



## Dissemination of information on first aid and accident prevention in a riverside community

### *Disseminação de informações sobre primeiros socorros e prevenção de acidentes em uma comunidade ribeirinha*

### *Diseminación de informaciones de primeros auxilios y prevención de accidentes en una comunidad ribereña*

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## ABSTRACT

**Objective:** To report the experience of a university extension project about first aid and accident prevention in a training activity for the riverside population. **Synthesis of data:** This is a reported experience lived in October 2015 by medical students from a university in the northern region of Brazil, members of a university extension project, who were invited by the municipality's Civil Defense to instruct, for example, through lectures and practical activities on first aid and accident prevention, residents of the riverside community Santa Maria do Rio Negro (Manaus, Amazonas, Brazil). **Conclusion:** The university extension project provided the students with the interaction with the riverside population in question, providing, through educational activities of prevention and simulation, the training for the most prepared action in emergencies, the contribution of medical education to the needs public health and strengthening the physician's role in health promotion.

**Descriptors:** First Aid; Teaching; Health Promotion; Medicine; Students, Health Occupation.

## RESUMO

**Objetivo:** Relatar a experiência de um projeto de extensão universitária acerca de primeiros socorros e prevenção de acidentes em uma ação de capacitação da população ribeirinha. **Síntese de dados:** Trata-se de um relato de experiência vivenciada em outubro de 2015 por acadêmicos de Medicina de uma universidade da região Norte do Brasil, integrantes de um projeto de extensão universitária, que foram convidados pela Defesa Civil do município para instruírem, por meio de palestras e atividades práticas sobre primeiros socorros e prevenção de acidentes, os moradores da comunidade ribeirinha Santa Maria do Rio Negro (Manaus, Amazonas, Brasil). **Conclusão:** O projeto de extensão universitária proporcionou aos acadêmicos a interação com a população ribeirinha em questão, oportunizando, por meio de atividades educativas de prevenção e simulação, a capacitação para a ação mais preparada em situações de emergência, a contribuição do ensino médico às necessidades de saúde pública e o fortalecimento do papel do médico na promoção da saúde.

**Descritores:** Primeiros socorros; Ensino; Promoção da Saúde; Medicina; Estudantes de Ciências da Saúde.



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## RESUMEN

**Objetivo:** Relatar la experiencia de un proyecto de extensión universitaria sobre los primeros auxilios y la prevención de accidentes en una acción de capacitación de la población ribereña. **Síntesis de datos:** Se trata de un relato de experiencia de octubre de 2015 por los estudiantes de Medicina de una universidad de la región Norte de Brasil que participaban de un proyecto de extensión universitaria y que han sido invitados por la Defensa Civil del municipio para pasar informaciones de primeros auxilios y prevención de accidentes para personas de la comunidad ribereña Santa María de Río Negro (Manaus, Amazonas, Brasil) a través de ponencias y actividades prácticas. **Conclusión:** El proyecto de extensión universitaria ha permitido a los estudiantes la interacción con esa población ribereña ofreciendo la oportunidad a través de actividades educativas de prevención y simulación, la capacitación para la acción más preparada en el caso de situaciones de emergencia, la contribución de la enseñanza médica para las necesidades de salud pública y el fortalecimiento del papel del médico para la promoción de la salud.

**Descriptores:** Primeros Auxilios; Enseñanza; Promoción de la Salud; Medicina; Estudiantes del Área de la Salud.

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## INTRODUCTION

The riverside populations of the Amazon are represented by distinct social groups (indigenous, northeastern, migrants from other regions), who live on the banks of rivers and lakes in the Amazon region. For this reason, their way of living follows the dynamics of the waters - periods of flood or ebb - which imposes certain restrictions on them, making the access to health difficult and even on health information<sup>(1)</sup>.

Like any population, riverside people are subject to illness due to infectious, chronic diseases, or external causes. External causes are trauma or injuries resulting from violence or other exogenous cause. They can be mentioned: drowning, choking (airway obstruction), burns, poisoning, and aggression<sup>(2)</sup>.

