

Supplementary Material 2. Final expert consensus-based checklist for evaluating educational resources on lay rescuer adult BLS in terms of compliance with international resuscitation guidelines.

The ERC Research NET structured checklist for quality appraisal of educational resources on adult BLS (ver. 1, January 2023)		
No.	Items	Response
Safety		
1.	Does the resource state that the rescuer should make sure that he/she, victim and any bystanders are safe?	
Recognition		
2.	Is cardiac arrest defined as a state when a person is unresponsive with absent or abnormal (agonal) breathing?	
3.	<i>Response check:</i> Does the resource instruct to shake gently by shoulders and ask loudly to examine if the victim is responsive?	
4.	<i>Victim's position:</i> Does the resource instruct to position the victim on their back if unresponsive?	
5.	<i>Airway opening:</i> Is there instruction for head tilt manoeuvre?	
6.	<i>Airway opening:</i> Is there instruction for chin lift manoeuvre?	
7.	<i>Breathing check:</i> Does the resource instruct to look for breathing?	
8.	<i>Breathing check:</i> Is it clear that the rescuer should use a maximum of 10 seconds to check breathing?	
9.	<i>Agonal breathing:</i> Does the resource state that agonal breathing should be interpreted a sign of cardiac arrest?	
10.	<i>Agonal breathing:</i> Does the resource describe agonal breathing pattern (e.g. infrequent, slow, noisy gasps, labored breathing)?	
Call for help		
11.	<i>Call EMS:</i> Does the resource state that the rescuer should immediately ask a helper to call EMS or call themselves when recognising cardiac arrest?	
12.	<i>Call EMS:</i> Does the resource instruct to use speaker function (hands-free) on a telephone to start CPR whilst talking to a dispatcher?	
13.	<i>Send for AED:</i> Does the resource instruct to ask a helper to collect nearest AED?	
14.	<i>Send for AED:</i> Does the resource state that the rescuer should not leave the victim to collect AED themselves (excepting cases when the rescuer is alone and AED is located close at hand)?	
Chest compressions		
15.	Does the resource instruct to start compressions as soon as possible?	
16.	<i>Rescuer's position:</i> Does the resource instruct the rescuer to position themselves next to (by the side of) the victim?	
17.	<i>Firm surface:</i> Does the resource instruct to perform compressions on a firm surface if it is possible and not time-demanding ?	
18.	<i>Hand position:</i> Does the resource instruct to place the heel of one hand at the centre of the chest (lower half of the breastbone)?	
19.	<i>Hand position:</i> Does the resource instruct to place the heel of other hand on top of the first hand and interlock fingers?	
20.	<i>Rescuer's position:</i> Does the resource instruct to keep arms straight?	
21.	<i>Rescuer's position:</i> Does the resource instruct the rescuer to position themselves vertically above the victim's chest?	
22.	<i>Compressions depth:</i> Does the resource state the correct depth is 5-6 cm?	
23.	<i>Compressions rate:</i> Does the resource state the correct rate is 100-120 per minute?	
24.	<i>Chest recoil:</i> Does the resource instruct to ensure chest recoil after each compression (release pressure on the chest without losing contact with the chest)?	
25.	<i>Minimisation of pauses:</i> Does the resource state that any pauses in chest compressions should be minimised?	
26.	<i>Rescuer change:</i> Does the resource state that if possible rescuers should change over about every two minutes (without interrupting chest compressions) to prevent a decrease in compression quality due to rescuer fatigue?	
Rescue breathing		
27.	<i>Compression-ventilation ratio:</i> Does the resource instruct to use compression-ventilation ratio of 30:2?	
28.	<i>Airway opening:</i> Is it clear that the rescuer should open airways again prior to ventilation?	
29.	<i>Airway opening:</i> Does the resource instruct to maintain head tilt and chin lift during rescue breathing?	

