Research Article

DARE Train-the-Trainer Pedagogy Development Using 2-Round Delphi Methodology

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Received 2 June 2016; Accepted 4 August 2016

Academic Editor: Han-Ping Wu

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The Dispatcher-Assisted first RESponder programme aims to equip the public with skills to perform hands-only cardiopulmonary resuscitation (CPR) and to use an automated external defibrillator (AED). By familiarising them with instructions given by a medical dispatcher during an out-of-hospital cardiac arrest call, they will be prepared and empowered to react in an emergency. We aim to formalise curriculum and standardise the way information is conveyed to the participants. A panel of 20 experts were chosen. Using Delphi methodology, selected issues were classified into open-ended and close-ended questions. Consensus for an item was established at 70% agreement rate within the panel. Questions that had 60%–69% agreement were edited and sent to the panel for another round of voting. After 2 rounds of voting, 70 consensus statements were agreed upon. These covered the following: focus of CPR; qualities and qualifications of trainers; recognition of agonal breathing; head-tilt-chin lift; landmark for chest compression; performance of CPR when injuries are present; trainers’ involvement in training lay people; modesty of female patients during CPR; AED usage; content of trainer’s manual; addressing of questions and answers; updates-dissemination to trainers and attendance of refresher courses. Recommendations for pedagogy for trainers of dispatcher-assisted CPR programmes were developed.

1. Introduction

Out-of-hospital cardiac arrest (OHCA) is one of the main causes of death, of which 65.4% occur at home in Asia [1]. Annually, there are 700,000 cardiac arrest cases in Europe and more than 400,000 cases in America [2]. In Singapore, the annual incidence of OHCA is at least 1,400 cases, of which only 3% survived to discharge [3].

International studies have shown that early cardiopulmonary resuscitation (CPR) improves the chances of survival [4]. Furthermore, a review of several large-scale studies emphasised the importance of dispatcher-assisted CPR in improving bystander CPR and OHCA survival rates [5, 6].

Locally, the bystander CPR rate is only around 20% [3]. Clearly, there is a need to improve these rates which can be done via a local dispatcher-assisted CPR programme. To do so, we conceived a simplified programme for the lay public to learn how to perform effective CPR and use an AED while guided by a medical dispatcher over the telephone.

Traditional CPR classes focus heavily on the rescuer working alone. In our programme, we focus on the rescuer cooperating with the dispatcher. The trainers of this community outreach programme are individuals who are both CPR and AED certified. They guide the participants during the hands-on session, providing constructive feedback and correcting their CPR technique. Currently, there is no formal train-the-trainer curriculum for a dispatcher-assisted CPR training programme. This train-the-trainer model is an established tool used by organisations which gather content from experts to educate trainers pooled from the community, in order to enable them to instruct target audiences. The advantage of such a model is that it can be propagated...
in the long term by multiple trainers who can disseminate information back to the community in a timely fashion, making this cost-effective and sustainable [7].

As of now, there is no formal pedagogy to train the trainers how to teach the lay population dispatcher-assisted CPR. We aim to write a structured train-the-trainer curriculum to regulate and homogenize the type of information and the way it is conveyed to the participants during the sessions.

2. Methods

2.1. Setting. The Dispatcher-Assisted first REsponder (DARE) programme is an hour-long programme and includes an explanatory video and an instructor-led hands-on session. This is shorter than the usual CPR and AED certification course which spans at least 4 hours and does not include a humorous video. The participants will learn to recognize a cardiac arrest, dial the local emergency number, familiarize themselves with the medical dispatcher's commands, and perform effective CPR on manikins and how to use an AED.

2.2. Study Design. To come up with the trainers' curriculum, consensus was gathered using the Delphi approach [8]. This method involves recruiting a panel of experts to answer questions pertaining to the areas of concern.

The study was exempted from institutional review board approval.

2.3. Study Participants. A panel of 20 local experts versed in cardiopulmonary resuscitation (CPR), from 9 different institutions, was invited to be a part of the study. These included those who are medically trained, who are personally involved in overseeing the current DARE curriculum, and/or who are first-aid instructors. Their areas of expertise vary and include, but are not limited to, emergency medicine, out-of-hospital cardiac arrest, and education.

