AUSTRALIAN RESUSCITATION COUNCIL

NEW ZEALAND Resuscitation Council
Whakahauora, Aotearoa

GUIDELINE 6

COMPRESSIONS

This guideline is applicable to adults, children and infants.

Rescuers should perform chest compressions for all victims who are unresponsive and not breathing normally .[3] [Class A; LOE II, III-1, III-3]

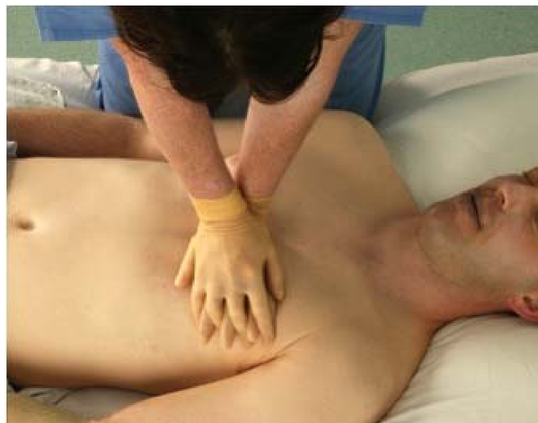
RECOGNITION OF THE NEED FOR CHEST COMPRESSIONS

Lay rescuers and health care professionals should use unresponsiveness and absence of normal breathing to identify the need for resuscitation .[3] [Class A; LOE extrapolated evidence] Palpation of a pulse is unreliable and should not be performed to confirm the need for resuscitation. [3] [LOE extrapolated evidence]

LOCATING THE SITE FOR CHEST COMPRESSIONS

There is insufficient evidence for or against a specific hand position for chest compressions during CPR.[1] For a victim receiving chest compressions, place your hands on the lower half of the sternum.[3] [Class A, LOE extrapolated evidence] Rescuers should place the heel of their hand in the centre of the chest with the other hand on top.[3] [Class A; LOE Expert Consensus Opinion]

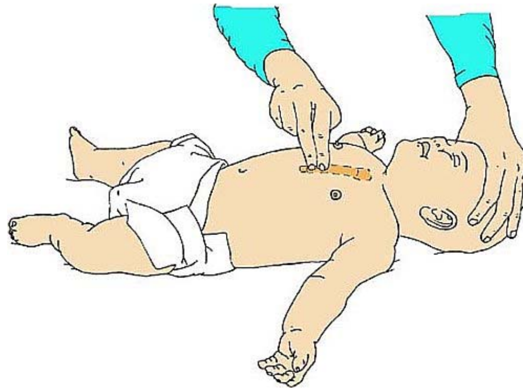
Avoid compression beyond the lower limit of the sternum. Compression applied too high is ineffective and, if applied too low may cause regurgitation and/or damage to internal organs. [Class A; LOE Expert Consensus Opinion]



METHOD OF COMPRESSION

Infants

In infants the two finger technique should be used by lay rescuers to minimise transfer time from compression to ventilation.[2] Having obtained the compression point the rescuer places two fingers on this point and compresses the chest. [Class A; LOE Expert Consensus Opinion]



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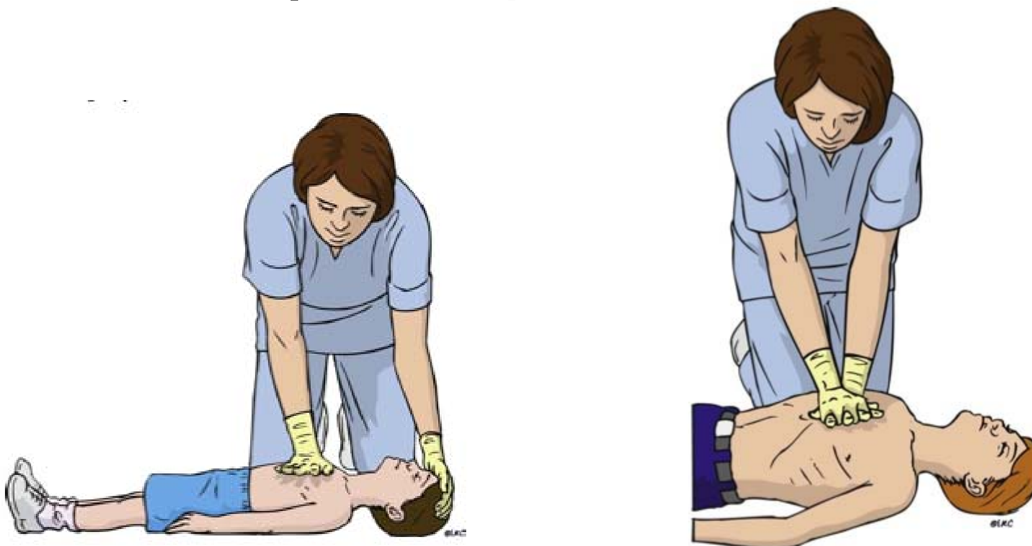
Children and Adults

