Changes to basic life support guidelines - evidence-based practice?

Dempster, M. (2001). Changes to basic life support guidelines - evidence-based practice? *Resuscitation*, 51(3), 321.

Published in:
Resuscitation

Queen's University Belfast - Research Portal:

[Link to publication record in Queen's University Belfast Research Portal](#)

General rights

Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

ELSEVIER

Letters to the Editor

Changes to basic life support guidelines—evidence-based practice?

The recent European Resuscitation Council (ERC) guidelines for basic life support [1] suggest that lay rescuers should no longer check for a carotid pulse in order to diagnose cardiac arrest. Instead, the lay rescuer should check for other signs of a circulation: look, listen and feel for normal breathing, coughing or movement for no more than 10 s.

This change is a result of a review of the research evidence, which suggests that the carotid pulse check has poor sensitivity and poor specificity as a diagnostic test. The evidence is consistent and convincing and, following the principles of evidence-based practice, change is required. However, I have difficulty in accepting that the change suggested in the ERC guidelines is the correct way to proceed and I contend that this change is not consistent with evidence-based practice.

It is clear that the evidence suggests that the pulse check is not a very effective diagnostic tool when used by lay rescuers, but where is the evidence to suggest that ‘checking for other signs of circulation’ is a more sensitive or specific diagnostic tool when used by this group of people? In effect, the ERC has decided that the previous diagnostic test was not very effective, so it has been discarded and replaced with a diagnostic test about whose performance we know very little.

The new basic life support guidelines would be based firmly in the research evidence if there was a body of evidence which demonstrated that lay first aiders are poor at interpreting the carotid pulse check (this evidence exists) and an equal body of evidence which demonstrated that lay first aiders were good at interpreting the check for ‘other signs of circulation’ (which does not exist). Therefore, perhaps lay first aiders should continue to perform the carotid pulse check, in conjunction with checking for other signs of circulation, until the evidence is gathered which suggests that checking for other signs of circulation is a more effective diagnostic test than the carotid pulse check.

Other research has shown that the check for breathing also has low sensitivity when used by first aiders [2]. This leads to the conclusion that lay rescuers do not

have the experience to perform diagnostic checks effectively. Is it time for a complete overview of the training, examination and certification of lay rescuers?

References

- [1] Handley AJ, Monsieurs KG, Bossaert LL. European Resuscitation Council guidelines 2000 for adult basic life support. *Resuscitation* 2001;48:199–205.
- [2] Rupert M, Reith MW, Widmann JH, et al. Checking for breathing: evaluation of the diagnostic capability of emergency medical services personnel, physicians, medical students and medical laypersons. *Ann Emerg Med* 1999;34:720–9.

Martin Dempster
School of Psychology,
Queens University,
Belfast,
Ireland

E-mail: m.dempster@qub.ac.uk

PII: S0300-9572(01)00463-4

Reply to Letter by Martin Dempster

Thank you for the opportunity to reply to Dr Dempster's important and thoughtful letter. He raises a number of questions about the process of evidence evaluation that preceded publication of the recent *European Resuscitation Council Guidelines 2000 for adult basic life support* [1] (ERC Guidelines 2000). Although he focuses on the decision to remove the carotid pulse check for lay rescuers, his comments are relevant for the whole process and I should like to preface my answer with a brief resume of how the new guidelines were developed.

The ERC Guidelines 2000 were based on the *International Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiac Care* [2] (International Guidelines) published by the American Heart Association in collaboration with the International Liaison Committee on Resuscitation (ILCOR). The Interna-

tional Guidelines, in their turn, were the result of evidence-based evaluations of the available science on resuscitation. The conclusions from this work were presented at two evidence evaluation conferences in 1999 and then peer-reviewed at the Guidelines 2000 Conference in Dallas, USA in February 2000. The history of this process is well described in the *Introduction to the International Guidelines* [3].

To turn to Dr Dempster's specific point, a proposal to remove the carotid pulse check for lay rescuers was put to the Guidelines 2000 Conference and the supporting evidence was discussed under three headings:

Delay in starting CPR: Any delay in starting chest compression will reduce the chance of successful recovery from cardiac arrest [4]. Several studies were presented at the Guidelines 2000 Conference [5] which showed that the time taken to check the carotid pulse is frequently far longer than the 10 s recommended by ILCOR [6].

Accuracy of diagnosis: Laypersons in particular are poor at diagnosing the presence or absence of the carotid pulse. One study [7] showed that when the carotid pulse is present, nearly 50% of healthcare professionals and trainees failed to find it. On the other hand, when the pulse was absent, about 10% believed it to be present and would, therefore, have failed to start chest compression. This Type II (false-negative) error was considered of particular importance [8].

