



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

INTEGRATIVE REVIEW ARTICLE

PRE-HOSPITAL CARE AS A STRATEGY FOR THE PUBLIC HEALTH PROMOTION: INTEGRATIVE REVIEW

ATENDIMENTO PRÉ-HOSPITALAR COMO ESTRATÉGIA DE PROMOÇÃO DE SAÚDE PÚBLICA: REVISÃO INTEGRATIVA

ATENCIÓN PREHOSPITALARIA COMO ESTRATEGIA DE PROMOCIÓN DE SALUD PÚBLICA: REVISIÓN INTEGRADORA

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ABSTRACT

Objective: to construct a theoretical framework which assists in identifying individual and contextual elements implied in the historical evolution of prehospital care in Brazil to provide reflective and interventionist actions with regard to the improvement of this strategy. **Method:** this is a descriptive, documentary, integrative review study carried out through search strategies in national and international databases. In each database, different search strategies were used, having the Descriptors in Health Sciences (DeCS) and the Medical Subject Headings (MeSH) as a basis, by means of the Boolean operators (or, and, not). **Results:** fourteen papers were selected for reading, filing, and data categorization. **Conclusions:** continuous search for advances in prehospital care proves to be a must, as well as monitoring of results, key steps to minimize harms and improve the system of care to an increasing prevalence of complications which cause a great socioeconomic and epidemiological impact and require emergency care. **Descriptors:** History of Nursing; Emergency Medical Services; Rescue Work; Emergency Nursing.

RESUMO

Objetivo: construir um referencial teórico que auxilie na identificação de elementos individuais e contextuais implicados na evolução histórica do atendimento pré-hospitalar no Brasil que subsidie ações reflexivas e intervencionistas em relação ao melhoramento dessa estratégia. **Método:** trata-se de estudo descritivo, documental, de revisão integrativa a partir de estratégias de busca em bases de dados nacionais e internacionais. Em cada base de dados foram utilizadas estratégias de buscas distintas, a partir dos Descritores em Ciências da Saúde (DeCS) e dos Medical Subject Headings (MeSH), por meio dos operadores booleanos (or, and, not). **Resultado:** foram selecionados catorze artigos para leitura, fichamento e categorização dos dados. **Conclusões:** a busca constante de avanços no atendimento pré-hospitalar mostra-se imprescindível, bem como a monitorização dos resultados, passos fundamentais para a minimização de agravos e o aprimoramento do sistema de atendimento a uma prevalência crescente de intercorrências que causam grande impacto socioeconômico e epidemiológico e necessitam de atendimento emergencial. **Descritores:** história da enfermagem; Serviços Médicos de Emergência; Trabalho de Resgate; Enfermagem em Emergência.

RESUMEN

Objetivo: construir una referencia teórica que auxilie en la identificación de elementos individuales y contextuales implicados en la evolución histórica de la atención prehospitalaria en Brasil para subsidiar acciones reflexivas e intervencionistas con relación a la mejora de esta estrategia. **Método:** esto un estudio descriptivo, documental, de revisión integradora desde estrategias de búsqueda en bases de datos nacionales e internacionales. En cada base de datos fueron utilizadas estrategias de búsqueda distintas, teniendo los Descriptores en Ciencias de la Salud (DeCS) y los Medical Subject Headings (MeSH) como base, por medio de los operadores booleanos (or, and, not). **Resultado:** catorce artículos fueron seleccionados para lectura, catalogación y categorización de los datos. **Conclusiones:** la búsqueda continua de avances en la atención prehospitalaria se muestra imprescindible, así como la monitorización de los resultados, pasos fundamentales para la minimización de daños y la mejora del sistema de atención a una creciente prevalencia de complicaciones que causan gran impacto socioeconómico y epidemiológico y requieren atención de urgencia. **Descriptor:** Historia de la Enfermería; Servicios Médicos de Urgencia; Trabajo de Rescate; Enfermería de Urgencia.

