Appendix B

Education Implementation and Teams – 2026 Evidence Updates

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2026 Evidence Update

EIT 6406 – Self-instruction vs Instructor Guided Training

Worksheet author(s): Kathryn Eastwood
Task Force: EIT
Date Submitted: November 2025

PICO / Research Question: EIT 6406
Should self-directed digital vs. instructor-led training be used to teach adults and children basic life support skills?
Population: Adults and children undertaking BLS training.
Intervention: Self-directed digitally-based BLS training.
Comparators: Instructor-led BLS training.
Outcomes: Patient outcomes: Good neurological outcome at hospital discharge/30-days; Survival at hospital discharge/30-days; Return of spontaneous circulation (ROSC); Rates of bystander CPR; Bystander CPR quality during an OHCA (any available CPR metrics); Rates of automated external defibrillator (AED) use.
Educational outcomes at the end of training and within 12 months: CPR quality (chest compression depth and rate; chest compression fraction; full chest recoil, ventilation rate, overall CPR competency) and AED competency; CPR and AED knowledge; Confidence and willingness to perform CPR.
Study Designs: Randomized controlled trials (RCTs) and non-randomized studies (non-randomized controlled trials, interrupted time series, controlled before-and-after studies, cohort studies and case series where n>5 are eligible for inclusion. Unpublished studies (e.g., conference abstracts, trial protocols) commentary and editorial papers, reviews and animal studies were excluded.
Timeframe: March 28, 2024 to October 22, 2025

Conflicts of Interest (financial/intellectual, specific to this question): None
Year of last full review: 2024

Current ILCOR Consensus on Science and Treatment Recommendation:
We suggest the use of either instructor-led training or self-directed digital training for the acquisition of CPR or AED skills in lay adults and high school-aged (>10 years) children (weak recommendation, very low certainty evidence).
We suggest self-directed digital training be used when instructor-led training is not accessible, or when quantity over quality of CPR training is needed in adults and children (weak recommendation, very low certainty evidence).
There was insufficient evidence to make a recommendation on game-in-film, virtual reality, computer programs, online tutorials or app-based training as a CPR or AED training method.

Databases searched: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions, CINAHL, EMBASE, and the Cochrane Central Register of Controlled Trials.
Timeframe:
Date Search Completed: 22th October 2025
Search Results (Number of articles identified / number identified as relevant): 1019 / 2

Summary of Evidence Update:

Relevant Guidelines or Systematic Reviews: 0
RCTs: 0
Nonrandomized Trials, Observational Studies: 2

Study Acronym; Author; Year Published	Study Type/Design; Study Size (N)	Patient Population	Primary Endpoint and Results (include P value; OR or RR; & 95% CI)	Summary/Conclusion Comment(s)
Gupta et al, 2025	Randomized Cross-Sectional Study n=108	Undergraduate medical students Students with medical conditions that may restrict their training and those with prior exposure were excluded.	• There was a significant difference between compression rates between the intervention and instructor-led groups (median: 110 (IQR:88 to 129) versus 123 (111 to 132.5), P = 0.012). • The instructor-led group achieved significantly better chest compression depths (mean, SD) compared with the intervention group (51.6mm (8.7) versus 36.28 mm (13.8); P < 0.001). • Chest recoil was significantly better in instructor-led group (93% vs. 57%; P<0.001). • There was no significant difference between the groups for any of the assessed aspects of AED usage. • Before the BLS training there was no difference in knowledge, however after training the instructor-led group demonstrated significantly better knowledge scores (12.8 vs. 11, P<0.001).	In this study, hands-on mannequin-based training was significantly more effective than online training in teaching BLS skills to novice medical students, particularly in achieving correct chest compression depth and rate.