2.4. Study Protocol and Data Collection. First, a pilot group, comprising 4 people who were familiar with DARE or were involved in studies that used the Delphi method, was created. The principal investigator worked with the pilot group to draw up a questionnaire based on literature review and the feedback from trainers. After discussing with the pilot group, we edited the questionnaire and chose to focus on questions related to 10 core areas. These areas are as follows:

1. The focus of general CPR
2. How the train-the-trainer session should be conducted
3. Recognition of cardiac arrest
4. How CPR should be taught
5. Teaching the usage of AED
6. Precourse reading materials
7. Frequently asked questions
8. Trainers' qualities and qualifications
9. Assessment of trainers
10. Continuity of the programme

The expert panel was created and care was taken not to include the panelists from the pilot group.

2.4.1. Round One of Delphi Method. The first-round Delphi questionnaire was distributed to the experts in December 2015 through an online questionnaire portal (SurveyMonkey™). They could provide any specific comments perceived to be necessary to drive a primary consensus. The first round was completed after about one month in January 2016. This first questionnaire consisted of dichotomous answers (yes/no), ranking questions, multiple choice questions, and some required open-ended responses. Open-ended responses allowed the experts to give their input, to clarify the interpretation of the question, and to expose common fallacies. Primary consensus was achieved when 70% of respondents were in agreement for dichotomous and multiple choice questions.

This cut-off point was used based on previous studies suggesting that a minimum of 70% agreement is needed for validity when using the Delphi method [9–11].

2.4.2. Round 2 of Delphi Method. The expert panel was informed of round one's preliminary results and of their individual comments. Data of which items had obtained consensus and which had not, with the overall agreement percentage obtained by the experts, were presented to the panel. Items that either did not obtain consensus in the first round but had 60–69% agreement or had some ambiguity in phrasing were included in the second questionnaire. Comments and additional options from round one were taken into consideration and included into round two as well. Where possible, the exact phrasing as round one was used. For multiple choice questions with 60–69% agreement and ranking questions, where possible, the questions were converted to yes/no options for clarity.

The second round of Delphi was administered through the previous portal in February 2016 for 3 weeks with the same expert panel. Questions with more than 70% of agreement were regarded as a secondary consensus. We summarized the issue lists from the primary and secondary consensus as the final step by reviewing them via e-mail to establish the recommendations on the curriculum for a dispatcher-assisted train-the-trainer programme. The English language (without translation) was used as the working language in all steps. Figure 1 is a summary of the process undertaken for the 2-Round Delphi Methodology.

2.4.3. Statistical Analyses. For each item, statistical analysis was performed and the agreement rates were calculated with percentages and frequencies.

3. Results

20 experts participated in this study. After opening up the first round of Delphi surveying for 1 month, 25 issues arrived at a consensus. After opening up the second round of Delphi surveying for the same amount of time, an additional 14 issues arrived at a consensus. A total of 70 consensus statements were agreed by the expert panel. No agreement was reached
on 11 issues. A summary of the items that received consensus and did not receive consensus can be found in Tables 1 and 2, respectively.

4. Discussion

This study is the first of its kind and aims to gather the viewpoints of experts regarding a suitable curriculum for a dispatcher-assisted CPR, train-the-trainer programme. We found that there was 100% agreement on elements that revolved around these core domains:

1. How the train-the-trainer session should be conducted
2. Recognition of cardiac arrest
3. How CPR should be taught
4. Precourse reading materials
5. Frequently asked questions
6. Assessment of trainers

All of the experts agreed that the trainers should correct the hand-positioning of participants when carrying out CPR. The instructors could instruct them of the changes verbally or physically move the participants’ hands into the right position. 25% of the experts disagreed that trainers should physically correct the participants’ hand position. One of the experts gave feedback that it could be potentially awkward for a male trainer to touch a female participant’s hand.

100% of the experts agreed that the curriculum should include a question-and-answer guide so that the trainers will give standardised answers confidently. Common topics that participants in previous DARE training sessions brought up include the need for a good Samaritan law, the risk of being sued, and the fear of breaking ribs during CPR.

The expert panel agreed unanimously that, in assessing the trainers, their ability to conduct the lessons and classroom management skills are important aspects. This suggests that it is not just the theory of resuscitation that should be taught to the trainers but educational methods employing domains including psychology and communication.

