Knowledge and adherence to biosafety recommendations in a military fire brigade in Minas Gerais

CONHECIMENTO E ADESÃO ÀS RECOMENDAÇÕES DE BIOSSEGURANÇA NO CORPO DE BOMBEIROS MILITAR DE MINAS GERAIS

CONOCIMIENTO Y ADHESIÓN A LAS RECOMENDACIONES DE BIOSEGURIDAD EN EL CUERPO MILITAR DE BOMBEROS DE MINAS GERAIS

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ABSTRACT

This study aimed to assess the knowledge and attitudes concerning adherence to biosafety recommendations of the military personnel of Belo Horizonte's Military Fire Brigade in Minas Gerais . A cross-sectional study was conducted from January to February 2011. A structured questionnaire was used, consisting of questions regarding knowledge and attitudes related to biosafety and the factors hindering the use of personal protective equipment. The results showed that the personnel had adequate knowledge of hand hygiene (90.4%) and standard precautions (89%), such as the habit of always wearing gloves (95.7%), but lacked knowledge about the antiseptic activity of 70% alcohol (77.5%). The cloak was mentioned as the piece of personal protective equipment that was most difficult to use. However, most of the personnel were unaware of their serological status for hepatitis B (25%). Their knowledge and attitudes were consistent with the biosafety recommendations, but the importance of hepatitis B immunization must be emphasized.

DESCRIPTORS

Exposure to biological agents
Pre-hospital care
Universal precautions
Occupational health

RESUMO

Objetivou-se com este trabalho avaliar o conhecimento e as atitudes de militares do Corpo de Bombeiros Militar de Belo Horizonte-MG acerca da adesão às recomendações de biossegurança. Trata-se de estudo transversal realizado no período de janeiro a fevereiro de 2011. Utilizou-se um questionário estruturado composto de perguntas sobre conhecimentos e atitudes relativos à biossegurança e fatores dificultadores do uso de equipamentos de proteção individual. Evidenciou-se conhecimento adequado dos profissionais sobre higienização das mãos (90,4%) e precauções padrão (89%); hábito de sempre usar luvas (95,7%); desconhecimento da ação do álcool a 70% (77,5%) e citação do capote como o equipamento de proteção individual mais difícil de ser utilizado. Entretanto, a maioria desconhecia a condição sorológica para hepatite B (25%). Conhecimentos e atitudes mostraram-se condizentes com as recomendações de biossegurança, mas há necessidade de enfatizar a importância de realizar o esquema vacinal para hepatite B.

DESCRITORES

Exposição a agentes biológicos
Assistência pré-hospitalar
Precauções universais
Saúde do trabalhador

RESUMEN

Se objetivó evaluar conocimientos y aptitudes de militares del Cuerpo Militar de Bomberos de Belo Horizonte-MG respecto de su adhesión a las recomendaciones de bioseguridad. Se realizó estudio transversal entre enero y febrero de 2012. Se utilizó cuestionario estructurado compuesto por preguntas sobre conocimientos y aptitudes relativas a bioseguridad y factores diversos del uso de equipamientos de protección individual. Se evidenció conocimiento adecuado de los profesionales sobre higienización de manos (90,4%) y precauciones estándar (89%), la costumbre de utilizar guantes habitualmente (95,7%); desconocimiento de la acción del alcohol al 70% (77,5%) y citación del capote como el equipo de protección individual más difícil de utilizar. Mientras tanto, la mayoría desconocía la condición serológica para hepatitis B (25%). Tanto conocimientos como aptitudes mostraron condecirse con las recomendaciones de bioseguridad, aunque existe la necesidad de enfatizar la importancia de realizar un esquema de vacunación contra la hepatitis B.

DESCRIPTORES

Exposición a agentes biológicos
Atención prehospitalaria
Precauciones universales
Salud laboral

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INTRODUCTION

In Brazil, pre-hospital care is the service delivered to clinical patients or trauma victims before their arrival at the nearest referred health institution. This care can be delivered by trained professionals, whether these are physicians or not[1] and in fixed or mobile units[2-3].

Mobile pre-hospital care is aimed at delivering early care to victims after the occurrence of a clinical, surgical, traumatic or psychiatric health problem that could cause suffering, sequelae or death. The victim requires care and/or appropriate transportation to a health service that is properly certified and integrated in the Unified Health System.

Mobile pre-hospital care can be primary, when requested by a citizen, or secondary, when requested by the health service, where the patient who received the first aid necessary to stabilize the emergency situation now needs to be transported to a more complex service[4].

