



This document was created to outline the complete process for every ILCOR systematic review. This documents the process and procedures, guidance and scope of work as well as timeline for the systematic review, the manuscript, and the preparation of the draft consensus on science and treatment recommendation statement.

Knowledge Synthesis Unit or Expert Systematic Reviewer Process-Roles, Deliverables, Time Frames, Responsibilities and Interaction with Task Force

1. Task Force (TF) and Domain Lead (DL) and Continuous Evidence Evaluation (CEE) subcommittee (ILCOR Science Advisory Committee-eventually) confirm priority questions written as Population, Intervention, Comparator, Outcome, Study Methodology and Timeline (PICOST) to be done by expert systematic reviewer (Knowledge Synthesis Unit (KSU) or Expert Systematic Reviewer (ESR))
2. Task force appoints 2 Content Experts for each PICOST. When a PICOST crosses nodes involving other task forces, one of the Task Forces will be labeled the primary Task Force and will provide 2 Content Experts. In addition, a single content expert from any interested non-primary Task Force(s) will be appointed by those Task Force(s). It is advisable to consider the timeline (Appendix B) to ensure the content experts have sufficient time to commit to the process. It is advisable to appoint back up content experts should availability of the initially appointed content experts change.
3. 'ILCOR priority team' consists of ESR, content experts, domain lead (at their discretion), ILCOR systematic review mentee (SR mentee only with ESR NOT KSU), CEE representative and ILCOR selected information specialist (ESR only as KSU have a dedicated search team) who conducted the search (Appendix A, Tables 1 – 4).
4. 'local KSU or ESR team' consists of the KSU lead or ESR and his or her local team who work under the direction of the KSU lead or ESR. They may be paid or unpaid participants on the local team. Participants on the local team should not be guaranteed authorship.
5. All members of the ILCOR priority team, the KSU lead or ESR and the local team need to complete the ILCOR conflict of interest policy prior to launch of the team.
6. The domain leads (Table 4), the ESRs (Table 2), the SR mentees (Table 3) and the CEE Working group liaisons (Table 1) are listed in the appendices (Appendix A).
7. Content Experts will provide the following role:
 - a. Contribute high quality work to the SR as requested and this may include but is not limited to: selection of articles, quality review, data abstraction, GRADE evidence profile tables built within the GRADE Pro GTD online resource (www.grade.pro.org) so as to allow seamless integration into the Evidence to Decision Table the TF chairs or their delegate will generate for formulating recommendations and interpretation of the meta-analysis when applicable.
 - b. Iteratively seek Task Force(s) input as required during the systematic review (SR) at each step of the workflow process adhering to the timelines as pre-specified in the KSU or ESR contract. The Task Force chair(s) may wish to suggest when they and the Task Force want to be involved with their core content experts and this involvement will be unique to that Task Force. It is important to note that the SR or KSU do not have the capacity to go back and repeat work so the involvement of the Task Force(s) iteratively

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is highly recommended such that all members are informed and in full agreement with the process and the decisions being made throughout the SR.

- c. Will establish drop dead dates for deliverables to enable TF input for each step. The content experts will ensure the TF chair(s) and members are aware of every conference call with the KSU or ESR and the local team such that the TF chair(s) and members can listen in as they wish to stay informed on the progress.
8. Task Force Chair(s) and members will fulfill the following requirements:
- a. Ensure they are aligning the work of the TF to support the content expert at every step of the SR. The timelines document Appendix E provides a template for planning. It is important to recognize that the TF must be informed and assisting the content expert in advance of the deadline for the KSU or ESR.
 - b. Providing input in a timely way when asked by the content expert.
 - c. TF chair(s) will ensure the content experts representing the TF are fulfilling their role and provide a backup expert if the primary expert does not fulfill their role.
 - d. The TF chair(s) are encouraged to listen in on any of the KSU or ESR conference calls with the content experts however it is not advisable to interrupt or contribute to the conversation unless related to workflow and process. Instead we encourage TF chair discussions pre-and post-call with the Domain Lead and/or Content experts to ensure that all are comfortable with the decisions that are being made by the content expert(s) representing the TF.
 - e. The TF chair(s) will document participation and level of participation of each TF member such that they can justify level of contribution for acknowledgment of the SR publication and contribution to the CoSTR when posted on the ILCOR website.
 - f. Once the GRADE evidence profile tables have been completed by the KSU / ESR, the TF chair or delegate should generate the Evidence to Decision Tables (EtD) using the GRADE Pro GTD online resource (www.grade.pro.org)
 - f. The TF should meet by webinar to review the EtD framework as a method for arriving at and explicitly tracing the path from evidence to recommendations.
 - g. The TF should also review the draft Consensus on Science generated by the ESR or the KSU lead. The EtD tables should contribute to the TF finalizing the Consensus on Science and writing the treatment recommendations.
 - h. The CEE rep on the TF will review the CoSTR and EtD and ensure it is compliant with the CEE checklist prior to submitting the CoSTR and EtD and completed checklist to the CEE for approval.
9. The CEE representative on the ILCOR priority team (Appendix A; Table 1) will provide the oversight to ensure the SR is conducted as anticipated with rigorous scientific methodology and within timelines prescribed by the contract. The CEE rep also reports back to CEE on