Deaths due to external causes occupy the third place in the ranking of general mortality in Brazil, especially when it comes to the younger population, male and economically active, still causing a huge socio-economic impact in the country<sup>(3,4)</sup>.

It is worth noting that the national databases on mortality, although they already have very expressive values, still present unsatisfactory coverage in a large area, with underreporting of deaths in the North and Northeast of Brazil<sup>(5)</sup>.

From this information, the importance of using first aid and accident prevention measures is visualized<sup>(6)</sup>. The topic is still not widespread, with little knowledge prevailing on the subject, most of the time, although the people have the potential to save lives or reduce the chances of sequelae in urgent situations or emergencies<sup>(7)</sup>.

Although few studies show the level of knowledge of community members, in 2016, a study in the city of Juiz de Fora, Minas Gerais, Brazil, investigated the information of laypeople on basic life support (BLS) and obtained as a result that 41% knew what BLS is, however, only 5.8% said they felt prepared to do it<sup>(7)</sup>.

First aid is the first strategy used on an injured victim before she receives specialized health care, and aims at maintaining vital signs and ensuring life<sup>(8)</sup>. It is important to note that these measures are temporary and do not replace subsequent medical care, but contribute significantly to the time gain until the victim arrives at a health facility<sup>(8)</sup>.

It is worth mentioning that the wrong assistance provided may cause more damage to the victim, an act characterized as negligence. For this reason, teaching on first aid and accident prevention is shown to be increasingly considerable, an effective and concrete way of promoting health<sup>(9)</sup>.

This problem becomes even more aggravating when dealing with distant rural regions, due to the difficult access to guidance, training and hospital services<sup>(10)</sup>. Although health is everyone's right<sup>(10)</sup>, there are still social, cultural and regional inequalities that make Brazilians with little or no access to this right. In Amazonas, for example, there are approximately 40 thousand riverside people, who lack health facilities, mainly due to the difficulty of access to the Amazon region. These isolated villages are located on the riverside of the largest Brazilian state in territorial area<sup>(11)</sup>.

The National Health Promotion Policy aims to "promote equity and improve the conditions and ways of living, expanding the potential of individual and collective health, and reducing vulnerabilities and health risks"<sup>(12)</sup>. Having this in mind, an extension project, composed of medical students from a public university in Amazonas, provides the dissemination of knowledge about first aid in urgent and emergencies as a way of promoting health for the lay population. Not only in the city of Manaus but also in rural areas, the extension actions carried out by the project allow the training of riverside people to perform correctly in these scenarios, qualifying them through lectures, training, and realistic simulations.

Based on this reality, the present work, therefore, aims to report the experience of a university extension project about first aid and accident prevention in an action to train the riverside population.

## DATA SYNTHESIS

The extension project is linked to the University Extension Dean's Office, and its theme covers first aid care and accident prevention. The project's activities started in 1997 and remain active until today. It consists of medical students, whose entry into the project is achieved through a theoretical-practical test<sup>(13)</sup>. The project is based on the university campus, located in the city of Manaus, with approximately 40 active members and more than 100 graduates. The group's activities are focused on giving lectures in schools, churches, gyms, shopping malls, private companies, hospitals, and communities, and also for carrying out realistic simulations for training.

This report is a descriptive study referring to the practical experience of five students of the project in the dissemination of information about first aid and accident prevention in a riverside community on the banks of the lower Rio Negro, Santa Maria do Rio Negro community, in October 2015. The invitation came from the Manaus City Hall, through the Military House / Executive Secretariat for Civil Defense and Protection. Using a boat provided by the city, the trip started in the morning, lasting about 4 hours, leaving the port of Manaus.

