

Health communication by virtual environments: an experience report



Comunicação em saúde por meio do ambiente virtual: relato de experiência

Comunicación en salud través de ambiente virtual: relato de experiencia

Mônica Beatriz Ortolan Libardi^a
 Júlia Maria de Oliveira Duarte^b
 Josilene Albino de Freitas Lima^b
 Sandra de Nazaré Costa Monteiro^c
 Tiago Silva Vaz^b
 Zelinda Torri^b

How to cite this article:

Libardi MBO, Duarte JMO, Lima JAF, Monteiro SNC, Vaz TS, Torri Z. Health communication by virtual environments: an experience report. Rev Gaúcha Enferm. 2018;39:e20170229. doi: <https://doi.org/10.1590/1983-1447.2018.20170229>.

ABSTRACT

Objective: to report an experience of health communication with a strategy based on hosting health videos in a virtual environment.

Method: a video sharing site (YouTube), accessible websites, and tools to facilitate the execution of tasks (applications) were used to report a health education experience based on the hosting of videos addressing the subjects of cardiopulmonary resuscitation, airway obstruction by foreign bodies, and hemorrhages.

Results: in 17 months, there were 31,727 views for the resuscitation and the obstruction videos, which were accessed by people from 69 countries, especially Brazil and the United States; the videos about hemorrhages had 5,400 views, by viewers from the same countries.

Final considerations: the use of communication by hosting health videos in a virtual environment impacts on popular education significantly.

Keywords: Emergency. Social media. Health education. Community participation.

RESUMO

Objetivo: relatar a experiência da estratégia de comunicação em saúde por meio de hospedagem de vídeos de saúde em um ambiente virtual.

Método: relato de experiência com educação em saúde por hospedagem de vídeos nos temas reanimação cardiopulmonar, obstrução da via aérea por corpos estranhos e hemorragias, utilizando páginas da internet (site) de compartilhamento de vídeos (YouTube), páginas acessíveis na internet (websites) e ferramentas para melhorarem tarefas (aplicativos).

Resultados: em dezessete meses, houve 31.727 visualizações para os temas de reanimação e obstrução, onde sessenta e nove países acessaram os vídeos, com destaque para Brasil e Estados Unidos; os vídeos de hemorragias tiveram 5.400 visualizações, pelos mesmos países.

Considerações finais: a utilização da comunicação por meio de hospedagem de vídeos de saúde em um ambiente virtual é de extrema importância para educação popular.

Palavras chave: Emergências. Mídias sociais. Educação em saúde. Participação da comunidade.

RESUMEN

Objetivo: relatar la experiencia de la estrategia de comunicación en salud través del hospedaje de videos de salud en un ambiente virtual.

Método: relato de experiência com educación en salud por hospedaje de vídeos en temas de reanimación cardiopulmonar, obstrucción de la vía aérea por cuerpo extraño y sangría, usando páginas de Internet (sites) de compartir videos (YouTube), páginas accesibles en Internet (websites) y herramientas para mejorar las tareas (aplicaciones).

Resultados: en diecisiete meses, hubo 31.727 visualizaciones para los temas de reanimación y obstrucción, donde sesenta y nueve países accedieron a los videos, con destaque para Brasil y Estados Unidos; los videos de hemorragias tuvieron 5.400 visualizaciones, por los mismos países.

Consideraciones finales: la utilización de la comunicación por medio de hospedaje de videos de salud en un ambiente virtual es de extrema importancia para la educación popular.

Palabras clave: Urgencias médicas. Medios de comunicaciones sociales. Educación en salud. Participación de la comunidad.

^a Faculdade de Ensino e Pesquisa em Ciências da Saúde, Programa de Pós-Graduação em Ciências da Saúde. Brasília, DF, Brasil.

^b Secretaria de Saúde do Distrito Federal, Serviço de Atendimento Móvel de Urgência, Núcleo de Educação em Urgências. Brasília, DF, Brasil.