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performance of the domain lead, the KSU or ESR, all members of the ILCOR priority team and KSU or ESR local team members. The CEE rep on the ILCOR priority team reviews the PROSPERO listing and confirms compliance with the PROSPERO checklist prior to posting on PROSPERO. The CEE rep on the ILCOR priority team reviews the SR and ensures it is compliant with the SR checklist prior to submission to the CEE for review and approval.

10. The domain lead (Appendix A; Table 4) oversees the ILCOR priority team and the communication with the participating TF and CEE. The domain lead will monitor the conference calls and the performance as logged on the dashboard. The domain lead monitors, gives feedback, encourages and supports each and every member of the ILCOR priority team. The domain lead will actively communicate with the TF chair(s) and TF membership and monitor, report and encourage the TF is providing appropriate support to the CEE process and the KSU or ESR is delivering on time and high-quality output. The domain lead reports to CEE and it is their responsibility to provide the information to update the dashboard regularly.
11. The ILCOR SR mentee is dependent upon this process to shine in the eyes of the domain lead and the ESR such that if they perform well the ESR and DL will recommend to the CEE working group that they be promoted to ESR. Thus, it is important that the ILCOR SR mentee play a lead role mentored by the ESR directly.
12. ILCOR TF prepares the draft PICOST from its priority list of PICOs and once approved by the CEE rep on the TF, the TF chair submits the completed PICOST for approval to CEE. The PICOST template includes the need for the TF to confirm COI of appointed TF members with the AHA staff. The CEE approved PICOST is submitted for acknowledgment by the Task Force(s) chair(s) and ILCOR Board. Task Force Chair (s) and ILCOR Board acknowledge receipt of PICOST. **This is time zero on the timeline workflow document called the Generic SR Workflow on ILCOR.org.**
13. CEE chair or delegate sends the approved PICOST to KSU or ESR Team. The KSU and ESR team works with the approved PICOST or alternatively revises the draft PICOST with input from the ILCOR priority team at the first webinar. Core content experts confirm with Task Force that the revised PICOST is acceptable. The KSU or ESR submits the revised PICOST to CEE WG for approval. No further involvement with TF chairs or ILCOR board is required at this step.
14. AHA staff will send the approved PICOST to the domain lead, the KSU lead or ESR, and the information specialist. Time zero will be inserted in the Generic ST Workflow (ILCOR.org) and this is conveyed to the KSU or ESR by the AHA staff assigned to monitor the PICOST.
15. The lead Information Specialists (IS) under contract to ILCOR will assign an information specialist to the PICOST literature search and provide contact information.
16. (ESR only) Within 5 days of receipt of this affirmed PICOST the information specialist will lead a webinar (preferred) or conference call with the ESR prior to developing the search strategy. The ESR is responsible for ensuring that the strategy covers all concepts and list of key studies and previous SRs in the PICOST and the IS decides how to translate those concepts into a search strategy that works.