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INTRODUCTION

The technological advancement in modern world; the socio-demographic, epidemiological, and social changes collaborating to the transformations of worldwide morbimortality causes; the contemporary man, placed before the performance of multiple functions, which, in most cases, exceeds the physiological rhythm; the professional practices which follow this pace of change, adapted to the social requirements produce particular situations that reach a macrosocial sphere of disorder, diseases, family breakdown, and urban violence.

The transformations of any process, whether social or not, determine the future's configuration. The need for thinking through the globalized world of yesterday, today, and tomorrow on a scientific basis, as well as its implications for health promotion and life protection, is indisputable.

Violence kills more than 1.6 million people worldwide each year, according to a report released by the World Health Organization (WHO). Other millions of people are mutilated in attacks. It's the leading cause of death of people aged between 15 and 44 years. This means that one person dies somewhere in the world every minute. Other published statistics indicate that a person commits suicide every 40 seconds and 35 people die every hour in conflicts involving weapons. For every person killed due to violence, however, other 40 need treatment for severe injuries.¹

In Brazil, homicides are the leading cause of death among external causes: they increased from 20% to 40% between 1980 and 2003. By the year 2003, the tendency of homicide mortality in the country was upward. From that year, one observed a decrease in homicide rates by 2005 and, then, a tendency to stabilization.² In 2004, a total of 127,470 deaths due to external causes were notified by the Brazilian Mortality Information System (SIM). Mortality due to land transport accidents constitutes the second cause of death in the set of external causes, representing 28% of this total, second only to assaults.³

Violence poses a risk to the human development process, with potential threats to life and health and a consequent possibility of death.⁴ In face of this scenario, government and non-government agencies implemented strategic actions to fight the increase in these alarming rates. They're referral and counter-referral, support, and social assistance

strategies, as well as alternatives to control the violence numbers, on the rise in Brazil.

Prehospital care (PHC) emerges as an intervention strategy with regard to morbimortality due to external causes, expanding its caring contribution to clinical, gynecological, obstetric, neonatal, pediatric, and psychiatric cases.

Faced with such a follow-up and historical evolution of public health promotion in Brazil, one establishes as the guiding question of this documentary study: "What are the advances and challenges of prehospital care as a strategy for health promotion in Brazil?"

This study aims to construct a theoretical framework which helps identifying individual and contextual elements, implied in the historical evolution of prehospital care in Brazil, which provides reflective and interventionist actions with regard to the improvement of this strategy.

METHOD

Qualitative, descriptive, integrative review study with a 6 steps strategy.

Step 1. Theme identification and hypothesis or guiding question selection: already included in the Introduction of the study.

Step 2. Setting of inclusion and exclusion criteria: definition of parameters for the selection of studies. In this step, there're the following procedures:

- ♦ Choose databases: Medical Literature Analysis and Retrieval System Online (MedLine), Scientific Electronic Library Online (SciELO), and Latin American and Caribbean Health Science Literature (LILACS);
- ♦ In each database chosen, different search strategies were used, always having the Descriptors in Health Sciences (DeCS)/Medical Subject Headings (MeSH) as a basis, using the Boolean operators (or, and, not) as adjuncts in the search refinement;
- ♦ The descriptors fusion using the Boolean operators resulted in no article found in the SciELO database. The option was searching for each individual descriptor.

Papers with full text available in English, Spanish, and Portuguese and indexed in the databases selected were included; the items excluded were:

- ♦ Papers which didn't focus their abstract on any reference to the previously defined descriptors;

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- ◆ Studies published within the last 10 years, taking into account that PHC is a theme which has recently begun to be studied in the Brazilian scientific scene;
- ◆ Repeated researches, indexed in several databases;
- ◆ Studies which aren't "free text", hindering access to information.

Step 3. Definition of information to be extracted from the selected studies: after critical reading and screening of papers

according to the inclusion and exclusion criteria, the papers selected were tabulated according to the following categories: author(s), title, journal, and publication year.

