

## Assessment of Cardiopulmonary Resuscitation Knowledge and Attitude Amongst Interns and Junior Residents of Tertiary Care Centre

Dr. Trisha Kshirsagar<sup>1</sup>, Dr. Roop Kshirsagar<sup>2</sup>, Dr. Sandeep Kadu<sup>3</sup>

<sup>1</sup>Intern, <sup>3</sup>Professor & Head, Department of FMT, DVVPF's Medical College & Hospital, Ahmednagar-414111, Maharashtra, India. <sup>2</sup>HOD, ICU, Anandrishiji Hospital, Ahmednagar-414001, Maharashtra, India

### Abstract:

**Introduction:** Cardiopulmonary resuscitation (CPR) is a life saving procedure and adequate knowledge and skills related to CPR are essential for all medical students. This study was undertaken to compare knowledge and practice related to updated CPR guidelines by American Heart Association (AHA) 2020 between junior residents and interns. **Methods:** This is a questionnaire-based study prepared on Google form consisting of 22 questions on CPR. Total of 124 participants included 41 junior residents and 83 interns. They were advised to read questions carefully and allowed to tick one best response among the options. **Results:** An average overall correct response from both the group was 14.48 (65.81 %). Among theory knowledge-based questions junior residents had an average of 8.707 correct answers out of 11 (79.15%) which is more correct answers than interns who have average 5.90 correct (53.63%). Similarly, in terms of practical knowledge, junior residents had an average score 9.682 out of 11 (88.026%) compared to interns who had an average of 6.518 out of 11 (59.27%). **Conclusion:** The study showed poor knowledge about CPR among the interns. More practical based teaching should be employed in MBBS curriculum. Periodical reinforcement and refresher courses should be part of curriculum.

**Keywords:** AHA CPR Guidelines 2020, Cardiopulmonary Resuscitation, Basic Life Support, Knowledge, Attitude

### Introduction:

Cardiopulmonary Resuscitation (CPR) provided at the right time greatly improves survival during cardiac arrest due to varied etiology. Fundamental aspects of CPR include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation and rapid defibrillation with an automated external defibrillator (AED).[1] Being a life saving procedure adequate knowledge and skills related to CPR are essential. But studies conducted among medical students all over the world report less than satisfactory knowledge among them. Also, retention of knowledge and skills related to BLS

deteriorates with increasing duration without periodic refresher training.[2-4] However, interns are expected to have good practical knowledge in managing many traumas and critically ill patients. Thus, this study is undertaken to compare knowledge and attitudes related to CPR between junior residents and interns. The knowledge of CPR is crucial to the improvement of patient survival. Sudden cardiac death is a leading cause in 15%-20% of all deaths world-wide.[5-6] Mostly about two-thirds of deaths occur before the victim reaches the hospital. It was also stated that most of early deaths are due to ventricular fibrillation which is treatable. Many of these deaths can be prevented if the victims get prompt and proper help.

**Corresponding Author:** Dr. Trisha Kshirsagar

**Email ID:** trishakshirsagar99@gmail.com

**Address:** DVVPF's Medical College & Hospital, Ahmednagar-414111, Maharashtra, India

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Survival of cardiac arrest depends on a series of critical interventions and this sequence is sometimes described as chain of survival. If one of these critical interventions is delayed, the chance of survival would be reduced. The first responders must be able to play their roles effectively when dealing with emergency situations. Some studies have identified differences in the quality of ACLS /CPR performed by various healthcare providers. Often chest compression is performed inadequately with slow rates of compression and inadequate depth of compression. The training period is critical time for interns and post-graduates. During this period transition from student to physician takes place with better understanding.

**Need for the Study:** American Heart Association has revised Cardiopulmonary Resuscitation (CPR) guideline in the year 2020. Many changes have been incorporated in the new recommendation to improve the outcome of patient in terms of Basic Life Support (BLS) with emphasis on high quality CPR and post resuscitation care. Implementation of this new resuscitation guideline has been shown to improve outcomes of patients, so the need for training health care provider about the new guidelines. The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation.

This study will greatly help in planning an effective teaching learning programme for them. Besides, after 2020 American Heart Association (AHA) new guideline,[7] only few studies were conducted in India to document the knowledge of new CPR guideline, and their practice.

#### **Methodology:**

This is a questionnaire-based study conducted at Dr. Vitalrao Vikhe Patil Foundation's Medical College, Ahmednagar from 1st January 2022 to 1st April 2022, amongst the interns and post-graduate students (junior residents). The present study is aimed to assess the knowledge of medical interns and post-graduate students towards crucial aspects of CPR. A questionnaire was prepared on Google form about the updated AHA CPR guidelines 2020.

#### **There were 3 segments:**

1. Demographic profile: age, gender, prior exposure to CPR training in terms of CME attendance with hands on experience, 1-2 hrs lecture on CPR with no hands on, non-trained, actual involvement in CPR

very frequently, occasional, only observed, never.