For riverside people, the river is the only street, and boats are the only means of transport, which makes access to these places more difficult<sup>(13)</sup>. In addition to mobility difficulties, they lack health and education. The lectures, training, and simulations were held at the only municipal school on site. The audience present, in turn, encompassed a ranged sample, from children to the elderly, of both sexes, aged 10 to 65 years old, totaling 35 people belonging to the family nuclei of the community.

As in all lectures given by the students of the project in question, the topics covered were: introduction to the aid, cardiopulmonary resuscitation, airway obstruction, drowning, seizure, intoxication, burns, bleeding, and stroke, whose principal focus was the guidance of the correct intervention in the face of these accidents, as well as the strategies to prevent these complications<sup>(14)</sup>.

The lectures were carefully prepared for the understanding of the lay public, and technical and specific terms of Medicine were not used. Annually, the members of the project reissue these theoretical materials to be updated following the guidelines that govern the conduct of first aid, such as the protocols of the Ministry of Health and international associations, such as the American Heart Association (AHA).

Presentations were shown with the aid of projector devices, which were alternated with simulations carried out by the project members. After each theoretical exposition, practical training was carried out on each theme, which is shown below:

### Introduction to the aid

The lectures started with the theme of "Introduction to the aid", explaining what first aid is and what its importance is, in a well-illustrated way. The project showed the relevance of quick assistance to the patient in the first hour after the accident, as the patient needs to be treated in a health unit, a determining factor in the modification of the prognosis, a concept defined as the golden hour<sup>(15,16)</sup>.

In the introduction to the rescue, characteristics that determine a good rescuer were also informed, such as common sense, technique, responsibility, and leadership spirit<sup>(15,16)</sup>. The theme ended with the five aid steps, an easy guide organized by the project's students. These five steps organize the way of thinking of the laity and how they should act in the face of an emergency, serving as a substrate for all the themes in the sequence. The steps are 1) security, 2) signaling/isolation, 3) victim assessment, 4) calling for help, and 5) helping the victim. The steps, in this format, were created by the project itself in a more didactic context, based on ATLS and PHTLS guidelines.

In terms of safety, the layperson needs to understand that the guarantee of his safety is as essential as that of the victim<sup>(15)</sup>, so he must make sure that he is in a safe place, that he is not at risk of becoming contaminated or causing more accidents. To make him feel safe, he can activate other services, calling the fire department (193), police (190), or civil defense (199), according to the need of the situation.

In the second step, signaling/isolation, the isolation of the victim in crowded situations was highlighted. For this, the students taught how to make a human cordon of isolation with the help of community members. Then, the community was instructed how to signal, if necessary, the presence of the victim at the accident site<sup>(15,16)</sup>.

In the third step, victim assessment, the project always considers one of the most important points. That's when the person will have his first contact with the victim. The students taught the public to identify whether the patient responds and breathes through maneuvers to check responsiveness and instructed breathing activity, such as touching the victim's shoulder and calling him in a firm, audible volume, and leaning to the side of the victim and visualize chest movements of inhalation and exhalation, with eyes at chest level. The project did not teach pulse palpation as vital sign identification, since the new updates of basic life support for laypeople also do not quote, reserving this act for health professionals<sup>(17)</sup>.

After the victim's evaluation, it is time to call for the aid. The students insisted on making the community memorize the number of the Mobile Emergency Service (SAMU), as it is the guarantee that the victim has the approach of a health professional. In some riverside cities, as is the case of the Santa Maria do Rio Negro community, the SAMU service is fluvial, in speedboats popularly known as "ambulanchas", vehicles specifically intended for quick relief and medical rescue of patients across rivers<sup>(18)</sup>.

After defining the sequence, the students repeatedly asked the popular people what these five steps were, to make sure that they fixed such content. It should be noted that this order was used for all the following subjects, which is why it is so important. The various situations and scenarios that the people could face were simulated by the students throughout the explanation of the themes, counting on makeup apparatus and simulation mannequins<sup>(19-21)</sup>.