Alcazar Artero et al, 2024	A randomized multicenter, comparative and cross-sectional study N=63	Coaches selected from 15 different football clubs from the Region of Murcia (Spain). In the case of minors, the parent or tutors provided a signature. Exclusion criteria: eye pathologies (i.e. correction glasses), neurological pathologies (i.e. epilepsy), age £ 13 years, or abandoning the study.	• Mean chest compression rate was significantly better in the VR group compared to the instructor-led group (102.1 versus 89.0; p<0.001); as was the percentage of participants who provided CPR at the correct rate (54.5% (18/33) versus 25.8% (8/31)). • Chest compression depth was also significantly better in the VR group compared to the instructor-led group (mean 4.1cm versus 3.3cm; p=0.001). • The percentage of chest compressions at the correct depth was also better in the VR group (18.0% (6/33) versus 6.4% (2/31)).	This study found that virtual reality and serious games can improve the quality parameters of chest compressions compared to traditional training.

Reviewer Comments (including whether meet criteria for formal review):
There were 1019 new articles identified in the Medline search of which two were relevant to the PICO. One of these studies supports the intervention and the other supports the control. A systematic review is currently underway for this PICOST.

References:

1. Nishkarsh Gupta, Bhavik Bansal, Anju Gupta, Dhruv Jindal, Madhur Singhal, Amritesh Grewal, Maanit Matravadia, Hardik Gupta, Gyanendra Pal Singh, Arindam Choudhury, Rashmi Ramachandran, Ambuj Roy. Comparison of online content-based training with hands-on mannequin-based skill training on basic life support knowledge and skills among medical students. J Educ Health Promot. 2025 Feb 28:14:55. PMID: 40144185

2. Alcazar Artero, PM; Greif R; Ceron Madrigal, JJ; Escribano, D; Perez Rubio, MT; Alcazar Artero, ME; Lopez Guardiola, P; Mendoza Lopez, M; Melendreras Ruiz, R; Pardo Rios, M. Teaching Cardiopulmonary resuscitation using virtual reality: a randomized study. Australas Emerg Care. March 2024; 27(1): 57-62. PMID: 37666723

2026 Evidence Update

EIT 6408 – Spaced Learning

Worksheet author(s): Adam Boulton, Joyce Yeung, Barbara Farquharson, Marc Auerbach, Tasuku Matsuyama, Jeffrey Lin
Task Force: EIT
Date Submitted to SAC rep for peer review and approval: March 4 2025
SAC rep: Andy Lockey

PICOST / Research Question:

PICOST	**Description** *(with recommended text)*
Population	Learners undertaking resuscitation courses (all course types and all age groups) and/or first aid courses.
Intervention	Training or retraining which is distributed over time ("spaced" learning).
Comparison	Training provided at one single time point ("massed" learning).
Outcomes	Educational outcomes (skill performance 1 year after course conclusion; skill performance between course conclusion and 1 year; knowledge at course conclusion) and clinical outcome (quality of performance in actual resuscitations; patient survival with favorable neurologic outcome)
Study Design	Randomised controlled trials (RCTs) and non-randomised studies (non-randomised controlled trials, interrupted time series, controlled before-and-after studies, cohort studies) are eligible for inclusion. All original research articles (both prospective and retrospective) will be included with no language restrictions (so long as abstract in English). Unpublished studies (e.g., conference abstracts, trial protocols) will be excluded.
Timeframe	All years

Year of last full review: 2022
Current ILCOR Consensus on Science and Treatment Recommendation for this PICOST:
For learners undertaking resuscitation courses, we suggest that spaced learning (training or retraining distributed over time) may be used instead of massed learning (training provided at one single time point) (weak recommendation, very low certainty of evidence).

Databases searched:
MEDLINE, EMBASE, CINAHL, Cochrane Reviews, Cochrane CENTRAL
Time Frame: January 2, 2022-February 17, 2025
Date Search Completed: 17th February 2025
Search Results (Number of articles identified and number identified as relevant): 2316/2

Summary of Evidence Update:
Relevant Guidelines or Systematic Reviews: None
RCT:

Study Acronym; Author; Year Published	**Aim of Study; Study Type; Study Size (N)**	**Patient Population**	**Intervention (# patients)/ Comparator**	**Endpoint Results (Absolute Event Rates, P value; OR/RR; 95% CI)**	**Relevant 2° Endpoint (if any); Study Limitations; Adverse Events**