In Belo Horizonte, pre-hospital care is delivered by the Mobile Emergency Care Service (SAMU) or the Minas Gerais Military Fire Brigade (CBMMG). Both have a central exchange that receives calls free of charge. The difference between them is that, while professionals in the former service hold a degree and are active in the health field, such as physicians, nurses and nursing technicians, the second service includes military firemen trained as basic life support (BLS) emergency professionals but lacking any technical training in the health field[2].

Although trained emergency professionals in the Minas Gerais Military Fire Brigade are not allowed to perform invasive procedures, they are very frequently exposed to biological materials in their activities. Exposure to biological materials represents a high occupational risk in this profession.

Occupational accidents related to biological materials in mobile pre-hospital care services can happen through direct contact with blood, secretions, excretions and other body fluids, whether infected or not, or through indirect contact, such as the transfer of pathogens through contaminated materials and equipment[5].

The chance of an occupational accident in a mobile pre-hospital care service is increased under the following conditions: the space in the vehicle is limited, with restricted ventilation that hampers the recirculation of air; the traffic movement causes shocks, jolts and propulsion of the bodies due to the kinetic energy deriving from the vehicles' acceleration or deceleration, or from sharp curves or high speed[1]; and the emergency care delivered requires aptitude, skill and agility, factors that trigger a high level of stress and favor the occurrence of accidents.

To minimize contact with biological materials and protect the professionals exposed, in 1966, the Centers for Disease Control and Prevention (CDC) issued the Guidelines for Isolation Precautions in the United States that offered recommendations to be adopted in the care delivery to all patients, independent of their diagnosis, called *standard precautions*. These were maintained and reinforced in the revised version of the Guidelines issued in 2007. The recommended measures include hand washing, use of individual protection equipment (IPE), vaccination against hepatitis B and appropriate disposing of piercing/cutting items[6].

A professionals' lack of adherence to the standard precautions can result in exposure to biological materials, increasing the chance of contamination by microorganisms that potentially cause infections, which could entail either temporary or permanent absence from work, including medical leaves and even cases of invalidism.

Adherence to these measures depends on the institution's supply and availability of IPE and on the knowledge of its use among the workers involved in care at all healthcare levels, including pre-hospital care and including professionals such as military staff members.

... knowledge of and adherence to biosafety recommendations has great relevance for improving knowledge management in institutions, valuing occupational health and reducing occupational risks.

Considering the characteristics of the rescue workers in the Minas Gerais Military Fire Brigade and the lack of studies on their occupational safety and the risks related to their exposure to biological materials, their knowledge of and adherence to biosafety recommendations has great relevance for improving knowledge management in institutions, valuing occupational health and reducing occupational risks[5].

Therefore, the aim of this study was to evaluate the knowledge and attitudes among the military staff members of the Minas Gerais Military Fire Brigade in Belo Horizonte regarding adherence to biosafety recommendations.

METHODS

A cross-sectional and quantitative study was undertaken at eleven units of the Minas Gerais Military Fire Brigade in Belo Horizonte.

The research subjects were military staff members active in the Minas Gerais Military Fire Brigade in the same city, who were first invited and received information about the study objectives and agreed to participate by reading and signing the Informed Consent Form (ICF). Any professionals on holiday, off-duty or on medical leave at the time of data collection were excluded. One of the researchers presented the data collection instrument, which the participants answered individually in the presence of the same researcher.

An anonymous, structured, self-applied questionnaire was used for the study, validated by experts in healthcare--associated infections. The pilot test was conducted with a sample similar to the final group. The aspects addressed in the questionnaire were related to demographic data and questions about knowledge and attitudes regarding adherence to biosafety recommendations and the factors contributing to the low adherence or non-adherence to IPE use.

After this phase, the collected data were recorded and were analyzed using the Statistical Package for the Social Sciences (SPSS®) software, version 13.0. Descriptive and univariate analysis was applied to the data.

The project received approval from the Research Ethics Committee at Universidade Federal de Minas Gerais (Opinion ETIC 458/05) and acceptance by the Fire Brigade Operational Command (COB) 7262/09 – COB responsible for all operational units in the State of Minas Gerais.

RESULTS

Of 488 military staff members contacted at their work at the Minas Gerais Military Fire Brigade in Belo Horizonte at the time of data collection, 409 (83.8%) agreed to participate in the study; 67 (13.7%) refused and 12 (2.5%) did not complete the questionnaire because they were summoned to respond to events during the administration of the questionnaire, without an expected timeframe for their return.

