Letter to the Editor

Real-time feedback systems for cardiopulmonary resuscitation training: time for a paradigm shift

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Among the new tools to improve the quality of cardiopulmonary resuscitation (CPR), real-time feedback systems (FS) have been largely studied during the last decade (1). These systems permit the real-time analysis of CPR. Their use has been primary focused on the improvement during CPR performance with the goal of reducing the gap between high quality standard CPR parameters (2), described by the guidelines, and real-life performance by rescuers (3). As a matter of facts, rate, depth, chest recoil and hand position are frequently suboptimal during CPR in both in and out-of hospital by both lay and professional rescuers (1,2). Although effective in terms of enhanced quality (4), the widespread use of FS during CPR performance may be difficult due the high incidence of both in and out-of-hospital cardiac arrests and the related costs (1). Moreover, their use may be technically difficult for rescuers with no experience with FS. In this regard, we believe that another important role of FS should be underlined: the use during rescuers' training. Feedback from instructors has always been the gold standard for both lay and professional rescuers' training. However, their ability to asses learners' skill and competence may not be accurate (5). Training is the phase of learning cycle where people acquire motor skills they will use, and eventually refine, in the future (6). Thus, rescuers in training should receive feedback on their CPR skill basing on objective methods, able to reliably measure all high quality standard parameters. FS used for training vary widely: from simple audio tools (e.g., metronomes) to more complex visual systems (software with user-friendly interfaces connected to manikins) (7). Many FS are able to provide real-time feedback on CPR, giving the rescuers the possibility to measure and correct their performance. Importantly, with most of FS, the learners are aware of the achieved level of competence at the end of training session. Several studies demonstrated the efficacy of FS for CPR skill acquisition and retention in health care providers or students. Recently, two randomized controlled trials demonstrated the effect of newer FS versions also in lay persons of various age in terms of CPR skill level and subjective opinion of learners (8,9). Interestingly, although instructors still remain the main source of information and advices for training, in both trials, the use of FS was introduced in standard basic life support courses.

Future research should evaluate the impact of FS-based training on the duration of adequate skill, the effect on instructors' ability to assess CPR quality and the impact on patients' outcome (10).

In conclusion, available data support the wider use of FS for CPR training. Regarding the rationale, we believe that it can be explained as best by what was recently stated by a secondary school student at the end of his training, "*It was so funny to know that I was still not able to save a life!*"

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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