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ORIGINAL ARTICLE

CARDIORESPIRATORY ARREST AND CARDIOPULMONARY RESUSCITATION: EXPERIENCES OF THE NURSING UNDER THE LOOK OF THE CRITICAL INCIDENT TECHNIQUE

PARADA CARDIORRESPIRATÓRIA E RESSUSCITAÇÃO CARDIOPULMONAR: VIVÊNCIAS DA EQUIPE DE ENFERMAGEM SOB O OLHAR DA TÉCNICA DO INCIDENTE CRÍTICO

PARADA CARDIORRESPIRATORIA Y RESUCITACIÓN CARDIOPULMONAR: EXPERIENCIAS DE ENFERMERÍA BAJO LA MIRADA DE LA TÉCNICA DEL INCIDENTE CRÍTICO

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ABSTRACT

Objective: to establish the critical care requirements in providing care for cardiorespiratory arrest (CRA) and in performing cardiopulmonary resuscitation (CPR) by the nursing team, in an emergency unit, by using the Critical Incident Technique. **Methodology:** descriptive study, with a qualiquantitative approach and use of the Critical Incident Technique, conducted with 27 nursing professionals in an emergency unit. Data collection was performed by means of a semi-structured questionnaire and a stimulus question, after approval by the Research Ethics Committee, under the Protocol 6790/2011. **Results:** five categories of critical incidents emerged, with a prevalence of that concerning competences of care for CRA/CPR, subdivided to characterize nursing team's skills in CRA/CPR. **Conclusion:** care for CRA requires fast and assertive conducts, ruled by competences and skills. Therefore, it must be immediate, systematized, and qualified, primary requirements for patients' safety, reducing the difficulties identified by the team and favoring the chances of resuscitation. **Descriptors:** Cardiorespiratory Arrest; Cardiopulmonary Resuscitation; Nursing; Critical Incident Technique; Emergency Medical Services.

RESUMO

Objetivo: estabelecer as exigências críticas no atendimento à parada cardiorrespiratória (PCR) e na realização da ressuscitação cardiopulmonar (RCP) pela equipe de enfermagem, em uma unidade de emergência, utilizando a Técnica do Incidente Crítico. **Metodologia:** estudo descritivo, com abordagem qualiquantitativa e uso da Técnica do Incidente Crítico, realizado com 27 profissionais de enfermagem de uma unidade de emergência. A coleta de dados foi realizada por meio de questionário semiestruturado e uma pergunta-estímulo, após aprovação do Comitê de Ética em Pesquisa, sob o Protocolo n. 6790/2011. **Resultados:** cinco categorias de incidentes críticos surgiram, prevalecendo a das competências do atendimento à PCR/RCP, subdividida para caracterizar as habilidades da equipe de enfermagem na PCR/RCP. **Conclusão:** o atendimento à PCR exige condutas rápidas, assertivas e pautadas em competências e habilidades. Deve ser, portanto, imediato, sistematizado e qualificado, requisitos básicos para a segurança dos pacientes, reduzindo as dificuldades identificadas pela equipe e favorecendo as chances de reanimação. **Descritores:** Parada Cardiorrespiratória; Ressuscitação Cardiopulmonar; Enfermagem; Técnica do Incidente Crítico; Serviços Médicos de Emergência.

RESUMEN

Objetivo: establecer los requisitos críticos en la atención al paro cardiorrespiratorio (PCR) y en la realización de la reanimación cardiopulmonar (RCP) por el equipo de enfermería, en una unidad de emergencia, utilizando la Técnica del Incidente Crítico. **Metodología:** estudio descriptivo con abordaje cualiquantitativo y uso de la Técnica del Incidente Crítico, realizado con 27 profesionales de enfermería de una unidad de emergencia. La recogida de datos se realizó mediante un cuestionario semi-estructurado y una pregunta de estímulo, después de la aprobación del Comité de Ética en Investigación, bajo el Protocolo 6790/2011. **Resultados:** cinco categorías de incidentes críticos surgieron, con prevalencia de aquella de las competencias de la atención al PCR/RCP, subdividida para caracterizar las habilidades del equipo de enfermería en la PCR/RCP. **Conclusión:** la atención al PCR requiere conductas rápidas, asertivas y pautadas por competencias y habilidades. Por lo tanto, debe ser inmediata, sistemática y calificada, requisitos básicos para la seguridad de los pacientes, reduciendo las dificultades identificadas por el equipo y favoreciendo las posibilidades de reanimación. **Descriptor:** Paro Cardiorrespiratorio; Reanimación Cardiopulmonar; Enfermería; Técnica del Incidente Crítico; Servicios Médicos de Emergencia.

