Implantation Prehospital Emergency Course For Students And Healthcare Professionals

Implantação Do Curso De Emergências Pré-hospitalares Para Estudantes De Medicina

Implantación Del Curso De Emergencias Prehospitalarias Para Estudiantes De Medicina

RESUMO:
Objetivo: Relatar a experiência dos acadêmicos de medicina na implantação do curso de práticas pré-hospitalares em uma Universidade de Medicina. Método: Trata-se de um relato de experiência descritivo do curso realizado por acadêmicos de medicina com aulas teóricas e práticas sobre temas de emergências pré-hospitalares. Resultado: O curso de Emergências Pré-hospitalares (CEMEPH) teve 40 participantes, incluindo 39 estudantes de medicina e uma socorrista do SAMU. A avaliação demonstrou uma melhoria significativa no conhecimento dos participantes, com a maioria migrando dos níveis iniciais (graus 1 e 2) para os níveis avançados (graus 4 e 5) em áreas como RCP e extricação veicular. Conclusão: Esse relato demonstra através de cenários simulados, que o curso aproximou os alunos da realidade, melhorando significativamente seus conhecimentos. A eficácia do curso foi comprovada pelo aprimoramento demonstrado nos formulários de entrada e saída, destacando a importância da contínua atualização e capacitação técnica.
DESCRITORES: Curso de emergências pré-hospitalares; Suporte Básico de Vida; Medicina.

ABSTRACT:
Objective: To report on the experience of medical students in implementing a course in pre-hospital practices at a medical university. Method: This is a descriptive experience report on the course taken by medical students with theoretical and practical lessons on pre-hospital emergency issues. Results: The Pre-Hospital Emergencies course (CEMEPH) had 40 participants, including 39 medical students and a SAMU first-aider. The evaluation showed a significant improvement in the participants' knowledge, with the majority moving from initial levels (grades 1 and 2) to advanced levels (grades 4 and 5) in areas such as CPR and vehicle extrication. Conclusion: This report shows that the course brought students closer to reality through simulated scenarios, significantly improving their knowledge. The effectiveness of the course was proven by the improvement shown in the entry and exit forms, highlighting the importance of continuous updating and technical training.
KEYWORDS: Pre-hospital emergency course; Basic life support; Medicine.

RESUMEN:
Objetivo: Informar sobre la experiencia de estudiantes de medicina en la realización de un curso sobre prácticas prehospitalarias en una universidad de medicina. Método: Se trata de un informe descriptivo de la experiencia de un curso impartido por estudiantes de medicina con clases teóricas y prácticas sobre emergencias prehospitalarias. Resultados: El curso de emergencias prehospitalarias (CEMEPH) contó con 40 participantes, entre ellos 39 estudiantes de medicina y un socorrista del SAMU. La evaluación mostró una mejora significativa de los conocimientos de los participantes, que en su mayoría pasaron de niveles iniciales (grados 1 y 2) a niveles avanzados (grados 4 y 5) en áreas como la reanimación cardiopulmonar y la extracción de vehículos. Conclusión: Este informe demuestra que el curso acercó a los alumnos a la realidad a través de escenarios simulados, mejorando significativamente sus conocimientos. La eficacia del curso quedó demostrada por la mejora mostrada en los formularios de entrada y salida, enfatizando la importancia de la actualización continua y la formación técnica.
PALABRAS CLAVE: Curso de emergencias prehospitalarias; Soporte vital básico; Medicina.

