

# THE KNOWLEDGE TEAM'S KNOWLEDGE ON PEDIATRIC CARDIOPULMONARY RE-IMMONATION IN ICU

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## ABSTRACT

Cardiopulmonary resuscitation (CPR) are ducts created by the American Heart Association (AHA), American Academy of Pediatrics (AAP) and Pediatric Advanced Life Support (PALS) to reverse the cardiopulmonary arrest (CPA), which causes a sudden death to the patient. The nursing team is responsible for highlighting this framework in which the customer may have, as occurs greater contact with the patient in an intensive care unit (ICU). The aim of this study: to characterize the profile of nursing team professionals working in pediatric ICU; Analyze the performance of the nursing staff before the CPR signals in the pediatric ICU; Evaluate the theoretical knowledge of the nursing staff on the CPR protocol 2015 approach to child; Identify the knowledge of the staff about the drugs used in pediatric CPR. The survey was conducted in July, after the participants become aware of the research and agree to participate. Quantitative and qualitative study with descriptive approach, with cross feature. Obtaining the sample was for convenience. The study was conducted in a public hospital Rondonia inside with the specific sector to PICU. Data were collected through a questionnaire with 10 questions, data collection was structured in two parts: the first was a questionnaire with questions with multiple choices and the second time the respondent was asked to answer the questionnaire containing multiple choice questions evaluating theoretical and practical concepts of service of PCR / CPR pediatrics, composed of questions and answers on the CPR and technical skills for the application of CPR maneuvers based on standardizations stipulated in international guidelines call PCR / RCP, arranged in logical and consistent to date knowledge of this service. Who had the participation of 17 professionals in nursing, under the age of 20 years 9 (53%). Of the professionals interviewed 17 (100%) reported knowing the new CPR guidelines, 17 (100%) of professionals has less than 1 year of operation in the ICU. Most reported having participated in CPR 7 (42%) attended by more than 4 times. About the child approach of CRP signals 10 (83%) knew how to accomplish this approach. Regarding the new CPR protocol in 2015, it was found that there were questions of professionals in all matters from medication dosage the right way to perform chest compression. It was

concluded that in view of the results obtained, it was identified that there were questions of professionals in all matters regarding the theoretical knowledge including medication dosage, number of compressions and depth and the skills of their technical and professional nurse in a CPR.

**KEYWORDS:** CPR, intensive care, pediatrics and nursing staff.

## 1. INTRODUCTION

Sudden and abrupt interruption of the systemic circulation and/ or respiration is defined as cardiorespiratory arrest (CRP). Starting resuscitation care even before the arrival of the advanced support team increases the chance of survival and avoids post-CPR sequelae<sup>1</sup>.

Cardiorespiratory arrest (CRP) is responsible for high morbidity and mortality, even in situations or places that can guarantee an optimal care for the individual victim of CRP. Emergency care, in the prehospital and inpatient settings, requires health professionals to take immediate and effective action to achieve success in this care. It is understood that rapid, cohesive and multidisciplinary care can guarantee a greater survival to the individual<sup>2</sup>.

Each minute of delay in care can in addition to decreasing the survival time, increase the chances of irreversible sequelae. Even though the vast majority of patients with CRP cannot reach the hospital alive, those who do need rapid, effective and efficient care. And this is something essential for the maintenance of your life, which does not always happen, due to several factors, be they human or structural<sup>3</sup>. It should be noted, therefore, that the role of the nurse is of paramount importance, and can directly affect the final result regarding the patient's condition, and it is certain to affirm that the performance of this professional is determinant for the success of patient care<sup>4</sup>.

Despite advances in recent years related to prevention and treatment, many are the lives lost

annually in Brazil related to CRP, which is still considered a public health problem. Although we do not have the exact scale of the problem because of the lack of robust statistics in this regard<sup>3</sup>.

In terms of legislation, Law No. 7498/86, which regulates the practice of nursing, defines as one of the functions of the nurse, as a member of the health team, the "prevention and systematic control of damages that may be caused to clients during Nursing care." <sup>4</sup>.

