

# PREVENTION OF CHILDHOOD BURNS IN TIMES OF PANDEMIC: A VIRTUAL AND INTERACTIVE CAMPAIGN

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**Abstract:** Childhood burns belong to the group of traumatism and are injuries that can cause death or leave serious permanent sequelae. They are events that occur more frequently in children under five years of age and occur within their home. Most of these events can be prevented with community education activities and mass campaigns. In March 2020, face-to-face school activities in Chile were suspended due to the Coronavirus pandemic, forcing children to stay in their homes. This becomes an increased risk of burns, so a virtual and interactive campaign is designed, aimed at preschool and first-cycle school children, creating specific videos for different causal agents of burns with animated characters and ending with an invitation to send a drawing of what they learned in the video. With the drawings received, a new video is created to share on social networks. The children manage to capture in their drawings the educational messages they have received and in five months of campaigns, with eleven different videos, it is possible to receive 2,166 drawings by Chilean children and 317 drawings from abroad. The campaign is published and disseminated through social networks, considering it as a useful and efficient means to deliver health educational content to the community.

**Keywords:** Burns, Primary prevention, Health Education, Pediatrics.

## INTRODUCTION

Burns are injuries produced in living tissues, due to the action of various physical agents: flames, liquids or objects, radiation, electric current, cold; chemical (caustic) and biological. They can cause damage ranging from a simple transient erythema on the skin, to the total destruction of the structures.

In the world, injuries are among the leading causes of death and permanent disability among children between the ages of 5 and 14,

a category that includes burns.

Burn injuries are the third leading cause of preventable death in children worldwide.

In terms of mortality and population, it is known that the pediatric mortality rate from burns in low- and middle-income countries is 11 times higher than in high-income countries (4.3 per 100,000 vs. 0.4 per 100,000). At the same time, preschoolers (children under 5 years of age) have the highest mortality rate. Injuries associated with environmental risks and family characteristics are the leading cause of mortality, disability, and use of health services in the United States for children and adolescents between 1 and 19 years of age.

Both in the acute stage and in subsequent rehabilitation, burns cause great suffering to the affected person and their family, significant rehabilitation costs and, in many cases, emotional, social, growth, development and aesthetic damage that accompany them throughout the life. The economic burden associated with childhood burns includes short-term and long-term medical costs, with lost productivity. The physical damage derived from burns represents the third cause of hospitalization and death due to trauma in Chilean children. The highest frequency of burns occurs in the group of children under 5 years of age, a situation similar to that recorded in hospital studies in other countries, and it has been shown that most burns in children occur at home.

As for risk factors, burns are strongly associated with poverty, low literacy within the family, overcrowding, age, supervision of children, environmental risks, inadequate safety measures for the use of gas and electricity, among others.

The World Health Organization (WHO) classifies childhood burns as “involuntary trauma” since most are not the product of intentionality; they have the possibility of being avoided and the apparent cause is

known, so they are not called or considered as accidents. This motivates the incorporation of the prevention of childhood burns in health promotion actions.

Based on the definition established at the Ottawa International Conference in 1986, health promotion is “the process of enabling people and communities to increase control over the determinants of health, and therefore improve your health.” The Chilean Ministry of Health (2021) indicates that:

Health Promotion requires the participation, inclusion and involvement of different social actors, in the individual and family sphere, and closer environments. This to influence deeper cultural changes that allow people to be protagonists of their own change processes.

In Chile, the actions of the Health Promotion Program (2021) are framed within the National Health Strategy, which in its strategic objective No. 3 proposes the goal of Optimal Health:

To develop healthy habits and lifestyles that favor the reduction of risk factors associated with the burden of disease in the population, such as tobacco use, alcohol use, overweight and obesity, sedentary lifestyle, sexual behavior, and consumption of alcohol. illicit drugs.

An effective prevention plan must be multisectoral and include efforts to: raise awareness of the problem, develop and implement effective policies, describe the burden and identify risk factors, define research priorities with promotion of promising interventions and provide burn prevention programs, among other.

