

Index of Fbao in Children: Occurrences and First Aid Training

RESUMO

Objetivo: O presente estudo tem como objetivo investigar a incidência da obstrução das vias aéreas por corpo estranho (OVACE) em crianças, analisando os contextos onde essa emergência ocorre com maior frequência e propondo estratégias de capacitação em primeiros socorros voltadas à prevenção e intervenção imediata. **Material e Métodos:** A pesquisa adota como metodologia a revisão integrativa da literatura, permitindo reunir, avaliar e sintetizar estudos científicos publicados entre 2020 e 2025, com foco na eficácia de treinamentos de primeiros socorros oferecidos a pais, educadores e profissionais da saúde. **Resultados:** Os resultados indicam que ambientes como escolas, creches e residências são os mais propensos à ocorrência de OVACE, sendo a ausência de capacitação um fator agravante. **Conclusão:** Conclui-se que a implementação de programas educativos contínuos e acessíveis é fundamental para reduzir os índices de mortalidade e promover a segurança infantil, tornando pais e cuidadores mais preparados para agir corretamente diante de emergências.

DESCRIPTORES: Primeiros socorros; Capacitação; Obstrução das vias respiratórias; Crianças.

ABSTRACT

Objective: This study aims to investigate the incidence of foreign body airway obstruction (FBAO) in children by analyzing the contexts in which this emergency most frequently occurs and proposing first aid training strategies focused on prevention and immediate intervention. **Materials and Methods:** The research adopts an integrative literature review methodology, allowing the collection, evaluation, and synthesis of scientific studies published between 2020 and 2025, with a focus on the effectiveness of first aid training offered to parents, educators, and healthcare professionals. **Results:** The results indicate that environments such as schools, daycare centers, and homes are the most prone to FBAO occurrences, with the lack of training being an aggravating factor. **Conclusion:** It is concluded that the implementation of continuous and accessible educational programs is essential to reduce mortality rates and promote child safety, making parents and caregivers more prepared to act correctly in emergency situations.

DESCRIPTORS: First aid; Training; Airway Obstruction; Children.

RESUMEN

Objetivo: El presente estudio tiene como objetivo investigar la incidencia de la obstrucción de las vías respiratorias por cuerpo extraño (OVACE) en niños, analizando los contextos donde esta emergencia ocurre con mayor frecuencia y proponiendo estrategias de capacitación en primeros auxilios enfocadas en la prevención e intervención inmediata. **Material y Métodos:** La investigación adopta como metodología la revisión integradora de la literatura, permitiendo reunir, evaluar y sintetizar estudios científicos publicados entre 2020 y 2025, con énfasis en la eficacia de las capacitaciones en primeros auxilios dirigidas a padres, educadores y profesionales de la salud. **Resultados:** Los resultados indican que entornos como escuelas, guarderías y domicilios son los más propensos a la ocurrencia de OVACE, siendo la falta de capacitación un factor agravante. **Conclusión:** Se concluye que la implementación de programas educativos continuos y accesibles es fundamental para reducir los índices de mortalidad y promover la seguridad infantil, preparando mejor a padres y cuidadores para actuar correctamente ante emergencias.

DESCRIPTORES: Primeros auxilios; Capacitación; Obstrucción de las vías respiratorias; Niño.

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INTRODUCTION

Foreign body airway obstruction (FBACE) in children is a public health problem of global relevance, representing a serious threat to children's lives and raising concern throughout society. According to the Ministry of Health, this condition is the leading cause of death from accidents among children under five in Brazil [1]. It is a tragedy that affects many families, often suddenly and irreparably.

On the international stage, the World Health Organization (WHO) estimates that more than 200,000 children under the age of five die every year as a result of choking on objects, highlighting the seriousness of the problem and the urgent need for preventive measures [2]. The magnitude of these figures reveals the universal nature of OVACE, the prevention of which requires educational and structured interventions [3].

During early childhood, children are in an intense phase of exploration and development, marked by curiosity, experimentation and neuromotor immaturity. Children's anatomy, characterized by narrow airways and limited respiratory capacity, makes them more vulnerable to aspirating objects [4]. Their developing motor skills and lack of awareness of the risks increase the potential for accidents of this nature [5].

The list of objects that cause OVACE is long and sometimes unexpected: small toys, game pieces, seeds, candies, buttons, jewelry, pen caps and straws are recurring examples that pose silent and potentially fatal dangers [6]. The home environment, where children spend most of their time, often contains risky elements to which they are constantly exposed.

The consequences of OVACE go beyond the physical dimension and deeply affect families' emotions. The psychological trauma experienced by parents and guardians in the face of the

loss or experience of a choking episode is significant, accompanied by feelings such as guilt, helplessness and fear [3]. The lack of knowledge about how to act in these cases aggravates the scenario and compromises the chances of survival.

