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EDITORIAL

# Should we ''dumb it down''... or ''train it up''?... Breaking barriers and changing the culture of resuscitation☆

## ¿Debemos simplificar el método o, por el contrario, entrenar más y mejor?... Rompiendo barreras y cambiando la cultura de la Reanimación

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Practice makes perfect! When life is at stake, perfect practice can improve confidence, willingness to act, competence and performance. Cardiac arrest represents a major cause of death worldwide, and a prompt and effective rescuer response is the key determinant for a good outcome. Bystanders initiate basic life support (BLS) in less than 50% of the cases. They are at least ''*TRY*standers''! Poor outcomes are frequent, with less than 10% of patients surviving with favorable neurologic outcome. Nevertheless, huge variability in outcomes are reported between geographic regions, suggesting that ''try-stander'' and Emergency Medical Services (EMS) response and hospital care are modifiable key factors that can affect recovery.[1] As cardiopulmonary resuscitation (CPR) techniques and training evolve, assessment and transformation of target populations for training need to concurrently evolve. To optimize the outcome of cardiac arrest victims, simple techniques and learning methods need to be deployed targeted to the capabilities of the ''try-standers'' and healthcare rescuers. It is clear that good BLS beats bad advanced life support (ALS), and vice versa. To train effective life savers, we are constantly faced with the question: Do we ''dumb it down'' ... or do we ''train it up''?

In this issue of *Anales Pediatria*, two studies address fundamentals of BLS training: one targets school-based CPR ''*try*-stander'' training,[2] and the other novice nurse healthcare providers.[3] School based CPR programs have been established as high impact because of the potential to reach a large portion of the society who live at home where the majority of out-of-hospital cardiac arrests occur, and targets a population who are well positioned to become the future generations of life savers. Pichel López et al. explored and assessed who might be able to provide this training and whether school teachers are capable of acquiring current ''try-stander'' BLS skills after a short, simulation-based course.[2] Eighty-one volunteer primary and secondary education teachers underwent a brief 2 hour combined theory-practical training course on BLS sequence and hands

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only CPR (HO-CPR) with manikin practice. Two hours after completing the session, they were evaluated for correct execution of the BLS sequence and quality of HO-CPR. Although only half of the teacher's acquired the ability to perform the precise sequence of BLS skills, the vast majority were capable of performing BLS with proficiency similar to that previously reported by skilled EMS providers with a duty to respond. The study provided an exquisitely detailed protocol and a well-reasoned rationale for the significance of the proposed community intervention. However, several limitations were noted by the authors including that the volunteer subjects of the study were highly motivated to participate, and were not from the general pool of teachers in the public education environment. In addition, readers should note that evaluation of teachers was performed right after the course (acquisition of skills), but did not test retention of knowledge and skills. Perhaps the main limitation is that the authors assume that good CPR performance skill acquisition in a teacher is essential and will translate to capacity to train students. Does this short and practical intervention actually make these teachers capable of providing good CPR training to the students? Perhaps the next step is to measure the quality of CPR provided by the students after having learned from these teachers. If the teachers with better CPR skills do a better job of training students, then perhaps there could be selection and targeted intervention by a subset of the best school CPR instructors instead of expecting all teachers to participate.

The manuscript by Santos-Folgar et al. addresses another critical factor in pediatric resuscitation: ventilation by novice healthcare providers. Although quality and quantity of ventilation has been de-emphasized in adult resuscitation, ventilation remains critically important for infants and children.[3] Several recent studies have identified difficulties in achieving effective healthcare provider bag-mask ventilation for newborn infants.[4,5] Nursing students previously trained in ALS performed CPR for an infant manikin using 2 different approaches: mouth-to-mouth-and-nose, and bag-mask ventilation. Surprisingly, *better* quality of ventilation and CPR was delivered with the mouth-to-mouth-and-nose approach. Is this an artifact of studying manikins, who are easy to ventilate with mouth to nose technique? Is this a function of novice providers with very limited or inadequate bag-mask practice and experience? Would we have had similar results if subjects included were professionals from the EMS or more experienced hospital healthcare providers? In addition, social factors including rescuer reluctance to contact secretions of non-family member cardiac arrest victims need to be considered.

Life support education and implementation, like society, is continuously evolving. Are simple and basic life support interventions performed better and thus more effective? Or should we take the time and effort to intensively train more complex interventions, like bag-mask ventilation? Prompt actions by rescuers determine cardiac arrest patient's outcomes, but we are not sure what the best approach to achieve these objectives is. To support *try*-standers and rescuers of the next generation, these two manuscripts force us to consider whether we should ''*dumb it down*'' or ''*train it up*''.

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