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17. The KSU lead or ESR or designate is responsible for conducting doodle polls and scheduling/management of all conference calls. Use of “local” resources is encouraged. All webinars will be conducted through the AHA web interface using their preferred provider.
18. All Questions related to process or performance matters or conflict resolution are to be referred to the ILCOR Coordinator (bmont28@gmail.com) and CEE working group chair (morrisonl@smh.ca). The CEE working group follows all ILCOR policies and procedures.
19. The AHA staff coordinator assigned to each SR and KSU PICOST will monitor progress and report to the CEE committee at their regular meetings. A performance dashboard will be maintained primarily by the domain lead with support by the AHA staff and shared weekly with domain leads, ESR, KSU teams, CEE WG and ILCOR Board.
20. In step 8 below the KSU or ESR prepares their submission of the CEE checklist compliant SR manuscript for peer review and publication for TF and CEE WG. The Task Force(s) uses the evidence profile tables to complete the COS, Values and Preference, Evidence to Decision Framework and TR and submit the CEE checklist compliant CoSTR and EtD to CEE WG for approval. The Checklist for the SR is on [Ilcor.org](http://ilcor.org). The TF chair(s) should adhere to the [CoSTR template and checklist document \(ilcor.org\)](#) when preparing the CoSTR. CEE WG submits the approved CoSTR and EtD to ILCOR Board for acknowledgment prior to posting. A CEE approved CoSTR and EtD is posted on ilcor.org website for public comments for two weeks. The EtD tables are also posted with the CoSTR on [Ilcor.org](http://ilcor.org) website. The TF chair reviews the public comments and makes changes to the CoSTR as required and submits to CEE WG for reapproval prior to reposting. An individual response to comments or a summary of changes made or not made in response to public comments would be helpful to the public and is encouraged. This would also be posted on the CoSTR site.
21. Work Flow begins by ESR or KSU with “ILCOR priority team” as outlined on [ILCOR.org](http://ilcor.org) as the Generic SR workflow document. ESR or KSU will perform Services and provide Deliverables according to SR workflow document and their executed contract with AHA/ILCOR. Dates will be inserted into the Generic SR Workflow document and generated for each PICOST once the PICOST is finalized.
22. **Timing and linkage of ILCOR CEE publications and web based posting of CoSTR and ETD Framework**
 - i. The systematic reviews must be published prior to the PICOST being included in the CoSTR summary to be submitted to Circulation and Resuscitation for peer review.
 - ii. The final version of the CoSTR posting (after public commentary) and the ETD Framework must be posted on the ILCOR website prior to the PICOST being included in the CoSTR summary to be submitted to Circulation and Resuscitation for peer review.
 - iii. The ILCOR website posting of the CoSTR and ETD Framework will link to the published SR citation and the relevant CoSTR Summary citation from Circulation and Resuscitation.
23. **Investigator Roles and Authorship: Please Refer to the Guidance Authorship Categories on ILCOR.org for all author, collaborator, acknowledgments and funding text for all ILCOR SRs and CoSTRs and EtDs.**

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Authorship is assigned based on contribution and compliance with international authorship guidelines. It is anticipated the KSU lead or ESR and SR mentee will be first or last author or first or last co-author. The ESR may choose to discuss authorship and responsibilities at the outset with the ILCOR priority team and local team members. The decision to do this or to defer this discussion until the SR is completed is deferred to the ESR.

Since the search strategy on a SR is essential to the success of an SR, typically Information Specialists are integral and therefore granted authorship. They are expected to write or review the methods section (or a part thereof) of the paper and to ensure that the search strategy is properly reproduced in the paper or appendix. They are also responsible for ensuring the search strategy is subjected to Peer Review (PRESS) by another expert Information Specialist. If they do not review the paper and/or write the methods section (especially as it pertains to the search strategy) they should at least be granted an acknowledgment. For the ESRs the dedicated IS team at St Michael's Hospital (SMH) would like to be asked about authorship. For the KSU we defer to them for their approach to IS authorship as per their standard operating procedure.

Prior to submission of the completed SR for peer review it is anticipated that the KSU lead or ESR will provide a preliminary author order list and justification for discussion with the domain lead and primary TF chair. When both are in agreement, the KSU lead and ESR will pre-circulate author order and acknowledgement with justification and obtain approval from all authors prior to submitting his/her final recommendations to the domain lead. It is anticipated that the KSU lead or ESR will resolve any conflicts with co-authors prior to submitting her/her recommendations to the domain lead.

Ultimately the ILCOR domain lead submits author list and order and confirms acknowledgements to the CEE for review and the CEE will submit the final list to ILCOR Exec. This is based on KSU lead or ESR recommendations and justification as the SR nears completion and is ready for submission for peer review.

Any unresolved conflicts authorship and order can be appealed to the domain lead and then to the CEE working group which will follow all applicable ILCOR policies and procedures relating to appeal.