^c Universidade de Brasília, Faculdade de Ciências da Saúde, Programa de Pós-Graduação em Ciências da Saúde - DINTER. Brasília, DF, Brasil.

■ INTRODUCTION

Considering the increasing demand for providing urgency and emergency care services to the population and poor health education, the 2015 American Heart Association (AHA) Guidelines Update for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) recommended training for laypersons, that is, individuals who are not healthcare providers⁽¹⁾, given that they may be the first public to witness life-threatening situations. It is understood that these people must have the minimum and immediate proper knowledge to recognize signs, act, and ask for help before the arrival of a medical emergency service.

Studies report a reduction in morbidity and mortality in prehospital emergency situations if first aid is provided by lay rescuers trained in this area⁽¹⁻³⁾.

In this scenario, the possibility of offering health education through digital technologies came up in the form of video lessons available on the world wide web, which connects computers around the world, with the objective to disseminate health information. This branch of information technology finds acceptance among internet users for being easily accessible, interactive, and free, favoring not just actions to promote health, but also meanings which benefit subjects⁽⁴⁾, such as the recovery of citizenship as exemplified by helping others. As a consequence of the increase in the population of the Federal District (FD), Brazil, for which there was an estimate of three million people for 2017⁽⁵⁾, a need for an educational strategy that reached the highest number of people stood out, although the prank phone call reduction goal was met (from 60% to around 9%).

Virtual environments have currently been seen as a suitable means of communication for allowing fast dissemination of information through social media, cell phone applications, chats, and websites, among others⁽⁶⁾.

■ METHODS

The present investigation is an experience report about the implementation of health communication in a virtual environment, in the context of training designed for laypersons, which was developed by the enablers of *Projeto Samuzinho* and accessed through the YouTube website in an environment known as *Dicas SAMU DF*.

Projeto Samuzinho began in 2007, simultaneously to the creation of the Center for Education in Urgent Care, which belongs to the Federal District Mobile Emergency Care Service (SAMU/DF, as per its acronym in Portuguese), a program run by the Federal District Health Secretariat, aimed to decrease the number of inappropriate phone

calls, informally known as pranks. In ten years, the project assisted public and private institutions in the FD and near administrative regions from other states, providing a weekly training schedule to the community addressing several subjects related to basic first aid knowledge, that is, what to do until a specialized team arrives at an emergency site and continues care procedures. Over 31,000 people from the community were trained⁽⁷⁾ through the practice with low-fidelity manikins under the supervision of trainers, with subsequent verbal approaches about the training and knowledge acquisition.

The nomenclature "*Dicas SAMU DF*" was chosen to refer to the training environment which was already in progress with participants and trainers on-site, and the production of videos allowed it to reach the virtual community, with a popular approach and at no charge. For each subject, a specific script, set, characters, shoot/audition, manikins, place, and objectives were developed. The equipment used was a Canon T5i camera, with two 18-55 and 50 mm lenses, a Sony Uwp lavalier microphone, and a 100 W Softbox lighting device. The audio was recorded with the footage automatically. Both video and audio were recorded synchronously with a full HD 1080x1920 pixel resolution. The videos were edited with the *Première CS6* program, with an automatic synchronization of video and audio. The acoustics of the set was taken into consideration for the placement of lavalier microphones in the clothing of the actors. A Google account and a YouTube channel were created, in which the videos were uploaded. The contents of the channel were promoted in social networks. The videos lasted around five minutes each and were made available on April 15, 2016.

Because of its experience report nature, the present study did not require approval by a research ethics committee. Information on internet users was obtained in a public domain database without the possibility of identification of the examined individuals, in agreement with Resolution 510/2016 of the Brazilian National Health Council, which addresses ethical specificities of research on human sciences and others that use methodologies pertaining these areas⁽⁸⁾. For this reason, the free and informed consent form was dispensable.

The development of the reports encompassed the steps situational diagnosis, operationalization, and evaluation, which are described as follows.

1. Situational diagnosis

The increase in the FD population pointed to the need for an educational strategy which reached the highest possible number of people.

