

Advanced Life Support

Advanced cardiac life support or (ACLS) refers to a set of clinical interventions for the urgent treatment of cardiac arrest and other life threatening medical emergencies, as well as the knowledge and skills to deploy those interventions. Extensive medical knowledge and rigorous hands-on training and practice are required to master ACLS. Only qualified health care providers (e.g. physicians, nurses, paramedics, respiratory therapists and other specially trained health care providers) can provide ACLS, as it requires the ability to manage the patient's airway, initiate IV access, read and interpret electrocardiograms, and understand emergency pharmacology. Some health professionals, or even lay rescuers, may be trained in basic life support (BLS), especially cardiopulmonary resuscitation or CPR. When a sudden cardiac arrest occurs, immediate CPR is a vital link in the chain of survival. Another important link is early defibrillation, which has improved greatly with the widespread availability of AEDs.

ACLS is an extension of BLS. It often starts with analysing patient's heart rhythms with a manual defibrillator/pacemaker. In contrast to an AED in BLS, where the machine decides when and how to shock a patient, the ACLS team leader makes those decisions based on rhythms on the monitor and patient's vital signs. The next steps in ACLS are insertion of intravenous (IV) lines and placement of various airway devices. Commonly used ACLS drugs, such as epinephrine and atropine, are then administered. At this time, the ACLS personnel quickly search for possible causes of cardiac arrest (e.g., a heart attack, drug overdose, or trauma). Based on their diagnosis, more specific treatments are given. These treatments may be medical such as IV injection of an antidote for drug overdose, or surgical such as insertion of a chest tube for those with tension pneumothoraces or hemothoraces. While the above mentioned ACLS steps are being carried out, it is crucial to continue chest compression with minimal interruptions. This point is emphasized repeatedly in the new ACLS guidelines (see below)

As the new guidelines acknowledge, only the basic interventions of CPR and early defibrillation have been shown to improve survival from cardiac arrest. The new Guidelines were published in December 2006 and may be found in *Circulation*. The major source for ACLS courses and textbooks in the United States is the American Heart Association; in Europe, it is the European Resuscitation Council (ERC). An ACLS Provider Manual reflecting the new Guidelines is now available.