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INTRODUCTION

Pre-hospital care involves a set of coordinated actions carried out by trained professionals before arrival at the referral center. The qualification of the team is essential to determine the patient's outcome, since emergencies require immediate, specialized and specific care. Given the imminent risk to the patient, effective care becomes essential. [1]

In this context, the Prehospital Care (PHC) service is characterized by the assistance provided to patients in emergency situations at the site of the event. With the advancement of new technologies and research in the area, PHC has evolved and improved, aiming to save lives and improve the prognosis of patients receiving care. This continuous improvement ensures that professionals are always prepared to face the most diverse types of emergencies. In addition, the incorporation of new practices and equipment allows for more efficient and effective care, reducing risks and increasing the chances of patient recovery. [2]

The Mobile Emergency Care Service (SAMU) is part of the emergency care network and aims to organize the flow of care, providing fast, adequate and efficient care to people affected by health problems, whether clinical, surgical, gynecological-obstetric, traumatic or psychiatric. To this end, SAMU provides vehicles manned by trained teams, which can be activated by dialing 192 through the Emergency Regulation Center. This service is regulated by Ordinance MS/GM No. 1,010, of May 21, 2012, and plays a fundamental role in reducing morbidity and mortality. [3]

The technical quality and training of healthcare professionals play a decisive role in the outcome of a patient, whether they are multiple trauma victims, victims of severe burns or cardiac arrest. PHC courses provide professionals with essential theoretical and practical knowledge to deal with emergencies, from cardiopulmonary resuscitation (CPR) techniques to the management of trauma and acute clinical conditions, which provides greater safety and competence to professionals. [4]

From this perspective, where constant updating is necessary to ensure alignment and standardization of procedures performed by

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the team, it is essential that there are courses aimed at preparing these professionals. Such courses must ensure that practices are in accordance with established protocols. A qualified course contributes to greater effectiveness of care and minimizes the risk of errors, increasing the safety of both professionals and patients. Therefore, this study aims to report the experience of medical students with the implementation of the Pre-Hospital Emergency Course at a medical university.

METHOD

This is a descriptive experience report on the implementation of the Pre-hospital Emergency Course (CEMEPH) carried out by medical students from the Academic League of Pre-Hospital Care (LAAPH), of the medical course of a private institution in the city of Várzea-Grande MT, which took place on May 24th and 25th, 2024, with a workload of 12 hours. Forty places were made available for students from the first to the twelfth semester of the medical course, as well as for health professionals interested in the area. Registration for participation in the course cost sixty reais, its opening and announcement took place thirty days before the event.

The course aimed to train league members and other interested students, offering practical and theoretical training for pre-hospital care in emergencies, such as car accidents, falls and trauma. Priority was given to students from the second semester onwards, as they already had basic knowledge in Basic Life Support (BLS) and Advanced Life Support (ALS), allowing them to better utilize the course.

The extension course was held in two stages, one theoretical and one practical, covering the following topics: rapid vehicle extrication, basic and advanced life support, primary assessment and hemorrhage control.

On the first day, the activities focused on theoretical classes taught by specialist professors, who used referenced material and reports of their own experiences in Pre-Hospital Care (PHC). These classes provided a solid theoretical basis for the practical activities developed the following day.

On the second day, students were divided into six groups and participated in practical activities organized into two periods: from 8:00 to 9:30 and from 10:00 to 11:30. Practical stations included: vehicle extrication (Station A), XABCDE trauma protocol and management of hypovolemic shock (Station B), and CPR inside an ambulance provided by SAMU (Station C). Each group spent 30 minutes at each station, supervised by the teachers of the theoretical classes. Anatomical dummies and student actors from LAAPH were used to simulate realistic scenarios, including a car for the vehicle extrication station.

To assess prior knowledge and learning acquired during the course, participants filled out a form before the start of the theoretical classes and another at the end of the practical classes. The form was developed by members of the league's scientific board, and the answers range from level 1 to level 5, so that the lower the level, the less knowledge, and the higher the level, the greater the knowledge on the topics. The same questions were repeated in the final form, filled out by participants at the end of the course, to measure knowledge gain.

Therefore, the project was developed from the following steps:

a. Analysis and organization of the topic, as well as preparation of a schedule and form to be filled out upon entry and exit of the course.

b. Theoretical classes taught by specialist professionals.

c. Practical stations supervised by the professionals who taught the theoretical classes.

Due to the methodological nature, approval by the Research Ethics Committee is not required in accordance with resolution no. 510/2016 of the National Health Council.