### **Cardiopulmonary Resuscitation (CPR)**

The second topic addressed was CPR. Epidemiological data regarding the occurrence of cardiopulmonary arrest (CRP) in Brazil are insufficient, however, it is estimated that CRP with more chances of reversion (with the rhythm of ventricular tachycardia) occur in an extra-hospital environment, therefore, the importance is emphasized people knowledge about CPR and its correct technique<sup>(22)</sup>.

During this matter, the victim's identification with PCR was detailed due to irresponsiveness and, after identification, the call for the aid<sup>(18)</sup>. Regarding the technique, the group explained how to perform a quality CPR, prioritizing the "hands-only" sequence, performing effective chest compressions with only the hands, sequential, deep (5-6 cm), and fast (100-120 compressions/minute). Therefore, without the administration of respiratory incursions. There was talk about the importance of returning the chest, rhythm and minimizing interruptions in cardiac massage<sup>(22)</sup>.

The Students highlighted the importance of using the automatic external defibrillator (AED) in increasing the patient's chances of survival and taught how to use it correctly, if available. It is estimated that the use of the early shock device, by laymen, increases the chances of living by approximately 85%<sup>(23-25)</sup>.

Special emphasis was placed on the practical training of CPR skills, using the back of adult mannequins, of the Prestan line, with an LED sensor to assess the quality of the maneuvers, as well as full-body baby mannequins. Besides, an automatic external defibrillator simulator was used, so that community members could understand how it works and practice its use.

### **Airway Obstruction**

One of the main causes of airway obstruction in Amazonas is the fishbone, the most consumed food in the region. In the first semester of 2016, about 900 people sought medical care to remove the foreign body from the airway only in the city of Manaus<sup>(26)</sup>.

The project's students highlighted the importance of stimulating cough in case of obstruction and performing the Heimlich maneuver, if necessary<sup>(27)</sup>, recalling the possibility of CPR if the patient enters into CPA. The maneuver is the best prehospital method of clearing the upper airways and is performed through abdominal compressions, on the standing victim, until the object has been expelled<sup>(27)</sup>. Project instructors also warned of the possibility of babies' airway obstruction and demonstrated the correct clearance technique to the public.

### **Drowning**

In Amazonas, the latest figures make mortality from external causes clearer, an example being drowning. The Brazilian Society of Aquatic Rescue (*Sociedade Brasileira de Salvamento Aquático - SOBRASA*), in the 2018 newsletter, publicized Amazonas as one of the four Brazilian states where there was an increase in the percentage of deaths from drowning, with an increase of 12.51% in the years 1998 to 2016. A high value, since there were states with an average reduction of 30% of these deaths<sup>(28)</sup>.

Because of the data above, students strongly reinforced drowning prevention measures and taught proper first aid measures when facing a case. Among the procedures, they can be mentioned: using materials to try to bring the victim to the surface, positioning it for recovery, warming the victim, and, if the victim evolves to PCR, start CPR<sup>(15,16)</sup>.

## Seizure

A seizure is a disorder caused by an excessive increase in the electrical activity of neuronal cells, causing disordered, repetitive, and rapid movements throughout the body<sup>(29)</sup>.

Due to the signs and symptoms of the seizure crisis, most laypeople may have difficulty in providing any assistance. For this reason, the project instructed on how to proceed in cases of seizure crisis: keep calm, set the start time, move objects and furniture away, support the patient's head, and do not try to hold his tongue<sup>(15,16)</sup>.

## Intoxication

The consumption of pesticides in the state of Amazonas, in 2009, exceeded the value of 282 tons of active ingredients (89% herbicides) in almost 185,000 hectares of the planted area, with 14 cases of pesticide poisoning being reported, 4% of the total cases in the region North<sup>(30)</sup>.

As for intoxication, it was talked about which materials of common use could lead to intoxication, such as acid, caustic soda, deodorant, chemicals in general. Then, the students informed about the Dial-Intoxication (0800- 722-6001)<sup>(31)</sup>, a free contact to request help or clarify doubts about the theme. Besides, it was emphasized that they should immediately take the victim to a health facility so that appropriate medical procedures can be taken.