The American Heart Association advocates that one of the members of the resuscitation team be the leader, aiming for the best performance and organization during the care. The professional who assumes such a position is usually the doctor, as he also assumes a legal role under the aspect of applied therapy. However, it is necessary that nurses also act as a leader, to manage the dynamics of the team according to the therapy adopted. Factor that also implies their training in equal intensity to those dispensed to the medical staff. In general, nursing staff professionals are the first to witness a victim in CRP at the hospital. They are the ones that trigger the call staff more often. Thus, these professionals need to have the updated technical knowledge and the practical skills developed to contribute more effectively to the CPR maneuvers. Thus, a multiprofessional team provides the victim of CRP, a quality of care of which nurses are indispensable<sup>5</sup>.

The guidelines and updates are produced by health professionals who seek to improve patient care and public health education in a variety of ways for practicing professionals. Helping to standardize the service, always bringing what is new in scientific studies that prove some practices, maneuvers and medicines. The updates take place every 5 years since 1924 when the American Heart Association was founded. Today, the organization has 22.5 million volunteers and supporters. Its headquarters are currently located in the city of Dallas in the United States of America<sup>5</sup>.

The nursing team is responsible for the intensive care to the patient in CRP, during CPR and after this intervention, through permanent evaluation, surveillance, and the accomplishment of procedures and techniques that complement the medical therapy, based on guidelines for the Nursing care, guaranteeing the continuity of an integrated work, also acting in the orientation and the reception of the family members<sup>6</sup>.

The motivation to carry out this research in identifying the knowledge of the nursing team in front of a pediatric CPR emerged through frequent doubts about how to conduct an emergency situation (CPR) in the condition of a professional also responsible for this patient and the nursing team.

This work is justified by understanding and describing the knowledge of nursing professionals working in the ICU on pediatric cardiopulmonary resuscitation, since it is not known when CRP can occur. This study aimed to characterize the profile of the professionals of the nursing team who work in the

pediatric ICU; To analyze the performance of the nursing team before the signs of CRP in the pediatric ICU; To evaluate the theoretical knowledge of the nursing team about the protocol of CPR 2015 approach in the child; Identify the knowledge of the team regarding the drugs used during pediatric CPR.

## 2. METHODOLOGY

This is a qualitative, descriptive, cross-sectional study, through an interview with nursing professionals. The nursing team of the pediatric ICU of a hospital in the interior of Rondônia is made up of 19 nursing professionals in total according to the scale. However, only 17 participated in this study, since 2 of these workers were on vacation during the collection period, July 2016. The data were collected through a questionnaire with 10 questions, the data collection was structured in two parts: the first one was applied a questionnaire With questions with multiple adapted choices of the work<sup>7</sup> "Evaluation and qualification of the nursing team for the attendance of the cardiorespiratory arrest in an intensive care unit of a first aid".

The questionnaire contains variables related to the characterization of nursing staff, such as: age, sex, educational level, profession, length of time in the sector, training time, receipt of some CPR training according to American Heart Association guidelines<sup>5</sup>.

At the second moment, the interviewee was asked to answer the questionnaire containing multiple-choice questions, which evaluated theoretical-practical concepts of PCR / RCR care in pediatrics, composed of questions and answers about CRP and technical skills to apply the maneuvers RCR based on the standardizations stipulated in the international PCR / RCR guidelines, arranged in a logical and compatible sequence for the updated knowledge of this service.

Data collection occurred in July 2016, in the morning, afternoon and evening periods; During the seven days of the week, after the participants became aware of the research and agreed to participate, signing the consent form, they answered the questionnaire in moments that were free of their duties without prejudice to nursing care to the patients. Initially the project was evaluated by the Ethics and Research Committee and approved according to protocol 1,551,145. Next, a consent form was sent to the Teaching and Research Department, in order to authorize the beginning of data collection with the nursing professionals of the intensive care unit; The nurses and other professionals who participated in the research had their identities preserved in which the questionnaire did not contain identification data. The data were inserted in the programs Word 2007 and Excel, were analyzed and tabulated, in which they are exposed in the work in the form of table by means of descriptive statistics.