In the group of professionals who agreed to participate in the study, 6.8% were women and 93.2% men. The mean age was 30.8 years, with a standard deviation of 8.14 years.

As regards the professional experience in the Minas Gerais Military Fire Brigade, 40.8% of the interviewees reported having worked between one month and two full years, 22.7% between two and ten years, and 35.7% more than ten years.

The participants had taken the following courses when they started working in the Fire Brigade: the Training Course for Soldiers (CFSd)/Technical Course in Public Safety (CTSP), to prepare corporals or soldiers; the Training Course for Sergeants (CFS)/Special Training Course for Sergeants (CEFS)/ Intensive Training Course for Sergeants (CIFS), to prepare sergeants or sub-lieutenants; the Qualification Course for Sergeants (CAS), to prepare and further qualify second sergeants; and the Training Course for Officers (CFO)/Qualification Course for Officers (CHO)/Special training Course for Officers, to prepare officers. Today, the CTSP, CIFS and CEFO courses are no longer offered.

These courses included subjects/modules that address, among other themes, *First-aid techniques* and *Occupational Safety*. The mean duration of training or qualification courses in the corporation was 6.6 months.

When asked about their knowledge, 72.9% affirmed that they had received information on *Biosafety* or *Safety of victims* as part of a subject/module or lecture in the Fire Brigade training courses. For 28.6% of the participants, this training occurred within two years before the data collection.

In addition to the participants' training by the institution in the abovementioned training courses, as a prerequisite to work in the Minas Gerais Military Fire Brigade, 19.9% declared that they had taken or finished an undergraduate program, mentioning approximately 30 courses, the most frequent of which were: Law (12.2%), Administration (11.0%), Engineering (9.8%), Nursing and Physical Education (8.5%) and Psychology (7.3%).

Table 1 shows data on the training/qualifications of the personnel in the study sample.

Tabela 1 – Distribuição dos profissionais do corpo de bombeiros militares, segundo a formação/capacitação técnico-científico - Belo Horizonte, 2011.

Variável	N (409)	%
Undergraduate degree		
Yes	81	19,8
No	327	80.0
Did not answer	1	0,2
Course taken in CBMMG*		
CFSd/ CTSP	318	77,8
CFS/ CEFS/CIFS	18	4,4
CAS	5	1,2
CFO/CHO/CEFO	2	1,2
CFSd/ CTSP + CFS/ CEFS/CIFS + CAS	26	6,4
CFSd/ CTSP + CFS/ CEFS/CIFS	32	7,8
CFS/ CEFS/CIFS + CAS	2	0,5
CFSd/ CTSP + CFO	2	0,5
Did not answer	4	1,0
Participated in a course/lecture on biosafety		
Yes	298	72,9
No	110	26,9
Did not answer	1	0,2
How long ago was it offered		
Less than 6 months earlier	52	12,7
Between 6 months and 1 year earlier	57	13,9
Between 1 and 2 years earlier	72	17,6
More than 2 years earlier	117	28,6
Not offered	110	26,9
Did not answer	1	0,2

Courses *: CFSd – Training Course for Soldiers; CTSP – Technical Course in Public Safety; CFS – Training Course for Sergeants; CEFS – Special Training Course for Sergeants; CIFS – Intensive Training Course for Sergeants; CAS – Qualification Course for Sergeants; CFO – Training Course for Officers; CHO – Qualification Course for Officers; and CEFO – Special training Course for Officers.

For professional recertification after basic training, 50.2% cited institutional training and 40.4% used the internet, access to which was available at 100% of the operational units visited.

In the analysis of the military staff members' knowledge on recommendations for hand washing (HW) with water and soap, it was observed that 90.4 % correctly answered that this should be performed both before and after contact with the victim and before and after using gloves.

Regarding knowledge on the antiseptic activity of 70% alcohol, 58.8% mistakenly answered that alcohol is used because of its *sterilization capacity,* 18.7% mistakenly, answered that its use is due to *the capacity to reduce and eliminate organic matter from the hands*. and only 14.1% correctly affirmed that its activity is due to *the inhibition of bacterial growth*. With respect to the use of 70% alcohol on the hands, 64% correctly answered that the product is recommended when the hands have no visible dirt and 22.1% were unable to answer.