Agonal breathing is abnormal breathing that is reported to be present in about 40% of OHCA [12, 13]. It is often confused by bystanders as a sign of life [12, 14] causing CPR to be delayed or withheld, which is associated with poorer outcomes. It was agreed that bystanders’ descriptions of agonal breathing should be taught to the trainers. Trainers should be familiar with layman’s description of agonal breathing, which could include gasping and noisy breathing [12, 13] and emphasise to lay participants the importance of recognising agonal breathing as a sign of cardiac arrest. They should also dispel any misconception of agonal breathing being a sign of life.

The panel experts all agreed that recognising cardiac arrest, calling 995, and cooperating with the dispatcher for telephone-assisted resuscitation, as well as how to find and use an AED, were important areas that should be included in the curriculum.

Traditionally studies have shown that CPR should not be omitted in the context of a traumatic cardiac arrest [15]. 100% of our experts agreed that the curriculum should specify that CPR be carried out in a victim who has had a fall.
Table 1: List of items that obtained consensus.

| Consensus statements | Number of respondents in agreement | Established in round |
|----------------------|------------------------------------|----------------------|
| (1) The focus of general CPR |                                   |                      |
| (a) Early access is the most important aspect to focus on during the trainers' programme | 14 | 70.0 | 1 |
| (b) Early CPR is the second most important aspect to focus on during the trainers' programme | 15 | 75.0 | 1 |
| (c) Early defibrillation is the least important of the three aspects to focus on during the trainers' programme | 16 | 80.0 | 1 |
| (2) How the train-the-trainer session should be conducted |                                   |                      |
| (a) There should be more than one person (instructor) conducting the session for the trainers | 14 | 70.0 | 1 |
| (b) There should be hands-on component for the trainers during the session | 18 | 90.0 | 1 |
| (c) The session should not be conducted entirely through a video for standardisation | 14 | 70.0 | 1 |
| (d) Qualification an instructor should have to carry out the session |                                   |                      |
| - CPR/AED instructor level | 18 | 94.7 | 2 |
| - CPR/AED trained | 17 | 89.5 | 2 |
| (e) Video for the train-the-trainer programme should be of a professional tone | 17 | 89.5 | 2 |
| (f) Video for the train-the-trainer programme should be of a matter-of-fact (factual) tone | 16 | 84.2 | 2 |
| (g) Video should not cater to English speaking trainers only | 16 | 80.0 | 1 |
| (h) The video should have both subtitles and voice-over in other languages | 14 | 70.0 | 1 |
| (i) Hands-on component should be conducted after the video screening | 16 | 80.0 | 1 |
| (j) During the train-the-trainer session, there should be time allocated for each trainer to role-play with fellow trainers to be the main instructor | 17 | 89.5 | 2 |
| (k) Topics to be included in the curriculum |                                   |                      |
| - Calling 995 and dispatcher's assistance | 19 | 100.0 | 2 |
| - The importance of quality CPR/AED | 16 | 84.2 | 2 |
| - How to carry out CPR and the concerns faced when performing CPR | 16 | 84.2 | 2 |
| - Spotting common CPR mistakes | 16 | 84.2 | 2 |
| - How to find and use an AED | 19 | 100.0 | 2 |
| - Material to motivate bystanders to step up and respond to a cardiac arrest | 14 | 73.7 | 2 |
| - DARE's objectives and effectiveness | 17 | 89.5 | 2 |
| - Importance of the trainer in DARE | 19 | 100.0 | 2 |
| (lx) Address the introduction of the CPR card (tells you the depth of chest compression) and MyResponder Application (notifying myResponders to nearby cardiac arrest cases who may render first aid before ambulance arrival) | 16 | 84.2 | 2 |
| (x) Recognising a cardiac arrest | 19 | 100.0 | 2 |
| (xi) Trainers' ethics | 14 | 73.7 | 2 |
| (3) Key points in recognising a cardiac arrest |                                   |                      |
| (a) Bystanders' descriptions of agonal breathing should be taught to the trainers | 20 | 100.0 | 1 |
| (b) Warning signs like that of lack of breathing should be taught | 14 | 73.7 | 2 |
| (c) Head-tilt-chin-lift should be covered during the trainers' training session | 15 | 75.0 | 1 |
| (d) Tapping on the shoulders of a person in possible cardiac arrest should be taught to the trainers | 18 | 90.0 | 1 |
| (e) Checking for danger should be included in the curriculum | 17 | 85.0 | 1 |
Table 1. Continued.