### 3. RESULTS AND DISCUSSION

The research revealed that the predominant gender were female 15 (89%), which reaffirms the maintenance of the predominance of this gender in the nursing profession. The characterization of nursing workers, involved in the study, confirms the findings in other researches, in which the largest number of professionals is female, which, according to the literature, would be justified by the historical characteristics, in which care was always linked To women, in addition to possessing characteristics of motherhood and the taste for caring for children, showing a greater performance of this sex in pediatric units<sup>8</sup>.

According to the table below, in relation to the age group we can observe a higher number of employees in the group comprised over 20 years and 30 years, respectively 9 (53%) and 7 (41%). A small portion, 1 (6%) corresponds to the age group older than 40 years.

Regarding the training time, the workers have between 1 and 5 years of professional experience, corresponding 12 (71%) with more than 5 years and 12 (29%) with more than 1 year working in nursing care. However, 17 (100%) of the respondents work less than 1 year in this sector of pediatric intensivism, as described in Table 1. It is perceptible that the experience or training of the nursing team during this period will be directly related to the preparation of the Professional approach to coping with care situations.

**Table 1. Characterization of the profile of nursing professionals working in the Pediatric ICU sector of a public hospital in the interior of Rondônia. Cacoal / RO, 2016.**

Variables	N	%
<b>Gender</b>		
Female	15	89%
Male	2	11%
<b>Age Group</b>		
Greater than 20 years	9	53%
Greater than 30 years	7	41%
Greater than 40 years	1	6%
<b>Nursing service time</b>		
Greater than 5 years	12	71%
Greater than 1 year	5	29%
<b>ICU Service Time</b>		
Less than 1 year	17	100%

**Source:** Couto, Viana, Souza. 2016.

Recognizing the signs of CRP, maintaining a sequence of CPR care to the patient with ease and security, arranging and organizing equipment, are characteristics of a well-trained and updated nursing team<sup>1</sup>. The survival of a CRP victim is linked to the quality of life<sup>10</sup>. The research evidenced according to table 2, 17 (100%) of the nursing team reported knowing the new guidelines through training and did not present difficulties in CPR care. The number of visits performed in CPR is more than 4 times (42%), between 3 and 4 times (29%) and between 2 and 1 times (29%). In Article 14 of the Code of Ethics of Nursing Professionals, updating of professionals must be frequent, it is their duty to "improve technical,

scientific, ethical and cultural knowledge for the benefit of the person, family and community and the development of the profession"<sup>4</sup>.

**Table 2. Affirmations reported by nursing professionals working in the Pediatric ICU sector of a public hospital in the interior of Rondônia. Cacoal / RO, 2016.**

Variables	N	%
<b>Know the new CPR guidelines</b>		
Yes	17	100%
<b>Training on new CPR guidelines 2015</b>		
Yes	17	100%
They do not present difficulties in the CPR process	17	100%
<b>Amount of CPR you have ever attended</b>		
More than 4 times	7	42%
Between 3 and 4 times	5	29%
Between 2 and 1 times	5	29%

**Source:** Couto, Viana, Souza. 2016.

On theoretical-practical knowledge involving emergencies as in CRP all areas need knowledge, especially of the nurse who leads the nursing team. For this reason the training and updating of professionals must be constant<sup>11</sup>.

Table 3 shows that through the questionnaire applied to the team, according to the new protocol of CPR 2015, it was identified that there were doubts of the professionals in all the questions. Being that 100% stated previously they do not have doubts and to be updated. An expressive percentage in this table being only 6 (35%) of the professionals answered correctly on the correct CAB sequence, being this the first assistance given to the patient<sup>1</sup>. As recommended in CPR 5, CPR is started according to a CAB care sequence, the letter C being for circulation and compressions with pulse palpation, A for Airways, B for breath. The time of observation and beginning of the patient care is primordial, because irreversible alterations of the neurons of the cerebral cortex can occur. The evaluation of the patient should not take more than 10 seconds and the absence of resuscitation maneuvers should not exceed approximately five minutes<sup>12</sup>.

Brazilian data obtained in the datasus show that 35% of deaths in Brazil are due to cardiovascular causes in 300,000 cases annually. Already in the United States, it is estimated that 250,000 sudden deaths occur each year from coronary causes. No clinical situation exceeds the priority of CRP care, in which the speed and effectiveness of the interventions adopted are crucial to a better outcome of care. The approach of this theme by the methodology of evidence-based medicine allows to apply the most appropriate therapeutic measures and systematized, aiming at the best result<sup>13</sup>.

