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## Cardiopulmonary resuscitation: Every citizen is a lifesaver

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### Abstract

CPR stands for cardiopulmonary resuscitation. It is an emergency life-saving procedure that is done when someone's breathing or heartbeat has stopped. This may happen after a medical emergency, such as an electric shock, heart attack, or drowning. CPR combines rescue breathing and chest compressions. CPR combines rescue breathing and chest compressions. Rescue breathing provides oxygen to the person's lungs. Chest compressions keep oxygen-rich blood flowing until the heartbeat and breathing can be restored. CPR can keep oxygen-rich blood flowing to the brain and other organs until emergency medical treatment can restore a typical heart rhythm. When the heart stops, the body no longer gets oxygen-rich blood. The lack of oxygen-rich blood can cause brain damage in only a few minutes.

**Keywords:** CPR, medical emergency, electric shock, heart attack

### Introduction

Cardiopulmonary resuscitation (CPR) is a collection of interventions performed to provide oxygenation and circulation to the body during cardiac arrest<sup>[1]</sup>. Cardiopulmonary resuscitation (CPR) is a lifesaving technique that's useful in many emergencies, such as a heart attack or near drowning, in which someone's breathing or heartbeat has stopped. The American Heart Association recommends starting CPR with hard and fast chest compressions<sup>[2]</sup>.

### Golden Hour

The first hour after the onset of a heart attack is called the golden hour. Appropriate action within the first 60 minutes of a cardiac arrest can reverse its effects. This concept is extremely important to understand because most deaths and cardiac arrests occur during this period.

The Golden Hour is a window of opportunity that impacts a patient's survival and quality of life following a cardiac arrest. It is a critical time and time, is a muscle. This is because the heart muscle starts to die within 80-90 minutes after it stops getting blood, and within six hours, almost all the affected parts of the heart could be irreversibly damaged. So, the faster normal blood flow is re-established, the lesser would be the damage to the heart.

CPR can keep oxygen-rich blood flowing to the brain and other organs until emergency medical treatment can restore a normal heart rhythm. When the heart stops, your body no longer gets oxygen-rich blood. The lack of oxygen-rich blood can cause brain damage in only a few minutes.

### Applications

CPR involves chest compressions for adults between 5 cm (2.0 in) and 6 cm (2.4 in) deep and at a rate of at least 100 to 120 per minute<sup>[3]</sup>.

CPR is used on people in cardiac arrest in order to oxygenate the blood and maintain a cardiac output to keep vital organs alive. Blood circulation and oxygenation are required to transport oxygen to the tissues.

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Having knowledge of CPR can save lives. If your child or loved one isn't breathing, knowing how to do CPR can mean the difference between life and death.

Emergencies can strike at any time, and it may take several minutes before help arrives.

**Methodology or General Procedure**

CPR step-by-step

**There are two main stages to CPR:** The preparation stage and the CPR stage.

**Preparation steps:** Before performing CPR on an adult, use the following preparation steps:

**Step 1. Call 112 (In India)**

First, check the scene for factors that could put you in danger, such as traffic, fire, or falling masonry. Next, check the person. Do they need help? Tap their shoulder and shout, "Are you OK?" If they are not responding, call 112 or ask a bystander to call 112 before performing CPR. If possible, ask a bystander to go and search for an AED machine. People can find these in offices and many other public buildings now a days.



**Step 2. Place the person on their back and open their airway**

Place the person carefully on their back and kneel beside their chest. Tilt their head back lightly by lifting their chin. Open their mouth and check for any obstruction, such as food or vomit. Remove any obstruction if it is loose. If it is not loose, trying to grasp it may push it farther into the airway.



**Step 3. Check for breathing**

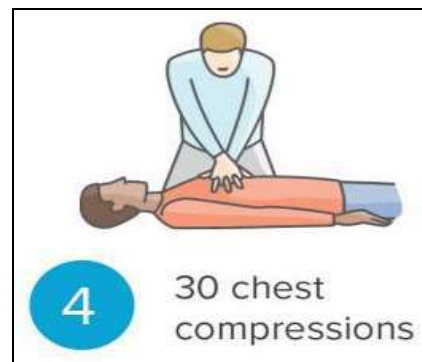
Place your ear next the person's mouth and listen for no more than 10 seconds. If you do not hear breathing, or you

only hear occasional gasps, begin CPR. If someone is unconscious but still breathing, do not perform CPR. Instead, if they do not seem to have a spinal injury, place them in the recovery position. Keep monitoring their breathing and perform CPR if they stop breathing.