| Consensus statements                                                                                                                                                                                                 | Number of respondents in agreement | Established in round |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------|
| **(4) How CPR should be taught**                                                                                                                                                                                 |                                     |                      |
| (a) Locating the landmark for chest compression: trainers should be taught to position hands in between the nipples                                                                                                   | 15                                  | 78.9 2               |
| (b) The latest American Heart Association updated guidelines stated for rescuers to push hard and fast. However, the guidelines state that compressions should be at least 5 cm but not greater than 6 cm and that chest compressions should be performed at a rate of 100 to 120/min. In a basic resuscitation programme like DARE, the new guidelines should not be taken into consideration and implemented in our train-the-trainer curriculum | 15                                  | 78.9 2               |
| (c) Trainers should correct the positioning of the DARE lay participants                                                                                                                                             | 20                                  | 100.0 1              |
| (d) Trainers should physically move the participant's hands into position                                                                                                                                           | 15                                  | 75.0 1               |
| (e) The same resuscitation method can be taught during the session to be applied to a child in possible cardiac arrest                                                                                           | 15                                  | 75.0 1               |
| (f) Precautions specific to the paediatric age group should be taught to the trainers                                                                                                                              | 15                                  | 75.0 1               |
| (g) CPR should still be instituted to a person in cardiac arrest who had a fall                                                                                                                                    | 20                                  | 100.0 1              |
| (h) CPR should still be carried out although the patient has a chest injury                                                                                                                                         | 18                                  | 94.7 2               |
| (i) CPR should still be carried out although the patient has a spinal injury                                                                                                                                       | 18                                  | 94.7 2               |
| (j) CPR should still be carried out although the patient has bony fractures [rib(s)/limb(s) etc.]                                                                                                                  | 18                                  | 94.7 2               |
| **(5) Teaching the usage of AED**                                                                                                                                                                                  |                                     |                      |
| (a) The person conducting the training session should be using a real AED trainer set to demonstrate how to operate it to the trainers                                                                          | 15                                  | 75.0 1               |
| (b) All trainers should practice on a real AED set made for trainers during the session                                                                                                                           | 14                                  | 73.7 2               |
| (c) At any one point in time, only 1 person should be operating the trainer AED                                                                                                                                  | 15                                  | 78.9 1               |
| (d) It is necessary for every trainer to be taught how to use a community AED                                                                                                                                     | 16                                  | 80.0 1               |
| (e) During training, a real community AED set should be available for the trainers to familiarise themselves with                                                                                            | 14                                  | 70.0 1               |
| (f) Trainers should be taught where AEDs are found in the community                                                                                                                                               | 19                                  | 95.0 1               |
| (g) When applying the AED chest pads, the modesty of a female patient should be taken into consideration                                                                                                         | 16                                  | 84.2 2               |
| (h) Her top should be lifted up slightly and not completely to paste the chest pads                                                                                                                                | 16                                  | 80.0 1               |
| (i) If she is wearing a dress, the entire dress should not be removed and expose her lower extremities to apply the AED pads                                                                                         | 15                                  | 75.0 1               |
| **(6) Reading materials catered to the trainers’ session**                                                                                                                                                         |                                     |                      |
| (a) Budget should be set aside for the trainers’ precourse materials                                                                                                                                              | 18                                  | 90.0 1               |
| (b) A trainer’s manual (to be given out on the training day itself) should be provided for the trainers                                                                                                          | 18                                  | 90.0 1               |
| (c) The trainer’s manual should include a DVD of the trainer’s video                                                                                                                                              | 15                                  | 75.0 1               |
| (d) The trainer’s manual should include basic CPR and AED guidelines                                                                                                                                               | 20                                  | 100.0 1              |
| (e) The manual should be translated to cater to non-English speaking trainers                                                                                                                                       | 14                                  | 70.0 1               |
| (f) There should be an online prelearning component for the trainers prior to attending the training session                                                                                                    | 15                                  | 78.9 2               |
Table 1: Continued.