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INTRODUCTION

Cardiorespiratory arrest (CRA) is the most critical emergency situation among all emergency situations cared for in pre- and in-hospital services. Sudden death is a leading cause of death in industrialized countries and it is a major public health issue in many countries. About 95% of CRA victims die before arriving at the hospital. The survival rate for victims of CRA occurring outside the hospital environment remains low.¹⁻³

Despite CRA is regarded as the most frequent event outside a hospital environment, within the hospital is also a major cause of morbidity and mortality.⁴

Estimates of the annual number of cardiac arrests outside the hospital vary widely; the United States estimates that around 330,000 people die every year in this situation.⁵ Cardiovascular diseases are prevalent as the leading cause of mortality in Brazil and in the world and they also represent the main cause of disability. In Brazil, just as around the world, acute myocardial infarction has a significant impact in terms of mortality and number of hospitalizations, a finding that is also observed both in São Paulo state and city.⁶⁻⁸

CRA is defined by the sudden occurrence of blood flow interruption, resulting in loss of consciousness, and it is responsible for high morbidity and mortality, even in ideal situations of care, with a survival rate of about 17% in Brazil.¹⁻³

During the provision of care for CRA, time is a significant variable, it is estimated that for each minute the victim remains without cardiopulmonary resuscitation (CPR), about 10% of her/his chance of survival is decreased, that is why most victims die outside the hospital without intervention by the health team.^{2,5} The actions that increase chances of survival for victims at risk of sudden death are named *adult survival chain*, followed by primary life support (PLS) and advanced life support (ALS).^{1,9}

According to the American Heart Association (AHA)⁵, ALS is provided to patients within the hospitals by multidisciplinary teams, such as the medical and the nursing teams, combining invasive procedures to equipment and drugs available in the institutions, regardless of the hospital sector.^{10,11}

Thus, the InterAmerican Heart Foundation (IAHF) emphasizes that the diagnosis of CRA is clinical and observed when the following signs are present in the patient: loss of consciousness, gasping for breath or apnea,

and absence of pulse in large arteries, and the clinical sign of certainty is absence of carotid pulse.^{1,5,9}

CPR is recognized as the maneuvers used to promote circulation of oxygenated blood around the body, especially the heart and brain, in an attempt to keep tissue viability, until spontaneous ventilatory and cardiac functions are recovered.¹⁰

Sudden cardiac arrest is the leading cause of death in Europe and it affects between 350,000 and 700,000 individuals per year, representing about 30% of the population. In these situations, the initial rhythm found is ventricular fibrillation, which is a chaotic rhythm characterized by rapid ventricular depolarization and repolarization.¹² Other rhythms can occur, also in the form of pulseless ventricular tachycardia, pulseless electrical activity, and asystole, but with a lower incidence.^{8-10,13}

The presence of a trained and qualified team to identify PCR as early as possible is crucial so that care, through PLS and ALS in CPR, is effective. It is emphasized that the science of CPR keeps on advancing and the clinical guidelines are updated regularly to reflect this development and advise health professionals to improve their practices.^{8,10,11}

OBJECTIVE

To establish the critical requirements in care for CRA and in CPR performed by the nursing team in an emergency unit, by using the Critical Incident Technique (CIT).

METHODOLOGY

Article prepared from the dissertation **Cardiorespiratory arrest and cardiopulmonary resuscitation: experiences of the nursing team of a school hospital**, submitted to the Graduate Nursing Program of the School of Nursing of Ribeirão Preto of the University of São Paulo. Ribeirão Preto-SP, Brazil. 2012.

This is an exploratory, cross-sectional, research where we used a qualitative approach and CIT¹⁴ as reference to the methodological procedures.

The study was conducted at the emergency unit of a teaching hospital in São José do Rio Preto, São Paulo, Brazil, which cares for clinical and surgical patients and works as a referral center for the local population and people from other states, having materials and cutting-edge technology to provide its patients with assistance.

The sample of this study consisted of 27 nursing professionals who work at the

emergency unit of this hospital and they agreed to participate in the research. The saturation index of the nursing team members was determined by using the qualitative research principle with critical incidents.

Data collection was conducted in February and March 2012, by means of a semi-structured script to assess critical incidents in the emergency unit. This instrument was submitted to appearance and content validation by five members of the nursing team involved in the analysis, and there was no need for reformulations. It consisted of two parts: 1) sociodemographic and professional data of the nursing team, prepared with closed and combined questions; 2) a stimulus question, which was related to the research purpose.

The question prepared was: “Could you think of your work, in a situation of CRA and in CPR maneuvers you have witnessed or participated in? How did the case take place and what were the conducts adopted and the consequences of this situation?”.