Preventive interventions in the health and environmental management sectors have been shown in many countries to be effective in protecting children from exposure to hazardous factors. Chile is a country that stands out for carrying out various initiatives that seek to promote health in its population,

including preschool-age boys and girls, with the participation of various entities.

Mistry (2012) points out four fundamental pillars of childhood health: responsive care, safe and secure environments, adequate and appropriate nutrition, and behaviors that promote health; three of which are essential to avoid burns if we focus our actions on them. From the evolutionary and maturational point of view of the child, early ages are considered a key stage in the integration of healthy habits, as well as in the learning of beneficial practices for health that can last throughout life. The interplay between experiences, environments, and biology are powerful influences on childhood health and exert their effects well into adolescence or even adulthood. For its part, the school environment is a primary space for the development of actions aimed at promoting health and achieving comprehensive development, building healthy and inclusive environments.

There are multiple mechanisms for the community to access health education and different tools for it, depending on the target population. The same material is not used for adults as it is for adolescents or children. The way of delivering the contents, the language, the channel, the methodology and other characteristics vary. In today's world, it is necessary to maximize the population's access to health education, through better strategies and incorporating the use of digital technologies.

Information and communication technologies have become a potential source of health promotion, particularly in pediatrics. More and more people search the Internet for health information. Also, increasingly, health professionals rely on this modality as a work tool.

To design a burn prevention campaign aimed at children, one must consider the digital technologies with which digital natives

communicate in their daily lives and use them to communicate knowledge of pedagogical content in a more attractive way. Educational theorists, whether behaviorists, cognitivists, or constructivists, agree that an effective way to facilitate learning is to provide students with the opportunity to actively participate in activities and processes that are meaningful to them. If the active participation of school and preschool boys and girls in a prevention campaign is sought, we can identify a common point for all, such as expression through drawing. Through drawing they can incorporate the concepts learned and participate actively; Sharing your drawings creates an interactive, dynamic process that has the potential to generate new contributions to the campaign.

Artistic education seeks to develop upright beings and provides the necessary elements so that, considering the age and degree of discernment of each child, it strengthens their personality and their correspondence with the natural and social environment. Drawing is an individual and cognitive construction, whose learning is not subordinated to the strict rules to which language or other communication systems are subjected, such as mathematics or logic. The importance of drawing lies in the fact that, in order to do it, the child must, above all, interpret reality, since to configure an interpretation a certain degree of imagination is required, which implies understanding reality, without which it is impossible to understand the world that around us. It is through drawing that the child manifests the development of her thinking.

Preschool education in Chile has dictated a single list of minimum objectives that are found in the “Curricular Bases”. Those referring to Early Childhood Education of the year 2018 in the “nucleus of identity and autonomy” and in the “nucleus of coexistence and citizenship” incorporate the use of information and

communication technologies (TICs) so that children can recognize and communicate emotions, anticipate actions and anticipate situations or challenges, express empathy and solidarity, participating in actions of listening, support and collaboration.

Contemplating the aforementioned aspects, the creation of a preventive campaign within the framework of health promotion is supported, which is aimed at reducing childhood burns, considering the personal, family, economic and social consequences that they imply. The possibility that children can participate in the campaign by incorporating the contents through the making of drawings can be a favorable factor for the success of a campaign.

## **INTERVENTION STRATEGY**

During the last 30 years, the Corporation for Aid to Burnt Children (COANIQUEM) has been a leader in the development and execution of childhood burn prevention campaigns in Chile. The start of the COVID-19 pandemic in March 2020 caused the interruption of face-to-face school activities and the permanence of children in their homes for an indefinite period of time. Since childhood burns occur preferably within the home, COANIQUEM proposed creating a virtual campaign to educate children about the risks of burns and thus teach them the most common causative agents and mechanisms by which these injuries occur. This is how the “International, virtual and interactive campaign for the prevention of burns with Santi” was created, aimed at children under 12 years of age. Among the resources for prevention work, COANIQUEM, with the contribution of the Art Center College of Design in Pasadena, California, has developed three children’s characters: Santi (mischievous and active feline pet), Camila and Lucas (siblings who take care of the pet Santi). These

characters were created specifically to teach children about the risks of burns, represented by the actions that the mascot Santi performs when approaching the causal agents that cause burns, and his friends Camila and Lucas who are always warning him in time of danger. This way, the traditional way of presenting risk is changed; the one that was represented by a child in the situation of being burned, with the possibility that the action was imitated by the children who saw it. In addition, the affection and care that children have for their pets is appealed to and they are given a positive leading role.