Step 4. Evaluation of studies included in the integrative review: the papers selected were evaluated by the authors with regard to the quality of their information, and, finally, included for evaluation and discussion. Figure 1 shows the search strategies in databases and their results.

Bases	Search strategy	Papers found	Papers selected
SciELO	Using descriptors separately	282	11
LILACS	Nursing history AND emergency nursing	1	1
	Nursing history AND emergency medical services	1	0
MedLine	((("Emergency Nursing"[Mesh]) AND "History of Nursing"[Mesh]) AND "Rescue Work"[Mesh]) AND "Emergency Medical Services"[Mesh]	0	0
	"Emergency Nursing/history"[Mesh:NoExp]	1	0
	"Emergency Medical Services/history"[Mesh:NoExp]	10	2

Figure 1. Results of the search for papers in the SciELO, LILACS, and MEDLINE databases.

Step 5. Interpretation of results: all selected studies (Figure 2) were included in the discussion, besides advertising materials from the Brazilian Ministry of Health (MH), whether electronic or not, DATASUS, and other updated and relevant studies to fulfill this step.

RESULTS

Through targeted search strategies, 11 papers were selected for analysis and discussion and 3 for further reading.

Authors	Title	Journal	Year
França et al.	Sickening process in the nurse's work in mobile pre-hospital care	Revista de Enfermagem UFPE On Line	2012
França et al.	Predictors of burnout in prehospital emergency mobile	Acta Paulista de Enfermagem	2012
Araújo et al.	Social representations of emergency care unit professionals on emergency mobile services	Texto & Contexto	2011
Vegian e Monteiro	Living and working conditions of the professionals of the a Mobile Emergency Service	Revista Latino-Americana de Enfermagem	2011
Figueiredo e Costa	Cuiabá Mobile Emergency Service: challenges and opportunities for nursing professionals	Acta Paulista de Enfermagem	2009
Silveira e Lima	Training of nursing technicians/assistants in mobile pre-hospital healthcare: results from nursing records	Acta Paulista de Enfermagem	2009
Gentil et al.	Nurses training in prehospital care	Revista Latino-Americana de Enfermagem	2008
Vieira e Mussi	Implantation of the Emergency Ambulance Service in Salvador, Bahia: reality and challenges	Revista da Escola de Enfermagem da USP	2008
Zapparoli e Marziale	Occupational risk in basic and advanced emergency life support units	Revista Brasileira de Enfermagem	2006
Ramos e Sanna	Nurse integration into pre-hospital medical services: historical outline and current perspectives	Revista Brasileira de Enfermagem	2005
Rocha et al.	Nursing care in pre-hospital attendiment service and airmedical removal	Revista Brasileira de Enfermagem	2003

Figure 2. Results of papers selected according to authors, journal and publication year.

DISCUSSION

In order to facilitate fulfilling the aim of this study, information was consolidated through data categorization, which was divided into similar themes and contents: origin and concept; legitimacy; structure and training; retrocessions and challenges.

■ Origin and concept

Emergency/urgency care at the occurrence site has been moving on along with great wars, more precisely since the late 18th century, in the Napoleonic period. At that time, wounded soldiers in the battlefield were transported in wagons. Currently, sophisticated equipment and land or air vehicles are used for transportation to points far from the occurrence site.^{5,6}

The initiative to care for soldiers on the battlefield continued in the 19th century and

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led to the creation of the International Red Cross, in 1863, an organization which, over time, showed the need for providing wounded people with a quick care, and it played an outstanding role in the World Wars of the 20th century.³

Somehow, the wars boosted and improved the prehospital care and rescue services, due to the need for a fast and effective care which could guarantee the survival of combatants.⁶

In Brazil, following the international trend of population concentration and complex urban centers formation, there was also the need for implementing services to fight morbimortality due to trauma.