We asked a detailed account of a CRA/CPR situation experienced or witnessed, making it clear that the time when the fact happened was not significant, since the memory was complete and accurate. The subjects’ accounts were recorded and, soon after conducting each of them, the professional heard her/his interview, validated it, and, if needed, adjusted her/his answer. The reports recorded were fully transcribed and meaningful data were identified and grouped.

Then, we applied Content Analysis to the reports and identified the positive and negative critical incidents, analyzed in four phases: 1) Reading, derivation, and selection of critical incidents; 2) Identification of situations, behaviors, and consequences; 3) Grouping of accounts according to the

situations, behaviors, and consequences; 4) Categorization of situations, behaviors, and consequências.¹⁴

For the analysis of quantitative data we used descriptive statistics, by means of simple frequency distribution. Categories were created through the responses of professionals interviewed, and the qualitative results were expressed by the subjects’ speeches.

The study was approved by the Research Ethics Committee of the Faculty of Medicine of São José do Rio Preto (FAMERP), under the Protocol 6790/2011 and the Opinion 432/2011.

RESULTS

Among the 27 nursing professionals who participated in this study, 10 were nurses (37%) and 17 nursing technicians (63%). The fact that 9 out of the 10 nurses were specialists in emergency care stood out.

There was a predominance of male nurses, whose age varied between 30 and 31 years, Catholic religion, married or divorced individuals, and no children. Most professionals with Higher Education attended a specialization course and they had from 3 to 5 years after graduation and the same length of time working in the emergency service. A large part of professionals with High School was aged between 31 and 40 years, 11 to 15 years after graduation, and from 6 to 10 years working in the emergency service.

We identified 31 situations representing critical incidents in the emergency unit. These situations were analyzed and grouped into 5 broad categories: 1) Competences to care for CRA/CPR; 2) Feelings and emotions among the nursing team members in face of CRA/CPR; 3) Structure and environment in CPR; 4) Adverse events regarding CRA/CPR; and 5) Nursing team training (Table 1).

Table 1. Distributions of the categories of critical incidents related to CPR maneuvers according to the account of emergency unit nursing professionals (n = 31). São José do Rio Preto, 2012.

Categories of critical incidents in face of CPR	n	Percentage (%)
Competences to care for CRA/CPR	23	74.2
Feelings and emotions among the team in face of CRA/CPR	3	9.7
Structure and environment in CPR	2	6.5
Adverse events regarding CRA/CPR	2	6.5
Nursing team training	1	3.1

The critical incident reported most often was “Competences to care for CRA/CPR”, with 23 reports, corresponding to 74.2%. Hence, this critical incident was selected to discussion in this article. This category of

critical incident was subdivided according to the organization of skills: cognitive skills, interpersonal skills, technical skills, and ethical and legal skills (Table 2).¹⁵

Table 2. Distributions of skills required to care for CRA/CPR reported by emergency unit nursing professionals (n = 23). São José do Rio Preto, 2012.

Skills required to care for CRA/CPR	n	Percentage (%)
Cognitive skills	12	52.2
Interpersonal skills	6	26.1
Technical skills	4	17.4
Ethical/legal skills	1	4.3

Cognitive skills, defined as theoretical knowledge related to a situation or action¹⁵, were observed in 12 reports (52.2%), representing more than half of all abilities shown within this category of critical incident.

The nursing team that has scientific theoretical knowledge on CRA/CPR covered conceptually the nature of actions to provide good quality assistance in face of such an event. Thus, there were reports regarding early and late recognition of CRA, early and late onset of compressions, knowledge and lack of knowledge about the new guidelines according to AHA⁵, and knowledge about the protocol of drugs, specialized CRA in adult situations, which imply conditions relevant to success or failure in CPR maneuvers performed by health professionals.

[...] drug cycles, right? [...] then, we used adrenaline and atropine, now, currently, we use only adrenaline, you know [...] the cardiac massage had already been initiated, while the doctor was intubating [...] it was very quick, indeed, the patient was treated quickly [...] and defibrillation was also fast [...]. (R3)

Interpersonal skills as for the positive and negative aspects were observed in 6 reports (26.1%) and they highlighted the good interpersonal relationship between team members in an agile development of CPR, as well as the lack of teamwork:

[...] she had triple lumen during the arrest. The team of residents could not say to us if it was possible to provide medication there [...] the drugs in the triple lumen arrest. While they were discussing it, asking to each other, we were already in the second option [...] puncturing another venous access, trying to punch another venous access [...]. (R1)

Given the technical skills, which represented 17.39% of reports, easy or difficult things in deploying key techniques during care for CRA/CPR, such as endotracheal intubation by the medical team, were highlighted, difficult things when performing chest compressions or performing them effectively and/or improperly, leading to the occurrence of more injuries.