**Step 4. Perform 30 chest compressions**

Place one of your hands on top of the other and clasp them together. With the heel of the hands and straight elbows, push hard and fast in the center of the chest, slightly below the nipples. Push at least 2 inches deep. Compress their chest at a rate of at least 100 times per minute. Let the chest rise fully between compressions.



**Step 5. Perform two rescue breaths**

Making sure their mouth is clear, tilt their head back slightly and lift their chin. Pinch their nose shut, place your mouth fully over theirs, and blow to make their chest rise. If their chest does not rise with the first breath, re-tilt their head. If their chest still does not rise with a second breath, the person might be choking.



**Step 6. Repeat**

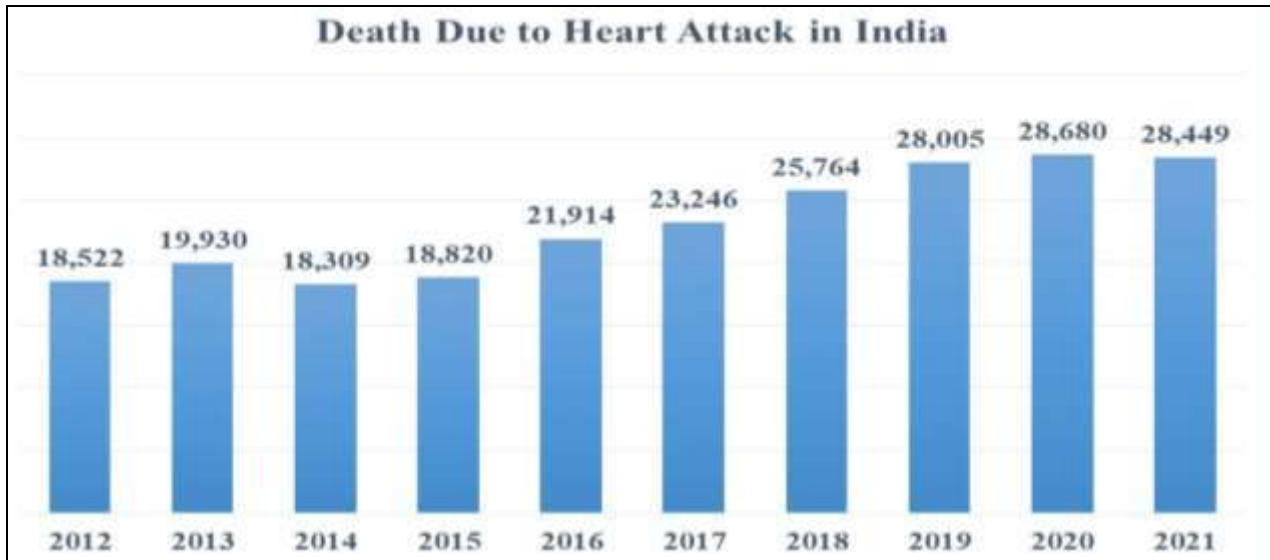
Repeat the cycle of 30 chest compressions and two rescue breaths until the person starts breathing or help arrives. If an AED arrives, carry on performing CPR until the machine is set up and ready to use.