2. Knowledge: theory and practical in the form of 11 MCQs each.

3. Attitude: as to whether there is perceived need to include CPR practices in curriculum.

Google forms were sent to willing participants through WhatsApp. The purpose of the study and the procedure to fill the questionnaire was explained to the doctors. The questionnaire was focused on knowledge, practice and their attitude towards CPR as per updated AHA CPR guidelines 2020.

#### **Results:**

In present study, 124 participants including 41 junior residents & 83 interns. (Fig -1) Consisted of overall 61 (49.193%) females and 63 (50.80 %) males respectively. Further classified into 44 (53.012%) females among interns, 39 (46.987%) males among interns, 17 (41.463%) females among junior residents and 24 (58.536%) males among junior residents respectively. (Table -1)

Out of total 22 MCQ questions, average points scored was 14.48 points (65.81%); median was 14/22 points. Among interns it was 13.024 (59.20%) and among junior residents it was 18.39 (83.592%) respectively. Further classified into theory as 5.90 (53.63%), and practical knowledge as 6.518 (59.27%) for interns, theory as 8.707 (79.18%) and for practical knowledge as 9.682 (88%) for junior residents respectively. (Table- 2)

Average all correct response from both the group was made by 34 students (27.419 %), with interns (6 students, 7.228 %) showing significantly lower correct response rate than junior residents who were 28 (68.292%). But there was a significant difference in pattern of correct response between both the two. Among theory knowledge-based questioners (Part 1), junior residents (6 students or 14.634 %) had more all correct answers than interns (1 student or 1.204 %). Whereas among part 2 questionnaires which included practical orientated questions, interns (5 students or 6.024 %) had less all correct answers than junior residents (22 or 53.658 %). Overall practical knowledge scores were more as reflected by 49 students (39.516%) compared to theory knowledge as scored by 13 students (10.483 %) respectively.

The percentage of who had previously attended CME with hand on experience is 33.6%.(Fig 2) and 36.6 percent respondents had frequently been involved in CPR.(Fig 3)

Detailed analysis of data showed that among theory questions, the max. top 3 wrong answers were for

1. Full form of PMCD...94 (65 interns and 29 Junior Residents). (Fig -4)
2. 6<sup>th</sup> new link in chain of survival – 69 (58 interns and 11 Junior Residents)
3. 1<sup>st</sup> action to unresponsive person on the road – 65 (54 interns and 11 Junior Residents)

Top 3 wrong responses in practical test were-(Fig -5)

1. Ratio of compression in child with 2 rescuers- 69 (56 interns and 13 Junior Residents)
2. Airway manoeuvre with cervical spine injury – 39 (34 interns and 5 Junior Residents)
3. Depth of compression in adults – 40 (35 interns and 5 Junior Residents)

Overall, 99.2 percent of the respondents felt the need to include CPR training in UG/PG curriculum (Fig 6).

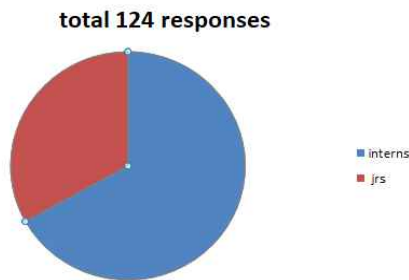


Fig 1: Responses and subgroups of responses

Table 1: Gender distribution of responses

Category	Males	Females
Interns	39 (46.987%)	44(53.012%)
Junior residents	24(58.536%)	17 (41.463%)
<b>Total</b>	<b>63 (50.80%)</b>	<b>61 (49.193%)</b>

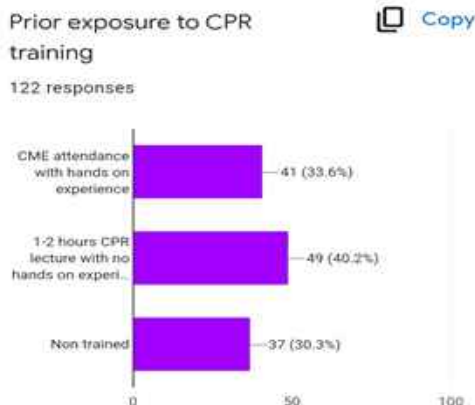


Fig 2: percentage prior exposure to CPR training

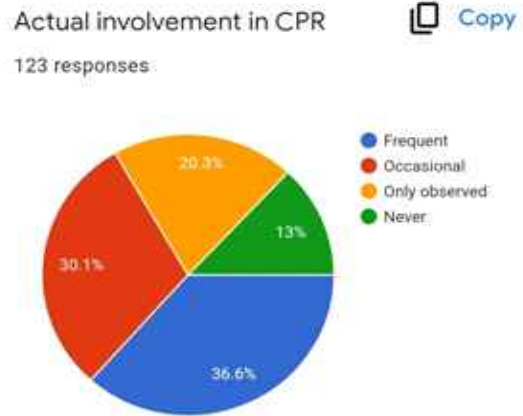


Fig 3: percentage of actual involvement in CPR

Table 2: Incorrect and Correct responses

Category	Correct	Theory corrects	Practical correct
Interns	59.20%	53.63%	59.27%
Junior residents	83.592%	79.15%	88.026%
<b>Total</b>	<b>65.81%</b>	<b>62.096%</b>	<b>68.76%</b>

