

## CLINICAL "SNIPPETS"

### **Recent advances in cardiopulmonary resuscitation: cardio cerebral resuscitation**

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Cardiocerebral resuscitation (CCR) is a new approach for resuscitation of patients with cardiac arrest. It is composed of 3 components: 1) continuous chest compressions for bystander resuscitation; 2) a new emergency medical services (EMS) algorithm; and 3) aggressive post-resuscitation care. The first 2 components of CCR were first instituted in 2003 in Tucson, Arizona; in 2004 in the Rock and Walworth counties of Wisconsin; and in 2005 in the Phoenix, Arizona, metropolitan area. The CCR method has been shown to dramatically improve survival in the subset of patients most likely to survive: those with witnessed arrest and shockable rhythm on arrival of EMS. The CCR method advocates continuous chest compressions without mouth-to-mouth ventilations for witnessed cardiac arrest. It advocates either prompt or delayed defibrillation, based on the 3-phase time-sensitive model of ventricular fibrillation (VF) articulated by Weisfeldt and Becker. For bystanders with access to automated external defibrillators and EMS personnel who arrive during the electrical phase (i.e., the first 4 or 5 min of VF arrest), the delivery of prompt defibrillator shock is recommended. However, EMS personnel most often arrive after the electrical phase -- in the circulatory phase of VF arrest. During the circulatory phase of VF arrest, the fibrillating myocardium has used up much of its energy stores, and chest compressions that perfuse the heart are mandatory prior to and immediately after a defibrillator shock. Endotracheal intubation is delayed, excessive ventilations are avoided, and early-administration epinephrine is advocated.