Positive and negative technical skills were observed in 4 reports (17.39%), as shown in the account below.

[...] even this way, the patient was intubated, after more than thirty minutes

trying to intubate the patient he succeeded. He intubated the first time in the stomach, then he intubated in the stomach again, in the third time he really intubated the patient [...] but it was not as effective. The usual drugs of the service were introduced [...]. (R7)

Ethical and legal skills show some nursing and medical actions that relate to the ethical and legal professional practice and represented 4.3% of reports within this subcategory of critical incidents. The injuries caused by unnecessary CPR maneuvers in cases with closed and terminal diagnoses, as well as the decision to cease or not CPR maneuvers, were highlighted in the subjects' speeches:

[...] that we should look at all patients this way, behind this weak body, sick, motionless, there is a whole life story [...] and a dream that perhaps ended at the time you gave up the resuscitation maneuver. (R5)

The critical requirements in care for CRA/CPR have determined a number of activities related to the systematization of care in the event of CRA/CPR, the ethical and legal aspects, adverse events, feelings and emotions and the development of nursing professionals' competences and skills, and those of the team, focused on training courses, with an emphasis on the updated recommendations provided by AHA.

DISCUSSION

The sociodemographic and professional characteristics of subjects under analysis in this study were similar to those of other ones: age, time after graduation, and length of time working in the service.¹⁶⁻¹⁸

The length of time working in emergency care, associated with time since graduation, is a major factor in emergency care, as it impacts on the early identification of signs of worsening in patients and the prevention of stressful events, such as CRA/CPR, among the nursing team members.¹⁷

Most professionals with Higher Education had 3 to 5 years since graduation, while most professionals with High School education had from 11 to 15 years. These data support a study showing that the urgency and emergency teams have been led by nurses with little time of academic education.¹⁸

The reduced length of experience in the profession may be one of the difficulties faced by nursing professionals at the beginning of their careers, especially in the urgency and emergency sector, where care should be guided by specific competences and skillfully done, in accordance with scientific evidence.^{8,19}

Competence may be defined as a common sense word used to designate a qualified person to do something. It represents a set of knowledge, skills and attitudes within a set of human capacities that will justify a high performance, in the belief that the best performances are based on people's intelligence and personality, this way, it can be noticed as a stock of resources that an individual possesses.²⁰

In this context, competences in face of CRA/CPR must be improved both in the PLS and in ALS, by means of training, studying new protocols and international guidelines, so that health professionals improve their theoretical and practical grounding in face of CRA maneuvers, as well as their quality.¹¹

Some studies translate the need for education and training among nursing professionals who care for CRA/CPR, lasting from 30 minutes to 8 hours at least, in order to reinforce the practices and absorb reliable theoretical knowledge, promoting safe and good quality care.^{16,21,22}

Cognitive skills, defined as theoretical knowledge regarding a situation or action, were observed in 12 reports (52.2%), representing more than half of all the skills presented within this category of critical incidents.¹⁴ Thus, the nursing team provided with scientific theoretical knowledge about CRA/CPR covered conceptually the nature of actions to provide good quality care in face of such an event.

PLS and ALS in cardiology should be performed by health professionals and lay individuals correctly, by following a sequence systematized and preset by the international protocols.^{8,9,23}

The CRA/CPR protocols are undergoing changes and updates over the decades, through specialized research on the theme, with the purpose of reducing time to care for CRA/CPR, improving quality of care, and reducing cardiac and brain injuries.^{8,23-4}

In the event of a CRA, health professionals employ a set of medical and nursing procedures, such as external chest compression, artificial pulmonary ventilation, and other therapy measures, such as defibrillation, in order to provide the patient

with CRA. Therefore, it is important that every professional knows about CRA and the maneuvers making up CPR in PLS and ALS, to make quick, safe, and effective decisions, avoiding chaos and panic, ensuring good quality care for the victim, with a guaranteed better prognosis.^{8,25,26}

Interpersonal skills observed in this study corroborate some authors who point out that engagement between team members and the provision of care together favor the performance of CPR maneuvers in an effective manner.^{21,27}

The lack of communication between team members is among the factors that hinder organization of care and promote its poor quality.¹⁵

The technical skills pointed out in this study support the concepts that the execution of correct techniques in the shortest period facilitates and optimizes the resuscitation time for a patient, having in mind that time means life in CRA. Thus, the team providing victims of CRA with care and performing CPR maneuvers should develop technical skills so that the care actions are safe, quick, and effective. These skills can be improved by means of training sessions, workshops, or clinical work experience.^{3,11,21,22,26}

The ethical and legal skills show some actions of the medical and nursing teams that relate to professional practice. The injuries caused to patients during unnecessary CPR maneuvers in cases with closed and terminal diagnoses, as well as the decision to cease or not CPR maneuvers were highlighted in subjects' speeches.