With regard to the containment of the wastes produced by care delivery, the use of milky-white plastic bags was recommended, which 82.1% of the military identified properly.

Concerning the transmission of diseases possibly caught due to the nature of pre-hospital care work, 96.3% demonstrated knowledge by correctly naming HIV and hepatitis B and C viruses.

When asked about the risk of developing an infection after an accident that involved exposure of the professionals' eye mucosa, 68.6% revealed knowledge that such an infection could occur if the victim suffered from some blood-borne disease, and 25.7% mistakenly indicated that an *infection could develop if the victim had any disease, independently of the transmission form*.

Knowledge on standard precautions was verified in 89% of the emergency professionals, who were able to answer correctly that these precautions involve the use of individual protection equipment, such as glasses, a mask, gloves, a cap, a gown and impermeable and closed shoes; hand washing; vaccination against hepatitis B and disposal of piercing/cutting items in a receptacle with hard walls.

As for serology tests after occupational accidents involving biological materials, 68.8% correctly replied that HIV and hepatitis B and C tests are required on the day of the accident and three months, six months and one year after the accident.

The gown was the item of individual protection equipment most reported as having adherence difficulties, as shown in Table 2.

Some participants reported difficulties in using more than one IPE. The relevant answers are grouped in Table 2 with the goal of reporting the results regarding specific problems.

Table 2 – Distribution of individual protection equipment regarding usage difficulty reported by military firemen - Belo Horizonte, 2011.

IPE	Frequency	Percentage
Facial mask	46	11.2
Safety glasses	15	3.7
Gown	**125**	**30.6**
Procedure gloves and gown	10	2.3
Facial mask and safety glasses	4	1.0
Facial mask and gown	24	5.9
Safety glasses and gown	6	1.5
Mask, glasses and gown	14	3.4
Did not answer	6	1.5
No difficulty	**154**	**37.6**
Total	409	100%

Among the reasons mentioned that make it difficult to use the gown are the unavailability in the vehicle, 60.5%; forgetting, 15.5%; lack of time, 12.3%; and belief in the irrelevance of its use, 7.8%.

Although ten interviewees described difficulties in using disposable gloves, 28 (6.8%) responded that the reason for these difficulties was the unavailability of the appropriate sized gloves in the vehicle. Similarly, 91 workers mentioned the difficulty of using facial masks, and 143 indicated the following sources of inconvenience: fogging of the glass lenses, difficulty in communicating with the victim, feeling suffocated, their unavailability in the vehicle, lack of time, belief in the irrelevance of facial masks, difficulties in using them correctly and forgetting to use them. As for the protective glasses, the usage difficulties were mainly related to the following: collective use, 33.0%; forgetting, 19.1%; unavailability in the vehicle, 11.3%; and difficulty in evaluating the victim's status, 9.5%.

The difference between the reported difficulties in using a form of IPE and the causes of these difficulties could be attributed to the order of questions in the questionnaire, which first asked about what IPE the participant found difficult to use and, next, about the cause of this difficulty. Hence, in response to the first question, many participants reported difficulties in using some IPE, but on reading the second question and the alternative responses for the cause(s) of difficulty, they remembered the difficulties in using another IPE, which in principle, seemed not difficult to use when answering the first question.

To survey their serologic status, the staff members of the Minas Gerais Military Fire Brigade were asked about how many anti-hepatitis B vaccine doses they had received. It was found that 25.2% did not know their serologic results, as shown in Figure 1.

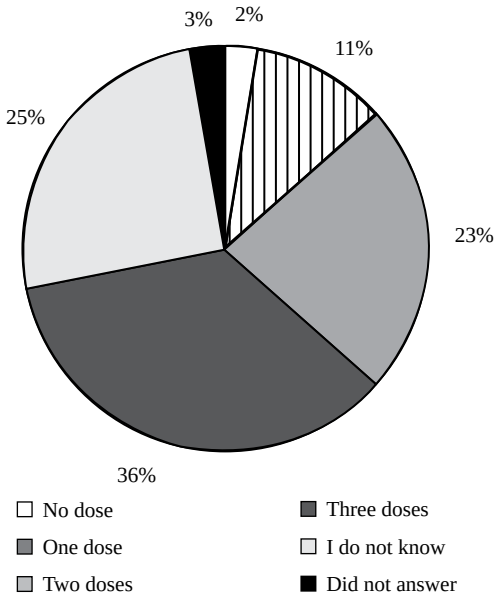

Figure 1 – Distribution of the number of doses received against hepatitis B - Belo Horizonte, 2011.