| Consensus statements | Number of respondents in agreement | %  | Established in round |
|----------------------|------------------------------------|----|----------------------|
| (7) Frequently asked questions | | | |
| (a) Trainers should be allowed to answer DARE participants’ questions based on their own knowledge | 14 | 70.0 | 1 |
| (b) There should be a fixed Q&A guidelines for the trainers to refer to and answer from when posed with questions from DARE participants | 20 | 100.0 | 1 |
| (c) The trainers should be taught to direct all questions to the person conducting the session for the DARE participants that day | 14 | 70.0 | 1 |
| (d) If participant trainers have any controversial questions during the train-the-trainer’s training session, the questions should be collated and answered after a consensus from the DARE coordinators is reached | 18 | 94.7 | 2 |
| (e) Should participant trainers have any questions during the session, they should approach the DARE coordinators directly during the training | 14 | 73.7 | 2 |
| (8) Trainers’ qualities and qualifications | | | |
| (a) The minimum qualification a trainer should have before he/she is allowed to sign up to be a trainer for the DARE programme is BCLS and AED certification | 14 | 70.0 | 1 |
| (b) In view that the DARE programme hopes to reach out to the elderly as well, trainers who are well-versed in dialects should be taught how to teach lay participants in dialects | 19 | 95.0 | 1 |
| (c) In view of the high dependency on IT equipment to deliver the session, trainers should be taught how to operate IT equipment (i.e., projectors, computers, and basic IT skills) | 16 | 80.0 | 1 |
| (d) Adolescents (teenagers/students) who are allowed to become a trainer in the future should receive monetary remuneration | 17 | 85.0 | 1 |
| (9) Assessment of trainers | | | |
| (a) Trainers should be assessed prior to training to gauge their competency level and suitability | 17 | 85.0 | 1 |
| (b) Trainers should be required to complete and pass an assessment after the training session before becoming an official DARE trainer | 18 | 90.0 | 1 |
| (c) Trainers should be assessed on their competency and knowledge in DARE/CPR and AED technique | 18 | 94.7 | 2 |
| (d) Trainers should be assessed on their ability to conduct the lessons and manage the classroom | 19 | 100.0 | 2 |
| (e) Trainers should be assessed on their attitude, communication skills, and confidence when teaching | 18 | 94.7 | 2 |
| (10) Continuity of the programme | | | |
| (a) E-mailing the trainers is the best platform to disseminate updates to the trainers | 16 | 84.2 | 2 |
| (b) It is necessary for qualified DARE trainers to attend refresher courses (training session again) | 14 | 70.0 | 1 |

Note: total number of responders was 20 for the first round and 19 for the second round.
CPR, cardiopulmonary resuscitation; BCLS, basic cardiac life support; AED, automated external defibrillator; DARE, dispatcher-assisted first responder; Q&A, question and answer; IT, information technology.
Table 2: List of items which did not achieve consensus.

| Issues on which consensus could not be reached | Statements                                                                 | Respondents | N  | %  |
|------------------------------------------------|-----------------------------------------------------------------------------|-------------|----|----|
| The instructor who carries out the train-the-trainer session should be a healthcare professional with a current BCLS certificate | Yes                                                                         | 11          | 57.9 |
|                                               | No                                                                          | 8           | 42.1 |
| Duration of training session                  | 2 hours                                                                     | 7           | 35.0 |
|                                               | 1.5 hours                                                                   | 4           | 20.0 |
|                                               | 1 hour                                                                      | 9           | 45.0 |
| What should be the maximum number of trainers per session for the train-the-trainer programme? (This is in view that there is only one instructor conducting the programme) | 4 to 6                                                                      | 8           | 40.0 |
|                                               | 8 to 10                                                                     | 8           | 40.0 |
|                                               | 12 to 20                                                                    | 4           | 20.0 |
| In view that agonal breathing is reported to be present in about 40% of OHCA, is agonal breathing the only kind of respiration the trainer should be taught to look out for before doing CPR | Yes                                                                         | 10          | 50.0 |
|                                               | No                                                                          | 10          | 50.0 |
| Warning signs like that of impending collapse (chest pain, diaphoresis/perspiration, shortness of breath, and drowsiness) should be taught | Yes                                                                         | 13          | 68.4 |
|                                               | No                                                                          | 6           | 31.6 |
| Are dispatchers able to teach head-tilt-chin-lift over the phone | Yes                                                                         | 9           | 45.0 |
|                                               | No                                                                          | 11          | 55.0 |
| Trainers should be taught to not teach head-tilt-chin-lift to the lay participants | Yes                                                                         | 8           | 42.1 |
|                                               | No                                                                          | 11          | 57.9 |
| Materials to motivate trainers attending the trainer’s course should be covered in the curriculum | Yes                                                                         | 12          | 63.2 |
|                                               | No                                                                          | 7           | 36.8 |
| Importance of maintaining airway should be covered in the curriculum | Yes                                                                         | 11          | 57.9 |
|                                               | No                                                                          | 8           | 42.1 |
| How trainers can enhance their communication skills should be covered in the curriculum | Yes                                                                         | 11          | 57.9 |
|                                               | No                                                                          | 8           | 42.1 |
| What should the maximum ratio of participant trainers : AED trainer set be | 1:1 to 2:1                                                                  | 5           | 26.3 |
|                                               | 3:1 to 4:1                                                                 | 11          | 57.9 |
|                                               | 5:1 to 6:1                                                                 | 3           | 15.8 |
| When applying the AED pads, should the entire bra be removed or just the bra straps be removed | Entire bra                                                                  | 9           | 45.0 |
|                                               | Bra straps only                                                             | 11          | 55.0 |
Table 2: Continued.

