

OPEN SCIENCE AND THE NEW MODUS OPERANDI OF COMMUNICATING IN HEALTH: THE ELMO EXPERIENCE

CIÊNCIA ABERTA E O NOVO MODUS OPERANDI DE COMUNICAR EM SAÚDE: A EXPERIÊNCIA DO ELMO

CIENCIA ABIERTA Y EL NUEVO MODUS OPERANDI DE COMUNICAR EN SALUD: LA EXPERIENCIA ELMO

ABSTRACT

To describe the experience of a research department at the School of Public Health of Ceará in disclosing preliminary data from the clinical study using the Elmo helmet as a hospital support strategy in the fight against Covid-19 to society. Experience report, described in August 2021, by researchers from the Scientific Investigation Center of the School of Public Health of Ceará. The event took place on November 4th with the release of research data. There was the participation of 1,400 people and 4,500 Views, being broadcast on the YouTube channel of the Escola de Saúde Pública. The speakers were the main creators of the technology. The dissemination of research data to society is necessary, being an initiative to improve processes and develop capabilities for the results of research carried out in the institution.

Descriptors: *Information Technology; Open Access; Covid-19.*

RESUMO

Descrever a experiência de um setor de pesquisa da Escola de Saúde Pública do Ceará na divulgação para a sociedade dos dados preliminares do estudo clínico com o uso do capacete Elmo como estratégia de suporte respiratório no combate da Covid-19. Relato de experiência, descrito no mês de agosto de 2021, pelos pesquisadores do Centro de Investigação Científica da Escola de Saúde Pública do Ceará. O evento ocorreu em novembro de 2021, com a divulgação dos dados da pesquisa. Participaram 1.400 pessoas, além de 4.500 *views* no canal do YouTube da Escola de Saúde Pública. O palestrante foi o principal idealizador da tecnologia. A divulgação dos dados da pesquisa para a sociedade é necessária, sendo iniciativa para aprimorar os processos e desenvolver capacidades para os resultados das pesquisas realizadas na instituição.

Descritores: *Tecnologia da Informação; Acesso Aberto; Covid-19.*

RESUMEN

Describir la experiencia de un sector de investigación de la Escuela de Salud Pública de Ceará en la divulgación de datos preliminares del estudio clínico utilizando el casco Elmo como estrategia de apoyo hospitalario en la lucha contra el Covid-19 a la sociedad. Informe de experiencia, descrito en agosto de 2021, por investigadores del Centro de Investigación Científica de la Escuela de Salud Pública de Ceará. El evento tuvo lugar el 4 de noviembre con la publicación de datos de investigación. Se contó con la participación de 1.400 personas y 4.500 Vistas, siendo transmitido en el canal de YouTube de la Escola de Saúde Pública. Los ponentes fueron los principales creadores de la tecnología. La difusión de los datos de la investigación a la sociedad es necesaria, siendo una iniciativa para mejorar los procesos y desarrollar capacidades para los resultados de las investigaciones que se realizan en la institución.

Descriptorios: *Tecnología de la Información; Acceso Abierto; Covid-19.*

Francisco Jadson Franco Moreira¹
ORCID: 0000-0003-3141-4700

Marcelo Alcantara Holanda¹
ORCID: 0000-0002-6002-0084

Leidy Dayane Paiva de Abreu¹
ORCID: 0000-0001-8895-1481

Letícia Kelly Costa Silva¹
ORCID: 0000-0002-6508-7819

Marcos Augusto de Paula Santos¹
ORCID: 0000-0003-3632-3904

¹ Escola de Saúde Pública do Ceará



<https://doi.org/10.54620/cadesp.v15i2.666>

Autor Correspondente:

Francisco Jadson Franco Moreira
jadsonfrancomoreira@gmail.com

Submetido 25/08/2021

Aceito para Publicação 27/09/2021



INTRODUCTION

Respiratory failure, due to the Covid-19 pandemic, is associated with a high mortality and burden on health systems due to the increase in patients requiring advanced respiratory support. The lack of beds in the intensive care unit (ICU) required that many patients be treated outside the ICU, despite the severe impairment of gas exchange¹. Considering that the number of Covid-19 cases has been growing exponentially and there is a significant shortage in the number of available ventilators, non-invasive respiratory support can be valuable for certain patients or as a temporary bridge until the condition is resolved^{2,3}.

The Covid-19 pandemic brought many challenges, however, it made possible the joining of forces and union between science, technology and innovation. Within this scenario, the need arose to internally manufacture a new non-invasive ventilation equipment, which could be a strategy to avoid Orotracheal Intubation (OTI) and its complications, reducing hospitalization time, in addition to meeting the demand of hospitals for mechanical respirators⁴.

Elmo is a genuine technology from Ceará, non-invasive and safe for healthcare professionals and patients. Created in April 2020, in the meantime, through a task force that involves a public-private partnership, under the Coordination of the School of Public Health of Ceará Paulo Marcelo Martins Rodrigues (ESP/CE) and the Cearense Foundation for Support to Research - FUNCAP, with support from SENAI/FIEC, the Federal University of Ceará and the University of Fortaleza, which advanced in the development of a prototype and accessory system capable of providing airway pressurization through a helmet-like interface, which was called the Elmo System.

To understand the meaning of the term Elmo, it is necessary to go into history, in the most remote records of human presence on earth that highlight war conflicts. In ancient and medieval wars, for example, a helmet was a shield, a kind of helmet, that protected the heads of soldiers involved in battles. The Elmo is positioned on the head, in an atmosphere of high flow of medical air and positive pressure oxygen. The helmet has an air inlet access that allows the patient to breathe comfortably, safely and effortlessly, due to its design, design and lightness of the materials used⁵.