The first Brazilian records about the prehospital care service occurred in 1893, when the Senate passed a law providing for emergency medical assistance on the streets, in Rio de Janeiro, then the country's capital.⁷ According to reports, in 1899, the Fire Department put into action in the same city the first ambulance (with animal traction) to perform this kind of assistance, a fact which features its historical tradition in providing this service.⁸

The Brazilian PHC was based on the French rescue service modality created by intensive and emergence care anesthesiologists.⁶ The Service Mobile d'Urgence et de Réanimation (SMUR) was officially established in 1965 and in 1968 came the Service d'Aide Médicale d'Urgence (SAMU) to coordinate the activities of SMUR, when the criteria and standards with regard to its work were defined.⁹ The influence of the French service, whose teams are exclusively made up by health care professionals, is observed in some Brazilian cities.¹⁰

Besides the French model, Brazil was influenced by the American model.⁸ In the North-American service, named Emergency Medical Services, the teams are made up by emergency medical technicians (EMTs), or paramedics, trained in basic life support (BLS) and advanced life support (ALS), respectively. Initially, the North-American model was the predominant in Brazil, used by the Fire Department only to perform BLS measures.

Pioneers in PHC¹⁰, the services named "Fire Department Emergency Group"¹¹ and "Rescue Project"¹² were established in the 1980s, in Rio de Janeiro and Sao Paulo, respectively, in which the nurse was included for the first time in the pre-hospital care assistance.

According to the Ministry of Health¹³, pre-hospital care may be defined as the assistance provided, at a first attention level, to patients

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with acute clinical, traumatic, and psychiatric conditions, when they occur outside the hospital environment and can cause sequelae or even death.⁶

Pre-hospital emergency care aims to meet the client's needs in a systematic and practical way, thus implying the need for a multidisciplinary team which provides the patient with a quick assistance and transportation to a proper health care center.⁶

There're three basic principles to be followed by professionals working in PHC: get to the victim as soon as possible; stabilize her/him at the site, providing in a fast and effective way restoration of her/his vital functions; and quickly transport her/him to the hospital.¹⁴

Around 1815, Dr. Baron Dominique Jean Larrey was the first one to recognize the need for a quick assessment of a traumatized patient. During the French Revolution, vehicles were used to assist wounded combatants and facilitate surgical evaluation and care procedures.¹⁵

Pole cities, such as Sao Paulo, where the Emergency Mobile Care Service (SAMU) was created in 1990¹⁶, receive financial and material incentives for the implementation and structuring of SAMU-192, the Centers for the Medical Regulation of Emergency Care, and the Pole for Training in Emergency Continued Education. The implementation of these poles should consider aspects such as:

- ♦ The risks of accidents due to landslides and flooding during rainy periods;
- ♦ Intense automobile traffic in the road system, with the occurrence of traffic accidents;
- ♦ Predominantly low income population, without private health care insurance and with transportation difficulties for medical help;
- ♦ Overcrowding in the emergency departments of large hospitals;
- ♦ Shortage of ambulances in the basic networks for referral to hospitals;
- ♦ Estimated incidence of acute myocardial infarction of 99 individuals per 100,000 adults ≥ 25 years;
- ♦ Possibility of rear hospital and post-hospital care, that is, existence of high and medium complexity services, beds needed to establish the patients' referral and counter-referral in the various care components.¹⁷

The tele-effectiveness of early treatment for people in an emergency situation, due to sudden illness, accidents, or violence, led to

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the development of several public and private prehospital health care services, as well as inter-hospital transfer.¹⁸

In face of the constant changes which PHC has been going through, its identity trajectory has become a personal commitment for the construction of a “positive identity” and the break from the paradigm of little appreciation and autonomy that were historically constructed, punctuated in this categorization.¹⁹

■ Legitimacy

In the state of Sao Paulo, Brazil, due to the Decree 395, enacted in October 7, 1893, the physicians from the Legal Service of the State Civil Police became responsible to provide care for medical emergencies. In 1910, Decree 1,392 made compulsory the presence of physicians at the site of fires or other accidents.⁴

