 International Liaison Committee on Resuscitation Consensus on Science with Treatment Recommendations. Circulation. 2025;152(suppl 1):S23–S33.

Example:
This process began with an update (PROSPERO registration CRD42024537440)[1] to a prior ILCOR systematic review.[2] All evidence identified was considered by the Advanced Life Support Task Force and is described below. Discussion points and highlights of the evidence-to-decision process are also included. All data were considered when formulating the Treatment Recommendations. Data tables and the evidence-to-decision framework are provided as attachments.

Review citation

Insert the citation of the systematic review (if not yet published add authors, title and "in draft").

Example:
Usman M, Fitzpatrick-Lewis D, Kenny M, Parminder R, Atkins DL, Soar J, Nolan J, Ristagno G, Sherifali D. Effectiveness of antiarrhythmic drugs for shockable cardiac arrest: A systematic review Resuscitation 2018;132:63-72 DOI:10.1016/j.resuscitation.2018.08.025

PICOST

Insert the task force approved PICOST (Population, Intervention, Comparator, Outcome, Study Designs and Timeframe)

Example:
Population: Adults and children in any setting (in-hospital or out-of-hospital) with cardiac arrest and a shockable rhythm at any time during cardiopulmonary resuscitation (CPR) or immediately after return of spontaneous circulation (ROSC).
Intervention: Administration (intravenous or intra-osseous) of an antiarrhythmic drug during CPR and immediately (within 1 hour) after ROSC.
Comparators: Another anti-arrhythmic drug or placebo or no drug during CPR or immediately after ROSC.
Outcomes: Survival to hospital discharge with good neurological outcome and survival to hospital discharge were ranked as critical outcomes. Return of spontaneous circulation (ROSC) was ranked as an important outcome. For antiarrhythmic drugs after ROSC – re-arrest was included as an important outcome.
Study Designs: Randomized controlled trials (RCTs) and non-randomized studies (non-randomized controlled trials, interrupted time series, controlled before-and-after studies, cohort studies) are eligible for inclusion.
Timeframe: All years and all languages were included as long as there was an English abstract; unpublished studies (e.g., conference abstracts, trial protocols) were excluded. Literature search updated to August 15, 2017.
Registration: PROSPERO Registration CRD42017080475

Consensus on Science

Insert the summary of the evidence for each outcome (more guidance can be found under the Systematic Review Process document). This should start with a summary statement followed by the outcomes.

Example summary statement
There were eight studies evaluating IM epinephrine for cardiac arrest. Of these, two were human observational studies.13,14 Five included studies were in animal models of cardiac arrest.9-12,15 The final included study was a systematic review.18

Example meta-analysis:
For the important outcome (O) (e.g., return of spontaneous circulation), we have identified very-low-certainty evidence (downgraded for risk of bias and imprecision) from 2 observational studies (first author last name year of publication first page number= ILCOR format Smith 2018 123) enrolling 421 adult out-of-hospital cardiac arrests (P), which showed no benefit from the use of the intervention (I) when compare with standard care (C) (RR, 2.12; 95%CI, 0.75–6.02; P = 0.16; absolute risk reduction [ARR], 2.14%; 95% CI, −0.91% to 5.38%, or 21 more patients/1000 survived with the intervention [95% CI, 9 fewer patients/1000 to 54 more patients/1000 survived with the intervention])

Example narrative synthesis:
For the critical outcome of favourable neurological survival at discharge or 30-days, we identified very low certainty evidence (downgraded for risk of bias and serious indirectness) from two cohort studies.1,2 In one cohort study of 3,960 initially non-shockable OHCA, the implementation of the 2005 resuscitation guidelines consisting of a CV ratio of 30:2 (among other interventions) was associated with an improvement in neurologically favourable survival at hospital discharge (Cerebral Performance Category score 1–2) compared to a prior period consisting of a CV ratio of 15:2 (OR 1.56, 95% CI: 1.11, 2.18).1 In another cohort study of 522 initially shockable OHCA, patients treated under the 2005 resuscitation guidelines consisting of a CV ratio of 30:2 (among other interventions) was associated with no change in neurologically favourable survival at 30-days (Cerebral Performance Category score 1–2) compared to patients treated under the 2000 guidelines consisting of a CV ratio of 15:2 (OR 0.50, 95% CI: 0.20, 1.25).2

Treatment recommendations or Good Practice Statement

Insert treatment recommendations for systematic review and good practice statements (when applicable). Include the previous treatment recommendation (if one exists) and year.

We suggest/recommend for/against (I) in comparison with (C) for out-of-hospital cardiac arrest (P) (weak/strong recommendation, very low/low/moderate/high certainty of evidence).

Example Treatment Recommendation:
We suggest a compression-ventilation ratio of 30:2 compared with any other compression-ventilation ratio in adults patients in cardiac arrest (weak recommendation, very low certainty of evidence).

For creating a Good Practice Statement, please refer to the relevant ILCOR guidance document for Good Practice Statements.

Justification and Evidence to Decision Framework Highlights

Insert a brief overview of the Evidence to Decision Framework incorporating values and preferences and other domains included in the framework.

Example:

- This topic was prioritized by the ALS Task Force based on a large RCT comparing amiodarone, lidocaine and placebo ('ROC ALPS')[1] that was published after the previous CoSTR in 2015.[2,3]
- In considering the importance of this topic we noted that in a large RCT (n= 23,711) of continuous or interrupted chest compressions during cardiopulmonary resuscitation (CPR) for out-of-hospital cardiac arrest (OHCA)[3], 22.5% of patients had an initial rhythm of VF/pVT and about 6.7% of all patients received an antiarrhythmic drug (amiodarone 4.7%, lidocaine 2.0%) during CPR. A large observational study (n= 108,079) on airway management using data from the American Heart Association Get With The Guidelines Registry of in-hospital cardiac arrest (IHCA) reported that about 18% of all patients had an initial rhythm of VF/pVT, and 25% of all patients received an antiarrhythmic drug (amiodarone 17%, lidocaine 8%) during CPR.[4]
- Given the availability of comparative data from large RCTs, we did not include non-RCTs in establishing our confidence in the estimated effect size of these drugs.

Knowledge Gaps

Insert the knowledge gaps posed as statements (not questions).

Examples:
• Peer-reviewed research and human studies are needed on this topic, particularly studies focusing on real-life retrieval and the impact of security strategies on delivery times and patient outcomes.

References

Insert references should be listed in numerical order using the Circulation style in Endnote.

Example:
1. Uhm TH and Kim JH. Factors affecting delivery time of public access defibrillator in apartment houses. *Indian Journal of Public Health Research and Development*. 2018;9(9):534-40.
2. Telec W, Baszko A, Dabrowski M, Dabrowska A, Sip M, Puslecki M, Klosiewicz T, Potyrala P, Jurczyk W, Maciejewski A, Zalewski R, Witt M, Ladny JR and Szarpak L. Automated external defibrillator use in public places: a study of acquisition time. *Kardiologia polska*. 2018;76:181-5.
3. Salerno J, Willson C, Weiss L and Salcido D. Myth of the stolen AED. *Resuscitation*. 2019;140:1.
4. Peberdy MA, Ottingham LV, Groh WJ, Hedges J, Terndrup TE, Pirrallo RG, Mann NC and Sehra R. Adverse events associated with lay emergency response programs: the public access defibrillation trial experience. *Resuscitation*. 2006;70:59-65.
5. Page G and Bray J. Unlocking the key to increasing survival from out-of-hospital cardiac arrest - 24/7 accessible AEDs. *Resuscitation*. 2024:110227.