Educational technologies are mechanisms used in the health education sphere that act as mediation tools for facilitators to disseminate information. They play an important role in the training process, given that they are a readily accessible resource for users to consult if they have questions⁽⁹⁾. Some examples of educational technologies are booklets, banners, folders, flipcharts, and short and/or animation films.

This scenario brought up the following question: Can the use of educational technologies about first aid contribute to health education oriented to laypersons?

To operationalize the training, the authors took into consideration the most requested themes by the lay public that already acquired basic first aid knowledge during on-site training practices in *Projeto Samuzinho*. The chosen topics were: CPR, foreign body airway obstruction (FBAO), and hemorrhages.

2. Operationalization

Based on the 2015 AHA Guidelines⁽¹⁾, the facilitators planned simulation scenes played by actors, including a child, after the signature of the consent form by the liable people, and a young woman. Additionally, a baby manikin, the forearm of a manikin, and a low-fidelity torso manikin were used. The latter was included in the video on how to detect a sudden illness.

Cardiopulmonary resuscitation script:

Objective: to make a video showing first aid instructions for laypersons in cases of a sudden illness which causes a person to stop breathing and responding to stimuli.

The chosen set was the biggest park in the FD, with 420 hectares, and a walking and jogging track with eight thousand meters in length. It is visited daily by five thousand people approximately, which increased the chances of creating a scenario which reproduced the daily routine as accurately as possible. Nurse Mônica welcomed the audience, introduced herself, and informed that the video would provide basic first aid knowledge to laypersons (individuals who are not healthcare providers).

Scene 1 – nurse Mônica placed the actor laying on the floor and began the pain stimulus using her right-hand fingers to touch the clavicle region, saying: “Can you hear me? Can you hear me?” She observed no response of movements or sounds by the victim. She immediately checked for movements in the thorax to find out if the victim could breathe. At this point, she guided the audience on procedures: “if the person does not respond and does not breathe, ask for help by calling the 192 service and request an automated external defibrillator”. She then

oriented about how to place the hands on the thorax to initiate cardiopulmonary resuscitation by applying chest compressions until a specialized team arrives at the place and takes over the care to the victim. Because the scene was played with an actor and it is not possible to perform chest compressions in a living human being that is healthy, the video skipped to scene 2, in which a manikin was used to illustrate the procedure.

Scene 2 – by manipulating a torso manikin, nurse Mônica demonstrated how to perform chest compressions in children and adults until the arrival of a specialized team at the place or the person assisting the victim got tired and could not carry on the technique or until the victim presented any movements. She said “press it quickly and strongly”. If the person began to move, she oriented to turn him or her to their side. She emphasized that a cardiac massage is always better than no cardiac massage.

Scene 3 – by manipulating a baby manikin, nurse Mônica illustrated the approach to assist a baby up to 29 days of age. She carried out pain stimulus in the back of the spinal cord region, with back-and-forth movements with the right-hand fingers to observe if there was any spontaneous movement. According to the instruction, in case of lack of response, the victim should be placed on a rigid surface and the person providing care should pay attention to any indication that the victim was breathing. In this case, its body should be turned to the side; if not, help should be requested by calling 192, and the person should mention that was trying to assist a baby that could neither breathe nor respond to pain stimulus. She oriented the person in charge of care to obtain a mobile defibrillator and immediately begin performing chest compressions with the right hand index and middle fingers on an imaginary line connecting the baby’s nipples. Three compressions should be applied. After this procedure, the rescuer could perform a mouth-to-mouth resuscitation. If he/she did not want to ventilate with their mouth, the massage should be kept for two minutes or until the defibrillator were available or a healthcare team took over the case. After this two-minute interval, the rescuer should observe if the baby was breathing. If so, the rescuer should turn the baby to its side and keep watching its breathing until the arrival of the team. If not, the rescuer should resume the chest compressions and carry them on for two minutes. If the baby stopped breathing, the compressions should be executed once more.