From then on, the Federal and the Regional Councils of Medicine, since 1997, began to question the effectiveness of the PHC services provided by the Fire Department, which lacked technical basis for this action. In 1998, the Federal Council of Medicine created the Resolution 1,529/98, which regulated the medical activity in the urgency/emergency area in its pre-hospital phase.²⁰ After the creation of this resolution, the MH transferred almost the whole text to Portaria 824, enacted on July 24, 1999, thus regulating PHC throughout Brazil, along with an agreement signed between Brazil and France, through a request from the MH, allowing the creation of SAMU.⁹

Within the Nursing domain, the Federal Council of Nursing (COFEN) introduced resolutions in order to legally protect the performance of nursing in PHC, such as Resolution 225, signed on February, 28, 2000.²¹

Regarding the Brazilian pre-hospital care, the growing demand from victims of car accidents and interpersonal violence plays a leading role in a scenario of poor structure and standardization of emergency services. Given this contingency, MH established the legitimate conditions to practice professional PHC. These portarias provide for the organization of local/regional networks for an integral care to emergencies, as interconnected parts of the life maintenance plot, divided into the following components: fixed prehospital care, mobile pre-hospital care, hospital care, and post-hospital care.²⁰

The occurrence form is the only source of written information about the assistance, constituting the patient's medical record for

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SAMU; therefore, it's a legal document and requires information describing the evaluation carried out and the care provided. Maintaining accurate records requires an objective data interpretation with accurate measurements, correctly written using scientific language.²²

■ Structure and training

Fixed PHC consists of basic health units (BHUs), family health units (FHUs), specialized outpatient units, diagnostic and therapy services, and non-hospital emergency care units. These units are responsible for assisting emergency cases because of spontaneous demand, referral by BHUs and SAMU. The prehospital mobile component was implemented by SAMU and the associated salvage and rescue services, throughout the country's territory with the Centers for the Medical Regulation, accessed by the telephone number 192, and the Urgency Education Centers, “that should organize themselves as interinstitutional knowledge spaces for training, qualification, continued improvement of human resources for urgencies”.^{18,20}

Prehospital care service may consist of one or more care units, depending on the population to be assisted. As a unit, one understands an ambulance provided with equipment, materials, and medicines, crewed by a team with, at least, two professionals, trained to provide basic life support under pre-hospital supervision and operating conditions.⁶

The development of these services ends up with the need for qualified professionals who meet specific needs of nursing care.¹⁸

Taking into account that, in Brazil, PHC is an emerging area with regard to the work of nurses, there're training programs and courses to meet the specific demands and provide a good quality education, adjusted for the Brazilian standards. COFEN, in turn, included PHC on the list of nursing specialties, but it didn't indicate guidelines for training these professionals, which remained implicit in the Resolution 260/2001, in the description of this professional's duties.¹⁸

In Brazil, specialization courses in emergency or PHC are still recent. Brazilian nurses are improving themselves in this area, through specialization courses (*lato sensu* graduate courses) observing the guidelines of the Ministry of Education and COFEN.²³

It becomes apparent that skills should be extensively practiced, in their training, preparing the nurse to work in emergency situations requiring motor readiness,

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dexterity, logical reasoning, and decision-making.

■ Retrocessions

The incorporation of new technologies, the change of socioeconomic and health/disease patterns, and the increasing demands from society for better assistance often lead the fulfillment of tasks by professionals working in PHC to exceed her/his academic training.¹⁹ Studies point out that the mental load was identified by most workers as inadequate, due to the activity's responsibility and the urgency situation, factors regarded as labor stressors.¹⁴

Over 75% of nurses working in the mobile prehospital care service in the state of Alagoas, Brazil, developed the burnout syndrome²⁴, characterized by its classic triad of emotional exhaustion, depersonalization, and low personal accomplishment. Studies point out that the syndrome's predictors don't depend on personal issues, but on organizational ones.²⁵

The professionals are exposed to interpersonal violence situations, very frequent in their contexts of labor activities, besides physical, chemical, and biological occupational risks inherent to health services, and a heavy workload arising from poor remuneration. A significant number of professionals achieved more than 70 working hours per week in the pre-hospital service (25.3%).²⁶