			(# patients)		
Ranjbar 2024	**Study Aim:** To evaluate the impact of BLS Spaced E-learning versus Massed E-Learning on the knowledge and satisfaction of first-year undergraduate nursing students in Iran. **Study Type:** Randomised study, single centre **Study Size:** N=106	**Inclusion Criteria:** Under-graduate nursing students.	**Intervention:** 59 **Comparison:** 47	**1° endpoint:** Significantly improved scores with intervention immediately after test, after two weeks, and one month.	**Study Limitations:** Single centre No skills assessment
Soares 2024	**Study Aim:** Compare the effectiveness of combined spacing and testing versus single single-session training for BLS and ALS simulation. **Study Type:** Quasi-randomised. Allocation based on student schedule availability. **Study Size:** 31	**Inclusion Criteria:** Under-graduate nursing students year 3-5	**Intervention:** 18 **Comparison:** 13	**1° endpoint:** Improved skill retention in the spaced group at three months.	**Study Limitations:** Single centre, small sample. high rate of attrition (study began with 53 participants) Quasi-randomised introduces risk of bias

Nonrandomized Trials, Observational Studies: none

Reviewer Comments:
Only two further studies were found. Both studies were single centre. Both studies were supportive of spaced learning compared to massed learning; a finding consistent with the previous CoSTR and evidence update. We do not recommend a further systematic review.

References:

1. Ranjbar F, Sharif-Nia H, Shiri M, Rahmatpour P. The effect of spaced E-Learning on knowledge of basic life support and satisfaction of nursing students: a quasi-experimental study. BMC Med Educ. 2024 May 15;24(1):537. doi: 10.1186/s12909-024-05533-9. PMID: 38750506; PMCID: PMC11097522.
2. Soares RV, Pedrosa RBDS, Sandars J, Cecilio-Fernandes D. The importance of combined use of spacing and testing effects for complex skills training: A quasi-experimental study. Med Teach. 2024 Nov 13:1-8. doi: 10.1080/0142159X.2024.2427735. Epub ahead of print. PMID: 39535960.

2026 Evidence Update

EIT 6412 – Gamified Learning vs. Non-Gamified Learning

Worksheet author(s): Aaron Donoghue, Alexander Olausson, Lorrel Toft, Adam Cheng
Task Force: EIT

PICOST / Research Question:

PICOST	**Description** *(with recommended text)*
Population	Learners training in basic or advanced life support
Intervention	Instruction using gamified learning (use of game-like elements in the context of training (e.g. point systems, intergroup competition, leaderboards, scaffolded learning with increasing challenge, 'medals' or 'badges')
Comparison	Traditional instruction or other forms of non-gamified learning
Outcomes	Educational outcomes: *Skill* (e.g. CPR performance, other procedural performance, scores in scenarios, time to task performance) immediately following training (e.g. end of course), at 3 months, 6 months, 1 year *Knowledge* e.g. test scores immediately following training (e.g. end of course), at 3 months, 6 months, 1 year *Attitudes*: Participant satisfaction, learner preference, learner confidence Clinical outcomes: change in healthcare practitioner behavior at resuscitation in case of real cardiac arrest (CPR quality, time to task completion, teamwork/crisis resource management) Patient outcomes: ROSC, survival to hospital d/c; neurologic intact survival Process: costs and resources utilization
Study Design	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. Unpublished studies (e.g., conference abstracts, trial protocols) are excluded.
Timeframe	May 30, 2023 to November 20, 2025 and all languages are included if there is an English abstract

Year of last full review: 2023
Current ILCOR Consensus on Science and Treatment Recommendation for this PICOST:
It may be reasonable to consider the use of Gamified Learning (GL) elements as a component of resuscitation training (weak recommendation, very low quality of evidence).