Improving knowledge related to procedures is a team duty<sup>11</sup>.

When questioned about approaching the patient with CPR signals 15 (83%) correctly matched, according to the protocol. In relation to the advanced procedures of life that are more invasive procedures to the patient performed frequently in an ICU, only 4

(23%) responded with exactness. In the training of nurses and technicians the practical and theoretical content related to CRP and CPR have been given in a superficial and limited manner which may cause future difficulties in their daily work. Because only professional experience does not provide sufficient theoretical bases to fill this deficit<sup>14</sup>.

The questions related to the dosage of medications (adrenaline and amiodarone) most used in resuscitation 10 (59%) matched, chest compressions and ideal depth 11 (65%) responded according to the literature<sup>14</sup>. A possible solution to avoid errors and perform maneuvers effectively is the standardization of CPR conducts. Forming a unique language for professionals, creating greater team involvement.

As described in article 11 of Law 7,498 / 86, regulated by Decree 94,406 / 87 (COFEN, 1987), nurses' competences begin in the planning of nursing care, being the direct care of nursing the critical patient with risk of death. In the data collection, only 7 (41%) on nurses' competencies and 13 (76%) on the competencies of the nursing technician in CPR.

The survival of a CRP victim is linked to the quality of the lifeguards' care. Less than 1/3 of the patients in CRP are submitted to a quality CPR. Therefore expanding teaching access, methods of improvement and development is directly linked to the success of CPR maneuvers<sup>10</sup>. In view of these considerations, it is apparent how relevant this issue is. A worldwide public health problem, where the nursing team has a fundamental role in contributing and reducing deaths, through the systematization of nursing. In the ICU, the team provides care to the patient at all times, they are the professionals who have the most access to the patient full time. Therefore the team should be prepared to identify the CPR signals and intervene promptly with CPR.

**Table 3. Evaluation of the theoretical knowledge of the nursing professionals working in the pediatric ICU sector of the public hospital in the interior of Rondônia, referring to the RCP 2015 protocol, answered correctly. Cacoal / RO, 2016.**

Variables	N°	%
Accuracies in the approach to the patient with signs of CPR	15	83%
Adrenaline dosage adjustments	10	59%
Adjustments in the sequence recommended in the CAB	6	35%
Adjustments number of compressions and ideal depth	11	65%
Adjustments of amiodarone dosage	10	59%
Adjustments advanced life procedures	4	23%
Adjustments of competencies of the nurse for CPR		
Adjustments competencies of the nursing technician in front of CPR	7	41%
	13	76%

Source: Couto, Viana, Souza. 2016.

## 5. CONCLUSION

The results of this study identified that most of the interviewees are aware of the new guidelines for CPR for the pediatric patient, since they affirmed that they participated in training on the subject in question,

however, it was identified that there were doubts among professionals in all questions theoretical knowledge including medication dosage, number of compressions and depth, and on the competencies of the respective technical professionals and nurse before a CPR. During the course of this research, we noticed the complexity when we refer to CRP and pediatric CPR in the ICU, the nursing team's behaviors are directly linked to the patient's prognosis. Since nursing assistance to the victim of CRP does not occur with quality and precision, iatrogenic events may occur, which are understood as events that generate some kind of harm to the patient's health, and may or may not be motivated by human failure.

Continuing education is a great ally in the quality of service, to combat misconceptions committed in CPR, noting that this is not a new subject for professionals, and their practices are increasingly frequent in all sectors of patient care. Thus, we suggest that the nursing team participate in periodic training courses and permanent education, to update theoretical and practical knowledge, thus favoring systematized learning and minimizing errors in care practice.

In this way, it is expected that new research in this area can also collaborate with the necessary importance and awareness necessary for nursing staff, mainly because it is emergency care and the patient is in critical condition.