RESULT

The course had 40 participants, all of whom were medical students. The majority of participants were women (29), while there were 10 men and 1 paramedic. The distribution of students among the semesters was uneven: 5 from the first semester, 1 from the second, 11 from the third, 10 from the fourth, 6 from the fifth, 3 from the eighth and 3 from the twelfth. There were no participants from the seventh, ninth, tenth and eleventh semesters. This uneven distribution may reflect variations in the availability or interest of students at different stages of medical training.

Forms were designed to be filled out by participants at the beginning, before the theoretical classes, and at the end of the practical classes. The objective was to compare the participants' prior knowledge with the knowledge acquired after participating in the event. The table below illustrates the questions and answers obtained through the forms, but not all participants responded:

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Table 1: Initial form on medical students' prior knowledge regarding pre-hospital emergencies, 2024.

Initial form	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total*
How do you rate your level of knowledge about the signs of cardiopulmonary arrest?	6	5	13	9	1	34
How do you rate your level of knowledge about chest compression techniques in cardiopulmonary resuscitation?	7	3	9	14	1	34
How do you rate your level of knowledge about vehicle extrication techniques?	21	8	4	1	0	34
How do you rate your level of knowledge about the steps to be followed in the initial care of a polytrauma victim?	7	9	11	6	0	34
How do you rate your level of knowledge about the recommended immediate care for patients in hypovolemic shock?	13	9	9	4	0	34
How do you rate your level of knowledge about the recommended immediate care for patients in hypovolemic shock?	17	6	7	4	0	34

*Total number of course participants who answered the questions on the form
Source: Authors' own, 2024.

Table 2: Final form on medical students' knowledge of pre-hospital emergencies after participating in the course, 2024.

Initial form	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total*
After the CEMEPH, how do you rate your level of knowledge about the signs of cardiopulmonary arrest?	0	0	1	8	18	27
After the CEMEPH, how do you rate your level of knowledge about chest compression techniques in cardiopulmonary resuscitation?	0	0	2	6	19	27
After the CEMEPH, how do you rate your level of knowledge about vehicle extrication techniques?	0	1	5	12	9	27
After the CEMEPH, how do you rate your level of knowledge about the steps to be followed in the initial care of polytrauma patients?	0	0	3	9	15	27
After the CEMEPH, how do you rate your level of knowledge about the recommended immediate care for patients in hypovolemic shock?	0	0	2	13	12	27
After the CEMEPH, how do you rate your level of knowledge about the recommended immediate care for patients in hypovolemic shock?	0	0	1	11	14	27

*Total number of course participants who answered the questions on the form
Source: Authors' own, 2024.

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Quantitative results from the assessment forms showed significant improvement in participants' knowledge after the course. In the pre-test, many participants rated their knowledge at the lowest levels, such as level 1 and 2 in several areas, including signs of cardiopulmonary arrest, cardiopulmonary resuscitation techniques, vehicle extrication, initial care of multiple trauma victims, and care of patients in hypovolemic shock.

In the assessment of knowledge of signs of cardiopulmonary arrest (CPA), 11 participants were at levels 1 and 2 before the course. After the course, none of the participants remained at these levels, with the majority (18 participants) achieving level 5. Similar results were observed in other areas, demonstrating a notable migration from the lowest to the highest levels of knowledge.

The question on vehicle extrication techniques illustrates a significant change in participants' knowledge. In the pre-test, 29 participants scored at levels 1 and 2. In the post-test, all participants scored at levels 3 and above, with 21 of them at levels 4 and 5. This demonstrates a strong assimilation of the knowledge and practical skills taught during the course.

This analysis reveals that the event was highly effective in increasing participants' knowledge, especially in specific techniques and practices of pre-hospital care. The increase in self-confidence and competence levels in crucial areas such as signs of cardiorespiratory arrest, cardiopulmonary resuscitation techniques, vehicle extrication, initial care of multiple trauma victims and care of patients in hypovolemic shock highlights the effectiveness of the training provided.

Qualitative feedback reinforces these quantitative findings. Eight participants praised the organization of the course and expressed a desire for future editions, highlighting the experience as enriching and unique. Positive comments were also received personally by the organizers, indicating a general perception that the course provided a valuable opportunity to learn and practice essential skills.