Scene 4 – case of a baby from 29 days to one year of age and child between one and eight years of age. Nurse Mônica showed procedures with chest compressions using one hand.

Final scene – ending of the video, in which the audience was invited to share the material and subscribe to the channel. Acknowledgments were presented.

Hemorrhage script:

Objective: to make a video showing first aid instructions for laypersons in cases of bleeding caused by a small cut in the hand.

The set chosen to shoot the video was a gym with an average daily attendance of five hundred people, which was part of a club of a healthcare staff association. Nurse Júlia used a low-fidelity manikin forearm to guide on the hygiene of the region with clean water. With a clean cloth, she demonstrated the correct technique to stop a bleeding by performing a direct compression on the injury in a person who was exercising in the gym when a weight fell on their hand, causing a 5-cm cut approximately. The nurse stressed the importance to keep this cloth on the injury. If blood soaked through the fabric, another cloth should be placed on the first one, to help keep the blood coagulation process in the region. If the bleeding did not stop, the victim should be taken to a hospital.

Foreign body airway obstruction script:

Objective: to make a video showing first aid instructions for laypersons in cases of choking.

Nurses Júlia and Mônica participated in the video as actresses. They prepared to say what to do to unblock the airway of a baby. Before shooting, the nurses discussed the best tips and the simplest way to convey their message to laypersons. During shooting, nurse Júlia explained the procedure holding a baby manikin: “the rescuer must look at the baby’s mouth quickly, and if he/she can see what caused the baby to choke, he/she can take it out of its mouth by using their fingers as tweezers. But if the rescuer cannot see it, he/she must immediately turn the baby around and apply five strokes with a flattened hand on the baby’s back, always keeping its mouth open. After this step, place it with the chest up and make five compressions with the index and middle fingers on the imaginary nipple line. Conduct this maneuver until the airway unblocks or the baby loses consciousness”.

The nurse stressed: “If the mother is desperate and cannot perform the maneuver, she may call SAMU at 192, which has a team of doctors available full time to teach her the procedure to save the child”. The total duration of the video was 3 minutes and 58 seconds and the explanation of the maneuver itself took one minute. The footage was made in the support park during daytime.

According to the cameraman, “the videos were filmed in planned sets, with appropriate lighting, and HD images. All the material was loaded on a computer, edited, and then made available on the internet”.

3. Evaluation

When the videos had been available for one year and five months, the facilitators met to verify and count views. A database was created containing information on the variables: gender, age, country, access time, most accessed themes, and device where the video was played.

The evaluation of this means of communication as an educational strategy emphasized some positive aspects: optimization of training time; dissemination of and greater access to information; practice based on a scenario that resembles reality; and easiness for laypersons to understand without resorting to scientific terms. These points reveal the educational effectiveness and feasibility of the method.

However, the evaluation brought up the components which did not work as expected: sometimes, lighting was inadequate during shoot, and external noises disturbed the filming. These factors, individually or combined, caused new shoots to be scheduled, according to the theme.

■ RESULTS AND DISCUSSION

The present study pointed out that there were 31,727 views of the videos by the community of the virtual environment in 17 months of divulgation and uploading of the material concerning CPR and unblocking of airways. A total of 69 countries accessed the videos, and those which contribute with the highest number of views were Brazil (93%), United States (2%), Portugal (0.6%), United Kingdom (0.5%), and Japan (0.4%). The majority (66%) of the viewers were men. The pathways to watch the content were the YouTube website (88%), websites and applications (6.7%), and websites of YouTube channels (5.7%)⁽⁷⁾.

A recent study⁽¹⁰⁾ identified that 377 laypersons obtained knowledge of and grew interest on basic life support and 59.7% of its sample were men, corroborating the findings of the present report. The same study revealed that the participants were willing to receive training through videos available in online platforms, with access to printed materials for reference, which would add to the health training.

The video addressing hemorrhage had 5,400 views by users from 19 countries. The first place was occupied by Brazil (99%), followed by United States (0.5%), Portugal (0.3%), Japan (0.2%), and Angola (0.2%). As in the case of CPR video, most viewers were men (63%) and the websites of reproduction and origin of video traffic were YouTube webpages (95%)⁽⁷⁾.