With regard to adherence to the use of disposable gloves during procedures that involve the risk of exposure to the victims' bodily fluids, 95.7 % reported that they always use gloves.

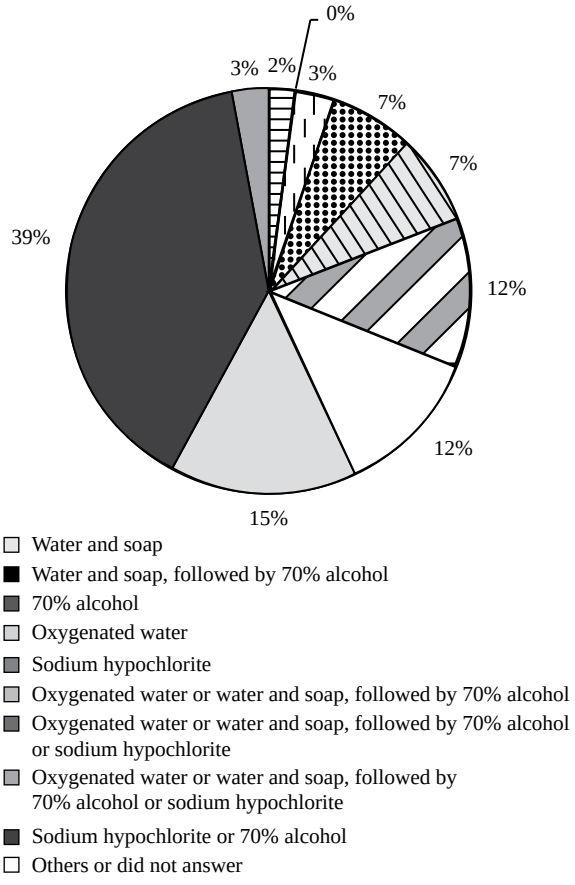

Figure 2 – Distribution of solutions used to clean the Military Fire Brigade vehicles in the pre-hospital care service - Belo Horizonte, 2011.

When asked about the use of solutions to clean the surfaces in the vehicle that were contaminated with biological materials, the following products or combination of products were reported, as shown in Figure 2:

DISCUSSION

The predominance of male professionals in this study is consistent with other studies concerning pre-hospital care throughout Brazil[7-8]. Historically, the predominance of male military fire personnel can be explained by the fact that military candidates had to be healthy men in order to fulfill the service demands that included risks and required considerable strength. The admission of women to state military service after 1981 allowed 20% of the staff recruited to be women. Today, women represent 30% of the service members[9].

With regard to the time dedicated to studying, less than 25% of participants, including sergeants and officers, dedicated more than ten months to the corporation's training courses. Most new staff members attended the Training Course for Soldiers or the Technical Course in Public Safety, which are more basic and short-term professional training courses. The newly graduated professionals served as corporals or soldiers and represented a large part of the military workforce. They are generally young people (mean age of 22 years) who concluded secondary education or are taking a higher education program at the same time and are starting their professional career in a healthy conditions and are willing to perform their tasks appropriately.

Regarding the Technical Course on Medical Emergencies that is offered in all training courses in the Minas Gerais Military Fire Brigade[10], biosafety is mentioned in the course description as follows:

> (...) emotional aspects of emergency care, fight against stress, introduces inquiries to patients in critical events, safety of the scenario, isolation of bodily fluids, individual protection equipment and safety precautions that can guarantee emergency workers' practical performance.

While biosafety recommendations are directly mentioned, the results suggested that the discussion of this issue was sufficient to prepare the military staff members in terms of the necessary knowledge and attitudes for their utilization during pre-hospital care activities.

As for the hand washing recommendations, most interviewees demonstrated knowledge, consistent with other studies[7, 11]. According to the 2009 World Health Organization (WHO) Manual for Hand Washing in health care, water and soap should be used for hand washing both before and after contact with the patient and before and after removing sterile or non-sterile gloves, as well as when the gloves are visible dirty, after using the bathroom, before and after the preparation of a medication and after contact with biological materials[12].

This is a simple and highly effective procedure with strongly correlated emotional and psychological aspects, especially for pre-hospital care professionals. Regarding the infrastructure of the ambulances used for pre-hospital care, they offer no adequate conditions for hand washing because they lack water taps or sinks. Therefore, the valuation of hand washing should be intensified when the vehicle arrives at the location where new events are awaited, called *fire readiness*.

