

### Layperson CPR: A Response to "A Reappraisal of Mouth-to-Mouth Ventilation During Bystander-Initiated Cardiopulmonary Resuscitation"

The Special Report, "A Reappraisal of Mouth-to-Mouth Ventilation During Bystander Initiated Cardiopulmonary Resuscitation," published in *Circulation*<sup>1</sup> fosters the unwarranted inference that laypersons are not performing cardiopulmonary resuscitation (CPR) because of concerns about performing mouth-to-mouth resuscitation. The evidence for this inference was drawn primarily from samples of healthcare professionals, who expressed concerns about disease transmission. Based on this faulty conclusion, the authors explore physiological issues related to exclusion of mouth-to-mouth as a CPR component skill.

The appearance of this Special Report has done more harm than good to efforts to train laypersons in CPR and to encourage them to initiate resuscitation. The media, fueled by the Special Report's misleading title, have created dangerous false impressions in the minds of the public, such as the notion that CPR without ventilations is beneficial, and that the risk of disease transmission by mouth-to-mouth contact is substantial. Because the Special Report ignores most existing research pertaining to the failure of CPR by lay bystanders to become widespread, it fails to set a useful agenda for further research aimed at increasing bystander-initiated resuscitation efforts.

While the authors propose an argument based on a selective reading of the research, we believe that the following well-documented facts about out-of-hospital cardiac arrest and bystander action are more explanatory of the failure of bystander CPR than the hypothesis offered in the Special Report:

- 1) CPR is not performed by lay bystanders primarily because most lay bystanders are not trained to perform CPR. Organized training is not targeted to those most likely to be present at the scene of a cardiac arrest. While the typical cardiac arrest victim is 64 years of age,<sup>2</sup> and the family member at home is about 55 years old,<sup>3</sup> the average age of CPR trainees is 31 years, with a small minority 55 years and older. Fewer than 8% of course participants take CPR training because they live with someone at elevated risk of heart attack.<sup>4,5</sup> In addition, 74% or more of cardiac arrests occur in the home,<sup>2,6-9</sup> and less than 7% occur in public places.<sup>10</sup> Therefore, it is likely that the victim is not a stranger to the bystander and disease transmission is not a primary concern.
- 2) A layperson's decision and ability to respond to an emergency situation depend on a unique set of factors unlike those affecting medical professionals and paraprofessionals. Therefore, medical providers' legitimate concerns about disease transmission may not play a pivotal role in the decision-making process of lay bystanders. Compared with laypersons, medical providers have more training and experience, a duty to act, a different relationship to their cardiac arrest victims, and materials for the prevention of disease transmission at their disposal. Laypersons, on the other hand, have a socialized fear to avoid approaching "dead looking" things. According to the psychological research on "helping behavior",<sup>11-18</sup> factors inherent in the

decision to act, arise from the initial response to threatening, unfamiliar, and/or complex situations. The decision to act depends upon, among other things, acknowledging that the situation exists and having confidence in one's ability to handle the emergency. In this calculus of action, an unaccustomed concern of laypersons, such as disease transmission related to mouth-to-mouth resuscitation, will be but one, most likely trivial, factor that presents itself later, after the decision to take action has been made. Helping behavior research has focused on lay response to public assault, medical emergencies, and trauma involving strangers, but research on lay responses to the most common type of cardiac arrest, one striking a family member, is nearly nonexistent. In one paper cited in the Special Report,<sup>19</sup> laypersons were asked to react to cardiac arrest scenarios and select from hypothetical choices, which helping behavior research suggests may not be the issues most salient to lay rescuers. Nonetheless, this research confirms that reluctance to perform mouth-to-mouth breathing on family members and friends does not afflict the majority of potential lay rescuers, and according to the only study cited in which lay bystanders were interviewed,<sup>2</sup> they do not hesitate in helping the victim even in the presence of disagreeable stimuli, such as vomitus, false teeth, alcohol on breath, and presence of blood. Further, bystanders do not advance concerns about HIV.

Even if training were targeted to the right people, the quality of lay resuscitation efforts most likely will be insufficient to sustain life. Immediately following training, CPR trainees are not competent in performing ventilations of sufficient volume to cause chest rise and compressions of sufficient depth to cause cardiac perfusion and artificial pulse at the neck,<sup>20-24</sup> the basic CPR components related to positive outcome.<sup>25-27</sup> Because feelings of competence are critical to the decision to take action,<sup>13-14</sup> lack of competence may be partially responsible for low rates of initiation.

In light of the strong evidence that other factors are responsible for the low rates of bystander CPR, we urge that the American Heart Association (AHA) vigorously promulgate the authors' recommendation that "current CPR guidelines for performing mouth-to-mouth ventilation during CPR should not be changed," and maintain the long-standing opinion, well supported by research, that the risk of infection, particularly HIV, presented by performing mouth-to-mouth ventilations is minimal. We further urge that:

- 1) The argument that laypersons do not initiate CPR because of fear of performing mouth-to-mouth breaths be disavowed unless new studies reveal this to be a significant contributory cause;
- 2) The call for further research on the efficacy of chest compressions without ventilations be tabled;
- 3) Training organizations target CPR training to laypersons with high exposure to individuals with heart disease;
- 4) Training organizations improve CPR training programs to produce, at the very least, competent CPR performance immediately following training;
- 5) The Emergency Cardiac Care Committee and training organizations address laypersons and medical professionals as separate populations requiring different curricula, teaching methods, and expert committees; and

- 6) The AHA initiate and support research related to lay bystander response.

**Keywords:** AHA Medical/Scientific Statements; bystander; cardiopulmonary resuscitation; helping behavior; layperson; sudden death; ventilation

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