Simplicity of teaching: Emphasis was placed throughout the Guidelines 2000 Conference on the need to simplify and reduce the number of steps in CPR because of evidence that skill acquisition and retention is thereby improved [9]. Removing the pulse check is consistent with these objectives.

On the strength of these three arguments it was considered that there was sufficient evidence to recommend that, for laypersons only, the pulse check should no longer be taught.

What should now be taught to laypersons as the way to diagnose cardiac arrest or, to be more precise, as the way to decide whether or not to start chest compression in an unresponsive victim? As Dr Dempster points out, the remaining 'signs of a circulation' (breathing; movement) have not been the subject of any study designed specifically to test their accuracy. He suggests that until such evidence becomes available the pulse check should remain. The 'ground rules' for the Conference were, indeed, that existing guidelines should be continued unless there was high quality evidence to the contrary. There was considerable discussion on this topic [5]. It was agreed that there were positive gains to be had from removing the pulse check, namely shortening the time to chest compression and simplification of teaching, as well as avoidance of error. As breathing and movement were

existing 'signs of a circulation', continuing to teach these fulfilled the ground rules; it was accepted that this decision was based on consensus rather than science.

Dr Dempster concludes his letter by drawing attention to the study by Ruppert and colleagues in which they showed that the ability of various groups of potential rescuers to 'check breathing' is little better than has been shown for checking the pulse [10]. Why was this evidence not included in the evidence evaluation process? Two reasons: first, the paper was not published until December 1999, which meant that it appeared too late to be included in much of the evaluation process; and second, because this is a single study and more evidence would have been needed to recommend a change in the established guideline. One of the remits of the BLS Subcommittee of ILCOR is to maintain a 'watching brief' on such developments.

There is a lack of good quality research on resuscitation and the Guidelines 2000 Conference highlighted the need for this to be addressed.

References

- [1] Handley AJ, Monsieurs KG, Bossaert LL. European Resuscitation Council Guidelines 2000 for adult basic life support. *Resuscitation* 2001;48:199–205.
- [2] American Heart Association in collaboration with the International Liaison Committee on Resuscitation (ILCOR). Guidelines 2000 for cardiopulmonary resuscitation and emergency cardiovascular care. An international consensus on science. *Resuscitation* 2000;46:1–447.
- [3] American Heart Association in collaboration with the International Liaison Committee on Resuscitation (ILCOR). Introduction to the International Guidelines for cardiopulmonary resuscitation and emergency cardiovascular care—an international consensus on science. *Resuscitation* 2000;46:3–15.
- [4] Larsen MP, Eisenberg MS, Cummins RO, Hallstrom AP. Predicting survival from out-of-hospital cardiac arrest: a graphic model. *Ann Emerg Med* 1993;22:1652–8.
- [5] Pepe PE, Gay M, Cobb LA, Handley AJ, Zaritsky A, Hallstrom A, Hickey RW, Jacobs I, Berg RA, Bircher NG, Zideman DA, de Vos R, Callanan V. Action sequence for layperson cardiopulmonary resuscitation. *Ann Emerg Med* 2001;37:S17–25.
- [6] Handley AJ, Becker L, Allen M, Van Drenth A, Kramer E, Montgomery W. Single rescuer adult basic life support. An advisory statement by the Basic Life Support Working Group of the International Liaison Committee on Resuscitation. *Resuscitation* 1997;34:101–8.
- [7] Eberle B, Dick WF, Schneider T, Wisser G, Doetsch S, Tzanova I. Checking the carotid pulse: diagnostic accuracy of first responders in patients with and without a pulse. *Resuscitation* 1996;33:107–16.
- [8] Cummins RO, Hazinski RN. Guidelines based on fear of Type II (false-negative) errors. Why we dropped the pulse check for lay rescuers. *Resuscitation* 2000;46:439–42.
- [9] Handley AJ, Handley JA. Four-step CPR—improving skill retention. *Resuscitation* 1998;36:3–8.

- [10] Ruppert M, Reith MW, Widman JH, Lackner CK, Kerkmann R, Schweiberer L, Peter K. Checking for breathing: evaluation of the diagnostic capability of emergency medical services personnel, physicians, medical students, and medical laypersons. *Ann Emerg Med* 1999;34(6):720–9.

Anthony J. Handley
Colchester General Hospital,
Turner Road,
Colchester,
Essex CO4 5JL,
UK

E-mail: handley@essexambhq.co.uk

PII: S0300-9572(01)00465-8