For the development of the campaign, 11 animated videos of the characters were made, each one approximately 90 seconds long and addressing different causal agents that cause burns. The videos end with an invitation for the children to draw what they learned in the video and send a photo of the drawing to COANIQUEM. The number of drawings received in response will be considered a measurement indicator for the effectiveness of the campaign. The campaign was executed in the period between June 30 and November 24, 2020.

With the drawings received, a response video was created each time to publish the children's drawings on social networks and share via WhatsApp. Contacts and community outreach were used in each city of the country through the work of COANIQUEM's regional offices, making the campaign national in scope. Videos with the selected drawings were published and each one ended with a preventive advice explained by a COANIQUEM professional to reinforce the message of the respective video. The rest of the drawings were incorporated into a photo album on COANIQUEM's Facebook and on the institutional website. Every time a video of Santi with a new causative agent was published, the following week a video was published with

the drawings made by the children on that video. This modality, alternating videos of Santi and of the drawings, was applied with all the causative agents in the following weeks.



Figure 1: Drawing received in response to video of electrical burns



Figure 2: Drawing received in response to video of burns caused by spilled liquids on the table.

Once the campaign was established in Chile, institutions from other Central and South American countries that perform functions similar to COANIQUEM, and with which there is a historical link of joint work in the prevention and rehabilitation of childhood burns, were contacted, and they were invited to participate in the Campaign. The necessary adjustments were made in the way of showing the mechanisms, and in the language used in the locution; and even a new video was created for an exclusive mechanism from one of the countries that was incorporated into the campaign.

## RESULTS

Campaign in Chile:

- 11 educational videos of Santi, each one with a different burn mechanism
- 165 response videos with children's drawings
- 2,166 drawings received
- 126 communes of the country represented in the drawings received.

International reach of the campaign:

- 5 countries participate: Bolivia (CERNIQUEM, Santa Cruz de la Sierra), Peru (ANIQUEM, Lima), Honduras (CRISAQ), Costa Rica (ASOQUEM) and Colombia (Piel para Renacer).
- 20 educational videos by Santi, one specific for the burn mechanism itself
- 15 response videos with children's drawings
- 317 drawings received.

## CONCLUSIONS

To carry out a virtual campaign through social networks is presented as a way to access the population to deliver educational health content, in this case aimed at children and with material created specifically for them.

The campaign is interactive since it considers the active participation of the recipients -in this case children- who not only receive a message, but also have the possibility of responding to the message, capturing their personal vision of what they have received in the drawing and can share it. Through the drawings, the child expresses what she has interpreted and incorporated about the reality perceived in the message, thus providing confirmation that the preventive messages have been received. From the support of parents and teachers who facilitated the children's access to these videos and then sent the drawings made to COANIQUEM, it was possible to establish continuous

communication with the target population.

The difficulties for the development of the campaign were minimal and were mainly related to the population's access to social networks, and to meeting the deadlines for sending the drawings to be incorporated into the response videos.

The reach of the campaign measured through the number of drawings received in response to each publication confirms that the mechanism used for health promotion in this area has been effective.