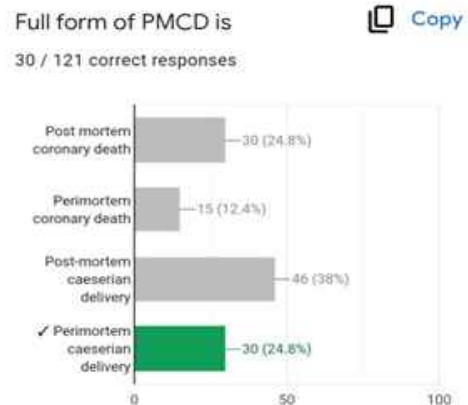


Fig 4: theory-based question with maximum incorrect

Ratio of compression to ventilation in child with two rescuers

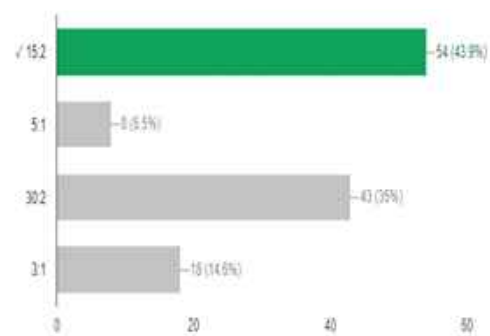
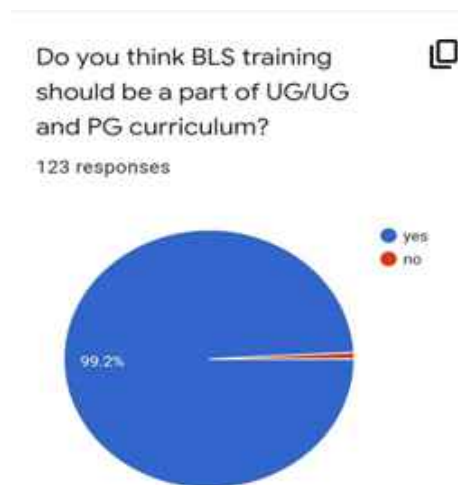


Fig 5: Practical based question with maximum incorrect responses



**Fig 6:** Percentage of responses for inclusion of CPR in curriculum

### Discussion:

Interns and junior resident doctors are the first health care providers in the majority of medical colleges across India. Therefore, CPR knowledge and skills are essential for both. Usually in the pre final clinical terms CPR is taught to the medical students. But knowledge and skills related to it deteriorates slowly with time. Retention of the knowledge is challenging and ongoing training is essential. This study highlights the basic knowledge and practice among junior resident doctors and interns. Among both groups an average of 65.81% questions were correctly answered indicating fair knowledge on CPR. This result somewhat corresponds to a study by Baishakhiya Shikha et al(2017)[8], where mean score of interns was 48.92% and it was concluded that there is poor knowledge and awareness among interns regarding CPR as compared to other participants.. But in a study by Chandrashekar et al. showed that medical, dental and nursing students and faculty in the study group were severely lacking in the awareness of BLS and awareness of BLS was very poor in all the students.[9] Attitude and awareness of all participants was assessed too. 99.2% of the participants felt that it is necessary for undergraduate medical students to have adequate knowledge of BLS and CPR.

Only 33.6% of them had previously attended CME with hands on experience. 30.3% of them had never performed CPR nor had seen administering it. If a situation demands, 17.7% of the participants would

not feel confident in administering CPR; the common reasons being inadequate theoretical knowledge, inadequate or no training offered in UG/ PG curriculum, non-updated knowledge, fear of causing more harm to patient, and general lack of interest. In terms of actual involvement in CPR, 36.6 percent respondents had frequently been involved.

Grouping the questions into knowledge and practical based, showed interesting pattern of response among students and interns. Interns did fairly well with real life situations but had poor response to theoretical questions. The findings stress the need for periodic refresher courses to update new guidelines and has also been stressed in many other studies.[10,11] Chamberlain et al. also recommended repeated refresher training.[12] as interns demonstrated good response for the questions in part 1 which are mainly theoretical. Thus, there is a need for increasing practical skills and techniques among final year students.

### Conclusion:

The study showed poor knowledge about CPR among the junior residents and interns. The knowledge and practice varied between the two. More practical based teaching should be employed in MBBS curriculum. Periodical reinforcement and refresher courses should be part of curriculum.

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