It is believed that a considerable share of the population assists victims in emergency situations driven only by

the impetus of compassion, without a proper training to perform first aid techniques, which may compromise rehabilitation. There is no model program for this type of qualification in the Brazilian national sphere⁽¹¹⁾.

Therefore, the efficacy of first aid application with the participation of lay rescuers in emergency situations determines the survival chances of victims, a fact that reinforces the relevance of training oriented to laypersons⁽¹²⁾.

Self-education through internet resources is extensively used in the United States and teaching of CPR has been significantly disseminated by this means of communication. YouTube is a popular tool and almost one-third of the internet traffic related to it originates in this country, which justifies the high number of users who accessed the videos described in the present study. Because of this level of accessibility, the channel can be construed as an important platform to share relevant health-related information⁽⁶⁾.

A 2016 cross-sectional study⁽¹³⁾ which resorted to interviews conducted by phone calls with Australian resident physicians examined their knowledge of CPR performed with hands only and revealed that 50% were familiar with this technique. It is necessary to train healthcare professionals to carry out CPR with hands only. Self-learning with DVD kits or online tools may promote improvement in survival rates in CPR procedures performed by laypersons.

Facilitators are considered the brain which organizes the process of simulation, important to both healthcare providers and laypersons, in addition to providing viewers an experience in this phase of the learning cycle⁽¹⁴⁾. In the specific instance of health communication in virtual environments, facilitators have the function to demonstrate experiences through simulations, thus offering a real and transformative benefit.

Uploading free videos produced by public renowned institutions democratizes access to knowledge, empowering individuals and social groups in the development of a strong bond with their communities, providing different perspectives on life⁽¹⁵⁾, and consequently a better preparation and strengthening of the citizen attitude to help others.

■ FINAL CONSIDERATIONS

The present study emphasized the importance of disseminating health-related topics, which takes back the objectives of education oriented to laypersons. The reach of the examined videos was significant and consistent, showing that it met the social goal to offer viewers educational, up-to-date, and reliable content in a virtual environment through a video hosting system.

The presented tool was proved useful and widely ac-

cessible, for it was not confined to its origin place, Brazil. Initiatives like this contribute to health education by providing an outstanding learning space. The authors consider expanding the impact of the channel by addressing other themes, such as electrical shock, stroke, and drowning, thus facilitating health communication with laypersons and meeting the needs and questions of the target audience.

Study limitations

The videos were made available on the internet without being submitted to a process of content and face validation by specialists and target audience. The users' profile data provided by the YouTube platform are limited. Last, it is not possible to quantify either the understanding of the contents or the feedbacks.

