



INTEGRATED CENTRE FOR DISASTER MANAGEMENT

BASIC LIFE SUPPORT

Basic life support (BLS) is a level of medical care which is used for patients with life-threatening illness or injury until the patient can be given full medical care. It can be provided by trained medical personnel, including emergency medical technicians, and by laypersons who have received BLS training. BLS is generally used in the pre-hospital setting, and can be provided without medical equipment.

Many countries have guidelines on how to provide basic life support (BLS) which are formulated by professional medical bodies in those countries. The guidelines outline algorithms for the management of a number of conditions, such as Cardiac arrest, choking and drowning.

BLS generally does not include the use of drugs or invasive skills, and can be contrasted with the provision of Advanced Life Support (ALS). Most laypersons can master BLS skills after attending a short course. Firefighters and police officers are often required to be BLS certified. BLS is also immensely useful for many other professions, such as daycare providers, teachers and security personnel.

CPR provided in the field buys time for higher medical responders to arrive and provide ALS care. For this reason it is essential that any person starting CPR also obtains ALS support by calling for help via radio using agency policies and procedures and/or using an appropriate emergency telephone number.

An important advance in providing BLS is the availability of the automated external defibrillator or AED, which can be used to defibrillation or delivery. This improves survival outcomes in cardiac arrest cases.

Basic life support consists of a number of life-saving techniques focused on the medicine ABC's of pre-hospital emergency care:

- Airway: the protection and maintenance of a clear passageway for gases (principally oxygen and carbon dioxide) to pass between the lungs and the outside of the body
- Breathing: inflation and deflation of the lungs (respiration) via the airway
- Circulation: providing an adequate blood supply to the body, especially critical organs, so as to deliver oxygen to all cells and remove carbon dioxide, via the perfusion of blood throughout the body,

Healthy people maintain the ABCs by themselves. In an emergency situation, due to illness (medical condition) or trauma, BLS helps the patient ensure his or her own ABCs, or assists in maintaining fir the patient who is unable to do so. For airways, this will include

maintaining optimal angles or possible insertion of oral or nasal adjuncts, to keep the airway unblocked. For breathing, this may include artificial respiration, often assisted by emergency oxygen. For circulation, this may include bleeding control or Cardiopulmonary Resuscitation (CPR) techniques to manually stimulate the heart and assist its pumping action. In each case, the BLS provider is trained to detect ABC problems and attempt to correct them.

BLS also typically includes considerations of patient transport such as various forms immobilization to prevent additional injury, including cervical collars, splinting limbs, and full body splints (backboards).

Necessity of BLS

- Almost invariably or mostly a doctor will not be available on the spot.
- The condition of the patient may well aggravate if some preliminary treatment is not rendered before expert medical aid is available.
- Timely BLS may well prove life saving.
- The careful exercise of skilled BLS will take away the load of treating minor ailments and injuries from doctors.
- A careful TRIAGE (sorting of cases) by a First Aider and their labeling will enable doctors to pay immediate attention to the most serious cases.

Standard versus Emergency First Aid

- Standard procedure of Medical Aid prove time consuming with limited men & material
- Emergency First Aid measures have been evolved with an emphasis on improvisation in material and methods suited to mass casualty incidents.

Principles of BLS

- Simple and minimum essential procedures only should be carried out on spot and during transit. Minimum handling with Rapid Transport should be done
- The Destination, Mode of transport and FA measures during transit must be determined
- Prescribed equipment, if not available, improvisation should be made.
- Set procedures and sequence of action should be followed when treating casualties.
- Set procedure of action is necessary even after treatment. e.g. correct labeling

Role of BLS Provider

- Be calm and courteous but also firm & quick.
- Protect your safety and the safety of your crew, the patient, and bystanders
- Gain access to the patient
- Assess the patient to identify life - threatening problems
- Alert additional emergency medical service (EMS) resources.
- Provide Care based on assessment findings.
- Assist other EMS personnel
- Participate in record keeping and data collection as required
- Act as liaison with other public safety workers.
- Treat shock if it has set in

- Act confidently and courageously
- If required, use the skilled or the unskilled assistance from the onlookers.
- Send for an expert medical aid within a short time & distance
- Arrange for speedy, safe and convenient transport
- Immobilize fractures before moving the casualty.
- Splint limbs badly damaged
- Don't remove clothing, but cut it open, if required.
- Don't apply wet dressing
- Don't give drinks to unconscious and belly wound patients
- Don't try to do more than that is just necessary
- Remember that no case is to be regarded as hopeless
- Death is not be assumed
- Ensure final disposal of casualty to its correct destination
- First Aider must not leave the casualty unattended at any time
- Work in close liaison with rescuers
- Do right things in right order and do them swiftly and correctly.

