

## Appendix I. Questionnaire

Note: Fill in Sections 1 to 3 before deployment simulation; fill in Section 4 afterwards.

### Section 1. Personal data

1. Name:
2. Sex: male female
3. Age:
4. Station:
5. EMT level: EMT-I EMT-P
6. Service duration (years): ≤1 2–4 5–7 8–9 ≥10
7. Resuscitation experience in the past 3 years
  - (1) Number of OHCA dispatches:
  - (2) ROSC number:
  - (3) Number of survivals to discharge:
  - (4) Number of CPC 1–2:
  - (5) Number of MCPR deployments:

### Section 2. Knowledge (choose agree or disagree)

1. The links in adult Chain of Survival are (in order): rapid activation of EMS, early defibrillation, early CPR, advanced cardiac life support, and comprehensive post-arrest care. [The correct answer is *disagree*. Early CPR should be initiated prior to defibrillation.]
2. Without an advanced airway, adult CPR should be performed according to a 30:2 compression–ventilation ratio. [The correct answer is *agree*.]
3. The correct position of hands for adult CPR is at the intersection of sternum and inter-nipple line. [The correct answer is *agree*.]
4. In adult resuscitation, chest compression rate should be 100 to 120 per minute. [The correct answer is *agree*.]
5. In adult resuscitation, adequate chest compression depth is 4 cm. [The correct answer is *disagree*. The adequate chest compression depth should be 5 to 6 cm.]
6. While performing BVM ventilation during adult resuscitation, one should press the bag for at least 1 second until chest rise is seen. [The correct answer is *agree*.]
7. A lower chest compression fraction (CCF) during CPR implies shorter chest compression interruptions. [The correct answer is *disagree*. A lower CCF implies longer chest compression interruptions.]
8. To insert a supraglottic airway device (e.g., i-gel), attach the distal-end of the cuff to the hard palate and slide the cuff along the hard and soft palates. Make sure the black mark on the tube is in line with the front teeth before applying external fixation. [The correct answer is *agree*.]

9. If performed correctly, MCPR can reduce chest compression interruptions during resuscitation (from the accident scene to the hospital). [The correct answer is *agree*.]
10. For shockable rhythms, an earlier defibrillation leads to a higher chance of survival to discharge. [The correct answer is *agree*.]

*Section 3. Attitude and self-confidence (score on a 5-point Likert scale: 1–strongly disagree, 2–disagree, 3–neutral, 4–agree, 5–strongly agree)*

*Section 3-1 Attitude*

1. In my opinion, if patient's initial cardiac rhythm is shockable, early defibrillation will be beneficial.
2. In my opinion, uninterrupted chest compressions are beneficial to cardiac arrest patients.
3. In my opinion, effective forced oxygen deliveries (BVM ventilation) are beneficial to cardiac arrest patients.
4. In my opinion, the physical stability of a supraglottic airway device (e.g., i-gel) is not important.
5. In my opinion, during resuscitation, a leader coordinating each member's work is beneficial to patients.
6. In my opinion, MCPR devices are not beneficial to non-traumatic cardiac arrest patients.

*Section 3-2 Self-confidence*

7. I am confident in applying defibrillation with an AED.
8. I am not confident in applying forced oxygen deliveries (BVM ventilation) for cardiac arrest patients.
9. I am confident in providing high-quality CPR for cardiac arrest patients.
10. I am confident in placing a supraglottic airway device (e.g., i-gel) for cardiac arrest patients.
11. I am confident in operating an MCPR device, including initiation, pausing, and troubleshooting, for cardiac arrest patients.
12. I am confident in rapid deployment and fixation of an MCPR device for cardiac arrest patients.

*Section 4. Self-evaluation (score on a 5-point scale for Questions 1 to 9: 1–very poor, 2–poor, 3–acceptable, 4–good, 5–excellent; on a 10-point scale for Questions 10 and 11: from 1–very unsatisfied to 10–very satisfied)*

1. Adequate forced oxygen deliveries (BVM ventilation; for at least 1 second, with noticeable chest rise) before establishing an advanced airway.

2. Adequate opening of the airway for BVM oxygenation before establishing an advanced airway.
3. Adequate BVM ventilation every 6 seconds after establishing an advanced airway.
4. Correct insertion of a supraglottic airway device (e.g., i-gel).
5. Physical stability of the supraglottic airway device (e.g., i-gel).
6. Maintenance of high-quality CPR during resuscitation.
7. Operation of the MCPR device, including initiation, pausing, and troubleshooting.
8. Correct deployment of the MCPR device.
9. Overall performance of teamwork during resuscitation.
10. Satisfaction with personal performance.
11. Satisfaction with team performance.
12. Estimation of MCPR deployment time (in seconds):
13. Estimation of chest compression interruptions (in seconds) during:
  - (1) the first AED analysis (and defibrillation, if needed)
  - (2) BVM ventilation
  - (3) i-gel insertion
  - (4) the second AED analysis (and defibrillation, if needed)
14. In your opinion, what can reduce CPR interruptions during MCPR deployment?  
(Open question, optional)
15. Your initial position: BVM, i-gel CPR MCPR (team leader)

## Appendix II. Score Sheet

*Section 1. BVM, i-gel operation (score on a 5-point scale: 1–not achieved at all or almost not achieved [0–24%], 2–slightly achieved [25–49%], 3–partially achieved [50–74%], 4–mostly achieved [75–99%], 5–completely achieved [100%])*

1. Adequate forced oxygen deliveries (BVM ventilation; for at least 1 second, with noticeable chest rise) before establishing an advanced airway.
2. Adequate opening of the airway for BVM oxygenation before establishing an advanced airway.
3. Adequate BVM ventilation every 6 seconds after establishing an advanced airway.
4. Correct insertion of the i-gel.
5. The i-gel is stabilized.

*Section 2. MCPR deployment (score on a 5-point scale for Items 1 and 2: 1–not achieved at all or almost not achieved [0–24%], 2–slightly achieved [25–49%], 3–partially achieved [50–74%], 4–mostly achieved [75–99%], 5–completely achieved [100%]; for Item 3, calculate with a timer)*

1. Operation of the MCPR device, including initiation, pausing, and troubleshooting.
2. Correct deployment of the MCPR device.
3. Time taken, in seconds, for deployment of an MCPR device (AutoPulse® or LUCAS®).

*Section 3. Overall performance (score on a 5-point scale: 1–not achieved at all or almost not achieved [0–24%], 2–slightly achieved [25–49%], 3–partially achieved [50–74%], 4–mostly achieved [75–99%], 5–completely achieved [100%])*

1. Leadership: the leader promptly reminds other members of their mistakes.
2. Mutual assistance: every member knows what should be done.
3. Monitoring: mutual observation.
4. Communication: mutual communication and reminder.

*Section 4. CPR quality before MCPR deployment (record the percentage score shown on the QCPR device)*

1. Chest compression rate of 100 to 120 per minute.
2. Chest compression depth of 5 cm to 6 cm.
3. Complete chest recoil.
4. Chest compression fraction (CCF).