Considering the antiseptic activity of 70% alcohol, the mistaken understanding about its function is noteworthy, as demonstrated by 77.5% of the participants, either due to their interpretation or lack of knowledge regarding sterilization, asepsis or disinfection. According to the CDC, sterilization is a process in which all living microbial forms are destroyed or eliminated through physical or chemical methods, an action that 70% alcohol does not perform. Disinfection is a process capable of eliminating many or all of the pathogenic microorganisms except bacterial spores. This is performed in the existing environment on inanimate objects. *Skin asepsis* is the term used to designate the prevention of contact with microorganisms[13].

The hand-washing manual teaches that the antimicrobial activity of alcohol derives from its denaturing effect on the proteins of some viruses, bacteria and fungi. The product is recommended for antisepsis and should not be used on hands that are dirty or visibly contaminated with protein materials such as blood[12] because of the risk of its reduced efficacy.

Consistent with the present findings, the literature contains frequent reports of procedural glove use during all health care delivery. In comparison, however, the adherence levels for other IPE have been low[14-16].

The reports of the unavailability of IPE were a source of concern. Therefore, these reports were verified. The observations showed that the unavailability of IPE was frequent between November and March. Hence, emergency workers were often exposed to biological materials without protection because of administrative issues related to purchasing IPE equipment. A similar association was identified in a study involving the Goiás Fire Brigade, in which 36.3% of the professional personnel alleged the lack of protective equipment. The justifications for this unavailability, however, indicated the absence of inventory provisions due to non-compliance with the administrative task of replacement and did not mention any lack of equipment[14]. In this study, it was suggested that the administrative financial issues could be minimized through materials provision/planning before the end of the fiscal year, providing for inventories until the subsequent financial year began. The access to and availability of IPE facilitate the professionals' adherence to its use[17].

Although 68.8% of the participants affirmed that the serology tests for HIV and hepatitis B and C should occur on the day of the accident and three months, six months and one year after the event, the results remained below the ideal because knowledge and serologic monitoring are needed to initiate the prophylactic measures that reduce or eliminate the risk of developing the diseases[18].

As for vaccine coverage, when the number of vaccination doses was addressed, 25.2% did not know their serologic status, which is a source of great concern because hepatitis B is highly infectious from exposure to biological materials: this risk is estimated at between 6% and 30%, and can reach up to 40% when no prophylactic measures are adopted. Thus, in comparison with hepatitis C and the Acquired Immunodeficiency Syndrome (AIDS), whose contamination risks after percutaneous accidents were 1.8% (ranging from 1 to 10%) and between 0.3% and 0.5%, respectively, the chance of catching hepatitis B is higher, and it is the only of the two diseases that can be prevented by immunization. The transmission happens through blood and other biological fluids. This infectious disease is more common among health professionals than in the general population, due to their greater contact with biological materials resulting from their profession. The immunization of healthcare proffesionals should be a requirement to practice the profession[7, 18-21].

Concerning the service vehicles, there was no standardized method for cleaning and disinfection when organic fluids were present. Although many participants correctly answered that they clean the object/surface with water and soap, followed by disinfection using 70% alcohol, many (39%) reported using only disinfectant, without the preliminary removal of organic materials. In view of this result, it can be inferred that the concepts and methods of cleaning and disinfection are not entirely clear. According to the CDC, cleaning is the manual or mechanical removal of (organic and inorganic) visible dirt from objects and surfaces using water and soap or enzymatic products. It is considered an essential process for successful disinfection because the presence of organic and inorganic materials can interfere with the efficacy of this process[13].

CONCLUSION

In general, mobile pre-hospital care professionals from the Fire Brigade demonstrated acceptable knowledge of the biosafety recommendations that they had gained during short-term training courses. In the course descriptions, this issue was directly addressed. Certain contents needed to be explored in depth to enhance the professionals' adherence to biosafety measures, including the following: usage recommendations and characteristics of 70% alcohol; importance of a vaccination schedule for hepatitis B in three doses; explanation of concepts such as asepsis, disinfection and sterilization; and vehicle cleaning and disinfection methods when biological materials are present.

The military staff members' satisfactory knowledge regarding the hand washing recommendation of using

water and soap is significant. The lack of infrastructure in the ambulances used for pre-hospital care, however, lacking sinks or water taps, hampered the practical application of the theory and indicates the need to encourage hand washing when the vehicle arrives at the fire readiness location.