Adult BLS sequence

- Ensure that the scene is safe.
- Assess the victim's level of consciousness by asking loudly "are you okay?" and by checking for the victim's responsiveness to pain.
- Activate the local EMS system by instructing someone to call 102. If an AED is available, it should be retrieved and prepared.
- If the victim has no suspected cervical spine trauma, open the airway using the head-tilt/chin-lift maneuver; if the victim has suspected trauma, the airway should be opened with the jaw-thrust technique. If the jaw-thrust is ineffective at opening/maintaining the airway, a very careful head-tilt/chin-lift should be performed.
- Assess the airway for foreign object obstructions, and if any are visible, remove them using the finger-sweep technique. Blind finger-sweeps should not be performed, as they may push foreign objects deeper into the airway.
- Look, listen, and feel for breathing for at least 5 seconds and no more than 15 seconds.
- If the patient is breathing normally, then the patient should be placed in the recovery position and monitored and transported; do not continue the BLS sequence.
- If patient is not breathing normally, and the arrest was witnessed immediately before assessment, then immediate defibrillation is the treatment of choice.
- Attempt to administer two artificial ventilations using the mouth-to-mouth technique, the mouth-to-mask technique, or a bag-valve-mask. Verify that the chest rises and falls; if it does not, reposition (i.e. re-open) the airway using the appropriate technique and try again. If ventilation is still unsuccessful, and the victim is unconscious, it is possible that they have a foreign body in their airway. Begin chest compressions, stopping every 30 compressions, re-checking the airway for obstructions, removing any found, and re-attempting ventilation.
- If the ventilations are successful, assess for the presence of a pulse at the carotid artery. If a pulse is detected, then the patient should continue to receive artificial ventilations at an appropriate rate and transported immediately. Otherwise, begin CPR

at a ratio of 30:2 compressions to ventilations at 100 compressions per minute for 5 cycles.

- After 5 cycles of CPR, the BLS protocol should be repeated from the beginning, assessing the patient's airway, checking for spontaneous breathing, and checking for a spontaneous pulse. Laypersons are commonly instructed not to perform re-assessment, but this step is always performed by healthcare professionals (HCP's). If an AED is available after 5 cycles of CPR, it should be attached, activated, and (if indicated) defibrillation should be performed. If defibrillation is performed, 5 more cycles of CPR should be immediately repeated before re-assessment.
- BLS protocols continue until (1) the patient regains a pulse, (2) the rescuer is relieved by another rescuer of equivalent or higher training, (3) the rescuer is too physically tired to continue CPR, or (4) the patient is pronounced dead by a medical doctor.
- At the end of five cycles of CPR, always perform defibrillation (AED), and repeat assessment before doing another five cycles.
- CPR continues indefinitely, until the patient is revived, or until the caregiver is relieved, or discharged by a higher medical authority
- The CPR cycle is often abbreviated as 30:2 (30 compressions, 2 ventilations or breaths). Note CPR for infants and children uses a 15:2 cycle when two rescuers are performing CPR (but still uses a 30:2 if there is only one rescuer)

Drowning

- Rescuers should provide CPR as soon as an unresponsive victim is removed from the water. In particular, rescue breathing is important in this situation.
- A lone rescuer should give 3 cycles of CPR before leaving the victim to call emergency medical services. A cycle of CPR consists of giving 30 chest compressions and 2 breaths to the victim. Since the primary cause of cardiac arrest and death in drowning and choking victims is hypoxia, it is more important to provide rescue breathing as quickly as possible in these situations, whereas for victims of VF cardiac arrest chest compressions and defibrillation are more important.

Hypothermia

- In unresponsive victims with hypothermia, the breathing and pulse should be checked for 30 to 45 seconds as both breathing and heart rate can be very slow in this condition.
- If cardiac arrest is confirmed, CPR should be started immediately. Wet clothes should be removed, and the victim should be insulated from wind. CPR should be continued until the victim is assessed by advanced care providers.

Foreign body airway obstruction (choking)

- Rescuers should intervene in victims who show signs of severe airway obstruction, such as a silent cough, cyanosis, or inability to speak or breathe.
- If a victim is coughing forcefully, rescuers should not interfere with this process.
- If a victim shows signs of severe airway obstruction, abdominal thrusts should be applied in rapid sequence until the obstruction is relieved. If this is not effective, chest

thrusts can also be used. Chest thrusts can also be used in obese victims or victims in late pregnancy. Abdominal thrusts should not be used in infants under 1 year of age due to risk of causing injury.

- If a victim becomes unresponsive he should be lowered to the ground, and the rescuer should call emergency medical services and initiate CPR. When the airway is opened during CPR, the rescuer should look into the mouth for an object causing obstruction, and remove it if it is evident.

Conclusion

In India approximately 10,00,000 cardiac arrests per year take place and the Survival to Hospital discharge presently is as low as only 5-10%. Moreover, the Bystander CPR vital intervention before arrival of emergency services is such crucial that early resuscitation and prompt defibrillation (within 1-2 minutes) can result in more than 60% survival. That is where skilled BLS provider can make a big contribution.