The ESR timeline and deliverables are set by contract and summarized in the PICOST specific SR workflow document (generic form on ILCOR.org). It is important in the SR process to promote and enable contribution fully by the ILCOR priority team members as authors i.e. the ILCOR core content experts appointed by the Task Force Chair(s), the ILCOR SR mentee, the domain lead (if they have chosen to participate) and the CEE representative. Otherwise there is no opportunity for academic growth or capacity building or value added for those who volunteer for these ILCOR roles. Thus, most of the SR will be accomplished by engaging the ILCOR priority team members as investigators and eventually authors.

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It is anticipated that the KSU or ESR will have a local team to support the SR. This may include hired staff such as PhD or post docs or research coordinators. However, it is important to remember that these individuals are supplemental to the ILCOR priority team members in terms of completing the work and authorship. If an ILCOR priority member fails to deliver on time, this will be reported to the domain lead and the ESR will be approved to pull from the ILCOR team or his or her local team to complete the work in an adjusted timeline and authorship adjusted accordingly. The ESR role is to balance responsibilities carefully across the ILCOR priority team members and the local ESR team to manage authorship expectations, compliance with timelines and ensuring high quality deliverables.

Is there a role for the local SR team members in terms of authorship?

The KSU team member of the ESR local team may be comprised of paid or unpaid contributors to the SR. It is hard to guide the ESR on how many of the local team will be authors.

It is anticipated the KSU or ESR may wish to acknowledge paid or unpaid contributions by his or her local ESR team through the acknowledgement section. This includes summer or elective students, residents or fellows.

The size of the local team supporting the KSU or ESR will depend on the complexity of the question and the search strategy results. We anticipate that 3-4 members of the local team will merit authorship in a routine simple PICOST however a larger search and more complex analysis may increase this to a number of authors greater than four.

It is anticipated that the KSU or ESR may wish to advocate for authorship based on contribution and performance for members of the local SR team. This is allowed as long as their contribution does not take away from the role of the ILCOR priority members of the team i.e. tasks delegated to the local team that the priority members are capable of completing on time.

Most importantly it would be inappropriate to promote a local team member to first author instead of an ILCOR priority member so the roles and responsibilities of the team need to be allocated accordingly to ensure first authorship for an ILCOR priority member may be possible and is justifiable. For example it is anticipated that the ILCOR appointed mentee is fully capable of completing an SR and requires supervision of the ESR to do so thus it would appropriate for the ESR to decide at the end that they will be last author and the ILCOR assigned mentee will be first author or alternatively the ESR and the mentee are co first authors and another member of the ILCOR priority team who played a significant role will be the last author. It would not be appropriate for the KSU lead or ESR to promise a local fellow or young investigator a first author role on an ILCOR SR.

Recognition of Task Force Chairs and Members who meet the criteria as a collaborator or author on the published SR

It is anticipated that TF chair or member involvement in each systematic review will vary but it is unlikely that a TF chair or member who is not a content expert will merit authorship based on international standards (www.icmje.org). However, if the ESR or KSU lead and domain lead feel a member of the Task Force who was not on the ILCOR priority team merits all the requirements for authorship (<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>) they may add this individual to the authorship list with justification to the CEE WG for approval.

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It is anticipated that the chair and/or some or all of the TF members will merit acknowledgment as collaborators if they meet some but not all the requirements to be an author. (<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>) The TF chairs will be asked by the domain lead and KSU or ESR to specify if their TF members merit acknowledgment on the published SR as a collaborator. It is acknowledged that the TF members are indeed volunteers and they may not be able to contribute to each and every ILCOR TF output in a way that merits recognition as a collaborator. The TF chair will be responsible for documenting the participation and contribution of each TF member for each SR and for justifying the criteria for collaborator status for some or all TF members. The TF chair(s) will submit a list of the names of all collaborators who merit to be listed in this way and the TF chair will be required to obtain and submit to the ESR or KSU lead the written approval (email confirmation is sufficient) that is required to acknowledge an individual as a collaborator. Because acknowledgment as a collaborator may imply endorsement of a study's data and conclusions, editors may require written permission to be acknowledged from all collaborators.