The ethical and legal issues in face of CPR maneuvers are always conflicting, because they involve legislation, protocols, patients' rights and, therefore, it is much feared by health professionals who work in emergency units and face these dilemmas and conflicts on a daily basis. It is noteworthy that these services have, most of the time, overcrowding, scarce human, physical, and technological resources, inadequate physical structure, with small space to receive users, something which may favor the occurrence of mistakes related to the execution of procedures.²⁸

Some rules must be followed concerning the standardization of non-resuscitation.⁵ Excessive resuscitation with no return of spontaneous circulation, no use of shock, and CRA not witnessed by the emergency medical service team are considered as rules for CPR interruption.^{9,29} It is also noteworthy the difficulty to apply the *order not to resuscitate*, often related to the ethical

implications and the presence of a family member and her/his opinion about the life and death of the loved one.²⁹⁻³¹

The critical requirements identified in this research were related to the development of nursing professionals' competences and skills when providing care for an emergency situation, involving assistance, management, and teaching.

The critical requirements related to teaching consisted in the adoption of in-service continuing education measures with an emphasis on recommendations and updates of AHA Guidelines⁵ in care for adults and children, encouraging the regular organization of training courses, and investing in staff training as new professionals join the team.

It is noteworthy that, in this health team training process, some major aspects in patient care should be considered: wave-shaped quantitative capnography, recommended for confirming and monitoring endotracheal tube placement and CPR quality; that traditional CRA algorithm was simplified and an alternative conceptual scheme was devised to emphasize the importance of high-quality CPR; that there is greater emphasis on physiologic monitoring to optimize CPR quality and detect CPR; that atropine is no longer recommended for routine use in the treatment of pulseless electrical activity; that systematic care after CRA and CPR must continue in an intensive care unit (ICU), with multidisciplinary specialized treatment and assessment of patients' neurological and physiological status, including management of therapeutic hypothermia.⁵

Organizing the best teaching and learning practices in CPR training for the medical and nursing teams should be encouraged, including: methods that increase people's willingness to care for CRA; active teaching strategies, such as simulation; discussing ways to cope with fear and panic in face of a victim in CRA; training of teamwork skills and leadership, periodic and effective assessments.⁵

In management, the critical requirements involved team motivation concerning the need for a safe, effective, and good quality care for a patient in CRA.⁵

There were several critical requirements related to care. The frequency of external chest compressions must be performed at least 100 times per minute, with a minimum depth of 5 cm, in at least 1/3 of the anterior-posterior chest diameter. Interruptions in chest compressions must be avoided as much as possible.⁵

Other actions related to care should include the encouragement and adequacy of rescue actions to the most likely cause of CRA among patients in the emergency room and, when witnessing a CRA event alone, the professional should ask immediately for help and seek a defibrillator. The health team should also quickly check if there is no breathing or if it is abnormal.⁵

Besides, in relation to care, it is crucial to ensure that chest compressions are started before rescue ventilation (C-A-B instead of A-B-C), observing 30 compressions for 2 rescue ventilations, while there is not a definitive airway; give continuing emphasis to the need for reducing the time between the last compression and use of shock and the time between use of shock and the immediate resumption of compressions; give emphasis to team CPR application.⁵

As more people arrive requiring care for CRA, the responsibility for activities inherent to CPR that would usually be executed in sequence by a smaller number of professionals may be delegated to a team, which is going to execute them simultaneously. Hence, training in primary life saving for health professionals should not only provide individual ability, but also teach them how to effectively engage in teamwork.⁵

We must also consider the ethical, legal, and cultural factors associated with the provision of care for individuals in need of resuscitation, guided by science, the individual's preferences or those of her/his representatives, as well as legal requirements and local action programs.⁵

CONCLUSION

This study points out major themes regarding the CPR science, which requires the development of feasible interventions to promote changes that reflect on the quality of care for CRA, with an emphasis on the updated recommendations provided by AHA.

Several issues should be investigated with this approach with regard to nursing practice in the context of CPR in the emergency room. Further studies are needed to determine whether the critical requirements set are effective to qualify the care provided to a patient in CRA.