Databases searched: Medline, Embase, Cochrane
Time Frame: May 30, 2023 to November 20, 2025
Date Search Completed: November 20, 2025
Search Results (Number of articles identified and number identified as relevant): 565/7

Summary of Evidence Update:
Relevant Guidelines or Systematic Reviews

Organization (if relevant); Author; Year Published	**Guideline or systematic review**	**Topic addressed or PICO(S)T**	**Number of articles identified**	**Key findings**	**Treatment recommendations**
Cheng, 2024 (China)[1]	Systematic review	Effect of serious	6	RCTs only; CPR skill as outcome measures only;	Serious games are equally effective as

		games on CPR training and education		No significant difference between serious games and traditional learning on CPR skill performance	traditional training methods in CPR training
Donoghue, 2024 (ILCOR)[2]	Systematic review	Gamified learning in resuscitation training	13	7 RCTs, 6 observational studies; 12 of 13 demonstrated improvement in one domain (skill, knowledge, attitude) with GL; no studies showed a negative effect	It may be reasonable to consider the use of Gamified Learning (GL) elements as a component of resuscitation training (weak recommendation, very low certainty of evidence).

RCT:

Study Acronym; Author; Year Published	**Aim of Study; Study Type; Study Size (N)**	**Patient Population**	**Study Intervention (# patients) / Study Comparator (# patients)**	**Endpoint Results (Absolute Event Rates, P value; OR or RR; & 95% CI)**	**Relevant 2° Endpoint (if any); Study Limitations; Adverse Events**
Bilodeau, 2024 (Canada)[3]	Study Aim: whether the digital game simulation instructional method was at least as good as a more traditional alternative (video lecture) at updating and maintaining participants' neonatal resuscitation knowledge Study Type: RCT Sample size: IG 21, CG 21	Inclusion Criteria: Labor and delivery healthcare personnel	Intervention: digital game simulator for NRP (RETAIN) Comparison: 20-30 minute NRP instructional video	1° endpoint: Clinical performance immediately post-training No difference between groups (ANOVA, p=0.6) 2° endpoints: Clinical checklist 2 months post-training No difference btw groups (p=0.5) Attitudes towards RETAIN simulator; range of 3.29 to 3.86 on 5-point Likert scale items regarding realism and usefulness	Study Limitations: Small sample size Limited untested clinical assessment (checklist)
Cutumisu, 2024 (Canada)[4]	Study Aim: whether the digital game simulation instructional method was at least as good as a more traditional alternative (video lecture) at updating and maintaining participants' neonatal resuscitation knowledge Study Type: RCT	Inclusion Criteria: Paramedics	Intervention: digital game simulator for NRP (RETAIN) Comparison: 20-30 minute NRP instructional video	1° endpoint: Clinical performance immediately post-training No difference between groups (scored on scale of 0-14) IG: pre 10 + 2.2 to post 10.7 + 2 vs. CG pre 9.6 + 2.3 to post 11.5+1.8) 2° endpoint: Attitudes towards RETAIN simulator; range of 3.53 to 4.00 on 5-point Likert	Study Limitations: Small sample size Limited untested clinical assessment (checklist)

	Sample size: IG 21, CG 21			scale items regarding realism and usefulness	
Kim, 2024 (South Korea)[5]	Study Aim: whether GL in KALS (Korean Advanced Life Support) leads to better outcomes than traditional KALS Study Type: RCT Sample size: IG 139, CG 148	Inclusion Criteria: Healthcare personnel (physician, nurse, paramedic, medical/nursing student)	Intervention: digital game (Kahoot! Software) used during "reminder" session (roundtable discussion with images of CA scenario pre assessment) Comparison: standard "reminder" session (without gamification)	1° endpoint: Immediate post-training MCQ assessments (algorithm, rhythm analysis, teamwork) Algorithm (5 points): CG better than IG (4.88 vs 4.70, p=0.002) Rhythm (3 pts): NSD Teamwork (2 points) NSD	Study Limitations: Limited untested clinical assessment (checklist) Comparisons of point scores on outcomes analyzed as means; difference btw algorithm score 4.7 and 4.88 unlikely to be practically significant

Abbreviations: CG= control group; IG=intervention group; MCQ=multiple choice question; NRP=neonatal resuscitation program; NSD=no significant difference