Therefore, greater attention to Fire Brigade professionals in their function as pre-hospital care emergency workers is needed, so that training can lead to safe practices that reduce the risks in their daily activities. In addition, the institution should observe the vaccination schedules for hepatitis B, tetanus and diphtheria, in accordance with NR32, before the military personnel start work. In addition, IPE should be available through materials provision/planning, with to the aim of maintaining sufficient inventories to respond to service demands without interruption.

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ATTACHMENT

QUESTIONÁRIO

Algumas informações

Número:

Esta pesquisa tem por objetivo identificar os conhecimentos dos profissionais atuantes no atendimento pré-hospitalar do Corpo de Bombeiros em relação às recomendações de biossegurança.

Lembre-se: O questionário deve ser respondido individualmente.

Evite deixar questões em branco, pois sua participação é importante para o sucesso deste trabalho.

Agradecemos-lhe pelo seu tempo e disponibilidade em responder a esta pesquisa.

Cada questão tem apenas **uma** alternativa como resposta.

1- Categoria profissional:

( ) Subtenente/Sargento

( ) Cabo/Soldado

( ) Outros:_____

2- Sexo:

( ) Feminino

( ) Masculino

3- Data de nascimento: _____/_____/_____

4 - **Idade**: _____ anos

5- Possui algum curso de graduação?

a) Sim. Se sim, qual?

_____

b) Não

6- Curso realizado no Corpo de Bombeiros:

a) Curso de Formação de Soldados (CFSd)/Curso Técnico em Segurança Pública (CTSP):_____meses

b) Curso de Formação de Sargentos (CFS)/Curso Especial de Formação de Sargentos (CEFS)/Curso Intensivo de Formação de Sargentos (CIFS):___anos____meses

c) Curso de Aperfeiçoamento de Sargentos (CAS):___anos__meses

d)Curso de Formação de Oficiais (CFO)/Curso de Habilitação de Oficiais (CHO)/Curso Especial de Formação de Oficiais (CEFO):___anos___meses

7- Tempo de atuação no Corpo de Bombeiros _____ (duração em anos e meses)

8) Durante sua formação no Corpo de Bombeiros, houve alguma disciplina/palestra específica sobre biossegurança ou segurança da vítima?

a) Sim.

b) Não.

9) Há quanto tempo essa disciplina/palestra foi ministrada?

a) Há menos de 6 meses.

b) Entre 6 meses e um ano.

c) Entre 1 ano e dois anos.

d) Há mais de dois anos.

e) Não foi ministrada.

10) Qual o meio que você <u>mais</u> utiliza para sua atualização profissional?

a) Revistas científicas.

b) Computador ou pesquisa em sites eletrônicos.

c) Televisão/jornais/rádio.

d) Participação em treinamentos em serviço, cursos, palestras, simpósios e outros.

e) Nenhum

f) Outro:_____

<u>Responda as perguntas 11 a 18 com base no conhecimento teórico desenvolvido ao longo do seu curso/formação.</u>

11) A higienização das mãos com água e sabão é recomendada:

a) Antes e após o contato com a vítima e antes e após remover luvas estéreis ou não-estéreis.

b) Apenas se a mão estiver suada.

c) Somente após o contato com cada vítima.

d) Não sei.

12) O uso de álcool a 70% está indicado para a fricção das mãos considerando a seguinte característica abaixo descrita.

a) Capacidade de conservar as proteínas das bactérias.

b) Capacidade potencializar a eliminação de sujeira e matéria orgânica das mãos.

c) Inibição do crescimento microbiano.

d) Capacidade de esterilização das mãos.

e) Não sei.

13) A fricção das mãos com álcool 70% é recomendada em qual das situações abaixo?

a) Na ausência de sujidade visível nas mãos.

b) Somente durante o contato com a mesma vítima.

c) Somente antes de sair da unidade para atender a ocorrência.

d) Não sei.

14) Após o contato do sangue da vítima com a mucosa ocular do profissional, este apresenta algum risco de desenvolver uma infecção?

a) Não, profissionais têm suficiente resistência orgânica.

b) Não, se o profissional for vacinado para hepatite B, C e HIV.

c) Sim, se a vítima apresentar alguma doença infecciosa transmitida pelo sangue.

d) Sim, se a vítima apresentar qualquer doença, independente da forma de transmissão.

e) Não sei.**15) Dentre as possíveis infecções que podem ser adquiridas devido à natureza do trabalho executado no Atendimento pré-hospitalar estão:**

a) Febre amarela, tuberculose, dengue.

b) Hepatite B, hepatite C, AIDS.

c) Sarampo, leishmaniose, coqueluche.

d) Não sei.