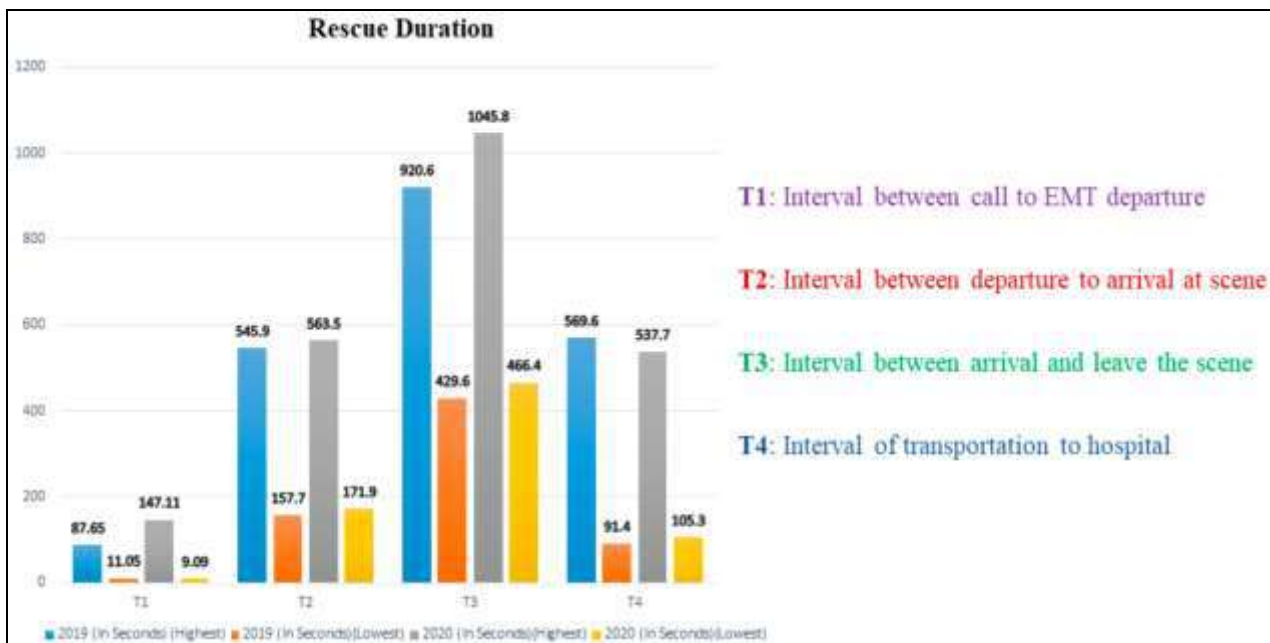
**Discussion**

In adult patients with out-of-hospital cardiac arrest, a large multicentre prospective observational study reported that more than 50% of rescuers performing cardiopulmonary resuscitation (CPR) provided chest compressions faster than the recommended rate of 100 per minute. Sudden Cardiac Death (SCD) is a catastrophic event, which has a huge adverse impact on the health care system. Cardiac arrest prevalence rates in India have been estimated over the past several decades and have ranged from 1.6% to 7.4% in rural populations and from 1% to 13.2% in urban populations [3]

**Table 1:** Shows the number of deaths due to sudden cardiac arrest from 2012 to 2021 in India.



**Table 2:** Shows that the percentage of rescue duration due to the CPR in cardiac arrest patients in the year 2019 -2020 [4].



**Current Status of CPR**

- On 02-03-23, a man collapsed and died while playing badminton at Jayashankar Indoor Stadium Lalapet in Hyderabad. This was the fourth such incident of cardiac arrest in Telangana in 10 days.
- On February 25, a 19-year-old collapsed and died while dancing at his relative's wedding in the Nirmal district

- due to sudden cardiac arrest.
- A 24-year-old police constable died of cardiac arrest while working out at a gym in Hyderabad on February 22.

With incidents of young people suddenly collapsing and succumbing to cardiac arrests on the rise in Telangana, the state government has embarked on a programme to train one

lakh people in Cardiopulmonary Resuscitation (CPR) training and placed orders for 1,400 defibrillators for deploying them in public places. The statistics show that 4,000 people fall into sudden cardiac arrest every day, and according to the World Health Organization (WHO), nine out of 10 people can be saved with methods like CPR and the use of defibrillators [5].

The Vaageswari Pharmacy Colleges has conducted an auspicious occasion on CPR.

Initially they gave a glance on the CPR by presenting a video, then they brought 6 CPR models to show the practical session of CPR to every student.

They called each and every student and gave a detailed explanation and showed practical session then they made every student to perform CPR on every model. By this training programme every student learned how to do CPR in emergency situations.



**Fig 1:** CPR Program at Vaageswari Pharmacy Colleges

### Conclusion

This programme concludes that “EVERY CITIZEN IS A LIFE SAVER” that everyone should learn CPR which can save many lives in emergency situations.

### Acknowledgement

For the successful completion of the CPR Training programme, we would like to thank Dr. Syed Ali Aasim, Dr. Maheswar Reddy, Dr. Ajay Kumar, Dr. Jashwanth, Dr. Rohith Varma, Dr. Aakita Aleem, Dr. Anil, Dr. Owais, Dr. Haritha, Dr. Rashmitha, Dr. Mamatha and Dr. Layasree from Department of Anesthesia from Chalmada Anand Rao Institute of Medical Sciences and for the conducting of these programmes in the college.

### Conflict of Interest

Not available

### Financial Support

Not available

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