Despite the agreement signed along with France, the Brazilian reality didn't allow a predominance of the French model due to lack of resources; there's a need for adaptations to our reality, hence the explanation for the combination between the French and American patterns in many prehospital care systems throughout Brazil, giving rise to many types of different practices.⁵

These characteristics already show, through studies, that those working in the prehospital care scenario revealed the existence of conflicts relating to the history of these professionals, which greatly influence their identity process in this action context.²⁷ Social representations of professionals from the emergency care units with regard to SAMU are an example, as they might have some peculiarities, when compared to those of professionals from other services, due to workplace conditions and the way how the relationships are managed.²⁸

In contrast, this "improved population access" itself has constituted a conflicting element for the emergency care units

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professionals who deal with an overload of care from the spontaneous demand not connected to the BHUs, teams lacking professionals, disconnected work process, scrapping of the physical structure, few diagnostic resources, and referral and counter-referral difficulties.²⁸

A study carried out in Recife, Pernambuco, Brazil, identified that 80% of cases involving assistance to occurrences of respiratory distress occurs between 6:00 p.m. and 6:00 a.m. This was probably due to the difficulty of families for accessing health services at these times, both because of the distance and the means of transport.²²

Historically, the pre-hospital response level to urgencies and emergencies hasn't been enough, causing overcrowding in hospitals and emergency units, even when the clinical situation isn't characteristic of emergency care.²⁹

■ Challenges

Prehospital care services should be structured to improve and qualify the assistance to emergencies, decrease the length of hospital stay, improve the rehabilitation prognoses, and interact with the community. According to their principles and guidelines, they should coordinate resources, processes, and flows aimed at ensuring the patient's survival by interacting with all components of the local health care network.²⁰

Taking into account another preamble, there's a need for discussing some important points formed in the process of constructing the mobile prehospital care service strategy:

- ◆ To what extent non-medical professionals can be trained and become able to perform medical procedures, on behalf a physician?
- ◆ Is a system exclusively supported by physicians and nurses, whose remuneration is higher than that of the para-professionals?
- ◆ Is there continued training for the theoretical and practical update of nurses to perform cardiopulmonary resuscitation according to the guidelines of the American Heart Association, which periodically analyzes and publishes the evidence which grounds the changes related to the maneuvers of cardiopulmonary resuscitation and the use of defibrillation in any kind of patient?
- ◆ Are the new tasks delegated to the nursing technician/assistant, through tele-medicine, scored according to the legislation from COFEN?

- ♦ Will the towns be able to ensure all municipal schedule of outpatient, pre-hospital, hospital, and specialized care through the provision of actions and services, following the decentralization process in compliance with Law 8,080/90 and the basic operational guidelines?
- ♦ Is there technical cooperation with the Fire Department, the Highway, Military, and Civil polices, the Municipal Guard, the state and municipal Civil Defence in the area of rescue, salvage, assistance to cases of disaster and accident with multiple victims?
- ♦ Are there guarantees with regard to the organization and provision of local systems of care for emergencies through the municipal structuring and implementation of the Unified Health System (SUS), with an organized supply and demand met in the urgency and emergency care areas in the town?

CONCLUSION

The continued search for advances in PHC becomes a must, as well as monitoring the results, which are essential steps to minimize harms and improve the system of care to the increasing prevalence of complications that cause a great socioeconomic and epidemiological impact and need emergency care. For this, there's need for integration between the community, SAMU, and hospital care.

It's important to discuss the referral and counter-referral operation and its organization forms. There's a need for rethinking the ways of regulating SAMU, using measures which aim to ensure health, as well as preservation of the quality of life and work of these professionals, taking into account the future of this service. SAMU needs to be constantly discussed, (re)thought, and thought through as a political, ethical, and citizen strategic action, much more than an assistance service which aims to improve the society's prehospital care coverage.

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França SPS, De Martino MMF.

Pre-hospital care as a strategy for strategy...

Submission: 2012/02/09

Accepted: 2013/03/08

Publishing: 2013/04/15

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