16) As precauções padrão (anteriormente denominadas precauções universais) consistem em:

a) Usar equipamentos de proteção individual (óculos, máscara, luvas, gorro, capote e sapatos impermeáveis e fechados), lavar as mãos, vacinar contra hepatite B e desprezar material perfurocortante em recipiente de paredes rígidas.

b) Usar máscara facial, propés, friccionar álcool 70% nas mãos, vacinar contra tétano.

c) Usar avental impermeável, luvas descartáveis e vacinar contra a tuberculose e sarampo.

d) Não sei.

17) Quanto ao lixo produzido após o Atendimento Pré-Hospitalar deve-se:

a) Acondicionar em saco plástico preto devidamente identificado.

b) Desprezar em saco plástico comum devidamente identificado.

c) Acondicionar em saco plástico branco leitoso devidamente identificado.

d) Não sei.

18) Após um acidente de trabalho envolvendo fluídos corporais deve-se:

a) Realizar testes sorológicos para HIV, hepatite B e hepatite C uma semana após o ocorrido, pois é o tempo correspondente ao período de incubação dos vírus citados.

b) Realizar testes sorológicos para HIV, hepatite B e hepatite C no dia do ocorrido, três, seis meses e um ano após o acidente.

c) Não realizar nenhum procedimento, se o teste para HIV da vítima for negativo.

d) Não sei.

Responda as perguntas seguintes com base em suas atitudes no cotidiano de trabalho.

19) Dos equipamentos de proteção individual (EPI) abaixo listados, qual (is) você sente maior dificuldade de usar? Marque quantas opções necessitar

a) Luvas de procedimento.

b) Mascara facial.

c) Óculos de segurança.

d) Capote/avental.

e) Nenhum

f) Outro:_____

Responda as questões 20 a 23 conforme suas dificuldades apontadas na questão 19.

Caso não apresente dificuldades na utilização de EPI, continue a partir da questão 24.

20) A dificuldade de usar luvas se deve a:

a) Indisponibilidade do seu tamanho, na viatura.

b) Ausência de tempo durante o atendimento.

c) Esquecimento.

d) Perda de sensibilidade das mãos.

e) Seu uso é irrelevante.

f) Outro: _____

21) A dificuldade de usar máscara se deve a:

a) Embaçamento das lentes dos óculos.

b) Sensação de sufocamento.

c) Dificuldade de comunicação com a vítima.

d) Indisponibilidade na viatura.

e) Ausência de tempo durante o atendimento.

f) Esquecimento.

g) Seu uso é irrelevante.

h) Outro: _____

22) A dificuldade de utilizar óculos se deve a:

a) Incompatibilidade com a máscara e crença de que ela é mais importante.

b) Indisponibilidade na viatura.

c) Seu uso ser coletivo.

d) Dificuldade de avaliação da vítima.

e) Ausência de tempo durante o atendimento.

f) Esquecimento.

g) Seu uso é irrelevante.

h) Outro: _____

23) A dificuldade de utilizar capote/avental se deve a:

a) Esquecimento.

b) Indisponibilidade na viatura.

c) Ausência de tempo durante o atendimento.

d) Seu uso é irrelevante.

e) Outro: _____

24) Durante procedimentos em que haja risco de se expor a contato com líquidos corporais da vítima, com qual frequência você utiliza as luvas descartáveis?

a) Sempre.

b) Na maioria das vezes.

c) Algumas vezes.

d) Nunca.

25) Em relação à vacina para hepatite B, quantas doses você recebeu?

a) Nenhuma dose.

b) Uma dose.

c) Duas doses.

d) Três doses.

e) Não sei.

26) Qual é o procedimento de limpeza <u>mais</u> adotado por você, em caso de presença de sujidade das superfícies da viatura com materiais biológicos (sangue, saliva, sêmen, secreção vaginal ou do ânus, liquido amniótico), após o atendimento à vítima?

a) Limpeza das superfícies com água e sabão.

b) Limpeza das superfícies com água e sabão, seguida de álcool 70%.

c) Limpeza das superfícies imediata com álcool 70%.

d) Limpeza das superfícies com água oxigenada a 3%.

e) Limpeza das superfícies com hipoclorito de sódio a 1%.

f) Outro:_____

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