## Burns

The theme of burns is interesting for the community, as a large part of the laity is based on incorrect conduct. Burn injuries have a significant risk of mortality, in addition to permanent physical, functional and psychological trauma in those who survive. The most burn victims are children, usually under the age of five<sup>(32)</sup>.

The students reinforced preventive measures and their first aid, which consist of removing the heat source and washing the injured area with running water at room temperature. The project insisted on reminding the community not to pass edible and other products, such as toothpaste (toothpaste) on the burn. Besides, they highlighted the importance of not bursting the bubbles that may eventually be formed and, in case of more severe burns, seek care at a health unit in the region<sup>(33)</sup>.

## Bleeding

On the subject of bleeding, there was talk about milder and more intense bleeding, in addition to oral, nasal, and ear bleeding. Students highlighted the importance of the phases of the rescue, the first of which was safety. Thus, they pointed to the community that they did not come into contact with the victim's secretions and/or blood, aiming at protection against communicable infectious diseases<sup>(33)</sup>. For this, they highlighted the use of materials that can be used to replace others, such as using plastic bags in hands if the rescuer does not have gloves<sup>(33)</sup>.

## Stroke

Stroke is the second leading cause of death in the world, according to the World Health Organization. In Brazil, it is listed as the leading cause of death, followed by acute myocardial infarction<sup>(34-36)</sup>. It is estimated that, until 2030, stroke remains the principal cause of death, and, based on these data, there is a need to guide on the topic<sup>(37)</sup>.

The project highlighted the two types of stroke, ischemic and hemorrhagic, in a playful way. After that, he showed the community a simple way to identify a person who is possible with a stroke, using the mnemonic SOLL (Smiling - Listening - Raising his arms - Calling 192), based on the Cincinnati scale. From this scale, it is interpreted that there is a 72% probability for stroke if one of these signs is abnormal. If there are two abnormal findings, the chances increase to 85%<sup>(35)</sup>.

The riverside community was extremely welcoming and collaborative since the first contact of the students, showing interest and recognition of the need for information about the themes. There was a great exchange of knowledge and explanation of doubts with the local public so that the bond established between community members and students allowed mutual growth and health promotion.

The development of such an activity in a riverside community allowed the group of students to realize that, for the formation and management of lay people in the subjects of first aid, there is a need to explore them in a simplified way, with more examples, making them accessible for everyone's understanding, being presented in a didactic way and, sometimes, bordering on the informal.



## CONCLUSION

It was observed the importance of disseminating information to the riverside community for actions in urgent situations and emergencies through educational activities of prevention and behavior simulation, as it was realized that access to reliable information on the appropriate way of acting in the face of accidents in distant communities is still limited.

When introducing this teaching proposal to riverside population, it is emphasized that the experience allowed students to influence the social reality of this community, contributing to the prevention of health problems. For the students, it was possible to visualize the teaching process and the elaboration of lectures with more accessible educational material for people with low education and little access to information, proving that it is necessary that matters related to health gain a greater context within the local reality.

Finally, it stated that all the learning and experiences were relevant for the instruction of the rest of the members of the university extension project, as well as the maintenance of projects and partnerships that allow continuing with first aid instruction in other riverside communities in the Amazon region.

## CONFLICTS OF INTEREST

The authors attest to the absence of conflicts of interest.

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## CONTRIBUTIONS

**Maria Giovana Queiroz de Lima** contributed to the preparation and design of the study; the acquisition, analysis and interpretation of data; and the writing and / or revision of the manuscript. **Ronaldo Almeida Lidório Júnior** contributed to the acquisition, analysis and interpretation of data; and the writing and / or revision of the manuscript. **Bruna Natália Serrão Lins Pinto, Luma Ximenes de Oliveira, Amanda Ellen de Morais and Laísa Ezaguy de Hollanda** contributed to the acquisition, analysis and interpretation of data.

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