Misinformation is therefore one of the main obstacles to the effective prevention of OVACE. Many caregivers, educators and childcare professionals do not have adequate training to act in emergencies, which can result in fatal outcomes due to the lack of immediate intervention [4]. The lack of educational actions aimed at this public reinforces social vulnerability in the face of such occurrences.

However, OVACE is a largely preventable condition. Health education and first aid training initiatives have shown promising results in reducing the number of cases, as well as empowering society with practical, life-saving knowledge [7]. Training parents, teachers and caregivers is a crucial strategy for promoting an immediate and correct response in risk situations [8].

Building safer environments for children and adopting public policies aimed at preventing accidents with foreign bodies should be goals shared by governments, educational institutions, health professionals and the community in general. Uniting these efforts is essential if OVACE prevention is to become a concrete and effective reality.

Based on this panorama, this research aims to analyze the incidence of OVACE in children and investigate the level of training in first aid among the adults responsible for their care, promoting reflections on effective preventive strategies.

MATERIALS AND METHODS

Type of research

This is an integrative literature review, a method that allows the synthesis of scientific studies on the effective-

ness of first aid training for OVACE, aimed at parents, educators and professionals who care for children, divided into the following stages:

Formulation of the research question, based on the PICO model (or another suitable approach for integrative reviews), to guide the search and selection of studies.

Systematic literature search in scientific databases, using controlled and non-controlled descriptors related to OVACE, first aid and caregiver training.

Selection and evaluation of studies with well-defined inclusion and exclusion criteria, guaranteeing the methodological quality of the articles analyzed

Extraction and synthesis of the data, organizing the evidence found into thematic categories, such as the impact of the training, the methodologies used and the challenges in implementing the training.

Critical analysis and discussion, comparing the findings of the selected studies and identifying gaps in the literature.

Inclusion criteria

To select the studies that make up this review, we considered those that met strict inclusion criteria. Firstly, the studies had to be published in scientific journals duly indexed in internationally recognized databases such as PubMed, Scopus and LILACS, ensuring the reliability and relevance of the information presented. In addition, it was essential that the studies addressed the evaluation of the effectiveness of first aid training aimed at the prevention and management of OHCA, whether accidental, alimentary, vaccine-related or related to specific clinical conditions, as long as they were aimed at parents, educators and childcare professionals.

Another important criterion was the requirement that the studies used well-structured scientific methodologies, whether quantitative, qualitative or mixed, enabling a critical analysis of

the data presented. Only publications written in Portuguese, English or Spanish were included, in order to ensure standardization of the textual analysis and understanding of the results. Finally, the time frame was restricted to academic production between 2020 and 2025, with the aim of capturing up-to-date studies aligned with the latest practices in the field of health and education.

Exclusion criteria

On the other hand, all studies that did not directly address the effectiveness of first aid training for OVACE situations were excluded. Studies that did not target parents, educators or other professionals responsible for caring for children were also discarded, given that the focus of this investigation is centered on this specific group.

Additionally, studies that used non-scientific methodologies, such as isolated case reports, personal opinions, editorials and letters to the editor, were excluded due to their limitations in terms of scientific validity and generalization of results. Works not indexed in scientific journals were also disregarded, as were duplicate publications or those with significantly repeated content from other studies already included in the review, with the aim of avoiding redundancy and bias in the findings.

Health Descriptors

The following health descriptors were used to search the databases, according to the DeCS/MeSH terminology: "First aid", "Training", "Airway obstruction" and "Children". These terms were strategically combined with each other in order to cover as many relevant studies as possible.

Number of papers found

The search in the databases resulted in the following initial numbers of studies, as shown in Table 1:

Table1 : Initial numbers of studies

DATABASE	NUMBER OF STUDIES FOUND
PubMed	9 studies related to "first aid"
VHL (Virtual Health Library)	79 studies on "first aid training"
LILACS	801 studies on "airway obstruction"

Source: Own authorship (2025).

After reading the titles, abstracts and applying the inclusion and exclusion criteria, the final selection of studies used in this review was made.

RESULTS

After applying the previously established inclusion and exclusion criteria, 12 scientific articles were selected to make up the final sample of this integrative review. These studies were published between 2019 and 2025 and included research carried out in different countries, including Brazil, the United States, Spain and Canada. The studies address both the occurrence of OVACE in children and the effectiveness of first aid training programs.

The articles analyzed indicate that most cases of OVACE in children occur in the home environment, especially during feeding or playing with small objects. Children between the ages of 1 and 4 were identified as the most vulnerable, due to the stage of development in which they are still exploring the world orally and do not have fully developed swallowing reflexes.

Another relevant finding in the studies is that, in most cases, those responsible at the time of the incident did not have adequate first aid training, which delayed intervention and, in some cases, worsened the outcome of

the situation. The articles reinforce the importance of immediate and correct action in these episodes, highlighting the Heimlich Maneuver as the most effective procedure for clearing the airways.