Either a one or two hand technique can be used for performing chest compressions in children.[4] [Class A; LOE extrapolated evidence]



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Interruptions to chest compressions must be minimised.[3] [Class A; LOE IV, extrapolated evidence] Victims requiring chest compressions should be placed supine on a firm surface (e.g. backboard or floor) before chest compressions to optimize the effectiveness of compressions.[1,2] Compressions should be rhythmic with equal time for compression and relaxation. The rescuer must avoid either rocking backwards and forwards, or using thumps or quick jabs. Rescuers should allow complete recoil of the chest after each compression.[1,2]

DEPTH OF COMPRESSION

The lower half of the sternum should be depressed approximately one third of the depth of the chest with each compression. This equates to more than 5cm in adults, approximately 5cm in children[3] and 4cm in infants.[4] [Class A; LOE Expert Consensus Opinion]

RATE OF CHEST COMPRESSIONS

Rescuers should perform chest compressions for all ages at a rate of approximately 100 compressions per minute (almost two compressions/second).[1,2,3] [Class A, LOE IV] This does not imply that 100 compressions will be delivered each minute since the number will be reduced by interruptions for breaths given by rescue breathing. [Class A; LOE Expert Consensus Opinion] There is no evidence that a compression rate over 120 / minute offers any advantage. [Class A; Expert Consensus Opinion]

CPR QUALITY

When performing compressions, if feasible, change rescuers at least every two minutes to prevent rescuer fatigue and deterioration in chest compression quality, particularly depth.[5] [Class B, LOE IV, extrapolated evidence] Changing rescuers performing chest compressions should be done with a minimum of interruptions to compressions.[5]

FEEDBACK

CPR prompt / feedback devices may be considered during CPR for laypeople and healthcare professionals.[5] [Class B, LOE III-1, III-2, III-3, extrapolated evidence] CPR prompt / feedback devices may be considered for clinical use as part of an overall strategy to improve quality of CPR.[5] [Class B, LOE III-1, III-2, III-3, extrapolated evidence] However, rescuers should be aware that when the victim is on a soft surface, feedback devices may over-estimate the compression depth. [Class A, extrapolated evidence]

RISKS

Rib fractures and other injuries are common but acceptable consequences of CPR given the alternative of death. [3] [Class A; LOE IV, extrapolated evidence]

REFERENCES

1. Consensus on Resuscitation Science & Treatment Recommendations. Part 2: Adult Basic Life Support. Resuscitation 2005; 67: 187-201.
2. Consensus on Resuscitation Science & Treatment Recommendations. Part 6: Paediatric Basic and Advanced Life Support. Resuscitation 2005; 67: 271-291.
3. Koster RW, Sayre MR, Botha M, Cave DM, Cudnik MT, Handley AJ, Hatanaka T, Hazinski MF, Jacobs I, Monsieurs K, Morley PT, Nola JP, Travers AH. Part 5: Adult basic life support: 2010 International consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Resuscitation 2010;81:e48–e70.

4. de Caen AR, Kleinman ME, Chameides L, Atkins DL, Berg RA, Berg MD, Bhanji F, Biarent D, Bingham R, Coovadia AH, Hazinski MF, Hickey RW, Nadkarni VM, Reis AG, Rodriguez-Nunez A, Tibballs J, Zaritsky AL, Zideman D, On behalf of the Paediatric Basic and Advanced Life Support Chapter Collaborators. Part 10: Paediatric basic and advanced life support: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Resuscitation 2010;81:e213–e259.
5. Soar J, Mancini ME, Bhanji F, Billi JE, Dennett J, Finn J, Ma MHM, Perkins GD, Rodgers DL, Hazinski MF, Jacobs I, Morley PT, on behalf of the Education, Implementation, and Teams Chapter Collaborators. Part 12: Education, implementation, and teams: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Resuscitation 2010;81:e288–e330. http://www.resuscitationjournal.com