

J. Nolan

Consultant in Anaesthesia and Intensive Care Medicine, Royal United Hospital, Bath

The *International Liaison Committee on Resuscitation (ILCOR)* process for developing guidelines

Current status

It is now almost three years since publication of the 2010 International Consensus on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) Science with Treatment Recommendations [1, 2]. The International Liaison Committee on Resuscitation (ILCOR) has facilitated 5-yearly comprehensive reviews of resuscitation science since 2000 [3]. ILCOR currently includes representatives from the American Heart Association (AHA), the European Resuscitation Council (ERC), the Heart and Stroke Foundation of Canada (HSFC), the Australian and New Zealand Committee on Resuscitation (ANZCOR), Resuscitation Council of Southern Africa (RCSA), the InterAmerican Heart Foundation (IAHF), and the Resuscitation Council of Asia (RCA) [4]. The 2010 Consensus on CPR Science publication provided broad treatment recommendations where these could be agreed. More detailed guidelines were published by the ILCOR member organisations and, although consistent with the science in the consensus document, they took into account geographic, economic and system differences [5, 6].

Cardiopulmonary resuscitation science reviews are now underway as we work toward a consensus on CPR science conference in 2015 (probably February). Substantial changes have been made to the process that was used in 2010. Firstly, the review will be more focused—controversial topics and interventions for which there is new science will be targeted, thus reducing the overall number of systematic reviews. Each of the ILCOR task forc-

es (basic life support (BLS); advanced life support (ALS); acute coronary syndromes (ACS); paediatric life support; neonatal life support; and education, implementation and teams (EIT)) have prioritized their top 20 questions for review and they will be joined very soon by the newly established First Aid ILCOR Task Force.

Secondly, the process is gradually becoming more web-based; eventually, the consensus on CPR science will be a continuously updated online resource and may not involve formal publication in a scientific journal. The speed of this evolution and its ultimate format has yet to be finalized but the concept of a “Wiki”-like resource has been mooted. The creation of such a resource will require considerable investment in time and money.

Thirdly, and perhaps most importantly, the Grades of Recommendation Assessment, Development and Evaluation (GRADE) system has now been adopted for the whole CPR science and guideline development process [7, 8, 9]. This will bring the process into line with most other international guideline-producing organisations. One of the advantages of the GRADE system is that it is possible to make a “strong” recommendation (most clinicians would use the intervention in most circumstances and most well-informed patients would accept it) even if the quality of the evidence is low [10]. In contrast, when the balance between desirable and undesirable consequences is unclear, it is also possible to make a weak recommendation despite high quality evidence. There are several challenges created by adoption of the

GRADE process. ILCOR relies on many volunteer evidence reviewers and only a few of these could be deemed “expert” in evidence-based medicine; for this reason, there will be a steep learning curve for many. The creation of Summary of Findings (SoF) tables is ideally achieved using GRADEpro software (<http://ims.cochrane.org/revman/gradepro>) [11]; although this is free to download it runs only on Windows, which creates problems for users of Macintosh computers. To date, GRADE has been applied largely to interventional studies. Guidance on using GRADE for diagnostic tests has been published recently [12] but there is still no information on how GRADE can be applied to prognostic tests. An adaptation of the approach to diagnostic tests has been made (Claudio Sandroni, personal communication) and a variation of this is likely to be used for diagnostic studies in 2015 ILCOR process.

Failure to translate research findings into clinical practice is a well-recognised problem [13, 14]. The development of good guidelines alone does not guarantee that clinicians will adopt them. Resuscitation organisations have a responsibility for disseminating and implementing resuscitation guidelines. The ERC and the AHA guidelines can be downloaded at www.erc.edu and http://circ.ahajournals.org/content/122/18_suppl_3.toc respectively. Resuscitation guidelines can be disseminated effectively through national scientific meetings and by local meetings held in hospitals and in the community. Resuscitation training materials should be updated as rapidly as possible to reflect the

new guidelines and this requires considerable time and resources. We should be reassured by recent evidence suggesting that the guidelines are making an impact on outcomes [15].

As we look forward to the 2015 consensus of CPR science we should reflect on the recent science that will be evaluated in detail so that it can be determined if a “tipping point” is reached; in other words, whether there is sufficient evidence to change the guidelines? Large observational studies have questioned the value of tracheal intubation in out-of-hospital cardiac arrest (OHCA) [16, 17] but despite the use of statistics to eliminate confounders such studies are inevitably prone to bias. The value of adrenaline in OHCA continues to be challenged and, despite improving short-term survival in prospective studies [18, 19], observational studies suggest that long-term survival among those receiving adrenaline may be worse [20]. Once again, these observation studies are prone to bias, a fact underlined by a re-analysis of a Norwegian prospective study [21]. We await publication of the results of studies on two mechanical CPR devices: the load-distributing band [22] and the LUCAS [23, 24]. I anticipate that results from all of these trials will be available to inform the discussion leading into the 2015 international consensus on CPR science conference. Conflicting evidence surrounding the role of the impedance threshold device (ITD) will add fuel to the debate on the role of devices in general [25, 26]. Since 2010, there have been many reports on the use extracorporeal CPR [27, 28] and clinicians will be eagerly awaiting treatment recommendations that will help to define the role of this new, but expensive, technology. There has been considerable quantity of new research published in the field of post-resuscitation care and prognostication. The results of the Targeted Temperature Management (TTM) trial [29], which has finished recruitment of 950 patients, will be presented later this year and will undoubtedly add to the debate about the precise role of temperature control after cardiac arrest. The current hot topic in resuscitation is prognostication. This field is moving rapidly, largely because of the accumulating evidence that therapeutic hypothermia modifies the recovery process in the comatose

post cardiac arrest patient—we have undoubtedly been making withdrawal decisions far too early in these patients [30, 31]. The Swedish Resuscitation Council has already published updated guidelines on neurological prognostication after cardiac arrest [32] and I expect that other organisations will publish guidance over the next few months. This will leave ILCOR with the task of attempting to achieve consensus on international treatment recommendations on prognostication.

Finally, this year is the 25th anniversary of the ERC and it is appropriate to reflect on the considerable and valuable contributions made by many members of the ERC to the ILCOR consensus on CPR science process. The ERC maintains this key role as look forward to 2015.

Corresponding address

Dr. Jerry Nolan

Consultant in Anaesthesia and Intensive Care Medicine
Royal United Hospital
Combe Park
Bath BA1 3NG
UK

Compliance with ethics guidelines

Conflict of interest. J. Nolan declares that he has no conflict of interest.

This article does not contain any studies with human or animal subjects.

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Internationale Stimmen der Notfallmedizin

Wir freuen uns, Ihnen in dieser Ausgabe einen Beitrag unseres Consultant Editors Dr. Jerry Nolan zu präsentieren.

Er studierte an der Bristol Medical school (UK) und ist heute als Consultant am Royal College of Anaesthetists tätig. Während zahlreicher Aufenthalte in medizinischen Einrichtungen in Großbritannien und den USA spezialisierte er sich auf Notfallmedizin und erwarb wichtige zusätzliche Qualifikationen.

Er ist Mitglied des Resuscitation Council (UK) und Editor-in-Chief des renommierten Journals *Resuscitation*.