REFERENCES

1. Luciano PM, Matsuno AK, Moreira RS, Schmidt A, Pazin-Filho A. Suporte básico de vida. Rev Soc Cardiol Estado de São Paulo [Internet]. 2010 [cited 2013 Sept 6];20(2):230-8. Available from:

<http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=570209&indexSearch=ID>

2. Moretti MA, Ferreira JFM. Um novo conceito: ressuscitação cardiocerebral. Rev Soc Cardiol Estado de São Paulo [Internet]. 2010 [cited 2013 Sept 10];20(2):224-9. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=570208&indexSearch=ID>

3. Timerman S, Gonzalez MMC, Abrão KC, Ramires JAF, Quilici AP, Lopes RD, et al. Ressuscitação no Brasil e no mundo e o ILCOR (Aliança Internacional dos Comitês de Ressuscitação): história e consenso 2010 de ressuscitação cardiopulmonar e emergências cardiovasculares. Rev Soc Cardiol Estado de São Paulo [Internet]. 2010 [cited 2013 Sept 10];20(2):207-23. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=570207&indexSearch=ID>

4. Thigpen K, Davis SP, Basol R, Lange P, Jain SS, Olsen JD, et al. Implementing the 2005 American Heart Association Guidelines, including use of the impedance threshold device, improves hospital discharge rate after in-hospital cardiac arrest. Respir Care [Internet]. 2010 [cited 2013 Oct 9];55(8):1014-9. Available from: <http://rc.rcjournal.com/content/55/8/1014.full.pdf+html>

5. American Heart Association [Internet]. Dallas: Guidelines CPR ECC; 2010 [cited 2010 Oct 25]. Destaque das Diretrizes da American Heart Association 2010 para RCP e ACE: [about 32 screens]. Available from: http://www.heart.org/idc/groups/heart-public/@wcm/@ecc/documents/downloadable/ucm_317343.pdf

6. Avezum A, Braga J, Santos I, Guimarães HP, Marin-Neto JA, Piegas LS. Cardiovascular disease in South America: current status and opportunities for prevention. Heart [Internet]. 2009 [cited 2010 Oct 25];95(18):1475-82. Available from: <http://heart.bmj.com/content/95/18/1475.full.pdf+html>

7. Dallan L AP, Timerman A. Síndrome coronária aguda - do pré-hospitalar a sala de emergência. Rev Soc Cardiol Estado de São Paulo [Internet]. 2010 [cited 2010 Oct 25];20(2):251-72. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=570211&indexSearch=ID>

8. Deakin CD, Nolan JP, Soar J, Sunde K, Koster RW, Smith GB, et al. Adult advanced life support. Resuscitation [Internet]. 2010 [cited 2013 Oct 9];81(10):1305-52. Available from: http://ac.els-cdn.com/S0300957210004430/1-s2.0-S0300957210004430-main.pdf?_tid=40401cf4-4d5e-11e4-b570-00000aacb360&acdnat=1412602972_0c95a019708736e34a2b64191ee2af8a

9. Deakin CD, Nolan JP, Sunde K, Koster RW. European Resuscitation Council Guidelines for Resuscitation 2010 Section 3. Electrical therapies: automated external defibrillators, defibrillation, cardioversion and pacing. Resuscitation [Internet]. 2010 [cited 2013 Nov 13];81(10):1293-304. Available from: http://ac.els-cdn.com/S030095721000434X/1-s2.0-S030095721000434X-main.pdf?_tid=a6b216f4-4d5e-11e4-ab17-00000aacb35f&acdnat=1412603144_148a7f431d5b9035fdc2e33bae7900f6

10. Gonzalez MMC, Timerman S. Suporte avançado de vida - adulto: inserindo uma nova corrente de sobrevivência. Rev Soc Cardiol Estado de São Paulo [Internet]. 2010 [cited 2013 Nov 13];20(2):239-50. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=570210&indexSearch=ID>

11. Soar J, Monsieurs KG, Ballance JH, Barelli A, Biarent D, Greif R, et al. European Resuscitation Council Guidelines for Resuscitation 2010 Section 9. Principles of education in resuscitation. Resuscitation [Internet]. 2010 [cited 2013 Dec 4];81(10):1434-44. Available from: http://ac.els-cdn.com/S0300957210004405/1-s2.0-S0300957210004405-main.pdf?_tid=37cb004c-4d5f-11e4-9df7-00000aacb35e&acdnat=1412603388_6c324345fb3e85c036322b151bc7420f

