Compression Depth

One component of CPR is chest compressions. To ensure optimal patient outcomes, high-quality CPR must be performed. You can ensure high-quality CPR by providing high-quality chest compressions, making sure that the:

- Patient is on a firm, flat surface to allow for adequate compression. In a non-healthcare setting this would typically be on the floor or ground, while in a healthcare setting this may be on a stretcher or bed with a CPR board or CPR feature applied.
- The chest is exposed to ensure proper hand placement and the ability to visualize chest recoil.
- Hands are correctly positioned with the heel of one hand in the center of the chest on the lower half of sternum with the other hand on top. Most responders find that interlacing their fingers makes it easier to provide compressions while keeping the fingers off the chest.
- Arms are as straight as possible, with the shoulders directly over the hands to promote effective compressions. Locking elbows will help maintain straight arms.
- Compressions are given at the correct rate of at least 100 per minute to a maximum of 120 per minute, and at the proper depth of at least 2 inches, but no more than 2.4 inches for an adult to promote adequate circulation.
- The chest must be allowed to fully recoil between each compression to allow blood to flow back into the heart following the compression.

For adult patients, CPR consists of 30 chest compressions followed by 2 ventilations.

**SCIENCE NOTE**

Evidence shows that a rate of chest compressions that exceeds 120 compressions per minute begins to detrimentally impact compression depth by causing responders to be less likely to compress the chest at least 2 inches for an adult. Additional evidence shows that depth of chest compressions greater than 2.4 inches (6cm) leads to increased non-life threatening injuries in the average adult, such as rib fractures, and should be avoided. These upper limits for the rate and depth of compressions exist to improve patient outcomes, but it is also critical to maintain a rate greater than 100 per minute and a depth of at least 2 inches. Both rate and depth of compressions are best measured using a feedback device if available.

**CHILD COMPRESSIONS**

The positioning and manner of providing compressions to a child are very similar to an adult. Place your hands in the center of the chest on the lower half of the sternum and compress at a rate between 100 to 120 per minute.

However, the depth of compression is different. For a child, compress the chest only ABOUT 2 inches, which is 1/3 the anterior-posterior diameter of the chest, instead of at least 2 inches, but no more than 2.4 inches as you would for an adult.

**INFANT COMPRESSIONS**

Although the rate of compressions is the same for an infant as for an adult or child, the positioning and manner of providing compressions to an infant are different because of the infant's smaller size. Positioning also differs based on the number of responders involved.

The firm, flat surface necessary for providing compressions is also appropriate for an infant. However, that surface can be above the ground, such as a stable table or countertop. Often it is easier for the responder to provide compressions from a standing position rather than kneeling at the patient's side.

Compressions are delivered at the same rate as for adults and children, that is, between 100 to 120 compressions per minute. However, for an infant, only compress the chest ABOUT 1½ inches (or 1/3 the anterior-posterior diameter of the chest).