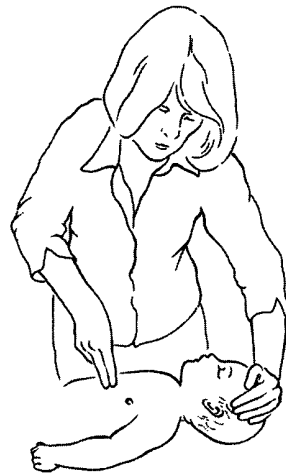
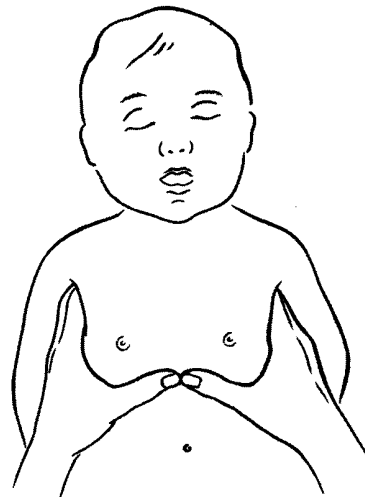


*Infants* As the infant heart is lower with relation to external landmarks when compared to older children and adults, the area of compression is found by imagining a line between the nipples and compressing over the sternum one finger-breadth below this line. Two fingers are used to compress the chest. This is shown in Figure 4.8. There is some evidence that infant cardiac compression can be more effectively achieved using the hand-encircling technique: the infant is held with both the rescuer's hands encircling or partially encircling the chest. The thumbs are placed over the correct part of the sternum (as detailed above) and compression carried out, as shown in Figure 4.9. This method is only possible when there are two rescuers, as the time needed to reposition the airway precludes its use by a single rescuer if the recommended rates of compression and ventilation are to be achieved. The single rescuer should use the two-finger method, employing the other hand to maintain the airway position as shown in Figure 4.8.

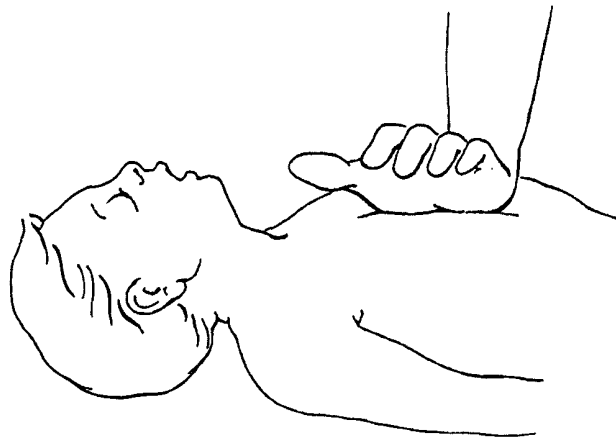


**Figure 4.8.** Infant chest compression: two-finger technique



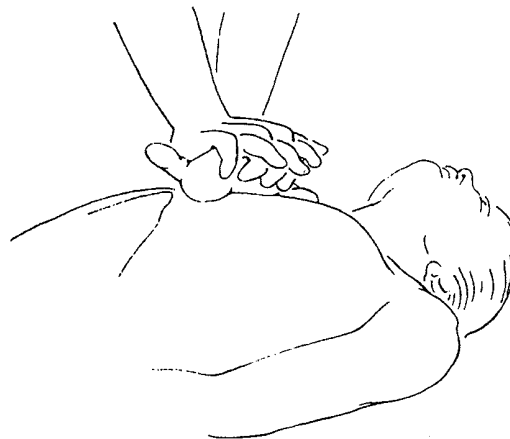
**Figure 4.9.** Infant chest compression: hand-encircling technique

*Children* The area of compression is one finger-breadth above the xiphisternum. The heel of one hand is used to depress the sternum (Figure 4.10).



**Figure 4.10.** Chest compression in small children

*Larger children* The area of compression is two finger-breadths above the xiphisternum. The heels of both hands are used to depress the sternum (Figure 4.11).



**Figure 4.11.** Chest compression in older children

Once the correction technique has been chosen and the area for compression identified, five compressions should be given.

### **Continuing cardiopulmonary resuscitation**

The compression rate at all ages is 100/minute. A ratio of five compressions to one ventilation is maintained whatever the number of rescuers, except in older children who should receive a ratio of 15 compressions to 2 ventilations with any number of rescuers. If no help has arrived the emergency services must be contacted after 1 minute of cardiopulmonary resuscitation. With pauses for ventilation there will be less than 100 compressions per minute although the *rate* should be 100/min. Compressions can be recommenced at the end of inspiration and may augment exhalation. *Apart from this interruption to summon help, basic life support must not be interrupted unless the child moves or takes a breath.*

Any time spent readjusting the airway or re-establishing the correct position for

compressions will seriously decrease the number of cycles given per minute. This can be a very real problem for the solo rescuer and there is no easy solution. In the infant and small child, the free hand can maintain the head position. The correct position for compressions should not be re-measured after each ventilation.

The cardiopulmonary resuscitation manoeuvres recommended for infants and children are summarised in Table 4.1.

**Table 4.1.** Summary of basic life support techniques in infants and children

	Infant	Small child	Larger child
<b>Airway</b>			
Head-tilt position	Neutral	Sniffing	Sniffing
<b>Breathing</b>			
Initial slow breaths	Two	Two	Two
<b>Circulation</b>			
Pulse check	Brachial or femoral	Carotid	Carotid
Landmark	One finger-breadth below nipple line	One finger-breadth above xiphisternum	Two finger-breadths above xiphisternum
Technique	Two fingers or two thumbs	One hand	Two hands
<b>Cardiopulmonary resuscitation ratio</b>	5:1	5:1	15:2