■ REFERENCES

1. American Heart Association. Destaques da American Heart Association 2015: atualização das diretrizes de RCP e ACE. Dallas, TX: American Heart Association; 2015 [cited 2017 Aug 14]. Available from: <https://eccguidelines.heart.org/wp-content/uploads/2015/10/2015-AHA-Guidelines-Highlights-Portuguese.pdf>.
2. Lemos EFL, Nisiyama AL, Farias IEC, Lemos EMH. Educação em saúde: a experiência de alunos de medicina no ensino em Primeiros Socorros. *Participação*. 2011 [cited 2016 Aug 5];(20):35-42. Available from: <http://periodicos.unb.br/index.php/participacao/article/viewArticle/6392>.
3. Ferreira MGN, Alves SRP, Souto CGV, Virgínio NA, Silva Júnior JNB, Santos AF. O leigo em Primeiros Socorros: uma revisão integrativa. *Rev Ciênc Saúde Nova Esperança*. 2017;15(3):12-20.
4. França FCV, Melo MC, Monteiro SNC, Guilhem D. O Processo de ensino e aprendizagem de profissionais de saúde: a metodologia da problematização por meio do Arco de Maguerez. 1.ed. Brasília: Teixeira Gráfica e Editora; 2016. *Coleção Metodologias Ativas*.
5. Instituto Brasileiro de Geografia e Estatística [Internet]. Rio de Janeiro: IBGE; ©2017. Distrito Federal: panorama; [aprox. 2 telas]. Available from: <https://cidades.ibge.gov.br/brasil/df/panorama>.
6. Yaylaci S, Serinken M, Eken C, Karcioğlu O, Yılmaz A, Elicabuk H, et al. Are YouTube videos accurate and reliable on basic life support and cardiopulmonary resuscitation? *Emerg Med Australas*. 2014 Oct;26(5):474-7. doi: <https://doi.org/10.1111/1742-6723.12274>.
7. Dicas SAMUDF – Ressuscitação cardíaca pulmonar (RCP): primeiros socorros [vídeo]. Brasília, DF; 2016 [cited 2017 Sep 15]. Available from: <https://www.youtube.com/watch?v=JNc7qojAZqA>.
8. Guerriero ICZ. Resolução nº 510 de 7 de abril de 2016 que trata das especificidades éticas das pesquisas nas ciências humanas e sociais e de outras que utilizam metodologias próprias dessas áreas. *Ciênc Saúde Coletiva*. 2016;21(8):2619-29.
9. Teixeira E, Medeiros HP, Nascimento MHM. Referenciais metodológicos para validação de tecnologias cuidativo-educacionais. In: Nietzsche EA, Teixeira E, Medeiros HP (organizadores). *Tecnologias cuidativo-educacionais: uma possibilidade para o empoderamento do(a) enfermeiro(a)?* Porto Alegre: Moriá; 2014. p. 113-27.

10. Chehuen Neto JA, Brum IV, Pereira DR, Santos LG, Moraes SL, Ferreira RE. Conhecimento e interesse sobre suporte básico de vida entre leigos. *Inter J Cardiovasc Sci.* 2016 [cited 2017 Mar 15];29(6):443-52. Available from: www.onlineijcs.org/sumario/29/pdf/v29n6a04.pdf.
11. Marconato AMP. Curso de primeiros socorros para candidatos à carteira nacional de habilitação [tese]. Campinas (SP): Universidade Estadual de Campinas; 2013 [cited 2017 Aug 16]. Available from: http://repositorio.unicamp.br/bitstream/REPOSIP/311028/1/Pergola-Marconato_AlineMaino_D.pdf.
12. Oliveira MR, Leonel RA, Montezeli JH, Gastaldi BA, Penha Martins EA, Caveião C. Concepção de graduandos de enfermagem sobre a prática de educação em saúde em primeiros socorros. *Rev Rene.* 2015 [cited 2017 Mar 15];16(2):150-8. Available from: <http://www.redalyc.org/articulo.oa?id=324038465003>.
13. Bray JE, Smith K, Case R, Cartledge S, Straney L, Finn J. Public cardiopulmonary resuscitation training rates and awareness of hands-only cardiopulmonary resuscitation: a cross-sectional survey of Victorians. *Emerg Med Australas.* 2017 Apr;29(2):158-164. doi: <https://doi.org/10.1111/1742-6723.12720>.
14. Kaneko RMU, Brandão CFS. O papel do facilitador na simulação. In: Scalabrini Neto A, Fonseca AS, Brandão CFS (editores). *Simulação realística e habilidades na saúde.* 1. ed. Rio de Janeiro: Atheneu; 2017. p. 23-30.
15. Ossey S, Sylvers S, Oksuzyan S, Smith LV, Frye D, Family L, et al. Community Emergency Response Team (CERT) training of high-risk teens in the community of Watts, South Los Angeles, 2013-2014. *Disaster Med Public Health Prep.* 2017;11(5):605-9. doi: <https://doi.org/10.1017/dmp.2016.199>.

■ **Corresponding author:**

Mônica B. O. Libardi

E-mail: monicab.libardi@gmail.com

Received: 11.03.2017

Approved: 07.02.2018