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No.	Items	Response
30.	<i>Nasal pinch:</i> Does the resource instruct to pinch the nose prior to ventilation?	
31.	<i>Sealing:</i> Does the resource instruct to place lips around the victim's mouth ensuring airtight seal?	
32.	<i>Ventilations:</i> Does the resource state that each rescue breath should last about 1 second?	
33.	<i>Ventilations:</i> Does the resource instruct to give a normal breath volume (avoid excessive ventilation)?	
34.	<i>Ventilations:</i> Does the resource instruct to look for chest rise?	
35.	<i>Ventilations:</i> Does the resource state that the rescuer should take mouth away and turn their head towards the victim's chest to allow and check for passive exhalation?	
36.	<i>Ventilations:</i> Does the resource instruct to give a total of two rescue breaths?	
37.	<i>Resume compressions:</i> Does the resource instruct to resume compressions immediately after the second breath (even if breaths are ineffective)?	
38.	<i>Minimum pause:</i> Does the resource state that compressions shouldn't be interrupted for more than 10 seconds to deliver two rescue breaths?	
Defibrillation		
39.	<i>Turn AED on:</i> Does the resource instruct to turn on AED as soon as it arrives?	
40.	<i>Attach electrodes:</i> Does the resource instruct to attach electrodes to the victim's bare chest?	
41.	<i>Electrodes position:</i> Does the resource describe correct position for electrodes on the victim's chest?	
42.	<i>Continue CPR:</i> Does the resource instruct to continue CPR whilst AED is prepared if more than one rescuer is present?	
43.	<i>Follow instructions:</i> Is it clear that rescuers should follow spoken and visual instructions of AED?	
44.	<i>Do not touch, analysis:</i> It is clear that bystanders cannot be in physical contact with the victim during analysis?	
45.	<i>Do not touch, shock:</i> It is clear that bystanders cannot be in physical contact with the victim when applying shock?	
46.	<i>Resume CPR:</i> Does the resource state that after shock (or if no shock is advised) the rescuer should immediately resume CPR and continue as directed by AED?	
47.	<i>Minimum pause:</i> Does the resource state that long pauses in compressions should be avoided when applying and using AED?	
Continuation of CPR		
48.	Does the resource state that CPR should be continuous until a professional tells to stop, the rescuer is exhausted or the victim recovers?	
49.	Does the resource describe signs of victim's recovery (waking up, moving, opening eyes and for sure breathing normally)?	
Choking		
50.	<i>Recognition:</i> Does the resource instruct to suspect choking if someone is suddenly unable to speak or talk, particularly if eating?	
51.	<i>Call for help:</i> Does the resource state that the rescuer should immediately ask a helper to call EMS or call themselves when recognising severe choking?	
52.	<i>Coughing:</i> Does the resource instruct to encourage coughing when the victim is conscious and able to cough?	
53.	<i>Back blows:</i> Does the resource instruct to give up to 5 back blows if coughing fails to clear the obstruction or the victim starts to show signs of fatigue?	
54.	<i>Back blows:</i> Does the resource describe correct technique for back blows?	
55.	<i>Abdominal thrusts:</i> Does the resource instruct to give up to 5 abdominal thrusts if back blows are ineffective?	
56.	<i>Abdominal thrusts:</i> Does the resource describe correct technique for abdominal thrusts?	
57.	<i>Start CPR:</i> Does the resource instruct to start CPR when the victim is unconscious with absent or abnormal breathing?	
58.	<i>Avoid blind finger sweep:</i> Does the resource state that blind finger sweep should be avoided?	
59.	<i>Aftercare:</i> Is it clear that the victim successfully treated with abdominal thrusts or chest compressions should be examined by a qualified healthcare practitioner?	
Miscellaneous		
60.	<i>Concerns of harm:</i> Does the resource state that lay rescuers should initiate CPR for presumed cardiac arrest without concerns of harm to victims not in cardiac arrest?	
61.	<i>Other concerns:</i> Does the resource address other barriers to bystanders' willingness to perform CPR (e.g. fear of prosecution, infection, etc.)?	

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No.	Items	Response
62.	<i>Compression-only CPR:</i> Does the resource state that bystanders who are untrained, unable or unwilling to give rescue breaths should give continuous chest compressions without rescue breaths?	
63.	<i>Dispatcher-assisted CPR:</i> Does the resource address the concept of dispatcher-assisted CPR (in particular, that lay rescuer can actively ask for the assistance)?	

Amended text and new text as compared to the baseline checklist is shown as bold with underlining. Response options are the following: “yes,” “rather yes,” “rather no,” “no,” and “NA (not applicable).” The response options “rather yes” and “rather no” apply when the checklist item statement is satisfied incompletely (e.g. tapping vs. shaking shoulders in addition to asking loudly when checking victim’s responsiveness could be appraised as “rather yes,” whereas asking only could be appraised as “rather no”). The response option “NA” applies when the checklist item statement is not applicable, since the whole subtopic (e.g. choking) is not covered by the resource syllabus.

BLS, Basic Life Support; ERC, European Resuscitation Council; EMS, emergency medical services; AED, automated external defibrillator; CPR, cardiopulmonary resuscitation.