Nonrandomized Trials, Observational Studies

Study Acronym; Author; Year Published	**Study Type/Design; Study Size (N)**	**Subject Population**	**Gamification element(s)**	**Comparator**	**Primary Endpoint and Results (include P value; OR or RR; & 95% CI)**	**Summary/Conclusion Comment(s)**
Khaledi, 2024 (Iran)[6]	Quasi-experimental (3 groups) N= 154	Nursing students	Kahoot! Software during CPR training	Standard training (3rd group: role-playing during training)	Basic Resuscitation Skills Self-efficacy Scale (self-reported) Greater reported self efficacy in GL group than control (p<0.01)	
Rodriguez-Garcia, 2024 (Spain)[7]	Observational N=68	Laypeople (secondary	'Survivor" game (digital interface, teams	Traditional training	CPR skills Mean depth: NSD	

		school students)	compete for badges, certificates) *both groups with identical 10 mins hands-on training		Correct compression %: GL: 67.8 + 41.3 versus Ctrl: 90.7 + 14.7, p=0.004) Correct release %: NSD Total CC in 2 min: NSD Overall CPR quality (Laerdal manikin algorithm): GL 61.4% + 31.9% versus Ctrl 89.2% + 13.5%, p<0.001) Correct AED application: NSD Time to AED application: GL 82 + 27 sec versus Ctrl 40 + 11 sec, p<0.001	
Flato, 2025 (Brazil)[8]	Observational N=336	Laypeople (schoolchildren aged 7 to 17 years)	Children Save Hearts gameplay followed by video-based CPR training	Knowledge (CSH game based test) immediately before and immediately post training	Post training scores > pre-training scores p<0.001 (boxplot displayed but median and SD of scores not presented)	

Abbreviations: AED=automated external defibrillator; GL=gamified learning; NSD=no significant difference; CSH=Children Save Hearts

Reviewer Comments:

A total of 8 new studies were included in this update.[1-8] In addition to the publication of the ILCOR systematic review on this PICOST, another systematic review was included.[1, 2] This latter review focused on RCTs only, and only included studies where the outcome(s) were metrics of CPR psychomotor skill performance.[1] The authors identified 9 RCTs with the exposure and comparator of interest which reported results allowing meta-

analysis to be performed on at least one outcome measure. Four outcomes (theory assessment (knowledge), CPR skill assessment, chest compression depth, and chest compression rate) were identified and meta-analysis of 6 studies for each of the four outcomes was performed. None of the meta-analyses demonstrated a significant association with their outcomes, and a high degree of heterogeneity was noted in all four (I^2 ranging from 56% to 95%). GRADE analysis performed on the four groups of studies yielded low to very low-certaintyevidence, with all four groups of studies being downgraded for inconsistency, three for indirectness, and one for accuracy.
The authors concluded that gamified learning (discussed in their review as "Serious games") is equally effective as traditional training methods in CPR training. Importantly, the inclusion criteria for their review did not give an explicit definition of what was considered a serious game. All of the included studies were based on a digital platform; however, additional criteria such as the use of point systems, leaderboards, team competition, or scoring/scaffolding of cases were not mentioned (these were inclusion criteria in the ILCOR systematic review published in 2024).

We included three new RCTs in this update.[3-5] Two RCTs examined the impact of a digital-based game for neonatal resuscitation training on educational outcomes, one in labor and delivery room staff and one in paramedics. Bilodeau et al enrolled 42 labor and delivery staff (21 per group) and compared a digital game (RETAIN) to a standard instructional video. Subjects were tested immediately post training and at 2 months post training with a 12-item task checklist. No significant difference in score was found between the groups at either timepoint.[3]
Cutumisu et al enrolled 42 paramedics (21 per group) and compared the same digital game (RETAIN) to a standard instructional video. Subjects were tested immediately post training with a 12-item task checklist. No significant difference in score was found between the groups.[4]
In a third RCT, Kim et al enrolled 287 healthcare personnel (physicians, nurses, students, paramedics) in a trial comparing a locally created advanced life support course (KALS (Korean Advanced Life Support)) taught in standard fashion to the same course with gamified learning elements included. 148 subjects in the control group went through the standard course, which ends with a "reminder" session where learners participate in a round table discussion while reviewing a video-based case of cardiac arrest. 139 subjects in the intervention group went through the same course, but completed the "reminder" session using a digital gaming platform (Kahoot!). Three outcomes were examined by question-based checklist: knowledge of ALS algorithm, rhythm analysis, and teamwork. There were no significant differences between the groups in the rhythm and teamwork assessment; the CG had higher mean score than the IG in the algorithm assessment (4.88 out of 5 versus 4.70 out of 5, p=0.002).[5]