| Statements                                                                 | Respondents |
|---------------------------------------------------------------------------|-------------|
| Should participant trainers have any questions during the session? They should e-mail the question(s) to an address provided | N  | %   |
| Yes                                                                       | 10          | 52.6|
| No                                                                        | 9           | 47.4|
| Should participant trainers have any questions during the session? They should write the questions down on a piece of paper given | N  | %   |
| Yes                                                                       | 12          | 63.2|
| No                                                                        | 7           | 36.8|
| Should adolescents who are in uniform groups be allowed to be a trainer? (i.e., adolescents whose CCA is NCC/scouts/girl guides/St John’s/other uniform groups) | N  | %   |
| Yes                                                                       | 12          | 63.2|
| No                                                                        | 7           | 36.8|
| How often should trainers be updated with new information                 | N  | %   |
| Once a month                                                              | 0           | 0.0 |
| Once every 6 months                                                        | 2           | 10.5|
| Once a year                                                               | 5           | 26.3|
| Whenever there are updates                                                | 12          | 63.2|
| Never                                                                     | 0           | 0.0 |

The experts unanimously agreed that the materials given out to the trainees should include current national CPR and AED guidelines. With this material given out before course, it allows the trainers to refresh their memory on the guidelines, reducing unnecessary questions that might be asked during the programme.

5. Strengths

The Delphi method was employed in preference to other consensus-achieving methodologies because it is convenient to implement. It is the most time-efficient methodology, as the questionnaires are completed individually, at the expert’s own convenience. Consolidation of the results gathered is released for all experts to review, allowing a certain amount of interaction between them [11]. Additionally, this anonymous method [8] eliminates bias resulting from personal status and institutional role in achieving consensus [16].

6. Limitations

In this study, there were a few limitations. Firstly, the expert panel was made up of people chosen by invitation to partake in this study. As such, their opinions may not be representative of universal viewpoints. All of the experts were from Singapore. They have worked in Singapore and are familiar with the local resuscitation field. Hence the results might only be relevant in the local setting and should this pedagogy be extended into other settings, certain changes would have to be made or the questionnaire could be redistributed to experts of that specific country. Additionally, the entire study from the administration of the first questionnaire to the closure of the second questionnaire took place within a 2.5 months’ period. Within that amount of time, it could be possible that new research in the area might have arisen in the meantime and that the results gathered from this study were overridden by the new research.

7. Future Studies

Based on our study, we would like to come up with a train-the-trainer programme that can be launched at a national level. This model appears to be a feasible approach to promote adoption of curricular content on a national scale. Using the results of our study, we can also come up with precourse materials for the trainers to review prior to attending the session. They can even use the materials to revise their knowledge before teaching lay participants.

Future studies can include an audit of both trainers and participants, to see if the execution of the resultant programme is effective. Comparison of the outcomes of the trainers before and after the implementation of the train-the-trainer curriculum should be made. The difference in performance of the trainers after having undergone the current training programme and the new trainer’s curriculum should be evaluated as well. Gaps should be addressed and improvements should be made accordingly based on qualitative and quantitative surveys.

8. Conclusion

Recommendations for pedagogy for trainers of dispatcher-assisted CPR programmes were developed using the Delphi
method. These recommendations should be validated in practical settings.

**Ethical Approval**

The Centralised Institutional Research Board (CIRB iSHaRe Ref 201509-00085) has approved the study and waived the need for consent.

**Competing Interests**

The authors report a grant from Temasek Cares, during the conduct of the study. The authors declare that there are no competing interests regarding the publication of this paper.

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