As for training, studies show that training programs aimed at parents, teachers and caregivers are effective in reducing complications and even preventing deaths from OHCA. Training that used practical methodologies, such as simulations and the use of training dummies, showed more significant results in terms of content retention and participants' confidence in applying the techniques learned.

Several studies also point out that including first aid training in the school curriculum in nursery and primary schools would be an effective strategy for reaching both education professionals and the students themselves, increasing awareness and the ability to respond to emergencies.

Finally, some articles highlighted the need for public awareness campaigns, especially in low-income communities, where access to information and training is more limited, contributing to children's vulnerability to accidents of this kind, as shown in Table 2.

Table2 : Selected studies

Author	Year	Title	Objective	Conclusion of the study
AMARAL, Mariela S. et al.	2023	Inspire: first aid for OVACE in children	Report on the experience and evaluate the effectiveness of the educational intervention	The intervention was effective in promoting knowledge about OVACE
BRAZIL. Ministry of Health	2023	Mortality Information System - SIM	Provide statistical data on causes of mortality	The data is essential for public prevention policies
CAROLINO, Roseli	2022	Educational action on prevention and first aid for choking accidents in early childhood education	Developing educational activities in early childhood institutions	The action demonstrated an increase in the knowledge and preparation of educators
DA CRUZ PEREIRA, Mislaine et al.	2023	University extension in first aid training for children and adolescents	Present extension actions aimed at training in first aid	The training was successful and had a positive impact on the community
DA SILVA, Leonardo; MACHADO, Daniel R.	2022	Airway obstruction in children and infants and first aid in nursing	Address theoretical and practical aspects of OVACE in nursing	Emphasizes the importance of first aid training in the work of professionals
DE MOURA, Vitória A. et al.	2021	Educational technologies for teaching first aid to parents and educators	Reviewing technologies applied to teaching first aid	Technology is an effective tool for training laypeople
FERREIRA, Carolyn et al.	2022	OVACE prevention and first aid for children	Raising awareness of OVACE prevention	The study reinforces the need for preventive education from an early age
LANGWINSKI, Adriano et al.	2023	Educational intervention on OVACE for early childhood teachers	Evaluating the effectiveness of an educational intervention	The intervention significantly increased teachers' knowledge
MARQUES, Sara R. C.	2019	Specialized nursing interventions for children and families in emergencies	Describe nursing practices in critical situations	Specialized interventions are key to reducing risks in emergencies
WHO	2023	Estimated deaths from choking in children under 5	Present global data on choking deaths	Choking is one of the main causes of preventable death in young children
SALES, Joana M. R.	2023	Health literacy of adolescent mothers in childcare	Understanding the level of health literacy of young mothers	Low literacy has a negative influence on childcare

Source: Own authorship (2025).

DISCUSSION

OVACE is one of the main causes of pediatric emergencies, especially among children under the age of five. This vulnerability is directly associated with anatomical factors, such as the reduced caliber of the airways, and behavioral factors, such as the tendency to explore the world with their mouths. The natural curiosity of young children, combined with the immaturity of the swallowing system, contributes significantly to the high risk of accidental choking^[1].

The literature shows that many episodes of OVACE are the result of inadequate supervision or lack of awareness

of the risks on the part of caregivers. Parents and educators often ignore the dangers of certain foods or objects that are unsuitable for children's age groups. Studies show that prevention depends directly on guidance on safe practices, especially in the home and school environment^[5].

Most cases of OVACE start suddenly, requiring a quick and precise response to avoid serious consequences. However, many of those responsible for children are unaware of the initial clinical signs of obstruction, such as ineffective coughing, absence of sound and cyanosis. This lack of knowledge delays intervention and, in many cases,

can lead to the child's death^[4].

Research shows that first aid training is essential for reducing OVACE mortality. Practical training enables parents, educators and caregivers to react more safely and effectively in emergency situations. The Heimlich maneuver, for example, when performed correctly, can be decisive in the first few seconds of obstruction^[3].

Interactive teaching methods, such as face-to-face workshops, simulations with puppets and explanatory videos, are more effective at retaining knowledge. Participants who use these resources show greater self-confidence and precision in performing the techniques, when compared to those who

only attend theoretical lectures^[9].

Despite this, many caregivers report that, even though they are aware of the risks of choking, they do not adopt preventive measures in their daily lives. This behavior shows that information alone is not enough to promote effective change. It is necessary to transform knowledge into habit, which can only happen through training with a practical and reflective focus^[10]. Schools stand out as strategic spaces for disseminating first aid knowledge. Trained teachers become multiplier agents, capable of introducing content adapted to children, using games and play that reinforce food and behavioral safety^[8].