12. Koster RW, Baubin MA, Bossaert LL, Caballero A, Cassan P, Castrén M, et al. European Resuscitation Council Guidelines for Resuscitation 2010 Section 2. Adult basic life support and use of automated external defibrillators. Resuscitation [Internet]. 2010 [cited 2013 Dec 4];81(10):1277-92. Available from: http://ac.els-cdn.com/S0300957210004351/1-s2.0-S0300957210004351-main.pdf?_tid=a0cb6f3c-4d5f-11e4-a081-00000aacb35f&acdnat=1412603564_0b539301af71fede405cb0bdf4067a04

13. Handley AJ, Koster R, Monsieurs K, Perkins GD, Davies S, Bossaert L, et al. European Resuscitation Council guidelines for resuscitation 2005. Section 2. Adult basic life

support and use of automated external defibrillators. Resuscitation [Internet]. 2005 [cited 2014 Jan 23];67(Supl 1):S7-S23. Available from: http://ac.els-cdn.com/S0300957205004090/1-s2.0-S0300957205004090-main.pdf?_tid=da10a988-4d5f-11e4-a526-00000aab0f26&acdnt=1412603660_d92b54011b9b7da8bc5b78c10ff7e903

14. Dela Coleta JÁ, Dela Coleta MF. A técnica dos incidentes críticos: 30 anos de utilização no Brasil na Psicologia, Administração, Saúde e Educação. Taubaté: Cabral Editora e Livraria Universitária, 2004.

15. Taylor C, Lillis C, Lemone P. Fundamentos de enfermagem: a arte e a ciência do cuidado de enfermagem. 5. ed. Porto Alegre: Artmed; 2007.

16. Azevedo ALCS. Gerenciamento do cuidado de enfermagem em unidade de urgência traumática [dissertation]. Ribeirão Preto: Universidade de São Paulo; 2010.

17. Dochert B. Cardiorespiratory physical assessment for the acutely ill: 2. Br J Nurs [Internet]. 2002 [cited 2014 Jan 23];11(12):800-7. Available from: <http://content.ebscohost.com.ez58.periodicos.capes.gov.br/ContentServer.asp?T=P&P=AN&K=2003019136&S=R&D=c8h&EbscoContent=dGJyMMvl7ESeprQ4zdnyOLCmr0yep65Srqm4SbKWxWXS&ContentCustomer=dGJyMOzprkm1p7RLUePfgeyx44Dt6fIA>

18. Wiebbelling ED, Santos MF. Enfermagem em urgência e emergência no município de Foz do Iguaçu, Parana, Brazil. Rev Enferm UFPE on line [Internet]. 2009 [cited 2014 Mar 9];3(3):1-10. Available from: <http://www.corenpr.org.br/artigos/artigo.pdf>

19. Thomaz RR, Lima FV. Atuação do enfermeiro no atendimento pré-hospitalar na cidade de São Paulo. Acta Paul Enferm [Internet]. 2000 [cited 2014 Mar 9];13(3):59-65. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IscScript=iah/iah.xis&src=google&base=BDENF&lang=p&nextAction=lnk&exprSearch=10188&indexSearch=ID>

20. Fleury MTL, Fleury A. Construindo o conceito de competência. Rev Adm Contemp [Internet]. 2001 [cited 2014 Apr 8];(Esp):183-96. Available from: <http://www.scielo.br/pdf/rac/v5nspe/v5nspea10.pdf>

21. Aziz K, Chadwick M, Downton G, Baker M, Andrews W. The development and implementation of a multidisciplinary neonatal resuscitation team in a Canadian perinatal centre. Resuscitation [Internet]. 2005 [cited 2014 Apr 8];66(1):45-51. Available

from: http://ac.els-cdn.com/S0300957205000419/1-s2.0-S0300957205000419-main.pdf?_tid=4602f65c-4d63-11e4-92c1-00000aacb362&acdnt=1412605130_ca1486f8bd41286e897b0e27fa93fc93

22. Dwyer T, Williams LM, Jacobs I. The benefits and use of shock advisory defibrillators in hospitals. Int J Nurs Pract [Internet]. 2004 [cited 2014 May 5];10(2):86-92. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1440-172X.2003.00463.x/pdf>

23. Deakina CD, Nolanb JP, Sundec K, Koster RW. European Resuscitation Council Guidelines for Resuscitation 2010 Section 3. Electrical therapies: Automated external defibrillators, defibrillation, cardioversion and pacing. Resuscitation [Internet]. 2010 [cited 2014 May 4];81(10):1293-304. Available from: http://ac.els-cdn.com/S030095721000434X/1-s2.0-S030095721000434X-main.pdf?_tid=fecf9834-4d63-11e4-8b24-00000aacb35d&acdnt=1412605440_7a496ff2328eec9e4429d75934abe672