We included three new observational studies in this update.[6-8] Rodriguez-Garcia et al reported a study where groups of secondary school students underwent a CPR training session and were assessed performing CPR on a manikin. The control group (n=34) received a traditional slide-based didactic session with 10 minutes of hands-on training; the gamified group received a training session using a digital game (using competition between teams and 'badges') with 10 minutes of hands-on training. There was no difference between groups in compression depth, release, total compressions in 2 minutes, or frequency of AED application; the gamification group performed worse than the traditional group in fraction of correct compressions (68% + 41% vs 91% + 15%, p=0.004); overall CPR quality (61% + 31.9% vs 89% + 14%, p<0.001); and time to AED application (82 + 27 sec vs 40 + 11 sec, p<0.001).[7]
In a second observational study. Khaledi et al reported on nursing students' reported self-efficacy (Basic Resuscitation Skills Self-efficacy Scale) at CPR following training in either standard fashion or with gamification (Kahoot! Software); self-efficacy was greater in the gamification group (p<0.01).[6] In a third observational study, Flato et al reported on school children ages 7 through 17 completing a serious game based CPR training sessions with post training scores significantly improved from pre-training scores (p<0.001).[8]

Summary
In a summary assessment of these new studies, we do not believe that a new systematic review is warranted. In making this recommendation, we consider that, between the previous SysRev and this EvUp, a total of 10 RCTs have been identified, with 8 finding a benefit from gamified learning and one finding no benefit. Importantly, one RCT found that subjects taught with GL elements scored worse than non-GL counterparts on a post-training

assessment of ALS algorithm knowledge[5]; however, given that the assessment consisted of a score out of 5 total possible points, we do not believe the difference between a mean score of 4.88 and 4.70 is likely to be a meaningful difference.

Among 9 observational studies between the previous SysRev and the current EvUp, 8 studies found a benefit to GL. One newly included observational study found that GL was associated with worse outcomes in secondary school students performing simulated CPR.[7] Given that this one study is the only one to find a negative effect of GL, we do not believe it warrants changing the current recommendation.

Finally, the newly included studies exhibit the same high degree of heterogeneity in terms of intervention, outcome, and subject inclusion that we do not believe including these studies would alter the strength of the existing recommendation.

References

1. Cheng P, Huang Y, Yang P, Wang H, Xu B, Qu C, et al. The Effects of Serious Games on Cardiopulmonary Resuscitation Training and Education: Systematic Review With Meta-Analysis of Randomized Controlled Trials. JMIR Serious Games. 2024;12:e52990.
2. Donoghue A, Sawyer T, Olaussen A, Greif R, Toft L. Gamified learning for resuscitation education: A systematic review. Resusc Plus. 2024;18:100640.
3. Bilodeau C, Schmolzer GM, Cutumisu M. A Randomized Controlled Simulation Trial of a Neonatal Resuscitation Digital Game Simulator for Labour and Delivery Room Staff. Children (Basel). 2024;11(7).
4. Cutumisu M, Schmolzer GM. The Effects of a Digital Game Simulator versus a Traditional Intervention on Paramedics' Neonatal Resuscitation Performance. Children (Basel). 2024;11(2).
5. Kim K, Choi D, Shim H, Lee CA. Effects of gamification in advanced life support training for clinical nurses: A cluster randomized controlled trial. Nurse Educ Today. 2024;140:106263.
6. Khaledi A, Ghafouri R, Anboohi SZ, Nasiri M, Ta'atizadeh M. Comparison of gamification and role-playing education on nursing students' cardiopulmonary resuscitation self-efficacy. BMC Med Educ. 2024;24(1):231.
7. Rodriguez-Garcia A, Ruiz-Garcia G, Navarro-Paton R, Mecias-Calvo M. Attitudes and Skills in Basic Life Support after Two Types of Training: Traditional vs. Gamification, of Compulsory Secondary Education Students: A Simulation Study. Pediatr Rep. 2024;16(3):631–43.
8. Flato UAP, Flato A, Martins I, Simoes Nakano G, Romao JC, Nakano MS, et al. Enhancing Equity in Schoolchildren's Basic Life Support Education in Brazil Through Serious Games: Cohort Study. JMIR Serious Games. 2025;13:e69252.

