

## **Research in Resuscitation: the beginning of an exciting new era**

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### **Abstract**

Cardiac arrest remains the ultimate medical emergency with more than one million victims every year in the United States of America and Europe. Its incidence has been reported in various countries in Europe and each of the countries has variable survival to hospital discharge depending on many different factors, such as implementation of cardiopulmonary resuscitation (CPR) guidelines, training of healthcare professionals, availability of automated external defibrillators and sufficient legislation to permit usage of these defibrillators by trained lay people, just to name a few. The annual incidence of out-of-hospital cardiac arrest is 38 per 100,000 population and the incidence of in-hospital cardiac arrest ranges from 1 to 5 per 1,000 admissions. The International Liaison Committee on Resuscitation (ILCOR) is a joined initiative from various continents, including the European Resuscitation Council (ERC) and the American Heart Association (AHA), aiming at harmonization of the guidelines on CPR. These guidelines are reviewed every 5 years and they are updated to mirror both advancement in science and the current consensus of experts. Despite the fact that every possible measure is taken in the formulation of the consensus statements, the guidelines only include data derived from human studies; and while this is easily understood for any other discipline in medicine, human randomized trials are scarce in resuscitation, because of the difficulty from the part of the researchers to obtain consent from people who are “recruited” in these studies. As cardiac arrest victims are unconscious, this means that informed consent needs to be weaved and several ethical committees are reluctant to allow inclusion of patients in studies. This lack of human data often results in guidelines that show little or minimal change from the previous versions. In CPR, the most daring change was noted in 2010 when the compression ventilation ratio changed from 15 compressions to 2 ventilations to 30 compressions to 2 ventilations in a non-secured airway. On the other hand, researchers who do mainly

animal research have found several promising receptors, pharmacological agents among others that await evaluation in humans.