24. Timerman S, Paiva E, Tarasoutchi F. Suporte avançado de vida: implantação no Brasil e sua essência. Rev Soc Cardiol Estado de São Paulo [Internet]. 1998 [cited 2014 July 7];8(4):621-32. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IscScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=281853&indexSearch=ID>

25. Bartley PD, McDowell BM. You know you're an old nurse when. Am J Nurs [Internet]. 2002 [cited 2014 July 7];102(Supl):54-7. Available from: http://journals.lww.com/ajnonline/Fulltext/2002/05001/You_Know_You_re_an_Old_Nurse_When_The.13.aspx

26. Boaventura AP. Avaliação do processo ensino aprendizagem das manobras de ressuscitação cardiorrespiratória (RCP) utilizando o desfibrilador externo automático (DEA): alunos de graduação da área da saúde [thesis]. São Paulo: Universidade de São Paulo; 2010.

27. Tallo FS, Moraes Junior R, Guimarães HP, Lopes RD, Lopes AC. Atualização em reanimação cardiopulmonar: uma revisão para o clínico. Rev Soc Bras Clín Méd [Internet]. 2012 [cited 2013 Sept 6];10(3):194-200. Available from: <http://files.bvs.br/upload/S/1679-1010/2012/v10n3/a2891.pdf>

28. Murphy M, Fitzsimons D. Does attendance at an immediate life support course influence nurses' skill deployment during cardiac arrest? Resuscitation [Internet]. 2004 [cited 2013 Sept

6];62(1):49-54. Available from: http://ac.els-cdn.com/S0300957204000784/1-s2.0-S0300957204000784-main.pdf?_tid=72a87bda-4d65-11e4-b7e3-00000aacb35e&acdnt=1412606063_c8956805dc6a1f0743c401bd16db419

29. Rosa NG. Dilemas éticos no mundo do cuidar de um serviço de emergência [dissertation]. Porto Alegre: Escola de Enfermagem. Universidade Federal do Rio Grande do Sul; 2001.

30. Lippert FK, Raffay V, Georgiou M, Steen PA, Bossaert L. European Resuscitation Council Guidelines for Resuscitation 2010 Section 10. The ethics of resuscitation and end-of-life decisions. Resuscitation [Internet]. 2010 [cited 2013 Oct 12];81(10):1445-51. Available from: http://ac.els-cdn.com/S0300957210004399/1-s2.0-S0300957210004399-main.pdf?_tid=7e3fdfaa-4d66-11e4-86d4-00000aab0f01&acdnt=1412606512_32f66a7e56cf8108cd9f15eeaae3b018

31. DePalma JA, Ozanich E, Miller S, Yancich LM. "Slow" code: perspectives of a physician and critical care nurse. Crit Care Nurs Q [Internet]. 1999 [cited 2014 May 8];22(3):89-97. Available from: http://link.periodicos.capes.gov.br/ez58.periodicos.capes.gov.br/sfxlcl41?url_ver=Z39.88-2004&url_ctx_fmt=fi/fmt:kev:mtx:ctx&ctx_enc=info:ofi/enc:UTF-8&ctx_ver=Z39.88-2004&rft_id=info:sid/sfxit.com:azlist&sfx.ignore_date_threshold=1&rft.object_id=954927696952&svc.fulltext=yes

32. Hodde NM, Engelberg RA, Treece PD, Steinberg KP, Curtis JR. Factors associated with nurse assessment of the quality of dying and death in the intensive care unit. Crit Care Med [Internet]. 2004 [cited 2014 May 4];32(8):1648-53. Available from: http://ovidsp.tx.ovid.com/ez58.periodicos.capes.gov.br/sp-3.13.0b/ovidweb.cgi?WebLinkFrameset=1&S=KHJCFPEBKIDNMGINCLKMBFBMMFAAA00&returnUrl=ovidweb.cgi%3f%26TOC%3djb.search.31%257c1%257c50%26FORMAT%3dtoc%26FIELDS%3dTOC%26S%3dKHJCFPEBKIDNMGINCLKMBFBMMFAAA00&directlink=http%3a%2f%2fgraphics.tx.ovid.com%2fovftpdfs%2fFPDDNCFBMBGIK100%2ffs047%2fovft%2flive%2fgv031%2f00003246%2f0003246-200408000-00003.pdf&filename=Factors+associated+with+nurse+assessment+of+the+quality+of+dying+and+death+in+the+intensive+care+unit+%2a.&PDFIdLinkField=%2ffs047%2fovft%2flive%2fgv031%2f00003246%2f00003246-200408000-00003&link_from=jb.search.31%7c1&pdf_key=B&pdf_index=jb.search.31&D=ovft

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