The helmet provides for the use of a non-invasive artificial respiration mechanism, without the need for the patient to be intubated, with greater safety also for health professionals^{1,6}. Therefore, the objective

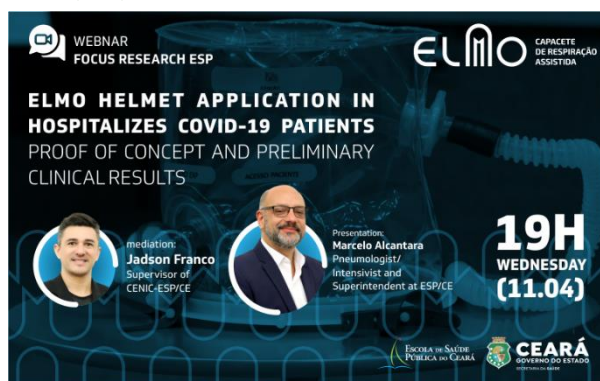
was to describe the experience of a research sector at the School of Public Health of Ceará in disclosing to society the preliminary data of the clinical study using the Elmo helmet as a respiratory support strategy in the Covid-19 combat.

METHODS

Experience report on the dissemination of data from the Elmo project to society in the webinar on "Application of Elmo in hospitalized patients with Covid-19", with the researcher, doctor and superintendent of the School of Public Health as a guest for the discussion of the theme. Ceará (ESP/CE), main creator of the Elmo Helmet.

The experience report is a tool that describes the aspects experienced by an author or a group of authors, presenting reflections on a professional experience. The experience was described in August by researchers from the Scientific Research Center of ESP/CE, creators and representatives of the organizing committee of the event (Figure 1).

Figure 1 – Webinar on Application of the Helmet in hospitalized patients with Covid-19, Fortaleza, Ceará, 2020.



Source – Ceará School of Public Health's official website

The event and registration were disclosed on the official ESP/CE website (<https://www.esp.ce.gov.br/>) and on the ESP/CE official social network (Instagram @espceara). Applications were made through Google Forms for health professionals, workers, managers, researchers, academics and civil society. The event took place on November 4, 2020, broadcast on ESP/CE's YouTube at the link: <https://www.youtube.com/watch?v=NuoakZRoZus>. The experience with the disclosure of data was transcribed for registration, systematization and analysis based on the literature that discusses this theme.

DISCUSSION

With the onset of the pandemic, health institutions needed to overcome challenges to carry out work processes, health education, training, training, teaching and science, due to social isolation measures.

The use of digital media as a method of communication and guidance proved to be an effective tool in the current world situation. The webinars have important particularities that are specific to the educational process, in addition to the broad capacity of the public to participate in events⁸. Making scientific productions have greater visibility and are more easily assimilated is a mission that requires common sense, patience and communication strategy from researchers. Scientific dissemination is essential for knowledge and for improving people's quality of life. It must also be done by a series of strategies to present to society⁹.

New technologies have brought new possibilities, but also new challenges for those who produce science and need to communicate what they do. Today, more than ever, scientific dissemination is so important and relevant and, currently, there are better tools to make it a reality¹⁰. The internet, through social networks, enabled the electronic distribution of content at a low cost, which caused profound changes in the panorama of world communication as a whole. Therefore, online platforms are currently used for geo-referencing promotions of actions to disseminate results and link government and society¹¹.

It is noteworthy that public management promotes open and free access to society, with the objective of disseminating data, information and knowledge, so that individuals can be aware of the productions and can actively act in the inspection of practices carried out by the public administration, aiming to strengthen the government's ideas for promoting collective health¹². Making scientific actions more visible and more easily assimilated is a mission that requires common sense, patience and a good communication strategy from researchers. Scientific dissemination is essential for knowledge and to improve people's quality of life, with strategies that should be presented to society⁹.

Innovation just gets off the paper with correct disclosure. It is no use developing a new health technology that is relevant to society without exposing the results obtained. If the technology is proven to be efficient, it is essential that this is transmitted to as many people as possible. Thus, this resource can be more used and valued by society¹¹. It is noteworthy that transparency is not only associated with publicizing information so that its effectiveness is achieved. It needs

to be precise and understandable, so that individuals can understand the effectiveness of the news passed on by the government¹³.

And the ELMO technology is defined as a device that provides CPAP through a continuous flow of oxygen and compressed air to patients who have symptoms aggravated by COVID-19 and who need oxygen therapy outside the ICU. The device was well tolerated by patients and its use was feasible in 60% of them¹⁴. A survey using the CPAP helmet resulted in failures in up to 44% of patients with moderate to severe hypoxemic ARF caused by COVID-19 pneumonia. In the same study, 55.4% of patients with a PaO₂/FIO₂ ratio with a median of 136 avoided intubation and were then successfully weaned for oxygen therapy¹⁵. In the analyzes regarding the comfort and convenience of the ELMOCpap, patients considered it to be moderate to very comfortable, making it possible to continue using the device in the long term in patients who show hyposaturation¹⁶.

FINAL CONSIDERATIONS

The current pandemic emphasizes scientific responsibility, mobilizing researchers looking for solutions to save lives. And, little by little, solutions have been appearing, such as the experience of presenting data in the webinar, which provided the School of Public Health with a way to disseminate the technology developed in the state to society, being an initiative to improve the products and research carried out, under construction and those that will be carried out by the institution.

A limitation of the experience is the existence of few Elmo helmets in health institutions. Most of them are purchased by patients and family members. However, it is necessary that the state and institutions seek innovation mechanisms that can support health care in confronting Covid-19. Therefore, experience shows that innovative technologies for hospital care practices can provide comfort, improve health and save lives.

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