Mandatory periodic training in educational institutions, as already occurs in some countries, is associated with a reduction in deaths from OHCA. In Brazil, the lack of public policies in this regard jeopardizes the reach of such training, especially in regions of greater social vulnerability^[6]. The financial issue is also a major barrier. Many families cannot afford paid courses, which makes it urgent to implement free training, made possible by public policies and partnerships between the government and civil society^[4].

Another challenge faced is the fear of acting in emergencies. Many caregivers hesitate to carry out procedures for fear of causing further damage, which highlights the importance of practical simulations. Experiencing the procedure in a controlled environment helps to internalize the correct steps and reduces insecurities^[7].

Coordination between schools, health units and communities can increase access to information. Workshops and regular lectures by health professionals in schools and associations build a local child protection network and strengthen the commitment to prevention [5]. With the advance of technology, digital resources have become part of health teaching strategies. Apps, educational videos and social

networks help to disseminate content on first aid, especially among young parents who use the internet as their main source of information^[11].

However, the effectiveness of these digital strategies depends on factors such as the quality of the material, user engagement and supervised practice. Exclusively virtual training may not guarantee the expected proficiency, requiring complementary face-to-face actions^[10]. A critical point identified in the literature is the lack of standardization of the content offered in first aid courses. Each institution adopts its own methodology, which can result in learning gaps. The creation of national guidelines is essential to standardize teaching and ensure the quality of training.

In addition, there is evidence that isolated training, without periodic refresher courses, does not guarantee that the content will be retained over time. Continuous re-education is essential to keep caregivers prepared and up-to-date with the most recommended practices^[3]. Including the subject of first aid in initial teacher training is also a recurring recommendation among specialists. In this way, educators would already enter the job market with basic skills to intervene in emergencies such as OVACE^[8].

Another preventative measure is to educate the children themselves. Through playful activities, they can learn that certain objects should not be put in their mouths, which reduces the risks and contributes to creating a preventive awareness from an early age^[6]. The role of health professionals in the community context should also be expanded. Nurses and community workers, by carrying out educational activities in nurseries, schools and associations, promote more democratic access to information and strengthen the care network^[9].

Traditional media campaigns continue to be relevant. Television and

radio reach diverse audiences and are important allies in disseminating prevention and first aid practices, especially in areas with little access to the internet^[2]. Early identification of obstruction is a decisive factor for successful intervention. Teaching signs such as absence of crying, bluish coloration and ineffective respiratory movements can save lives, allowing for an immediate response^[4].

First aid training should be considered a family right and a state obligation. All caregivers should have access to appropriate training as part of a child protection policy^[1]. The role of public authorities is indispensable, not only in funding but also in structuring prevention policies. Incentives for free training, awareness campaigns and specific regulations are urgent measures to curb the rise in cases^[5].

Safer environments also involve regulating children's products. It is necessary to inspect toys, ensure proper labeling and restrict the marketing of items that pose a risk to young children [11]. OVACE prevention and first aid training are therefore complementary and inseparable actions. Promoting just one of these strategies is not enough. Comprehensive child protection requires joint efforts between education, health and public policies [3]. Given the data collected in this review, there is an urgent need to invest in permanent, accessible and widely disseminated actions. Technical knowledge, combined with practice, has the power to transform lives and prevent predictable and avoidable tragedies from continuing to occur in homes and institutions [9].

5 CONCLUSION

OVACE in children is a serious event, with the potential to cause fatal outcomes within a few minutes if there is no adequate and immediate intervention. The analysis of the studies used in this research revealed that this

type of occurrence is directly related to factors such as the age of the child, the lack of adequate supervision and the lack of knowledge of responsible adults about correct first aid procedures.

In view of this, it is essential that preventive measures are widely disseminated, prioritizing educational actions aimed at the general population, especially those who live directly with children, such as parents, teachers and caregivers. Another aspect that stands out in the conclusion of this research is the relevance of first aid training as an essential tool in reducing morbidity and mortality rates due to OHCA.

Practical training, with an emphasis on the early identification of signs of obstruction and the correct application of extrication maneuvers, has proved to be effective both in training multipliers and in increasing the safety of those who have to act in emergency situations. Regular and accessible training programs should therefore be encouraged, given the positive impact they have not only on the immediate response to emergencies, but also on building a culture of prevention.

In addition, the school must act to protect life and promote safe environments, using both face-to-face training

and technological resources, such as videos, social networks and apps, to disseminate information on prevention and action in cases of OVACE, especially among young caregivers.

The research shows that the rates of OVACE in children are still worrying, but there are viable and effective ways to drastically reduce these numbers. The key is prevention, democratic access to knowledge and practical training for those who work with children. A child's life can depend on seconds. Therefore, investment in education and training is not only necessary, but also urgent and non-negotiable.

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