Acknowledgement of non –author and non-collaborator contributors

ESR, KSU leads and domain leaders may recommend individuals for acknowledgement on the SR manuscript. This may include but is not limited to local SR team members or KSU team members, Students, residents and fellows, administrative staff, colleagues or experts.

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APPENDIX A.

Table 1. CEE WG Liaison and AHA Staff Representatives for respective Task Forces (red font is primary CEE rep)

Task Force	Task Force Chair Task Force Vice- Chair	CEE WG Liaison	AHA Staff Representative
Basic Life Support (BLS)	Theresa Olasveegen, Mary Beth Mancini	Peter Morley, Jerry Nolan, Laurie Morrison	Noelle Hutchins
Advanced Life Support (ALS)	Jasmeet Soar, Michael Donnino	Jerry Nolan, Peter Morley, Laurie Morrison	Noelle Hutchins
Education, Implementation and Teams (EIT)	Robert Greif, Farhan Bhanji	Eddy Lang, Nici Singletary	Noelle Hutchins
First Aid (FA)	Nici Singletary, David Zideman	Nici Singletary, Eddy Lang	Matt Buchanan
Neonatal Life Support (NRP)	Myra Wyckoff, Johnathan Wylie	Jack Rabi Ian Maconochie	Matt Buchanan
Pediatric Life Support (Peds)	Ian Maconochie, Richard Aickin	Ian Maconochie, Jack Rabi	Matt Buchanan

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Table 2. List of Expert Systematic Reviewers

Expert Systematic Reviewers	Country of Origin
Ian Drennan	Canada
Arno Zaritsky	USA
Shinichiro Ohshimo	Japan
Jason Buick	Canada
Tetsuya Isayama	Japan
Laurie Morrison	Canada
Jan Jensen	Canada
Steve Lin	Canada
Nikolaos Nikolaou	Greece
Joyce Yeung	United Kingdom
Emmy Debuck	Belgium
Kate Dainty	Canada
Michelle Welsford	Canada
Eric Lavonas	USA
Lars Andersen	Denmark
Daniele Trevisanuto	Italy

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Table 3. List of Systematic Reviewer (SR) Mentees (yellow highlighted= experienced but require additional mentorship)

Systematic Review Mentee	Country of Origin
Chihung Wang	Taiwan
Luis Furuya Kanamori	Australia
Tasuku Matsuyama	Japan
Stuart Netherton	Canada
Masanori Tamuri	Japan
Guillame Geri	France
Adam Cheng	Canada
Theresa Dharv	Sweden
Chika Nishiyama	Japan
Helen Liley	Australia
Marie Furuta	United Kingdom
Matthew Douma	Canada
Suzanne Avis	Australia
Paul-Chien Chang Lee	Taiwan
Henry Lee	USA

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Table 4. List of Domain Leads, Domains and Subdomains

Domain Lead	Country of Origin	Domain	Subdomains
Charles Deakin	United Kingdom	Defibrillation	Miscellaneous
Allan de Caen	Canada	CPR	Compressions
Keith Couper	United Kingdom	CPR	Bystander CPR, Monitoring/feedback, Miscellaneous
Jonathan Epstein	United States	Emergency Care	Altered level of responsiveness, Anaphylaxis, Burns, Bleeding and wounds, Environmental injury, and Heat/dehydration
Catherine Patocka	Canada	Emergency Care	Cold/frostbite, Shock, Toxic substances/Toxicity
Jack Rabi	Canada	Airway and Ventilation	Gas concentrations/volume monitoring, Supplemental oxygen, Ventilation rate
Guisepe Ristagno	Italy	Drugs and Fluids	Antiarrhythmics, Platelet aggregator inhibitor, Bronchodilators, Buffering agents, Corticosteroids, Fluids, Fibrinolytics,
Monica	USA	Drugs and Fluids	Vasoconstrictors, Drug

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Kleinman			delivery, Tachycardia, Miscellaneous
Adam Cheng	Canada	Education	Simulation, Evaluation, Miscellaneous
Andrew Lockey	United Kingdom	Education	Teaching Methods and Models
Barney Scholefield	United Kingdom	Screening and Diagnosis	ECG/EKG, Imaging, Risk Factors and Assessment
Kevin Nation	New Zealand	Airway and Ventilation	Advanced airway management, Basic airway management
Markus Skifvars	Finland	Post Arrest Care	Fever, Glucose Control, Therapeutic Hypothermia, Miscellaneous