2026 Evidence Update

EIT 6414 – Deliberate Practice Design vs. Non-Deliberate Practice Training

Worksheet author(s): Cristian Abelairas-Gómez; Aaron Donoghue
Date Submitted: December 2025
SAC rep: Andrew Lockey

PICO / Research Question:
Population: Learners training in basic or advanced life support (laypersons/students/healthcare providers
Intervention: Instruction using Rapid Cycle Deliberate Practice (RCDP)
Comparator: Traditional instruction or other forms of learning without RCDP
Outcomes: Patients' survival (CRITICAL), knowledge acquisition and retention (IMPORTANT), skills acquisition and retention (IMPORTANT), skill performance in real CPR (IMPORTANT), process outcomes such as costs, resources (NOT IMPORTANT).
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. Unpublished studies (e.g., conference abstracts, trial protocols) are excluded.
Time frame: October 2023-November 2025

Year of last full review: 2024
Conflicts of Interest (financial/intellectual, specific to this question): None

Current ILCOR Consensus on Science and Treatment Recommendation: We suggest that it may be reasonable to include Rapid Cycle Deliberate Practice as an instructional design feature of BLS and ALS training (weak recommendation, very low–certainty evidence).

Databases searched: Medline, Embase, Cochrane
Time Frame : From October 2023 to November 2025
Date Search Completed: Nov 1 2025
Search Results (Number of articles identified and number identified as relevant): 902/2 guidelines papers

Summary of Evidence Update:
Relevant Guidelines or Systematic Reviews: 2

Organization (if relevant); Author; Year Published	Guideline or systematic review	Topic addressed or PICO(S)T	Number of articles identified	Key findings	Treatment recommendations
Donoghue; 2025	2025 American Heart Association Guidelines: Part 12: Resuscitation	Rapid Cycle Deliberate Practice in Resuscitation Training	8	RCDP showed shorter times to start compressions, ventilation, defibrillation, and epinephrine delivery; higher compression	It may be reasonable to incorporate RCDP as part of BLS and ALS training for health care personnel.

	Education Science			fractions; better timely defibrillation; lower workload (NASA-TLX); but lower perceived teaching effectiveness compared to controls.	
Nabecker; 2025	European Resuscitation Council Guidelines 2025: Education for Resuscitation	Rapid Cycle Deliberate Practice in Resuscitation Training	10	It reduces pauses for defibrillation and medication in simulated ALS, is mainly used for HCP training, not yet tested in laypeople or low-resource settings, and shows mixed long-term skill retention.	Use RCDP as an effective learning strategy to master skills rapidly for all types of basic and advanced life support courses.

RCT: 0
Nonrandomized Trials, Observational Studies: 0

Reviewer Comments: *(including whether this PICOST should have a systematic or scoping review*)
There were 902 new articles identified of which none were relevant to the PICO. We recommend that the existing treatment recommendations for this PICO remain unchanged.

Reference List:
Donoghue A, et al. Part 12: Resuscitation Education Science: 2025 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2025;152;S719–50. Doi: https://doi.org/10.1161/CIR.0000000000000137
Nabecker S, de Raad T et al. European Resuscitation Council Guidelines 2025: Education for Resuscitation. Resuscitation. 2025;215:110739. Doi: https://doi.org/10.1016/j.resuscitation.2025.110739