## REFERENCES

- Avendaño, V. (2020). *Aprender a aprender con TIC: Estudios sobre usos de tecnología educativa en el aprendizaje de los estudiantes*. ISBN 978-956-7052-95-0. Pags. 7 y 68.
- Camargo, C. & Pinzón, G. (2012). **La promoción de la salud en la primera infancia: evolución del concepto y su aplicación en el contexto internacional y nacional**. *Rev. Fac. Med.* 60(1), 62-74. <https://revistas.unal.edu.co/index.php/revfacmed/article/view/35477>
- Guyer, B., Ma, S., Grason, H., Frick, K., Perry, D., Sharkey, A. & McIntosh, J. (2009). **Early Childhood Health Promotion and Its Life Course Health Consequences**. *Academic Pediatrics*. 9(3), 142-149, ISSN 1876-2859. <https://doi.org/10.1016/j.acap.2008.12.007>.
- Infante, J. (2004). **El dibujo y la expresión oral como evidencias en el desarrollo del pensamiento de los niños preescolares**. *Revista Internacional de Ciencias Sociales y Humanidades, SOCIOTAM*. XIV (2): 153-172. <https://www.redalyc.org/articulo.oa?id=65414206>
- MINEDUC. (2018). *Bases Curriculares para la Educación Parvularia. Subsecretaría de Educación Parvularia*. Gobierno de Chile. [https://parvularia.mineduc.cl/wp-content/uploads/2019/09/Bases\\_Curriculares\\_Ed\\_Parvularia\\_2018-1.pdf](https://parvularia.mineduc.cl/wp-content/uploads/2019/09/Bases_Curriculares_Ed_Parvularia_2018-1.pdf)
- MINSAL. (2021). *Departamento de Promoción de la Salud y Participación Ciudadana*. <https://dipol.minsal.cl/departamentos-2/promocion-de-la-salud-y-participacion-ciudadana/>
- MINSAL. (2016). *Guía GES Gran Quemado*. [http://www.bibliotecaminsal.cl/wp/wp-content/uploads/2016/04/GPC-GRAN-QUEMADO-FINAL-18-MARZO-2016\\_DIAGRAMADA.pdf](http://www.bibliotecaminsal.cl/wp/wp-content/uploads/2016/04/GPC-GRAN-QUEMADO-FINAL-18-MARZO-2016_DIAGRAMADA.pdf)
- Mistry, K., Minkovitz, C., Riley, A., Johnson, S., Grason, H., Dubai, L. & Guyer, B. (2012). **A new framework for childhood health promotion: The role of policies and programs in building capacity and foundations of early childhood health**. *American Journal of Public Health*. 102(9), 1688-96. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3482035/pdf/AJPH.2012.300687.pdf>
- PhieChong, H., Quinn, L., Cooksey, R., Molony, D., Jeeves, A., Lodge, M. & Carney, B. (2017). **Mortality in paediatric burns at the Women's and Children's Hospital, Adelaide, Australia**. *Burns*, 46(1), 207-212. <https://doi.org/10.1016/j.burns.2019.06.004>
- OMS/UNICEF. (s/f). *Children and Burns. World report on child injury prevention*. <https://www.who.int/publications/item/9789241563574>
- OMS. (2018). *Key Facts*. <https://www.who.int/news-room/fact-sheets/detail/burns>
- OMS. (2010). *Mensajes básicos para actuar*. Un entorno sano para niños sanos. [https://apps.who.int/iris/bitstream/handle/10665/44464/9789243599885\\_spa.pdf;jsessionid=0CDDF320D2A314BA78DFE927CEF922CF?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/44464/9789243599885_spa.pdf;jsessionid=0CDDF320D2A314BA78DFE927CEF922CF?sequence=1)
- Rodríguez, Á., Páez, R., Altamirano, E., Paguay, F., Rodríguez, J. & Calero, S. (2017). **Nuevas perspectivas educativas orientadas a la promoción de la salud**. *Educación Medicina Superior*. 1(4), 1-11. [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S0864-21412017000400025&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21412017000400025&lng=es).
- Solís, F., Domic, C., Saavedra, R. & González, M. (2014). **Incidencia y prevalencia de las lesiones por quemaduras en menores de 20 años**. *Rev. chil. pediatr.* 85(6), 674-681. <http://dx.doi.org/10.4067/S0370-41062014000600004>.
- Vázquez, E., Morell, J., Cuervo, J., Fernández, E., Garrido, J., López, R., Lorente, M. & Serrano, E. (2015). **Familia y Salud web as source of health promotion for children, families and teens**. *Pediatría Atención Primaria*, 17(66), 117-124. <https://dx.doi.org/10.4321/S1139-76322015000300006>