The use of anatomical dummies and the participation of student actors were essential elements for the success of the practical simulations, allowing participants to apply theoretical knowledge in scenarios close to reality. The use of an ambulance and a real vehicle for extrication practice were also highlighted as components that increased immersion and effectiveness of the training. These practical resources not only facilitated learning, but also helped to build participants' confidence to act in real emergency situations.

In terms of logistics and administration, the course ran smoothly. Collaboration between teachers, organizers, and participants was efficient, and everyone involved showed commitment to the success of the event. This cooperation was essential to ensuring that the course ran as planned, ensuring a rich and uninterrupted learning experience.

DISCUSSION

The Pre-Hospital Emergency Care Course (CEMEPH) for students from the first to the twelfth semester of this medical school had a positive impact on the construction and improvement of their knowledge on the subject, which will significantly help in the quality and efficiency of the care provided to these future professionals.

Studies show that students generally have little preparation and confidence in performing Pre-Hospital Care (PHC), something essential for medical training. A descriptive observational study to assess students' understanding of the subject was conducted at the IMEPAC University Center in the city of Itaguari, Minas Gerais, with approximately 277 students. This research revealed that, although most students had significant knowledge about handling urgent and emergency situations, only 85 (30.69%) stated that they were prepared to deal with care for victims in stressful situations. [5] This shows the need for students to have more contact with theoretical and practical classes on the subject in order to not only build knowledge, but also to gain confidence and security in their own performance.

The proposal to present the content repeatedly in a differentiated manner shows signs of being an important factor in the consolidation of medical knowledge. This is in line with an exploratory, descriptive and cross-sectional study, with the participation of 245 students from the Medical School of the State University of Pará, in a survey that aimed to evaluate the knowledge of medical students about BLS, after repeated classes spaced throughout the medical course. In this study, it was observed that the number of students who felt confident to respond to emergency situations increased significantly, gradually, after each re-exposure to the content. [6] In view of this, although CEMEPH's feedback has been positive, a single edition may not be enough to answer all of the students' questions, and it is necessary to re-expose the student to the content at other times in order to obtain more lasting results.

It is also worth noting that the correct teaching and execution of the maneuvers involved in Basic Life Support are essential for minimizing the patient's sequelae, increasing survival and ensuring the stabilization of their vital functions until advanced care arrives. The importance of this initial intervention is described in a literature review published by the Brazilian Journal of Implantology and Health Sciences, a study in which the authors explain that the chances of survival of a patient in cardiorespiratory arrest increase significantly with the appropriate performance of chest compressions, that is, in a way that minimizes the number of interruptions, establishes adequate frequency and depth, allows the full re-

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turn of the chest and avoids hyperventilation, thus establishing normal blood flow as quickly as possible and minimizing the occurrence of neurological damage. [7]

CONCLUSION

The Pre-Hospital Emergency Course organized by LAAPH proved to be a valuable educational initiative, providing medical students with an impactful experience with an emphasis on academic training in this type of emergency care. Through the combination of theoretical classes and practical stations, the course addressed topics of extreme relevance to the prehospital approach.

The active participation of students both in the organization of the event and in its execution as listeners was enriched by the presence of professionals working in pre-hospital care, who were able to pass on, in addition to updated and evidence-based technical content, advice and real experiences from those who are used to acting in this type of situation.

Although the major limitation of an academic training course of this type is the impossibility of achieving the same learning curve as real situations faced by a healthcare professional, the course included simulated scenarios that allowed for dynamic learning with the aim of getting as close to reality as possible, thus contributing to the development of skills needed to act in adverse situations.

A comparison between the event's entry and exit forms indicated a significant improvement in the participants' knowledge, demonstrating the effectiveness of the course and thus fulfilling the main objective of the academic league. Continuous updating and technical training are essential to ensure that future healthcare professionals are prepared to face the challenges of pre-hospital care, and initiatives such as CEMEPH are relevant to achieving this goal.

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