## REFERENCES

- [01] Madeira & Guedes. Parada cardiorrespiratória e ressuscitação cardiopulmonar no atendimento de urgência e emergência: uma revisão bibliográfica. 2010. [http://www.unilestemg.br/enfermagemintegrada/artigo/V3\\_2/06-parada-cardiorrespiratoria-e-ressuscitacao-cardiopulmonar.pdf](http://www.unilestemg.br/enfermagemintegrada/artigo/V3_2/06-parada-cardiorrespiratoria-e-ressuscitacao-cardiopulmonar.pdf) Acessado em 14 de março de 2016.
- [02] Pazin-Filho, *et al* 2003. Parada Cardiorrespiratória (PCR). Disponível em: [http://revista.fmrp.usp.br/2003/36n2e4/3\\_parada\\_cardiorrespiratoria.pdf](http://revista.fmrp.usp.br/2003/36n2e4/3_parada_cardiorrespiratoria.pdf) acessado em 22 de abril de 2016.
- [03] Gonzalez, *et al*, I Diretriz de Ressuscitação Cardiopulmonar e Cuidados Cardiovasculares de Emergência da Sociedade Brasileira de Cardiologia. 2013. Disponível em: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0066-782X2013003600001](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0066-782X2013003600001). Acesso em 14 de março 2016.
- [04] Coren, Conselho Regional de Enfermagem de São Paulo. Relação entre compressão torácica e ventilação artificial durante atendimento à parada cardiorrespiratória em adulto, 2010. Disponível em: [http://www.coren-sp.gov.br/sites/default/files/007\\_2010%20-%20PCR\\_Atualizado.pdf](http://www.coren-sp.gov.br/sites/default/files/007_2010%20-%20PCR_Atualizado.pdf). Acesso em: 14 de março 2016.
- [05] American Heart Association. 2015. Disponível em: [http://www.heart.org/HEARTORG/General/AboutAmericanHeart\\_UCM\\_452487\\_Article.jsp#About](http://www.heart.org/HEARTORG/General/AboutAmericanHeart_UCM_452487_Article.jsp#About). Acessado em 22 de abril de 2016.
- [06] Almeida AO, *et al*. Conhecimento teórico dos enfermeiros sobre parada e ressuscitação



- cardiopulmonar, em unidades não hospitalares de atendimento à urgência e emergência. *Rev. Latino-Am. Enfermagem*, Ribeirão Preto. 2011; 19(2). Disponível em: Acesso em 09 set. 2016.
- [07] Palhares, *et al* 2014. Avaliação e capacitação da equipe de enfermagem para o atendimento da parada cardiorrespiratória em uma unidade de terapia intensiva de um pronto socorro. *Revista de enfermagem UFPE online*. Disponível em: [www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/download/.../9238](http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/download/.../9238) acessado em 22 de abril de 2016.
- [08] Oler F, Viera MRR. O Conhecimento da equipe de enfermagem sobre a criança hospitalizada. *Arq Ciênc Saúde*. 2013; 13(4):192-197.
- [09] Graça & Valadares. O (re)agir da enfermagem diante da parada cardiopulmonar: um desafio no cotidiano. *Esc Anna Nery Rev Enferm*. 2008. Setembro. Disponível em: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1414-81452008000300003](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452008000300003) . Acesso em 14 de março 2016.
- [10] Quilici & Timerman. Suporte Básico de Vida - Primeiro Atendimento na Emergência Para Profissionais da Saúde. Editora: Manole. 2011. 1ª edição.
- [11] Araujo LP, *et al*. Conhecimento da equipe de enfermagem sobre o protocolo ressuscitação cardiopulmonar no setor de emergência de um hospital público. São José dos Campos – SP, Dezembro de 2012. Disponível em: <http://revista.univap.br/index.php/revistaunivap/article/view/106> . Acesso em: 26 setembro 2016.
- [12] Smeltzer CS, Bare GB, Brunner & Suddarth. Tratado de Enfermagem Médico-Cirúrgica. Rio de Janeiro: Editora Guanabara-Koogan. 2009; 11.
- [13] Martins HS. Neto RAB. Neto AS, Velasco IT. Emergências clínicas – abordagem práticas. 2012.
- [14] Margarete CB, *et al*. Capacitação teórica do enfermeiro para o atendimento da parada cardiorrespiratória. *Revista brasileira de enfermagem REBEN*. Campinas – SP, novembro. de 2010.